Maryland
DEPARTMENT OF HEALTH

Larry Hogan, Governor · Boyd K. Rutherford, Lt. Governor · Dennis R. Schrader, Secretary

October 19, 2021

The Honorable Larry Hogan
Governor
State of Maryland
Annapolis, MD 21401-1991

The Honorable Bill Ferguson
President of the Senate
H-107 State House
Annapolis, MD 21401-1991

The Honorable Adrienne A. Jones
Speaker of the House
H-101 State House
Annapolis, MD 21401-1991

Re: Health-General Article, Section 13-1104(e), 2020 Cigarette Restitution Fund Program Cancer Report

Dear Governor Hogan, President Ferguson, and Speaker Jones:

Pursuant to Health-General Article, Section 13-1104(e), Annotated Code of Maryland, the Maryland Department of Health 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 2020. This report includes the most currently available Maryland data on cancer incidence and mortality for 2017 and highlights recommended public health interventions designed to reduce the impact of this disease on Maryland citizens.

The enclosed report 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 and early detection and treatment, or the magnitude of the impact on incidence and mortality.

If you have questions about this report, please contact Heather Shek, Director, Office of Governmental Affairs, at 410-767-5282 or heather.shek@maryland.gov.

Sincerely,

Dennis R. Schrader
Secretary

Enclosure

cc: Jinlene Chan, Deputy Secretary, Public Health Services
Heather Shek, Director, Office of Governmental Affairs
Sarah Albert, Department of Legislative Services, (MSAR #10379)

Maryland Department of Health

2020 Cancer Report

Cigarette Restitution Fund Program

Cancer Prevention, Education, Screening and Treatment Program
Health-General Article, Section 13-1104(e)

Larry Hogan
Governor
of Maryland

Boyd Rutherford
Lieutenant Governor
of Maryland

Dennis R. Schrader
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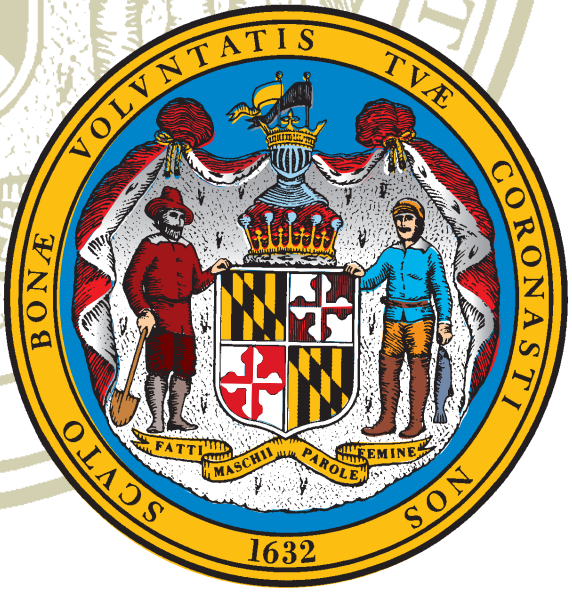
Maryland Department
of Health



June 2021

Maryland Department of Health

2020 Cancer Report

Cigarette Restitution Fund Program

Cancer Prevention, Education, Screening, and Treatment Program

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Acknowledgments

The Maryland Department of Health, Center for Cancer Prevention and Control is pleased to present the Cigarette Restitution Fund Program 2020 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 for their contributions to this document:

- Kimberly S. Stern, M.H.A., 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) (Grant #5NU58DP006333) for the funds that helped support the availability of the cancer registry data.

- Amanda Klein, M.P.H., Center for Chronic Disease Prevention and Control, for data from the Maryland Behavioral Risk Factor Surveillance System (BRFSS).

We thank all the individuals who contributed to the development and 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 in Maryland.

Maryland
DEPARTMENT OF HEALTH

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Glossary

- **Age-adjustment:** Age is the most important risk factor for the incidence of most cancers. However, cancer rates derived from populations that differ in underlying age distributions are not comparable. Age-adjustment is a statistical technique that allows for the comparison of rates among populations with 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):** A measure of the annual percent increase or decrease in cancer rates over time, which 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 this method can be found at:

  https://surveillance.cancer.gov/help/joinpoint/setting-parameters/method-and-parameters-tab/apc-aapc-tau-confidence-intervals/average-annual-percent-change-aapc

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

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

- **Confidence interval (CI):** Describes 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. CIs are useful in defining a range within which the typical rate for a geographic area can be expected to lie. Most CIs are, by convention, calculated at the 95% level, which means that 95% of hypothetically observed CIs generated will contain the true value of interest. The smaller the number of events upon which a rate is based, the wider the confidence interval will be.

- **Incidence:** The number of new cases of a given cancer or other event during a defined time period, usually one year. For the purposes of this report, cancer incidence refers to the number of new cases diagnosed during the individual calendar

year 2017. Cancer incidence data are also presented in aggregated form, as the average annual incidence for the 5-year period from 2013 through 2017.

- **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:** Cancer that has spread beyond the layer of cells where it first began and has grown into nearby tissues. It may still be considered local stage if it has not spread to other parts of the body. Stage data presented in this report involve a diagnosis of invasive cancer: local, regional, or distant. A diagnosis of *in situ* is non-invasive and is not included in the staging data, except for *in situ* bladder cancer for all sites cancer data.

- **Mortality:** The number of deaths during a defined time period, usually one year. For the purposes of this report, cancer mortality refers to the number of new cancer deaths during the individual calendar year 2017. Cancer mortality data are also presented in an aggregated form, as the average annual mortality for the 5-year period from 2013 through 2017.

- **Primary prevention:** Measures that can be taken that aim to prevent cancer before it has developed. Examples include the avoidance of carcinogens (e.g., cigarettes, 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:** 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 D).

- **Rate:** 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 the five geographic areas in Maryland:

  Baltimore Metropolitan Area
  Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties and Baltimore City.

  Note: The Baltimore Metropolitan Area does not include Baltimore City when used in Appendix G.

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

  National Capital Area
  Montgomery and Prince George's Counties

  Northwest Region
  Allegany, Frederick, Garrett, and Washington Counties

  Southern Region
  Calvert, Charles, and St. Mary's Counties

- **Screening:** 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 U.S. Surveillance Epidemiology and End Results (SEER) Summary Stage Guidelines:

  1. ***In situ*:** The cancerous cells have not invaded the tissue basement membrane and there is 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. **Local:** 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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I. Executive Summary

A. Introduction

This publication is the Cigarette Restitution Fund Program (CRFP) 2020 Cancer Report which is required biennially by Health General Article §13-1104, Annotated Code of Maryland. The primary purpose of this report 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 determine how to best allocate limited resources for 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. In Fiscal Year (FY) 2020, the CRFP provided approximately $27 million to combat cancer. §13-1104 also established the Cancer Prevention, Education, Screening, and Treatment Program (CPEST) within the Maryland Department of Health (MDH), whose primary goal is to reduce mortality and morbidity rates for cancer and tobacco-related diseases throughout Maryland.

§13-1104 further requires MDH to identify the types of cancers that may be targeted under the CPEST Program. In addition to overall cancers presented in this report, MDH has selected seven targeted cancers that are presented individually: lung and bronchus, colorectal, female breast, prostate, oral, melanoma of the skin, and cervix. These seven cancers have been targeted as they can be prevented (lung and bronchus and melanoma of the skin) or detected early and treated (colorectal, female breast, cervical, and oral), or are a major cause of cancer death (prostate).

Additionally, §13-1104 requires Maryland jurisdictions to develop plans to: 1) eliminate the higher incidence and mortality rates of cancer in minority populations (as defined in 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 healthcare services for medically underserved populations and uninsured or underinsured individuals.

This report includes information on cancer incidence, mortality, stage of disease at diagnosis, public health evidence for prevention and screening, recommended areas for public health intervention, and Maryland screening behaviors compared to the Centers for Disease Control and Prevention's Healthy People 2020 and the Maryland Comprehensive Cancer Control Plan (MCCCP) targets for cancer prevention and screening. Further efforts to prevent and control cancer in Maryland can be found in the MCCCP at https://phpa.health.maryland.gov/cancer/cancerplan/Pages/publications.aspx.

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

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

- In 2017, a total of 32,258 new cases of cancer were diagnosed in Maryland.
- From 2008 to 2017, the annual overall cancer incidence rates remained steady in Maryland, decreasing by only 0.2% per year, while the United States (U.S.) rates declined 1.1% per year. In 2017, the Maryland all sites cancer incidence rate was higher than the U.S. rate (449.6 vs. 427.0 per 100,000 population).
- In 2017, the incidence rate for all cancer sites among blacks in Maryland remained below the incidence rate for whites. Rates decreased for blacks while rates increased for whites for the period from 2013 to 2017.
- In 2017, a total of 10,796 Maryland residents died from cancer.
- From 2008 to 2017, the annual overall cancer mortality rates decreased slightly more in Maryland than in the U.S. (-1.8% vs. -1.5% per year). In 2017, the Maryland (all cancer sites) mortality rate was lower than the U.S. rate (151.5 vs. 152.6 per 100,000 population), which is better than the Healthy People 2020 target of 161.4 per 100,000 population.
- Blacks had higher all cancer sites mortality rates than whites from 2013 to 2017; the annual percent change decreased for both races.

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

- Lung cancer is the leading cause of cancer death in both men and women in Maryland, accounting for 23.9% of all 10,796 cancer deaths in 2017.
- From 2013 to 2017, overall lung cancer incidence and mortality rates decreased Statewide and declined for both whites and blacks after stratification by race.
- Tobacco use is the primary cause of lung cancer, with smoking causing an estimated 80% of lung cancer deaths in the U.S.[1]
- Smoking rates among Maryland adults continue to decline. In 2017, 13.8% of adults ages 18 years and older were current smokers. However, Maryland has not yet attained the Healthy People 2020 goal of reducing the percentage of adult smokers to 12.0%.
- Smoking rates among Maryland youth have also declined. In 2008, only 5.0% of Maryland youth in grades 9 through 12 reported smoking cigarettes in the previous 30 days, down from 15.3% in 2008 and meeting the Healthy People 2020 target of 16.0%.

3. Major findings for **colon and rectum** (colorectal) cancer:

- Incidence and mortality rates for colorectal cancer declined in Maryland from 2013 to 2017. Over this period, incidence rates had a decrease per year among Maryland blacks, while incidence rates had a slight increase among Maryland whites.
- In 2018, 72.5% of Maryland adults ages 50 years and older reported being up-to-date with colorectal cancer screenings, surpassing the Healthy People 2020 target for up-to-date colorectal cancer screening (70.5%).

[1.] American Cancer Society. Cancer Facts & Figures 2020. Atlanta: American Cancer Society; 2020.

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

- Breast cancer is the second leading cause of cancer death among women in Maryland after lung cancer.
- Incidence rates for female breast cancer decreased from 2013 to 2017, with the incidence rate decreasing at a greater rate per year among black females than white females.
- From 2013 to 2017, mortality rates for female breast cancer decreased for both black and white females; mortality rates for female breast cancer decreased at a greater rate per year among white females compared to black females (-1.5% vs. -0.4%, respectively).
- Maryland continues to meet the Healthy People 2020 target for mammography screening (81.1%); in 2018, 81.2% of Maryland women ages 50 to 74 years old reported having had a mammogram within the past two years.

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

- Prostate cancer is the second leading cause of cancer death among men in Maryland after lung cancer.
- Overall, both incidence and mortality rates for prostate cancer increased from 2013 to 2017.
- 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 2013 to 2017.
- From 2013 to 2017, prostate cancer incidence rates increased at a greater rate per year among white men compared to black men (1.2% vs. 0.1%, respectively). During this 5-year period, mortality rates for prostate cancer increased for both black men and white men.
- Although a decreasing percentage of Maryland men discussed the advantages and disadvantages of prostate-specific antigen (PSA) testing with their healthcare provider from 2014 (31.4%) to 2018 (20.1%), the 2018 percentage was still greater than the Healthy People 2020 target of 15.9%.

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

- From 2013 to 2017, oral cancer incidence rates in Maryland increased overall. Oral cancer incidence rates increased at a greater rate per year for whites compared to blacks (3.2% vs. 0.1%, respectively).
- From 2013 to 2017, oral cancer mortality rates decreased among blacks at a rate of 3.9% per year and increased among whites at a rate of 4.9% per year.
- Marylanders were below the MCCCP 2020 target of 26.7% for oral cancer screening; in 2018, 24.1% of Maryland adults reported having an oral cancer exam in the past year.

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

- Melanoma incidence rates in Maryland increased at a rate of 3.3% per year from 2013 to 2017. The annual incidence rate increased among both males and females. In 2017, males had incidence rates of melanoma that were 63.1% higher than females.
- From 2013 to 2017, overall melanoma mortality rates decreased among both males and females at a rate of 12.6% and 4.0% per year, respectively, narrowing the disparity between genders.
- In 2018, 50.8% of Maryland adults used at least one sun protective measure "always" or "nearly always," which is below the Healthy People 2020 target of 73.7%; however, this percentage excludes Maryland adults who reported that they do not go out in the sun.

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

- Cervical cancer incidence rates among Maryland women increased at a rate of 3.5% per year from 2013 to 2017, while mortality rates decreased at a rate of 1.0% per year during this same time period.
- Cervical cancer incidence rates decreased among black females but increased among white females.
- Mortality rates for cervical cancer decreased for white females, while rates for black females remained steady from 2013 to 2017.
- In 2018, 81.3% of Maryland women ages 21 to 65 years old had a Pap test within the past three years, below the Healthy People 2020 target of 93.0%.

C. Major Changes to this Report from the 2018 Cancer Report

- This report presents Maryland and U.S. incidence and mortality data for 2017 and 5-year aggregate data for 2013 to 2017.
- The Maryland mortality data for 2017 was obtained from the National Center for Health Statistics (NCHS) Underlying Cause of Death file in CDC Wide-ranging Online Data for Epidemiologist Research (CDC WONDER), as opposed to the NCHS Compressed Mortality File (CMF) in CDC WONDER used in previous reports. The NCHS CMF was discontinued in CDC WONDER after 2016.
- The Maryland Behavioral Risk Factor Surveillance System (BRFSS) question regarding sun exposure was phrased differently in 2018 compared to previous years. The new question reads "when you go outside on a warm sunny day for more than one hour, how often do you protect yourself from the sun" as opposed to "how often do you limit your exposure to the sun between the hours of 10:00 am and 4:00 pm" used in 2012 and 2016.
- For stage at diagnosis, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015.
- Prior to diagnosis year 2017, the North American Association of Central Cancer Registries' (NAACCR) Hispanic Identification Algorithm (NHIA) was run on all data. For diagnosis year 2017, NHIA was only applied to data in local jurisdictions where at least 5% of the population was Hispanic/Latino ethnicity.

II. All Cancer Sites

Incidence (New Cases)

A total of 32,258 new cases of cancer diagnosed in 2017 in Maryland residents were reported to the MCR. The total age-adjusted cancer incidence rate for Maryland was 449.6 per 100,000 population (444.6-454.7, 95% CI) in 2017. The 2017 Maryland cancer incidence rate is statistically significantly higher than the 2017 U.S. SEER rate of 427.0 per 100,000 population (425.8-428.3, 95% CI).

Mortality (Deaths)

Cancer is the second leading cause of death in Maryland, accounting for 21.6% of all deaths in 2017. A total of 10,796 Maryland residents died from cancer in 2017. The Maryland mortality rate for all cancer sites was 151.5 per 100,000 population (148.5-154.4, 95% CI) for 2017. This rate is not statistically significantly different than the 2017 U.S. mortality rate for all cancer sites of 152.6 per 100,000 population (152.2-153.0, 95% CI). Maryland ranks 32nd highest among all states and the District of Columbia in total cancer mortality for the period from 2013 to 2017.

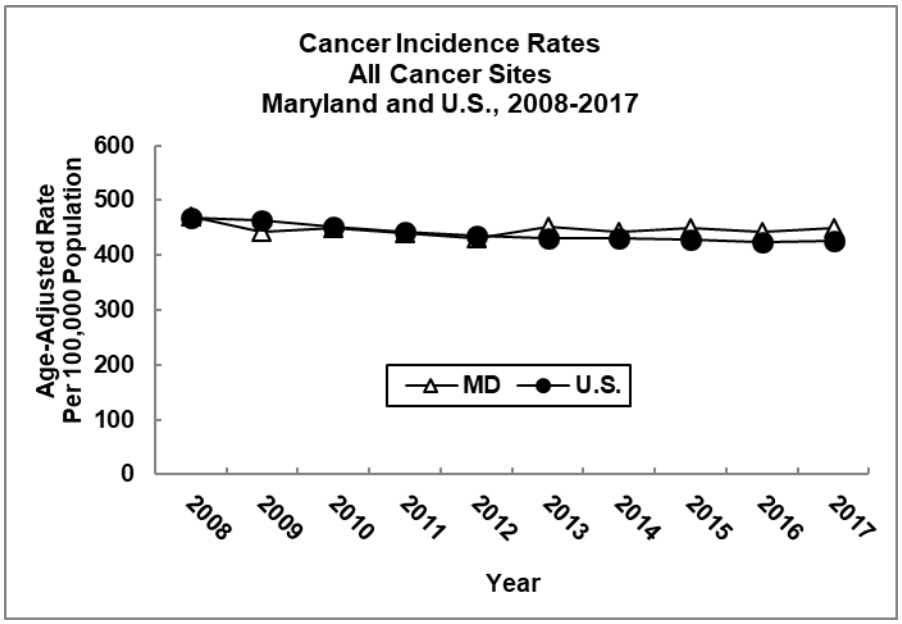
Table 1.
All Cancer Sites Incidence and Mortality Rates
by Gender and Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD New Cases (count)	32,258	15,937	16,321	21,851	8,755	1,258
MD Incidence Rate	449.6	488.2	425.2	462.8	436.6	267.6
U.S. SEER Rate	427.0	462.5	403.9	434.8	433.0	284.6
Mortality 2017	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	10,796	5,490	5,306	7,329	3,116	351
MD Mortality Rate	151.5	178.7	132.5	151.1	166.6	80.0
U.S. Mortality Rate	152.6	181.6	131.3	153.6	173.7	96.4

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

* Total also includes cases reported as transsexual, hermaphrodite, unknown gender, unknown race, and unknown jurisdiction

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review

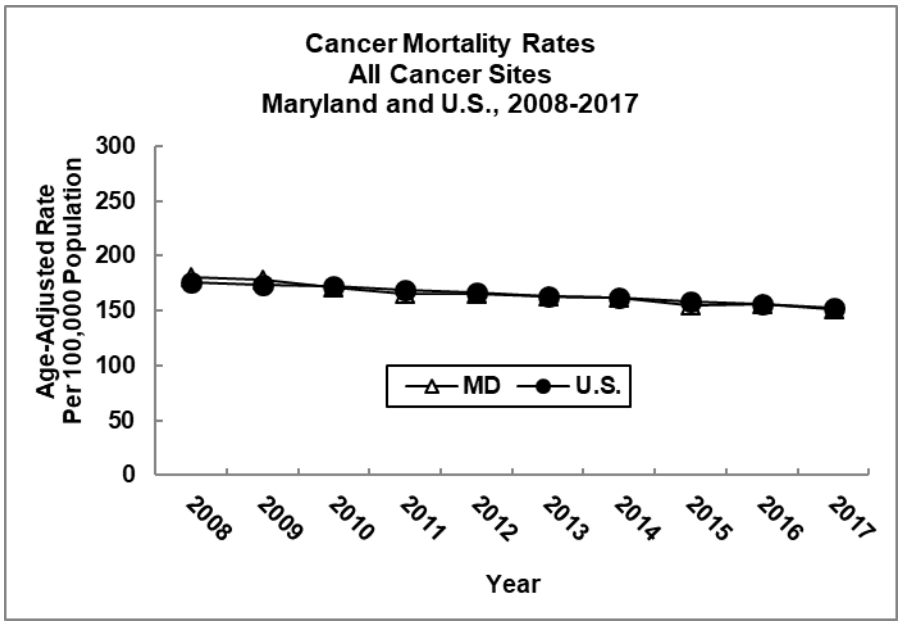


Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat

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

All cancer sites incidence rates declined in both the U.S. and Maryland over the 10-year period from 2008 to 2017. Incidence rates for all cancer sites decreased at a rate of 1.1% per year in the U.S. and 0.2% in Maryland.

See Appendix J, Table 1.

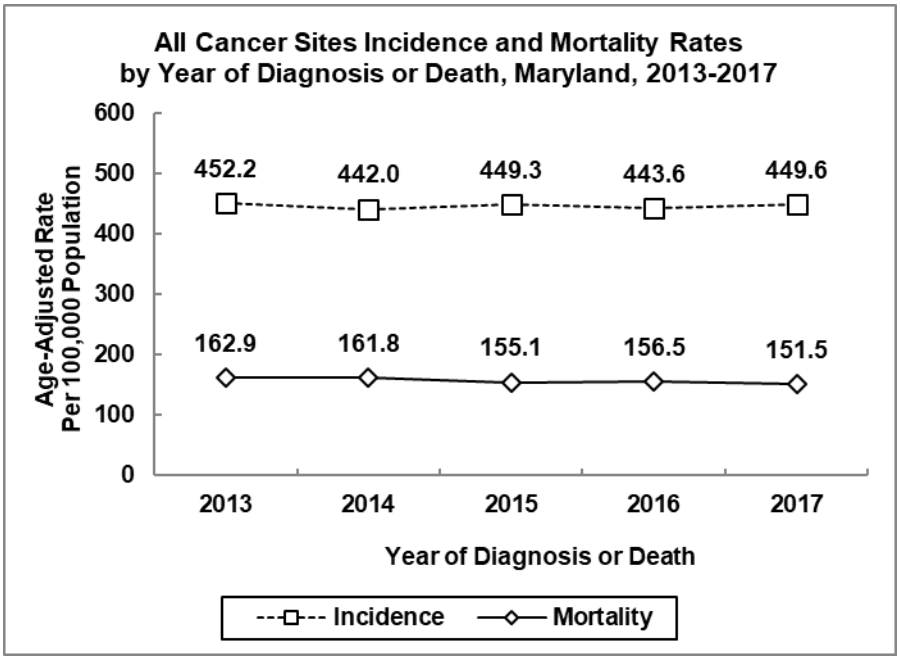


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017 (MD)
NCHS Compressed Mortality File in CDC WONDER, 2012-2016 (MD)
Maryland Vital Statistics Administration, 2011 (MD)
Maryland Vital Statistics Administration from MATCH, 2008-2010 (MD)
U.S. SEER, Cancer Statistics Review, 2009-2017 (U.S.)
NCHS Compressed Mortality File in CDC WONDER, 2008 (U.S.)

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

Maryland cancer mortality rates have declined since 2008. From 2008 to 2017, all cancer sites mortality rates in Maryland decreased at a rate of 1.8% per year, a greater decrease than the U.S. mortality rates, which decreased at a rate of 1.5% per year during the same time period.

See Appendix J, Table 2.



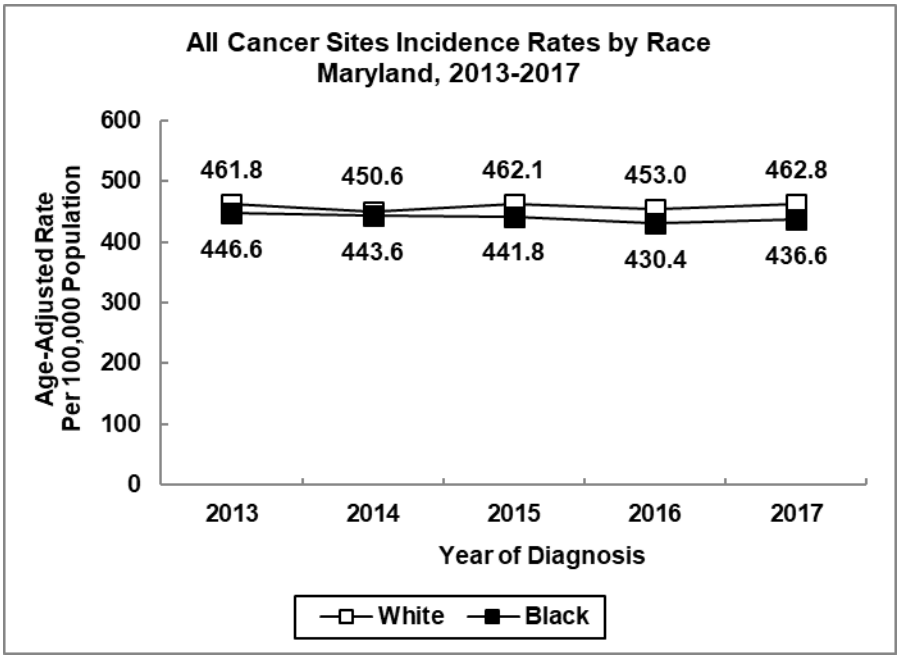
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

In Maryland, the incidence rate for all cancer sites decreased slightly at a rate of 0.1% per year from 2013 to 2017.

During this same timeframe, cancer mortality rates decreased at a rate of 1.8% per year.

See Appendix H, Tables 1 and 2.

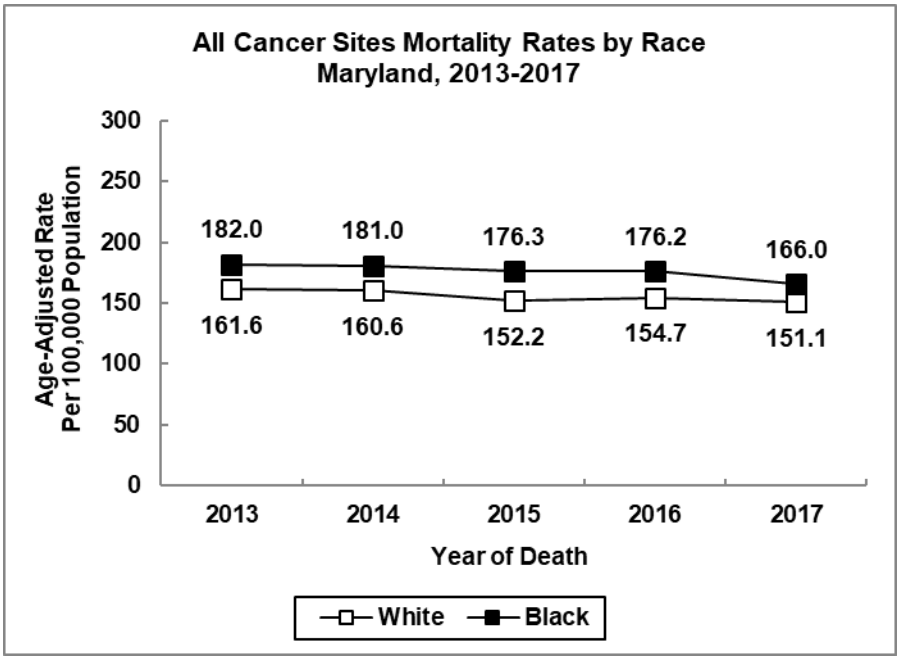


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2013 to 2017, the incidence rate for all cancer sites was lower among blacks compared to whites in Maryland. From 2013 to 2017, incidence rates for all cancer sites increased at a rate of 0.1% per year among whites and decreased at a rate of 0.8% per year among blacks.

See Appendix H, Table 3.



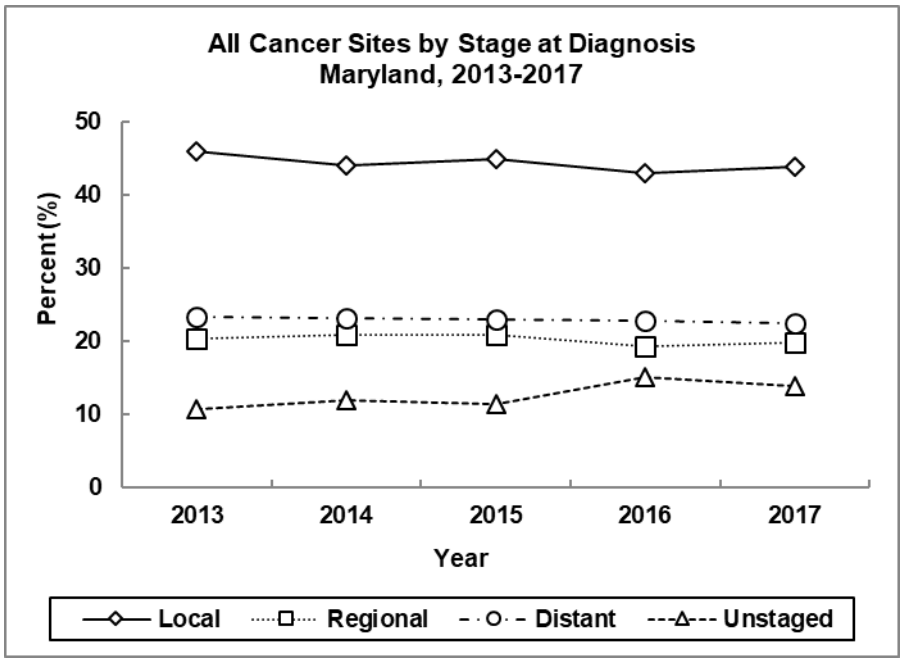
Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

Both blacks and whites showed declines in cancer mortality from 2013 to 2017, with a decrease of 1.7% per year for whites and 2.0% per year for blacks.

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

See Appendix H, Table 5.

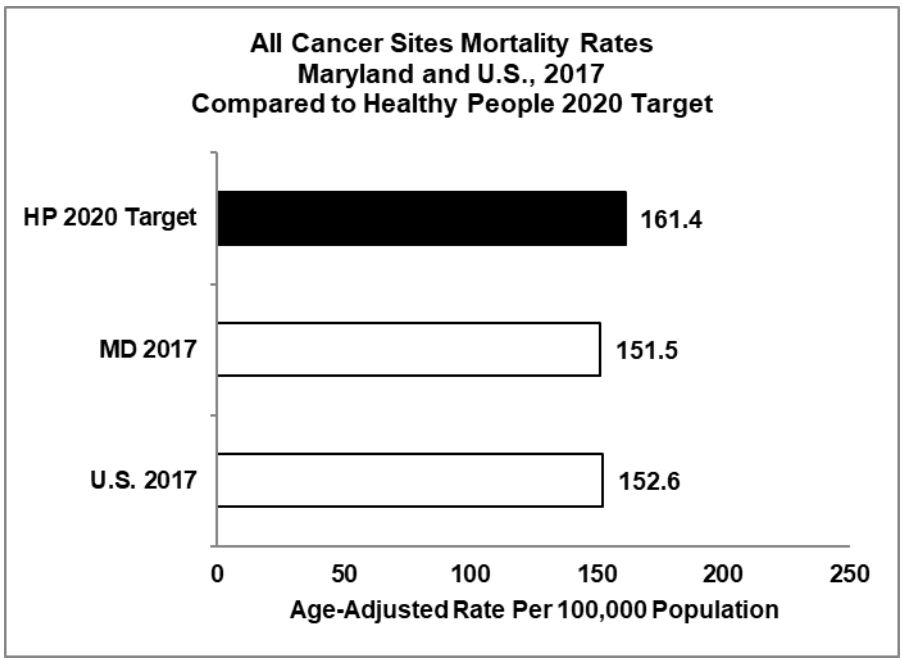


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

Of all cancers diagnosed in Maryland in 2017, 43.7% were found at the local (early) stage, 19.8% at the regional stage, and 22.5% at the distant (late) stage. In 2017, 13.8% of all cancers were reported as unstaged in Maryland. Since 2013, the proportion of all cancers reported as unstaged increased by 7.8% per year.

See Appendix I, Table 1.



Source: Healthy People 2020, U.S. Department of Health and Human Services
NCHS Underlying Cause of Death in CDC WONDER
U.S. SEER, Cancer Statistics Review

Mortality Rates Compared to Healthy People (HP) 2020 Target

In 2017, the mortality rate for all cancer sites in Maryland was 151.5 per 100,000 population, which was lower than the U.S. rate of 152.6 per 100,000 population and the Healthy People 2020 target of 161.4 per 100,000 population.

Summary—Identification of Targeted Cancers

As aforementioned, the cancers targeted under the CRFP in 2017 include: lung and bronchus, colorectal, prostate, female breast, cervical, oral, and melanoma of the skin. These cancers were chosen due to the capability 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. • Getting the human papillomavirus (HPV) vaccine as recommended. • Protecting the skin from excessive sun and other sources of ultraviolet light exposure. • For men, discussing the potential risks and benefits of prostate cancer screening with their healthcare provider. Early detection (screening) of: • Colorectal cancer. • Female breast cancer. • Cervical cancer. • Lung cancer. • Oral cancer.

Table 2.
Number of Cancer Cases for All Cancer Sites by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	32,258	15,937	16,321	21,851	8,755	1,258
Allegany	527	267	260	500	24	<6
Anne Arundel	2,877	1,440	1,437	2,371	406	84
Baltimore City	3,253	1,560	1,693	1,103	2,090	44
Baltimore	5,132	2,451	2,681	3,831	1,101	164
Calvert	482	250	232	417	60	<6
Caroline	211	102	109	175	34	0
Carroll	1,053	539	514	997	31	19
Cecil	673	343	330	621	45	<6
Charles	729	369	360	428	273	22
Dorchester	212	110	102	146	63	<6
Frederick	1,235	638	597	1,092	100	31
Garrett	196	91	105	194	<6	<6
Harford	1,643	831	812	1,425	181	33
Howard	1,468	702	766	1,062	242	148
Kent	141	70	71	119	21	0
Montgomery	4,841	2,338	2,503	3,387	763	528
Prince George's	4,048	1,964	2,084	1,011	2,821	131
Queen Anne's	336	190	146	297	s	<6
St. Mary's	563	298	265	454	93	16
Somerset	162	89	73	127	33	<6
Talbot	318	167	151	280	36	<6
Washington	938	492	446	858	67	<6
Wicomico	657	318	339	490	146	14
Worcester	454	242	212	394	54	<6

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 3.
All Cancer Sites Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	449.6	488.2	425.2	462.8	436.6	267.6
Allegany	528.1	560.3	520.1	528.9	832.8	**
Anne Arundel	430.6	465.0	409.0	434.1	430.8	321.5
Baltimore City	483.8	533.3	453.4	520.2	467.2	261.9
Baltimore	489.9	521.1	472.2	505.9	456.5	304.4
Calvert	447.9	498.2	415.9	464.7	384.6	**
Caroline	510.3	522.3	502.7	502.9	576.0	0.0
Carroll	485.9	526.0	457.6	484.7	446.6	465.2
Cecil	534.8	566.7	516.2	530.8	649.8	**
Charles	423.1	464.4	392.5	442.6	391.1	277.4
Dorchester	457.5	504.7	419.9	401.4	588.6	**
Frederick	428.2	483.9	389.7	430.8	450.7	236.1
Garrett	460.4	423.6	498.2	459.2	**	**
Harford	522.5	580.4	486.1	524.6	528.1	311.6
Howard	408.6	422.3	401.3	440.3	407.7	259.5
Kent	428.0	458.8	414.6	413.5	469.6	0.0
Montgomery	389.1	413.6	376.3	403.9	382.5	259.1
Prince George's	407.9	450.1	381.6	405.4	405.9	241.2
Queen Anne's	504.4	570.2	456.8	489.9	786.6	**
St. Mary's	453.7	495.1	418.9	443.6	538.9	358.7
Somerset	521.0	587.2	481.4	581.8	412.9	**
Talbot	481.4	531.7	442.5	484.6	503.9	**
Washington	490.4	545.3	453.1	487.5	502.6	**
Wicomico	543.9	572.5	525.7	548.3	514.9	**
Worcester	508.5	559.6	473.3	497.4	624.8	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 4.
All Cancer Sites and Age-Adjusted Incidence Rates*
Among Hispanics§ by Geographical Area in Maryland, 2017

Jurisdiction	Cases	Rate
Maryland	853	235.4
Allegany	<6	**
Anne Arundel	48	200.7
Baltimore City	48	297.8
Baltimore	70	278.0
Calvert	<6	**
Caroline	<6	**
Carroll	12	**
Cecil	<6	**
Charles	6	**
Dorchester	<6	**
Frederick	30	232.8
Garrett	0	0.0
Harford	17	280.0
Howard	30	247.1
Kent	0	0.0
Montgomery	378	252.5
Prince George's	165	190.5
Queen Anne's	<6	**
Saint Mary's	<6	**
Somerset	<6	**
Talbot	0	0.0
Washington	9	**
Wicomico	11	**
Worcester	<6	**
Region	**Cases**	**Rate**
Baltimore Metropolitan Area^	225	262.6
Eastern Shore Region	24	234.4
National Capital Area	542	228.5
Northwest Region	43	221
Southern Region	15	**

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

§ Case counts were prepared using MCR data and an algorithm to determine Hispanic ethnicity (see Appendix C, Section G)

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

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

^ Area rate includes Baltimore City

Source: Maryland Cancer Registry

Table 5.
Number of Deaths for All Cancer Sites by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	10,796	5,490	5,306	7,329	3,116	351
Allegany	157	95	62	153	<10	<10
Anne Arundel	978	507	471	830	123	25
Baltimore City	1,258	654	604	s	867	<10
Baltimore	1,776	883	893	1,390	348	38
Calvert	176	98	78	152	s	<10
Caroline	73	41	32	62	s	<10
Carroll	299	168	131	284	s	<10
Cecil	234	128	106	224	<10	<10
Charles	256	129	127	172	s	<10
Dorchester	91	51	40	67	s	<10
Frederick	400	216	184	369	s	<10
Garrett	63	36	27	63	<10	<10
Harford	484	250	234	422	s	<10
Howard	400	178	222	291	73	36
Kent	56	26	30	51	<10	<10
Montgomery	1,465	699	766	1,046	262	157
Prince George's	1,460	709	751	363	1,045	52
Queen Anne's	102	55	47	90	s	<10
St. Mary's	194	111	83	163	s	<10
Somerset	60	35	25	s	s	<10
Talbot	102	51	51	87	s	<10
Washington	315	165	150	297	s	<10
Wicomico	245	119	126	189	s	<10
Worcester	152	86	66	133	s	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 6.
All Cancer Sites Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	151.5	178.7	132.5	151.1	166.6	80.0
Allegany	148.3	205.2	102.4	150.0	**	**
Anne Arundel	151.3	178.6	130.8	153.9	146.6	105.7
Baltimore City	188.4	232.2	158.0	176.7	199.0	**
Baltimore	162.3	191.5	143.6	167.1	156.5	80.9
Calvert	170.9	211.7	140.4	173.4	176.4	**
Caroline	174.0	211.5	146.1	171.7	**	**
Carroll	137.3	177.5	109.4	137.3	**	**
Cecil	193.0	234.3	162.5	197.7	**	**
Charles	161.0	191.2	141.5	180.7	137.1	**
Dorchester	181.4	223.3	147.6	179.4	192.1	**
Frederick	140.3	175.2	118.1	145.2	127.5	**
Garrett	139.4	178.9	110.2	140.8	**	**
Harford	157.4	189.9	134.6	155.6	197.0	**
Howard	119.9	121.7	118.8	127.8	128.4	68.8
Kent	145.4	150.8	144.5	148.7	**	**
Montgomery	116.1	129.6	107.4	119.1	142.3	78.7
Prince George's	155.7	181.6	138.4	145.0	164.5	102.7
Queen Anne's	143.8	166.8	126.2	138.8	**	**
St. Mary's	163.9	192.8	137.1	165.7	172.5	**
Somerset	186.1	220.6	161.6	201.0	**	**
Talbot	136.3	156.2	123.0	128.1	**	**
Washington	158.1	183.6	139.3	159.2	**	**
Wicomico	205.7	234.0	187.3	205.9	222.4	**
Worcester	158.6	195.9	129.4	156.0	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 7.
Number of Cancer Cases for All Cancer Sites by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	154,135	75,820	78,294	105,372	41,188	5,702
Allegany	2,539	1,283	1,255	2,433	90	12
Anne Arundel	14,494	7,173	7,321	12,211	1,835	362
Baltimore City	16,084	7,854	8,228	5,355	10,428	204
Baltimore	24,765	12,019	12,742	18,757	5,176	682
Calvert	2,389	1,214	1,173	2,030	332	20
Caroline	951	493	458	794	143	6
Carroll	5,076	2,575	2,500	4,846	163	49
Cecil	3,152	1,642	1,510	2,938	182	24
Charles	3,554	1,838	1,716	2,174	1,254	92
Dorchester	1,098	573	525	789	298	7
Frederick	6,137	3,019	3,118	5,434	496	152
Garrett	890	438	452	882	<6	<6
Harford	7,658	3,899	3,758	6,696	800	129
Howard	6,746	3,193	3,551	4,865	1,146	666
Kent	753	378	375	629	120	<6
Montgomery	22,423	10,613	11,808	15,612	3,564	2,482
Prince George's	18,989	9,094	9,892	4,864	13,072	645
Queen Anne's	1,563	826	737	1,432	120	7
St. Mary's	2,531	1,303	1,227	2,103	360	50
Somerset	755	407	348	574	176	<6
Talbot	1,482	789	693	1,313	154	7
Washington	4,402	2,170	2,231	4,082	257	35
Wicomico	3,071	1,541	1,530	2,355	644	47
Worcester	2,114	1,123	991	1,853	242	14

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 8.
All Cancer Sites Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	447.3	486.7	422.0	458.1	439.5	264.2
Allegany	509.0	542.4	500.4	512.6	549.0	**
Anne Arundel	456.3	491.3	434.9	466.0	425.8	295.7
Baltimore City	486.0	549.7	444.4	497.5	482.0	259.7
Baltimore	483.8	528.9	455.0	498.1	468.3	280.5
Calvert	457.0	496.3	429.7	463.8	451.2	164.3
Caroline	477.7	529.9	436.9	470.2	515.3	**
Carroll	484.0	527.1	453.0	485.6	489.2	262.4
Cecil	530.5	579.9	494.5	529.7	588.4	304.5
Charles	442.2	512.1	391.3	472.2	405.8	247.3
Dorchester	476.8	527.4	439.2	449.5	556.6	**
Frederick	446.4	479.7	426.8	445.6	511.5	275.6
Garrett	411.5	418.6	409.6	410.2	**	**
Harford	506.5	564.9	465.9	509.9	526.4	265.3
Howard	397.7	410.4	391.9	418.2	419.9	260.1
Kent	459.5	485.9	449.0	447.1	540.5	**
Montgomery	377.9	397.3	368.2	383.4	384.6	265.0
Prince George's	404.8	444.8	381.0	395.6	403.8	248.8
Queen Anne's	489.9	527.1	462.2	491.6	518.2	**
St. Mary's	427.2	450.9	407.4	428.1	438.1	245.5
Somerset	489.5	532.3	473.6	529.6	421.4	**
Talbot	457.3	513.5	413.9	456.2	441.4	**
Washington	473.5	493.3	469.0	475.3	439.6	234.2
Wicomico	530.2	580.8	496.0	539.8	507.4	261.1
Worcester	491.2	538.7	456.9	488.0	543.8	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 9.
Number of Deaths for All Cancer Sites by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	53,643	27,185	26,458	36,720	15,288	1,635
Allegany	886	468	418	859	s	<10
Anne Arundel	5,022	2,627	2,395	4,222	676	124
Baltimore City	6,986	3,572	3,414	2,299	4,630	57
Baltimore	8,618	4,241	4,377	6,750	1,680	188
Calvert	826	437	389	699	s	<10
Caroline	357	181	176	307	s	<10
Carroll	1,607	828	779	1,551	44	12
Cecil	1,090	601	489	1,021	s	<10
Charles	1,209	607	602	767	407	35
Dorchester	460	243	217	338	s	<10
Frederick	1,975	1,039	936	1,794	147	34
Garrett	311	173	138	308	<10	<10
Harford	2,444	1,309	1,135	2,167	253	24
Howard	1,879	927	952	1,359	353	167
Kent	263	131	132	224	s	<10
Montgomery	6,940	3,280	3,660	5,077	1,152	711
Prince George's	6,934	3,371	3,563	1,954	4,770	210
Queen Anne's	504	277	227	452	s	<10
St. Mary's	979	559	420	822	143	14
Somerset	276	155	121	211	s	<10
Talbot	488	271	217	429	s	<10
Washington	1,606	827	779	1,529	61	16
Wicomico	1,188	623	565	891	283	14
Worcester	795	438	357	690	s	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 10.
All Cancer Sites Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

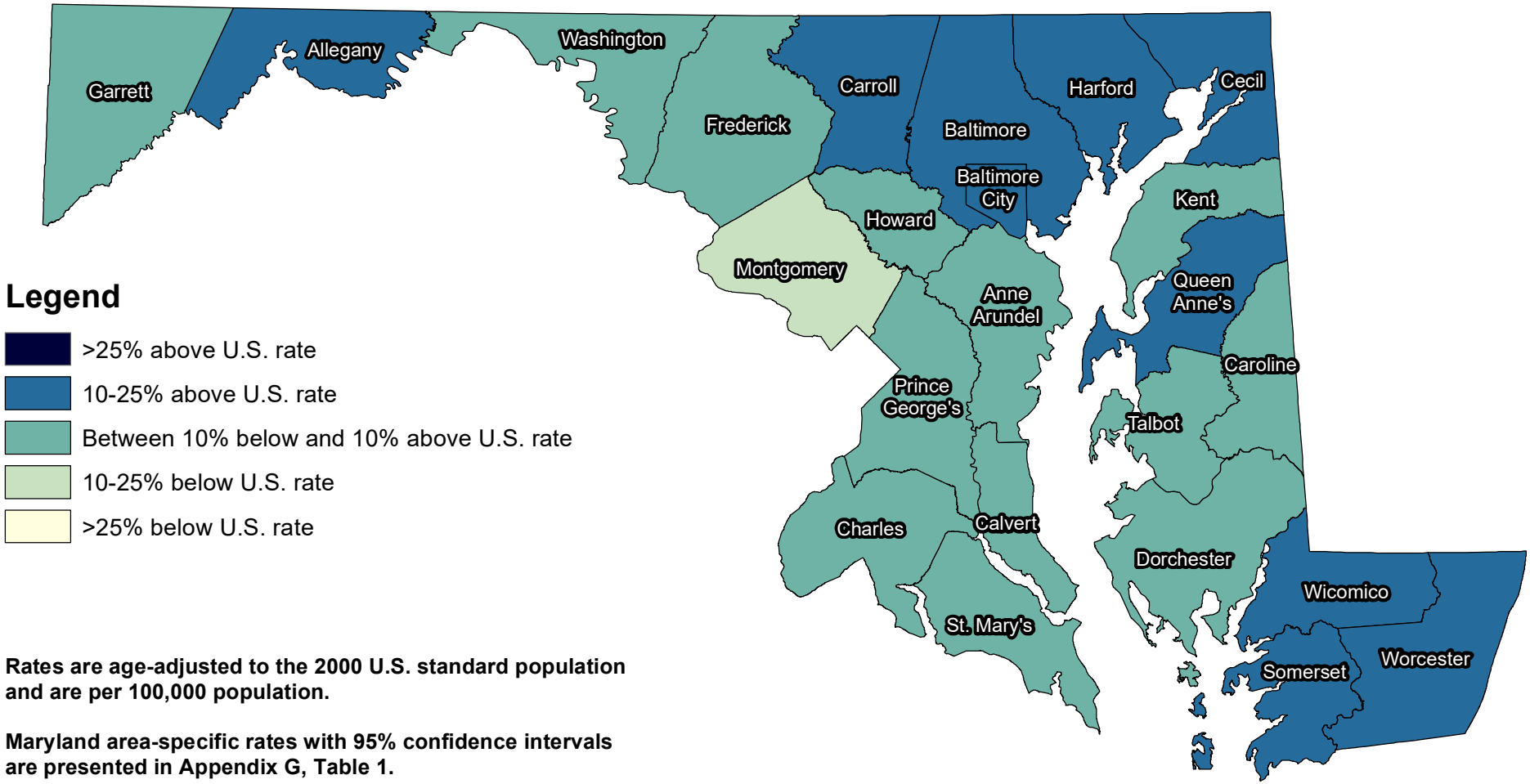
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	157.4	186.1	137.7	155.9	176.3	83.4
Allegany	168.2	200.0	145.6	169.7	188.3	**
Anne Arundel	162.5	194.4	139.6	162.4	174.2	114.9
Baltimore City	215.5	269.2	180.6	211.6	221.2	81.1
Baltimore	161.9	190.2	143.1	164.7	163.9	90.5
Calvert	164.9	198.6	142.5	165.2	182.6	**
Caroline	176.7	204.4	157.4	177.3	189.6	**
Carroll	153.8	181.1	134.3	155.5	147.5	**
Cecil	189.1	229.7	157.9	188.8	232.6	**
Charles	161.3	190.3	142.1	168.5	154.0	101.6
Dorchester	191.6	226.0	166.1	183.6	223.2	**
Frederick	147.9	177.6	127.6	149.0	170.6	73.9
Garrett	137.5	171.6	111.8	137.2	**	**
Harford	165.9	208.2	137.5	166.3	191.2	60.8
Howard	119.5	135.6	108.5	122.2	147.3	72.7
Kent	148.1	169.6	133.5	145.2	164.3	**
Montgomery	116.1	129.5	108.0	119.0	135.2	80.7
Prince George's	158.3	185.9	140.9	160.7	162.2	89.4
Queen Anne's	153.5	181.7	129.8	151.0	203.8	**
St. Mary's	174.0	209.6	143.2	175.5	182.6	**
Somerset	178.1	208.6	155.2	184.6	168.8	**
Talbot	134.1	167.5	108.7	129.5	167.7	**
Washington	168.7	195.4	149.7	171.4	133.8	**
Wicomico	203.5	247.0	173.5	197.9	234.8	**
Worcester	174.3	211.5	144.8	169.0	230.9	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland All Sites Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

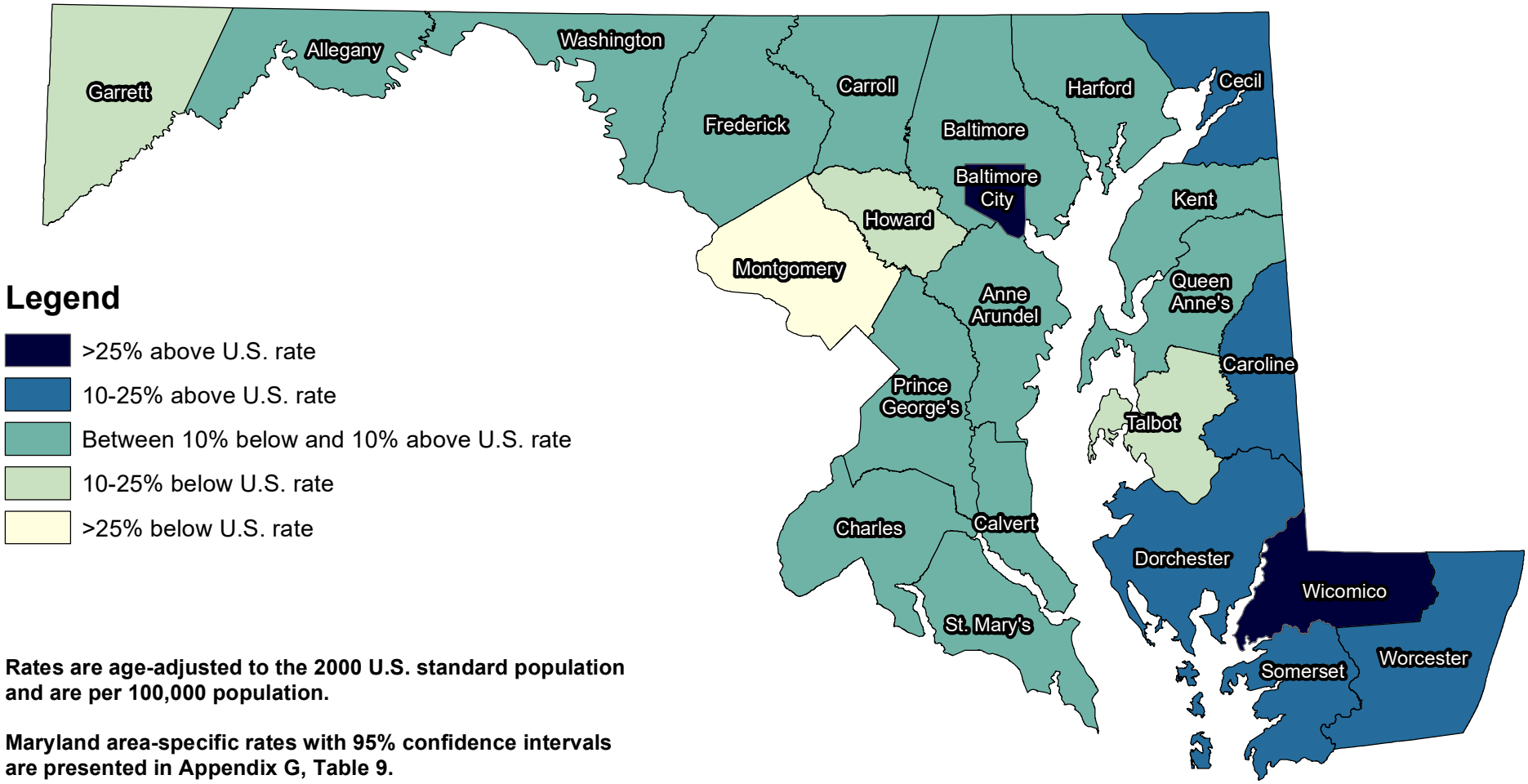
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 1.

U.S. all sites cancer incidence rate, 2013-2017: 435.0 / 100,000

Maryland all sites cancer incidence rate, 2013-2017: 447.3 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland All Sites Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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 G, Table 9.

U.S. all sites cancer mortality rate, 2013-2017: 158.3 / 100,000

Maryland all sites cancer mortality rate, 2013-2017: 157.4 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

III. Targeted Cancers

A. Lung and Bronchus Cancer

Incidence (New Cases)

There were 3,984 new cases of lung and bronchus cancer (collectively called lung cancer) reported among Maryland residents in 2017. The 2017 Maryland age-adjusted lung cancer incidence rate was 55.1 per 100,000 population (53.4-56.9, 95% CI), which is statistically significantly higher than the 2017 U.S. SEER lung cancer incidence rate of 49.7 per 100,000 population (49.3-50.2, 95% CI).

Mortality (Deaths)

There were 2,575 lung cancer deaths among Maryland residents in 2017. In 2017, lung cancer accounted for 23.9% of all cancer deaths in Maryland and was the leading cause of cancer death in both men and women. The 2017 age-adjusted lung cancer mortality rate was 35.9 per 100,000 population (34.5-37.3, 95% CI) in Maryland. This rate is not statistically significantly lower than the 2017 U.S. mortality rate for lung and bronchus cancer of 36.7 per 100,000 population (36.5-36.9, 95% CI). Maryland had the 32nd highest lung cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

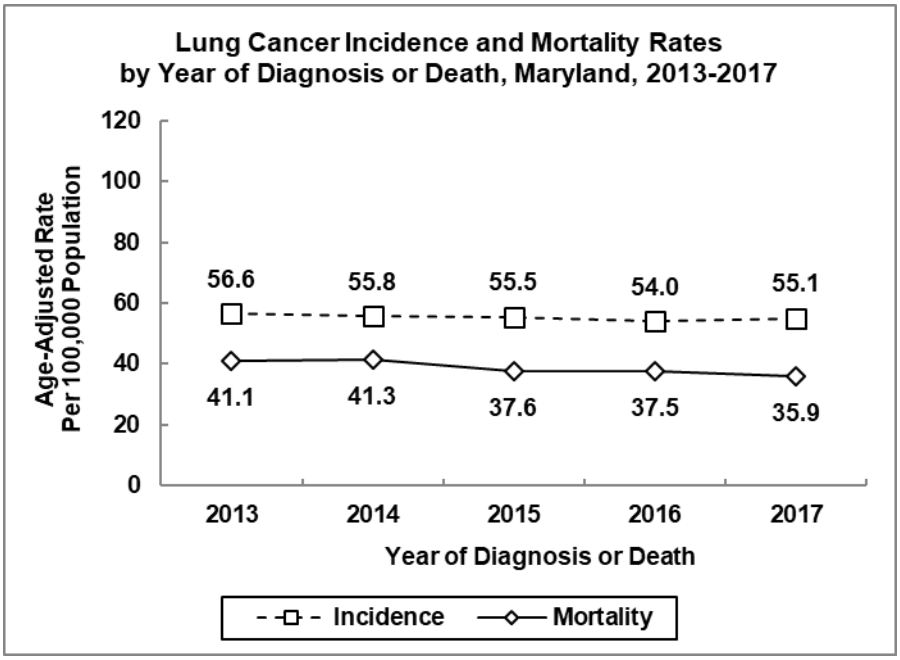
Table 11.
Lung Cancer Incidence and Mortality Rates
by Gender and Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD New Cases (count)	3,984	1,884	2,100	2,806	1,035	127
MD Incidence Rate	55.1	59.4	52.3	57.6	54.0	28.7
U.S. SEER Rate	49.7	56.4	44.7	51.1	54.4	33.2
Mortality 2017	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	2,575	1,302	1,273	1,864	634	77
MD Mortality Rate	35.9	42.0	31.5	38.1	34.1	18.1
U.S. Mortality Rate	36.7	44.5	30.6	37.5	37.9	21.1

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

* Total also includes cases reported as transsexual, hermaphrodite, unknown gender, unknown race, and unknown jurisdiction

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



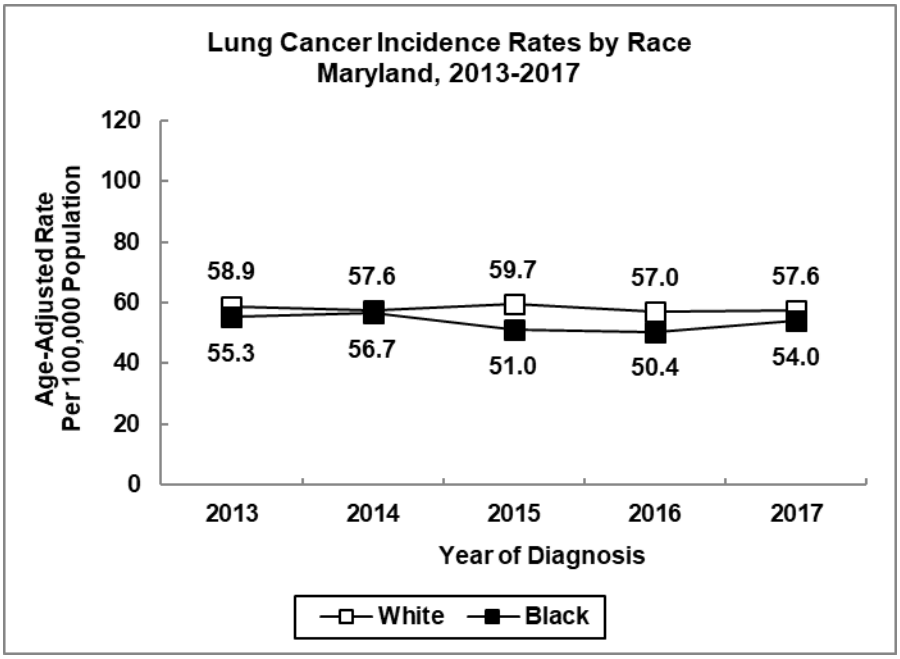
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

Lung cancer incidence rates in Maryland decreased at a rate of 0.9% per year from 2013 to 2017.

Lung cancer mortality rates decreased at a rate of 3.6% per year from 2013 to 2017.

See Appendix H, Tables 1 and 2.

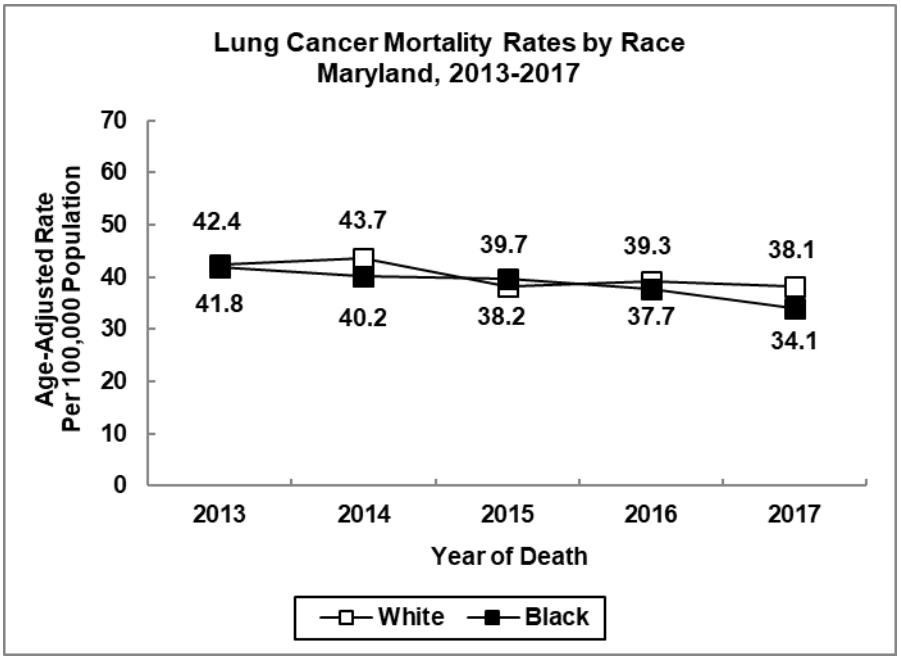


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2013 to 2017, lung cancer incidence rates for blacks decreased at a rate of 1.6% per year, compared to a decline of only 0.5% per year among whites.

See Appendix H, Table 3.

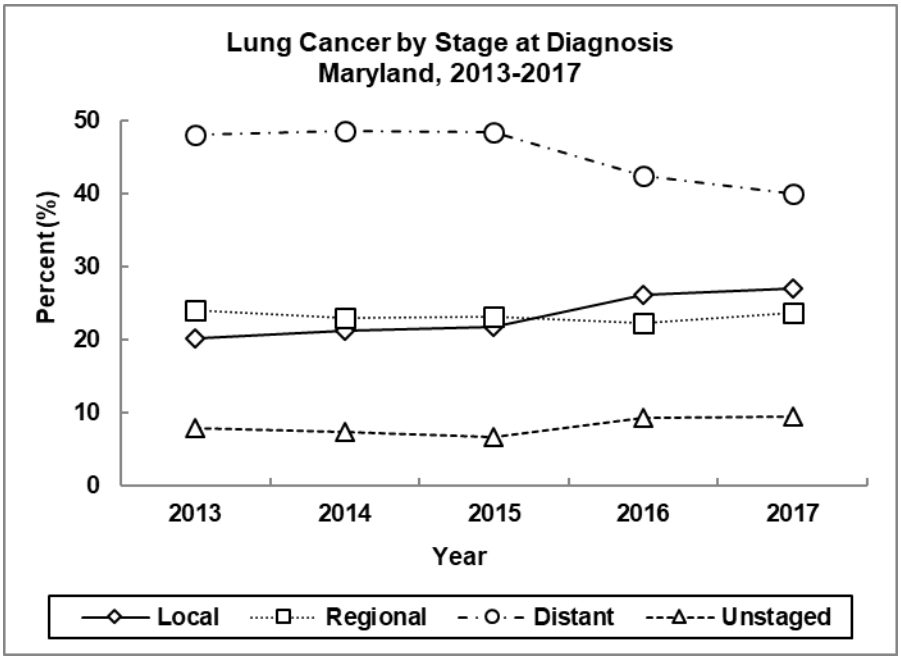


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

Lung cancer mortality rates are declining for both blacks and whites. From 2013 to 2017, rates decreased at a rate of 3.1% per year for whites and 4.6% per year for blacks.

See Appendix H, Table 5.

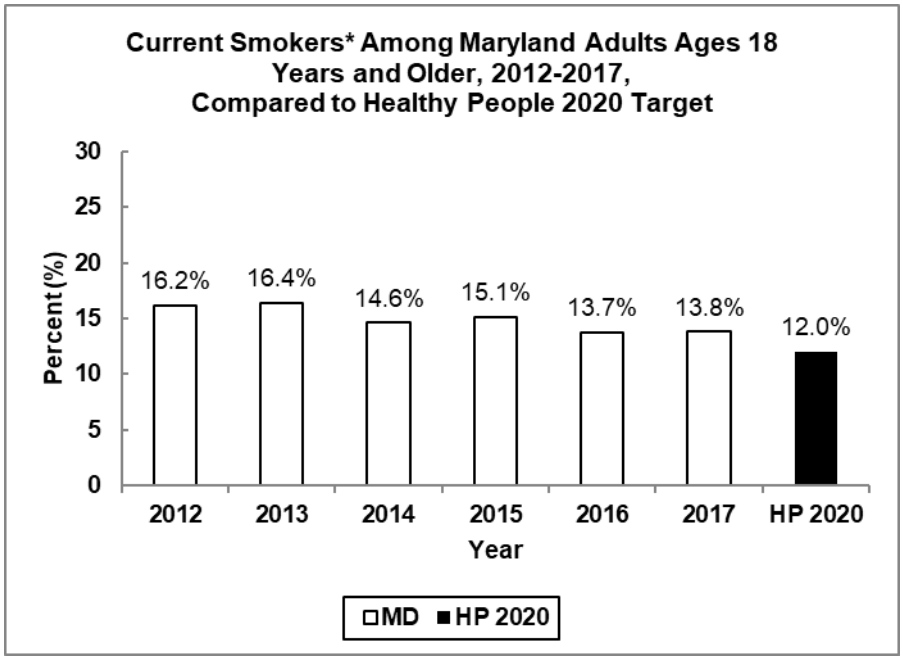


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

A higher proportion of lung cancer cases were diagnosed at the distant stage than at the local or regional stage. In 2017, 27.0% of lung cancer cases in Maryland were diagnosed at the local stage, 23.6% at the regional stage, and 40.0% at the distant stage. The proportion of lung cancers reported as unstaged increased 6.3% per year from 2013 to 2017.

See Appendix I, Table 2.

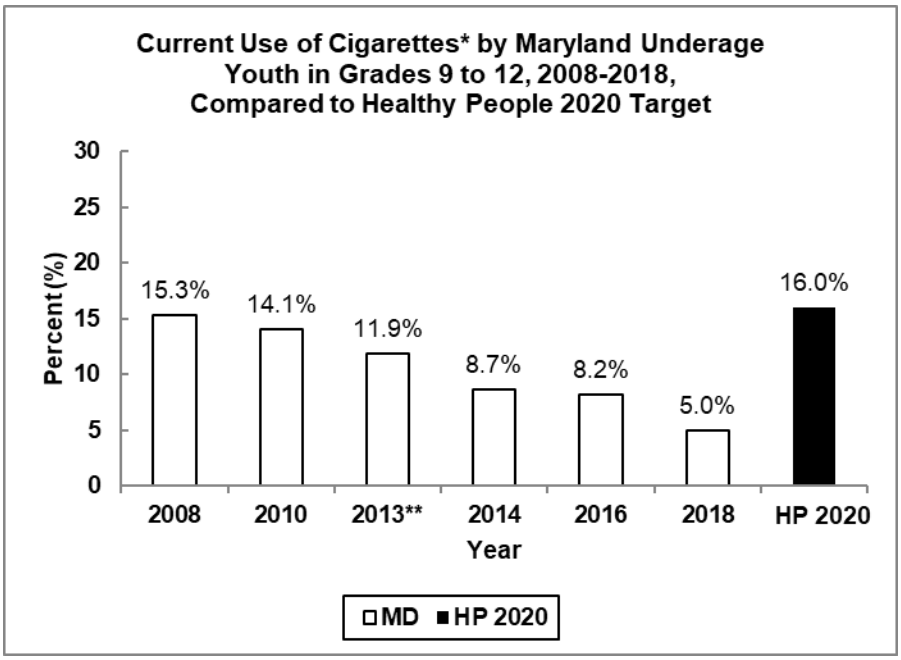


Source: Maryland BRFSS, 2012-2017
Healthy People 2020, U.S. Department of Health and Human Services

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

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 16.2% in 2012 to 13.8% in 2017.



Source: Maryland Youth Tobacco Survey, 2008, 2010
Maryland Youth Tobacco and Risk Behavior Survey, 2013, 2014, 2016, 2018
Healthy People 2020, U.S. Department of Health and Human Services

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

**During the 2012-2013 school year, the Youth Tobacco Survey (YTS) merged with the Youth Risk Behavior Survey (YRBS) and data were collected in the fall of 2013

Cigarette Use by Maryland Youth

Another Healthy People 2020 target is to reduce the percentage of youth in grades 9 to 12 who have smoked cigarettes in the previous 30 days to 16.0%.

Since 2006, Maryland has met the Healthy People 2020 target for current cigarette use among high school students. In 2018, only 5.0% of Maryland youth in grades 9 to 12 reported smoking cigarettes in the previous 30 days.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 3/27/2020 and 10/27/2020, and the United States Preventive Services Task Force [USPSTF], 12/2013)

Prevention

Avoiding risk factors may help prevent cancer. The following are risk factors for lung cancer:

- Cigarette, cigar, and pipe smoking.
- Being exposed to secondhand tobacco smoke.
- Having a family history of lung cancer.
- HIV infection.
- Environmental risk factors:
  - Radiation exposure e.g., atomic bomb radiation, radiation therapy to the chest, imaging tests such as CT scans, and radon.
  - Workplace exposure e.g., asbestos, arsenic, chromium, nickel, beryllium, cadmium, tar, and soot.
  - Air pollution.
- Taking beta carotene supplements, especially in heavy smokers.

Increasing protective factors may help prevent cancer. The following are protective factors for lung cancer:

- Not smoking.
- Quitting smoking.
- Lower exposure to workplace risk factors.
- Lower exposure to radon.

It is not clear if the following decrease the risk of lung cancer:

- Diet.
- Physical activity.

The following do not decrease the risk of lung cancer:

- Nonsmokers taking beta carotene supplements.
- Taking vitamin E supplements.

Screening

Screening with low-dose spiral computed tomography (LDCT) scans has been shown to decrease the risk of dying from lung cancer in heavy smokers. LDCT scans were better than chest x-rays at finding early-stage lung cancer. Screening with LDCT also decreased the risk of dying from lung cancer in current and former heavy smokers. Current smokers whose LDCT scan result shows possible signs of cancer may be more likely to quit smoking.

The USPSTF recommends annual screening for lung cancer with LDCT in adults ages 55 to 80 years old who have a 30 pack-year* smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years

or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.

Chest x-ray and sputum cytology are two screening tests that have been used to check for signs of lung cancer. Screening with chest x-ray, sputum cytology, or both of these tests does not decrease the risk of dying from lung cancer.

The risks of lung cancer screening include the following:

- False-negative test results can occur (the screening test results may appear to be normal even though lung cancer is present). A person who receives a false-negative test result may delay seeking medical care even if there are symptoms.
- False-positive test results can occur (the screening test results may appear to be abnormal even though no cancer is present). A false-positive test result can cause anxiety and is usually followed by more tests (such as biopsy), which also have risks. A biopsy to diagnose lung cancer can cause part of the lung to collapse. Sometimes surgery is needed to reinflate the lung. Harms from diagnostic tests may happen more often in patients who have medical problems caused by heavy or long-term smoking.
- Chest x-rays and LDCT scans expose the chest to radiation. Radiation exposure from chest x-rays and low-dose spiral LDCT scans may increase the risk of cancer. Younger people and people at low risk for lung cancer are more likely to develop lung cancer caused by radiation exposure from screening than to be spared death from lung cancer.
- Screening may not improve a person's health or help a person live longer if the person has lung cancer that has already spread to other places in the body. Overdiagnosis can occur (the screening test results lead to the diagnosis and treatment of a disease that may have never caused symptoms or become life-threatening). It is unknown if the treatment of these cancers would help a person live longer than if no treatment were given, and treatments for cancer may have serious side effects. Harms of treatment may happen more often in people who have medical problems caused by heavy or long-term smoking.

Maryland Department of Health Medical Advisory Committee Public Health Intervention for Lung Cancer
• Annual screening for lung cancer with LDCT in adults ages 55 to 80 years old who have ≥ 30 pack-year smoking history and currently smoke or have quit within the past 15 years. • Annual screening for lung cancer with LDCT in adults ages 50 to 80 years old who have a ≥ 20 pack-year smoking history and at least one additional risk factor, such as personal history of lung disease or cancer of the lung, head, neck or lymphoma, a first degree family history of lung cancer, or a sustained or substantial exposure to radon, arsenic, asbestos, beryllium, cadmium, chromium, coal smoke/soot, diesel fumes, and silica.

Individuals should discuss risk factors for lung cancer, ways to prevent lung cancer, and screening tests with their healthcare provider.

* A pack-year is a way to measure the amount a person has smoked over a long period of time. It is calculated by multiplying the number of packs of cigarettes smoked per day by the number

of years the person has smoked. For example, one pack year is equal to smoking one pack per day for one year, or two packs per day for half a year, and so on.

Note: For information on the Lung Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 12.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	3,984	1,884	2,100	2,806	1,035	127
Allegany	72	38	34	67	<6	0
Anne Arundel	382	185	197	322	49	11
Baltimore City	552	239	313	183	364	<6
Baltimore	752	325	427	599	135	16
Calvert	51	25	26	48	<6	0
Caroline	29	13	16	25	<6	0
Carroll	119	64	55	114	<6	0
Cecil	114	64	50	114	0	0
Charles	93	41	52	67	24	<6
Dorchester	28	15	13	17	11	0
Frederick	146	79	67	130	11	<6
Garrett	21	12	9	21	0	0
Harford	207	109	98	176	26	<6
Howard	122	55	67	98	12	12
Kent	24	8	16	17	7	0
Montgomery	389	175	214	281	51	50
Prince George's	377	182	195	96	261	16
Queen Anne's	51	28	23	43	8	0
St. Mary's	87	48	39	76	11	0
Somerset	27	15	12	21	6	0
Talbot	35	13	22	29	6	0
Washington	137	75	62	127	8	<6
Wicomico	100	41	59	76	19	<6
Worcester	61	32	29	53	s	<6

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 13.
Lung and Bronchus Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	55.1	59.4	52.3	57.6	54.0	28.7
Allegany	65.3	76.5	57.1	62.8	**	0.0
Anne Arundel	57.1	62.1	54.0	58.1	53.5	**
Baltimore City	82.0	84.0	81.0	87.2	80.8	**
Baltimore	69.9	70.0	70.1	75.0	60.2	30.0
Calvert	50.6	61.9	44.9	55.7	**	0.0
Caroline	64.3	**	66.6	64.7	**	0.0
Carroll	53.1	61.9	46.2	53.5	**	0.0
Cecil	90.6	110.9	75.0	96.3	0.0	0.0
Charles	55.0	54.2	56.8	65.3	41.9	**
Dorchester	54.3	**	**	44.9	**	0.0
Frederick	50.9	62.5	42.6	50.9	**	**
Garrett	42.0	**	**	42.4	0.0	0.0
Harford	66.2	81.2	55.4	64.4	82.3	**
Howard	35.3	36.6	35.0	40.6	**	**
Kent	73.5	**	89.5	62.3	**	0.0
Montgomery	31.1	32.6	30.4	32.1	28.9	24.9
Prince George's	40.2	45.2	36.4	39.3	39.9	35.9
Queen Anne's	74.3	78.8	71.2	67.6	**	0.0
St. Mary's	68.4	78.5	60.3	72.4	**	0.0
Somerset	81.6	**	**	82.6	**	0.0
Talbot	49.9	**	61.9	47.9	**	0.0
Washington	69.6	83.8	57.1	69.1	**	**
Wicomico	81.6	77.4	87.0	80.2	70.5	**
Worcester	64.1	71.8	58.1	63.9	**	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 14.
Number of Deaths for Lung and Bronchus Cancer by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2,575	1,302	1,273	1,864	634	77
Allegany	43	24	19	43	<10	<10
Anne Arundel	251	119	132	223	s	<10
Baltimore City	315	161	154	s	222	<10
Baltimore	465	213	252	389	s	<10
Calvert	32	14	18	30	<10	<10
Caroline	22	11	11	18	<10	<10
Carroll	78	51	27	78	<10	<10
Cecil	72	42	30	71	<10	<10
Charles	56	30	26	43	s	<10
Dorchester	26	14	12	23	<10	<10
Frederick	98	61	37	96	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	133	71	62	116	s	<10
Howard	68	30	38	56	<10	<10
Kent	s	<10	<10	13	<10	<10
Montgomery	255	120	135	184	38	33
Prince George's	293	153	140	79	200	14
Queen Anne's	40	20	20	36	<10	<10
St. Mary's	62	34	28	53	<10	<10
Somerset	23	13	10	20	<10	<10
Talbot	21	<10	s	17	<10	<10
Washington	91	43	48	88	<10	<10
Wicomico	74	38	36	59	s	<10
Worcester	34	21	13	31	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 15.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	35.9	42.0	31.5	38.1	34.1	18.1
Allegany	41.1	51.5	**	42.6	**	**
Anne Arundel	38.4	41.2	36.3	40.6	29.7	**
Baltimore City	46.0	55.5	39.2	40.4	49.5	**
Baltimore	42.6	46.2	40.3	46.9	31.1	**
Calvert	32.4	**	**	36.3	**	**
Caroline	50.6	**	**	**	**	**
Carroll	35.1	53.2	22.2	36.8	**	**
Cecil	58.2	75.3	46.2	61.3	**	**
Charles	34.5	43.0	29.2	43.0	**	**
Dorchester	47.9	**	**	55.5	**	**
Frederick	34.3	49.5	23.5	37.4	**	**
Garrett	**	**	**	**	**	**
Harford	43.5	55.7	35.0	42.9	**	**
Howard	21.1	20.7	21.1	25.1	**	**
Kent	**	**	**	**	**	**
Montgomery	20.4	22.8	18.8	20.4	22.7	17.0
Prince George's	31.5	39.2	25.6	31.5	31.9	**
Queen Anne's	54.8	58.8	51.8	53.4	**	**
St. Mary's	53.5	62.6	45.3	54.6	**	**
Somerset	70.4	**	**	84.2	**	**
Talbot	28.3	**	**	**	**	**
Washington	46.7	48.0	46.2	48.5	**	**
Wicomico	62.0	74.4	53.1	64.7	**	**
Worcester	34.2	46.1	**	36.0	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 16.
Number of Lung and Bronchus Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	19,053	9,320	9,730	13,695	4,768	525
Allegany	405	212	193	393	12	0
Anne Arundel	1,949	931	1,018	1,698	211	38
Baltimore City	2,661	1,320	1,341	927	1,707	25
Baltimore	3,342	1,541	1,801	2,680	597	60
Calvert	296	134	161	257	35	<6
Caroline	146	78	68	132	14	0
Carroll	590	306	283	564	24	<6
Cecil	527	272	255	504	s	<6
Charles	403	221	182	294	101	6
Dorchester	157	85	72	114	s	<6
Frederick	644	340	304	585	45	12
Garrett	105	60	45	s	<6	0
Harford	1,048	530	518	920	111	17
Howard	615	297	318	481	73	57
Kent	95	39	56	76	19	0
Montgomery	1,798	838	960	1,303	236	235
Prince George's	1,918	927	990	597	1,253	53
Queen Anne's	225	120	105	204	s	<6
St. Mary's	391	205	186	339	49	<6
Somerset	126	76	50	98	28	0
Talbot	170	76	94	153	17	0
Washington	658	321	337	615	35	<6
Wicomico	468	227	241	380	80	6
Worcester	295	155	140	264	28	<6

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 17.
Lung and Bronchus Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	55.4	61.8	50.7	58.1	53.4	26.5
Allegany	76.3	88.1	65.9	76.6	**	0.0
Anne Arundel	62.3	67.1	59.3	64.4	53.8	36.7
Baltimore City	80.7	95.6	70.8	86.4	79.2	35.0
Baltimore	64.2	68.9	61.1	68.1	58.0	28.0
Calvert	58.1	59.0	58.2	60.3	48.4	**
Caroline	70.5	85.2	59.7	74.8	**	0.0
Carroll	55.7	64.5	48.4	55.7	78.1	**
Cecil	88.0	98.5	80.1	89.3	80.1	**
Charles	51.9	65.1	42.5	61.7	38.4	**
Dorchester	63.1	75.2	54.3	60.2	79.3	**
Frederick	47.1	55.9	40.5	47.4	54.0	**
Garrett	44.8	53.7	37.1	44.8	**	0.0
Harford	69.5	81.3	61.3	69.3	79.8	39.6
Howard	38.1	40.7	36.4	42.2	30.3	24.9
Kent	56.7	51.4	60.8	52.9	80.2	0.0
Montgomery	30.4	32.5	28.9	31.0	28.1	26.1
Prince George's	43.0	48.3	38.9	49.6	41.0	23.6
Queen Anne's	68.3	76.8	60.4	67.3	90.0	**
St. Mary's	67.4	72.7	62.7	70.1	60.9	**
Somerset	78.4	97.4	62.9	82.5	71.0	0.0
Talbot	47.7	44.7	50.4	48.0	46.7	0.0
Washington	69.3	74.3	65.4	69.2	73.1	**
Wicomico	78.7	85.7	73.7	82.5	65.1	**
Worcester	62.0	72.6	53.4	61.7	64.2	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 18.
Number of Deaths for Lung and Bronchus Cancer by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	13,216	6,811	6,405	9,522	3,365	329
Allegany	250	134	116	249	<10	<10
Anne Arundel	1,321	668	653	1,174	128	19
Baltimore City	1,880	976	904	619	1,241	20
Baltimore	2,208	1,096	1,112	1,800	366	42
Calvert	202	96	106	176	s	<10
Caroline	121	65	56	110	s	<10
Carroll	417	235	182	407	s	<10
Cecil	360	191	169	344	s	<10
Charles	281	158	123	202	s	<10
Dorchester	126	72	54	102	s	<10
Frederick	457	253	204	425	s	<10
Garrett	67	40	27	66	<10	<10
Harford	660	359	301	585	s	<10
Howard	384	183	201	310	43	31
Kent	65	31	34	55	s	<10
Montgomery	1,315	624	691	1,008	168	139
Prince George's	1,446	732	714	459	941	46
Queen Anne's	149	79	70	132	s	<10
St. Mary's	284	162	122	234	s	<10
Somerset	100	57	43	77	s	<10
Talbot	112	55	57	99	s	<10
Washington	444	225	219	425	s	<10
Wicomico	339	191	148	266	s	<10
Worcester	228	129	99	198	s	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 19.
Lung and Bronchus Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

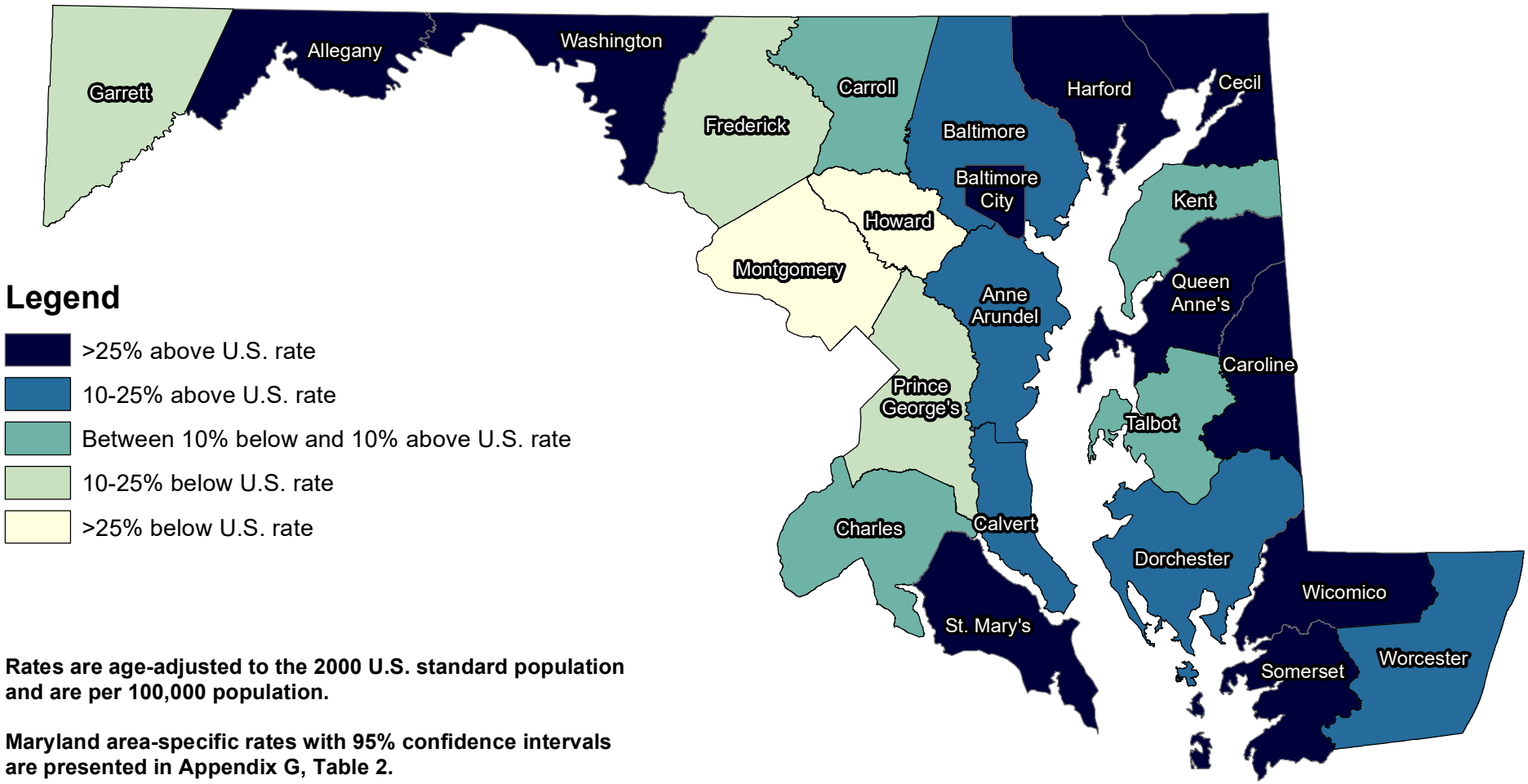
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	38.6	46.0	33.3	40.3	38.6	17.0
Allegany	47.3	56.8	39.0	48.7	**	**
Anne Arundel	42.6	48.6	38.1	44.8	33.6	**
Baltimore City	57.6	72.3	47.8	57.5	58.5	29.6
Baltimore	41.7	49.0	36.5	44.5	35.1	19.8
Calvert	41.3	43.0	39.9	43.0	33.9	**
Caroline	58.4	72.5	48.1	62.1	**	**
Carroll	39.1	49.8	31.0	39.8	**	**
Cecil	61.7	74.0	53.2	62.8	**	**
Charles	37.0	48.3	29.0	43.3	29.1	**
Dorchester	50.1	64.9	39.3	52.3	46.9	**
Frederick	34.1	42.3	28.0	35.0	34.5	**
Garrett	28.8	36.9	21.6	28.6	**	**
Harford	44.8	57.6	36.2	44.8	49.6	**
Howard	24.6	26.4	23.4	27.9	18.3	13.5
Kent	36.9	38.7	34.9	35.6	**	**
Montgomery	22.2	24.5	20.4	23.7	20.4	15.6
Prince George's	33.0	39.7	28.3	37.8	31.8	20.6
Queen Anne's	44.5	50.2	39.0	43.0	**	**
St. Mary's	50.5	60.9	41.1	49.7	61.8	**
Somerset	63.2	76.7	52.5	65.0	60.7	**
Talbot	32.2	34.6	30.6	31.8	**	**
Washington	46.6	52.7	42.5	47.6	**	**
Wicomico	57.2	73.2	45.2	58.2	57.4	**
Worcester	48.5	60.6	38.7	46.8	64.5	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Lung Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

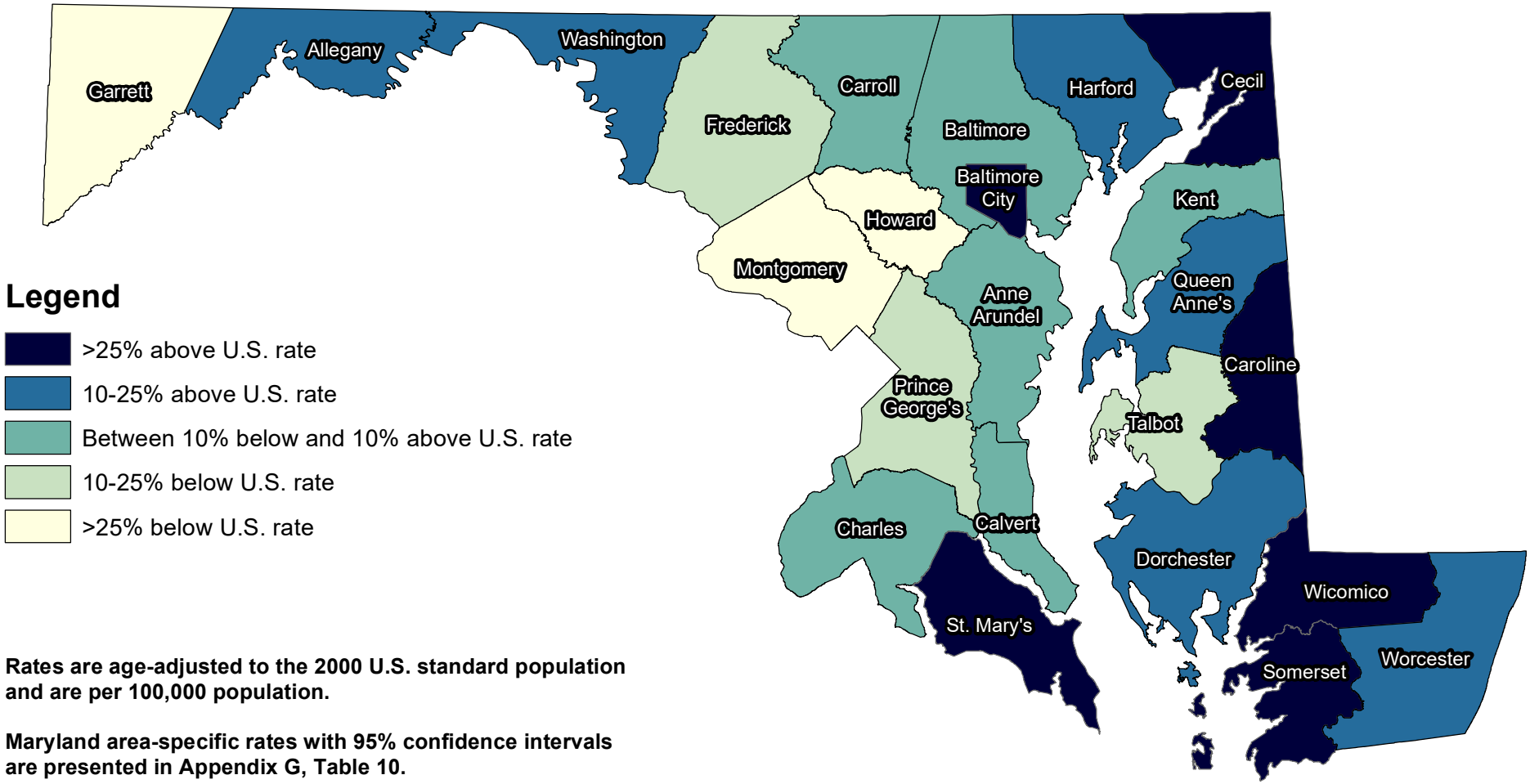
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 2.

U.S. lung cancer incidence rate, 2013-2017: 52.6 / 100,000

Maryland lung cancer incidence rate, 2013-2017: 55.4 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Lung Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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 G, Table 10.

U.S. lung cancer mortality rate, 2013-2017: 40.2 / 100,000

Maryland lung cancer mortality rate, 2013-2017: 38.6 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

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B. Colorectal Cancer

Incidence (New Cases)

In 2017, there were 2,534 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 2017 was 35.8 per 100,000 population (34.4-37.3 95% CI), which is not statistically significantly lower than the 2017 U.S. SEER age-adjusted colorectal cancer incidence rate of 36.8 per 100,000 population (37.2-38.0, 95% CI).

Mortality (Deaths)

A total of 947 persons died of colorectal cancer in 2017 in Maryland. In 2017, colorectal cancer accounted for 8.8% 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 13.3 per 100,000 population (12.4-14.2, 95% CI). This rate is similar to the 2017 U.S. colorectal cancer mortality rate of 13.5 per 100,000 population (13.4-13.6, 95% CI). Maryland had the 27th highest colorectal cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

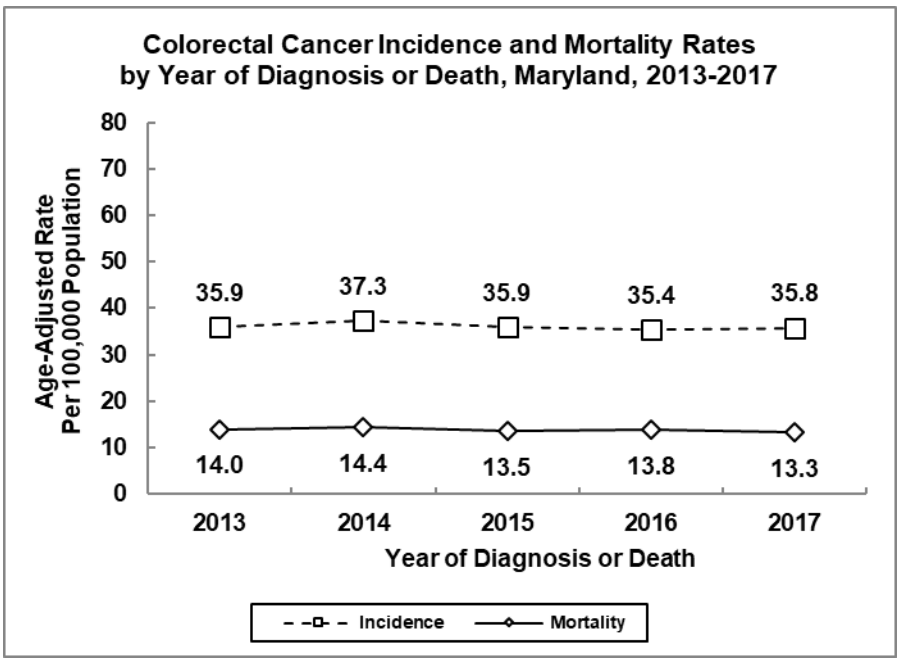
Table 20.
Colorectal Cancer Incidence and Mortality Rates
by Gender and Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Male*	*Females*	*Whites*	*Blacks*	*Other*
MD New Cases (count)	2,534	1,306	1,228	1,619	775	108
MD Incidence Rate	35.8	41.1	31.6	34.7	40.0	23.5
U.S. SEER Rate	36.8	41.7	32.6	36.4	42.2	29.6
Mortality 2017	*Total*	*Male*	*Females*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	947	488	459	611	298	38
MD Mortality Rate	13.3	16.2	11.3	12.7	16.0	8.8
U.S. Mortality Rate	13.5	16.0	11.4	13.2	17.7	9.6

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

* Total also includes cases reported as transsexual, hermaphrodite, unknown gender, unknown race, and unknown jurisdiction

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



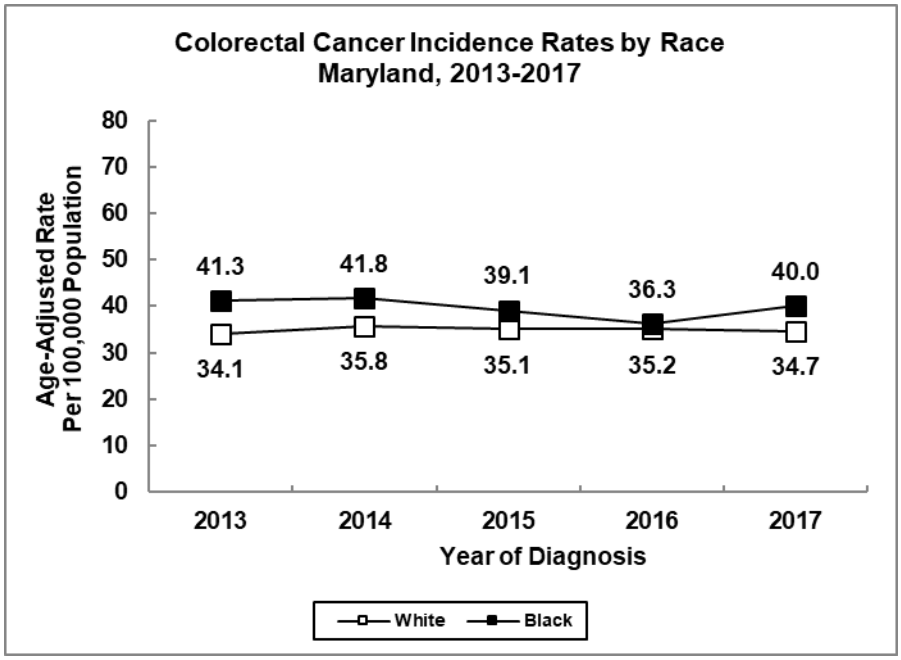
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

Incidence rates for colorectal cancer have been declining in Maryland. From 2013 to 2017, incidence rates declined at a rate of 0.6% per year.

Colorectal cancer mortality rates declined at a rate of 1.4% per year from 2013 to 2017.

See Appendix H, Tables 1 and 2.

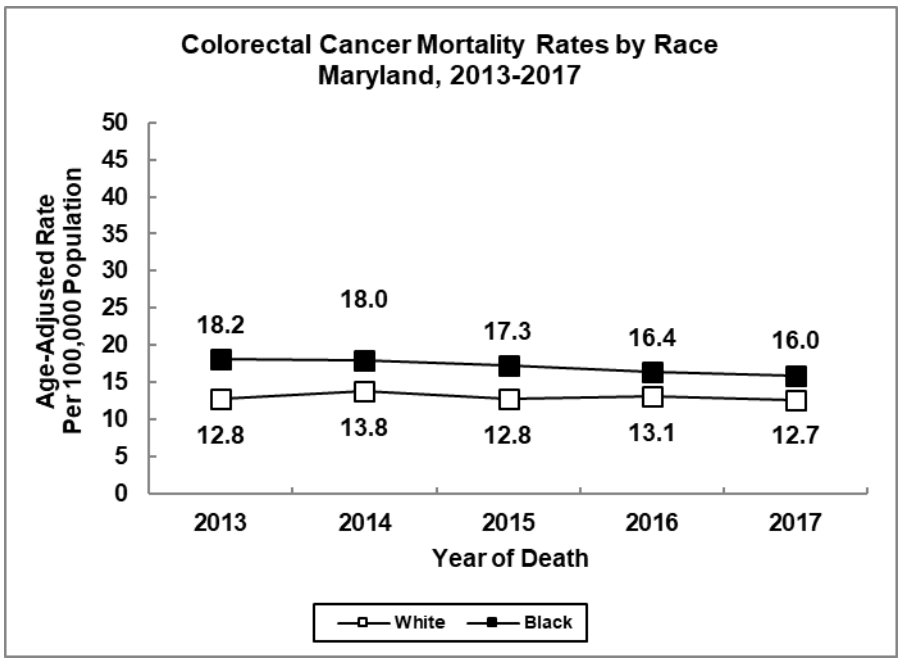


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2013 to 2017 colorectal cancer incidence rates declined for blacks at a rate of 2.0% per year, but increased slightly for whites at a rate of 0.2% per year. In 2017, the incidence rate for colorectal cancer was 34.7 per 100,000 population for whites and 40.0 per 100,000 population for blacks in Maryland.

See Appendix H, Table 3.

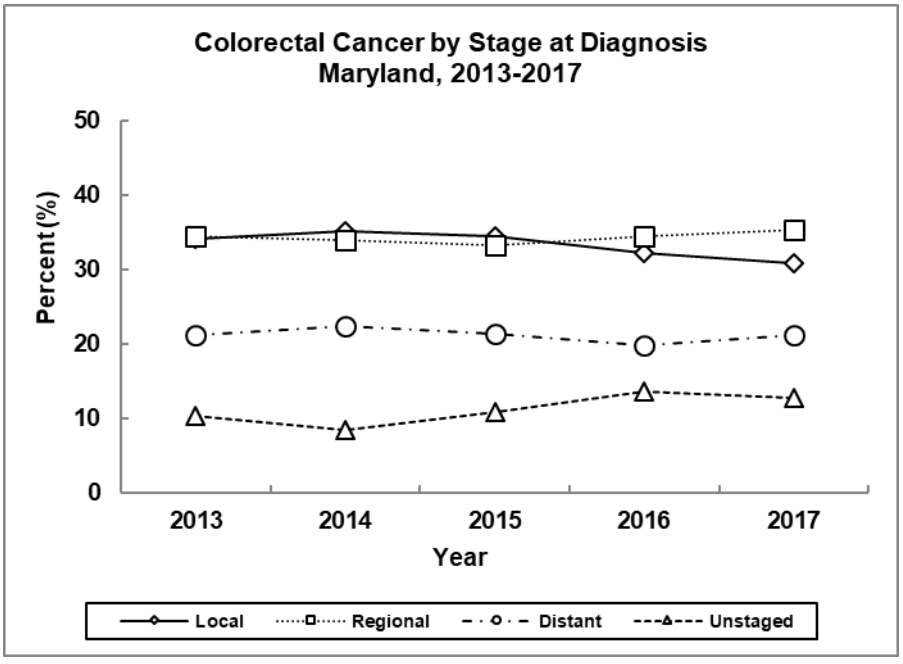


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

From 2013 to 2017, colorectal cancer mortality rates declined at a rate of 0.7% per year for whites and a rate of 3.4% per year for blacks. In 2017, the age-adjusted colorectal cancer mortality rate was 16.0 per 100,000 for blacks and 12.7 per 100,000 for whites.

See Appendix H, Table 5.

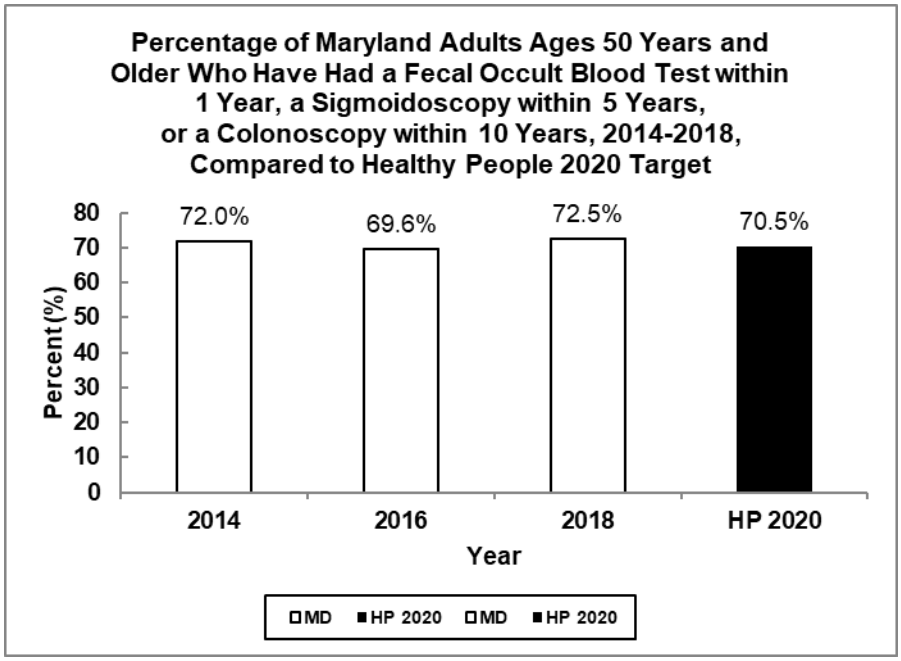


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

In 2017, 30.8% of colorectal cancers diagnosed in Maryland were detected at the local stage, 35.3% at the regional stage, and 21.1% at the distant stage. In 2017, 12.8% of colorectal cancers diagnosed were reported as unstaged. The proportion of colorectal cancers reported as unstaged increased 9.5% per year from 2013 to 2017.

See Appendix I, Table 3.



Source: Maryland BRFSS 2014, 2016, 2018
Healthy People 2020, U.S. Department of Health and Human Services

* The guidelines for up-to-date colorectal cancer screening used for the Healthy People 2020 estimate are: persons aged 50 to 75 years old who have had a blood stool test in the past year, sigmoidoscopy in the past five years and blood stool test in the past three years, or a colonoscopy in the past 10 years.

Up-to-Date Screening for Colorectal Cancer

The Healthy People 2020 target for colorectal cancer screening aims to increase the proportion of adults age 50 years and older who are screened based on recent guidelines to 70.5%.* The percent of Maryland adults ages 50 years and older who were up-to-date for colorectal cancer screening in 2018 (72.5%) was slightly above the Healthy People target of 70.5%.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 3/15/2019; and the United States Preventive Services Task Force [USPSTF], 4/2016 and 6/2016)

Prevention

Avoiding risk factors may help prevent cancer. The following risk factors increase the risk of colorectal cancer:

- Age, as the risk increases after age 50.
- Race, as African Americans have an increased risk of cancer and death from the cancer compared to other races.
- Family history of colorectal cancer.
- Personal history of previous colorectal cancer, high-risk adenomas, ovarian cancer, or inflammatory bowel disease such as ulcerative colitis or Crohn disease.
- Inherited risk, such as gene changes linked to familial adenomatous polyposis, or hereditary nonpolyposis colon cancer.
- Alcohol use.
- Cigarette smoking.
- Obesity.

Increasing protective factors may help prevent cancer. The following protective factors decrease the risk of colorectal cancer:

- Regular physical activity.
- Taking aspirin, with the decrease in risk beginning 10 to 20 years after patients start taking aspirin. The USPSTF recommends initiating low-dose aspirin use for the primary prevention of cardiovascular disease and colorectal cancer in adults ages 50 to 59 years old who have a 10% or greater 10-year cardiovascular disease risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years. The risks of aspirin use include an increased risk of stroke and bleeding in the stomach and intestines.
- Combination hormone replacement therapy (HRT) that includes both estrogen and progestin lowers the risk of invasive colorectal cancer in postmenopausal women. However, in women who take combination HRT and do develop colorectal cancer, the cancer is more likely to be advanced when diagnosed, and the risk of dying from colorectal cancer is not decreased. The possible harms of combination HRT include an increased risk of breast cancer, heart disease and blood clots.
- Removing colorectal polyps that are larger than one centimeter.

It is not clear if the following affect the risk of colorectal cancer:

- Nonsteroidal anti-inflammatory drugs (NSAIDs) other than aspirin.
- Calcium.
- Diet.

The following factors do not affect the risk of colorectal cancer:

- HRT with estrogen only.
- Statins.

Screening

Studies show that some screening tests for colorectal cancer help find cancer at an early stage and may decrease the number of deaths from the disease. Five types of tests are used to screen for colorectal cancer:

- Fecal occult blood test (FOBT), which are guaiac FOBT or immunochemical FOBT/fecal immunochemical test (FIT).
- Sigmoidoscopy.
- Colonoscopy.
- Virtual colonoscopy, or computed tomography colonography (CT colonography).
- DNA stool test.

Study results have shown that digital rectal exams do not work as a screening method for colorectal cancer.

The risks for colorectal cancer screening include the following:

- False-negative tests results can occur (the screening test results may appear to be normal even though colorectal cancer is present). A person who receives a false-negative test result may delay seeking medical care even if there are symptoms.
- False-positive test results can occur (the screening test results may appear to be abnormal even though no cancer is present). A false-positive test result can cause anxiety and is usually followed by more tests (such as biopsy), which also have risks.
- Serious problems caused by colonoscopy are rare, but can include tears in the lining of the colon and bleeding. Sedation is used to decrease the discomfort from the procedure, and may cause heart and lung problems, such as irregular heartbeat, heart attack, or trouble breathing.
- There are fewer complications with a sigmoidoscopy than with a colonoscopy. Although tears in the lining of the colon and bleeding can occur, they are less common than with a colonoscopy. There is usually no sedation with sigmoidoscopy, lowering the risk of complications.
- Virtual colonoscopy has fewer possible physical harms than either colonoscopy or sigmoidoscopy. The harms of being exposed to radiation from x-rays used in virtual colonoscopy are not known. Virtual colonoscopy often finds problems with organs other than the colon, including the kidneys, chest, liver, ovaries, spleen, and pancreas. Some of these findings lead to more testing that may not improve the patient's health.
- The results of an FOBT or DNA stool test may appear to be abnormal even though no cancer is found. A positive test result may lead to more testing, including colonoscopy.

The USPSTF recommends screening for colorectal cancer starting at age 50 years old and continuing until age 75 years old. The decision to screen for colorectal cancer in adults ages 76 to 85 years old should be an individual one, taking into account the patient’s overall health and prior screening history. Adults in this age group who have never been screened for colorectal cancer are more likely to benefit. Also, within this age group, screening would be most appropriate among adults who are healthy enough to undergo treatment if colorectal cancer is detected, and do not have comorbid conditions that would significantly limit their life expectancy.

Maryland Department of Health Medical Advisory Committee Public Health Intervention for Colorectal Cancer
• Colorectal cancer screening is recommended for those ages 50 to 75 years old. Screening may begin earlier for individuals with certain risk factors for colorectal cancer. The decision to screen for colorectal cancer in adults above 75 years of age should be an individual one, taking into account the patient's overall health and prior screening history.

Individuals should discuss risk factors for colorectal cancer, ways to prevent colorectal cancer, and screening tests with their healthcare provider.

Note: For information on the Colorectal Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 21.
Number of Colorectal Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2,534	1,306	1,228	1,619	775	108
Allegany	44	21	23	s	<6	0
Anne Arundel	208	106	102	160	40	7
Baltimore City	255	134	121	73	175	<6
Baltimore	382	205	177	272	98	12
Calvert	54	26	28	48	6	0
Caroline	19	8	11	14	<6	0
Carroll	90	40	50	86	<6	0
Cecil	49	27	22	43	6	0
Charles	73	35	38	42	29	<6
Dorchester	19	9	10	14	<6	0
Frederick	97	52	45	85	9	<6
Garrett	16	11	<6	16	0	0
Harford	126	70	56	109	15	<6
Howard	95	48	47	63	22	10
Kent	13	<6	9	10	<6	0
Montgomery	387	202	185	243	77	54
Prince George's	359	175	184	99	237	11
Queen Anne's	19	12	7	14	<6	0
St. Mary's	52	28	24	39	12	<6
Somerset	9	6	<6	7	<6	0
Talbot	18	7	11	16	<6	0
Washington	67	35	32	60	7	0
Wicomico	51	26	25	40	9	<6
Worcester	26	16	10	20	6	0

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 22.
Colorectal Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	35.8	41.1	31.6	34.7	40.0	23.5
Allegany	44.8	44.7	47.7	46.7	**	0.0
Anne Arundel	32.1	35.7	29.1	30.1	42.1	**
Baltimore City	39.1	47.7	32.8	34.3	41.5	**
Baltimore	36.8	44.9	30.5	36.4	41.4	**
Calvert	48.2	48.3	47.8	51.0	**	0.0
Caroline	52.9	**	**	**	**	0.0
Carroll	41.4	41.8	42.6	41.6	**	0.0
Cecil	39.4	43.5	34.7	37.2	**	0.0
Charles	44.0	45.6	42.1	45.2	46.4	**
Dorchester	44.4	**	**	**	**	0.0
Frederick	32.2	35.2	28.5	32.2	**	**
Garrett	41.4	**	**	41.8	0.0	0.0
Harford	41.1	52.8	33.5	41.0	**	**
Howard	27.1	29.0	25.1	27.7	37.1	**
Kent	**	**	**	**	**	0.0
Montgomery	30.8	35.0	27.2	29.0	38.3	26.5
Prince George's	37.6	42.4	33.7	40.1	35.8	**
Queen Anne's	28.0	**	**	**	**	0.0
St. Mary's	41.9	50.2	35.1	38.0	**	**
Somerset	**	**	**	**	**	0.0
Talbot	37.6	**	**	36.8	**	0.0
Washington	34.8	40.6	29.5	33.2	**	0.0
Wicomico	42.5	49.8	37.1	45.8	**	**
Worcester	24.6	34.2	**	21.2	**	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 23.
Number of Deaths for Colorectal Cancer by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	947	488	459	611	298	38
Allegany	15	s	<10	s	<10	<10
Anne Arundel	85	41	44	68	s	<10
Baltimore City	117	59	58	s	75	<10
Baltimore	142	72	70	101	s	<10
Calvert	18	s	<10	14	<10	<10
Caroline	<10	<10	<10	<10	<10	<10
Carroll	31	17	14	29	<10	<10
Cecil	22	<10	s	20	<10	<10
Charles	26	<10	s	19	<10	<10
Dorchester	<10	<10	<10	<10	<10	<10
Frederick	22	12	10	19	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	37	20	17	29	<10	<10
Howard	39	18	21	28	<10	<10
Kent	<10	<10	<10	<10	<10	<10
Montgomery	119	59	60	79	22	18
Prince George's	138	75	63	38	95	<10
Queen Anne's	<10	<10	<10	<10	<10	<10
St. Mary's	16	s	<10	14	<10	<10
Somerset	<10	<10	<10	<10	<10	<10
Talbot	<10	<10	<10	<10	<10	<10
Washington	31	15	16	29	<10	<10
Wicomico	32	13	19	24	<10	<10
Worcester	18	s	<10	13	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 24.
Colorectal Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	13.3	16.2	11.3	12.7	16.0	8.8
Allegany	**	**	**	**	**	**
Anne Arundel	13.3	14.2	12.4	13.0	**	**
Baltimore City	17.6	21.7	14.8	18.3	17.1	**
Baltimore	13.0	15.7	11.1	12.2	18.0	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	13.7	**	**	13.5	**	**
Cecil	17.5	**	**	16.9	**	**
Charles	16.5	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	7.8	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	12.1	14.4	**	10.6	**	**
Howard	12.0	**	11.0	12.9	**	**
Kent	**	**	**	**	**	**
Montgomery	9.3	10.9	8.2	8.9	11.3	**
Prince George's	14.7	20.2	11.2	15.2	14.8	**
Queen Anne's	**	**	**	**	**	**
St. Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	15.0	**	**	15.0	**	**
Wicomico	26.9	**	**	25.9	**	**
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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 25.
Number of Colorectal Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	12,251	6,129	6,119	7,973	3,598	516
Allegany	224	116	108	218	<6	<6
Anne Arundel	1,075	519	556	850	186	36
Baltimore City	1,296	643	653	408	852	21
Baltimore	1,889	943	945	1,365	460	57
Calvert	213	119	94	178	34	0
Caroline	94	56	38	77	13	<6
Carroll	452	201	251	426	19	6
Cecil	258	134	124	245	13	0
Charles	319	151	168	192	118	7
Dorchester	98	47	51	67	28	0
Frederick	470	259	211	405	41	21
Garrett	91	46	45	91	0	0
Harford	581	305	276	501	69	8
Howard	510	250	260	330	118	56
Kent	60	30	30	48	11	0
Montgomery	1,759	859	898	1,135	323	227
Prince George's	1,656	821	835	430	1,133	56
Queen Anne's	98	43	55	85	s	<6
St. Mary's	197	111	86	164	28	<6
Somerset	66	39	27	53	s	<6
Talbot	89	51	38	77	12	0
Washington	347	180	167	316	26	<6
Wicomico	229	108	121	164	55	8
Worcester	155	81	74	131	24	0

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 26.
Colorectal Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	36.0	40.3	32.7	35.0	39.7	24.1
Allegany	45.7	51.3	42.9	46.8	**	**
Anne Arundel	34.5	36.5	33.0	33.3	42.6	29.7
Baltimore City	39.9	46.7	35.2	38.0	40.4	27.8
Baltimore	36.9	42.8	32.1	35.6	43.0	23.1
Calvert	40.6	48.5	34.2	40.3	48.4	0.0
Caroline	50.3	63.1	36.9	48.9	**	**
Carroll	42.7	41.6	44.2	42.1	63.3	**
Cecil	45.0	48.2	42.2	45.7	**	0.0
Charles	41.0	43.3	39.1	42.1	41.2	**
Dorchester	44.8	47.2	43.2	39.8	51.1	0.0
Frederick	33.9	39.7	28.8	33.0	39.5	35.2
Garrett	43.0	46.5	40.5	43.3	0.0	0.0
Harford	39.2	45.4	34.1	38.7	52.3	**
Howard	31.0	33.1	29.2	29.4	44.9	22.7
Kent	37.8	41.0	36.0	35.2	**	0.0
Montgomery	29.7	32.0	27.6	27.8	35.7	24.4
Prince George's	36.2	41.4	32.4	35.4	36.3	21.9
Queen Anne's	33.5	29.3	37.3	32.0	**	**
St. Mary's	32.6	38.2	27.3	33.0	32.8	**
Somerset	43.9	53.4	35.6	50.0	**	**
Talbot	29.6	35.4	24.7	28.9	**	0.0
Washington	37.5	41.7	33.8	36.8	46.6	**
Wicomico	40.3	42.6	38.4	38.1	44.6	**
Worcester	37.7	43.1	33.4	36.3	53.4	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 27.
Number of Deaths for Colorectal Cancer by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	4,685	2,401	2,284	3,069	1,469	147
Allegany	80	48	32	78	<10	<10
Anne Arundel	395	201	194	314	70	11
Baltimore City	642	341	301	s	429	<10
Baltimore	762	364	398	590	161	11
Calvert	69	37	32	58	s	<10
Caroline	24	13	11	21	<10	<10
Carroll	153	77	76	150	<10	<10
Cecil	89	41	48	82	<10	<10
Charles	121	59	62	70	s	<10
Dorchester	47	29	18	33	s	<10
Frederick	156	87	69	141	s	<10
Garrett	36	23	13	35	<10	<10
Harford	215	120	95	187	s	<10
Howard	175	87	88	105	48	22
Kent	26	13	13	23	<10	<10
Montgomery	556	257	299	377	113	66
Prince George's	652	346	306	182	455	15
Queen Anne's	33	16	17	26	<10	<10
St. Mary's	75	52	23	64	s	<10
Somerset	12	<10	<10	11	<10	<10
Talbot	17	s	<10	16	<10	<10
Washington	162	83	79	153	<10	<10
Wicomico	116	55	61	82	s	<10
Worcester	72	37	35	62	s	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 28.
Colorectal Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

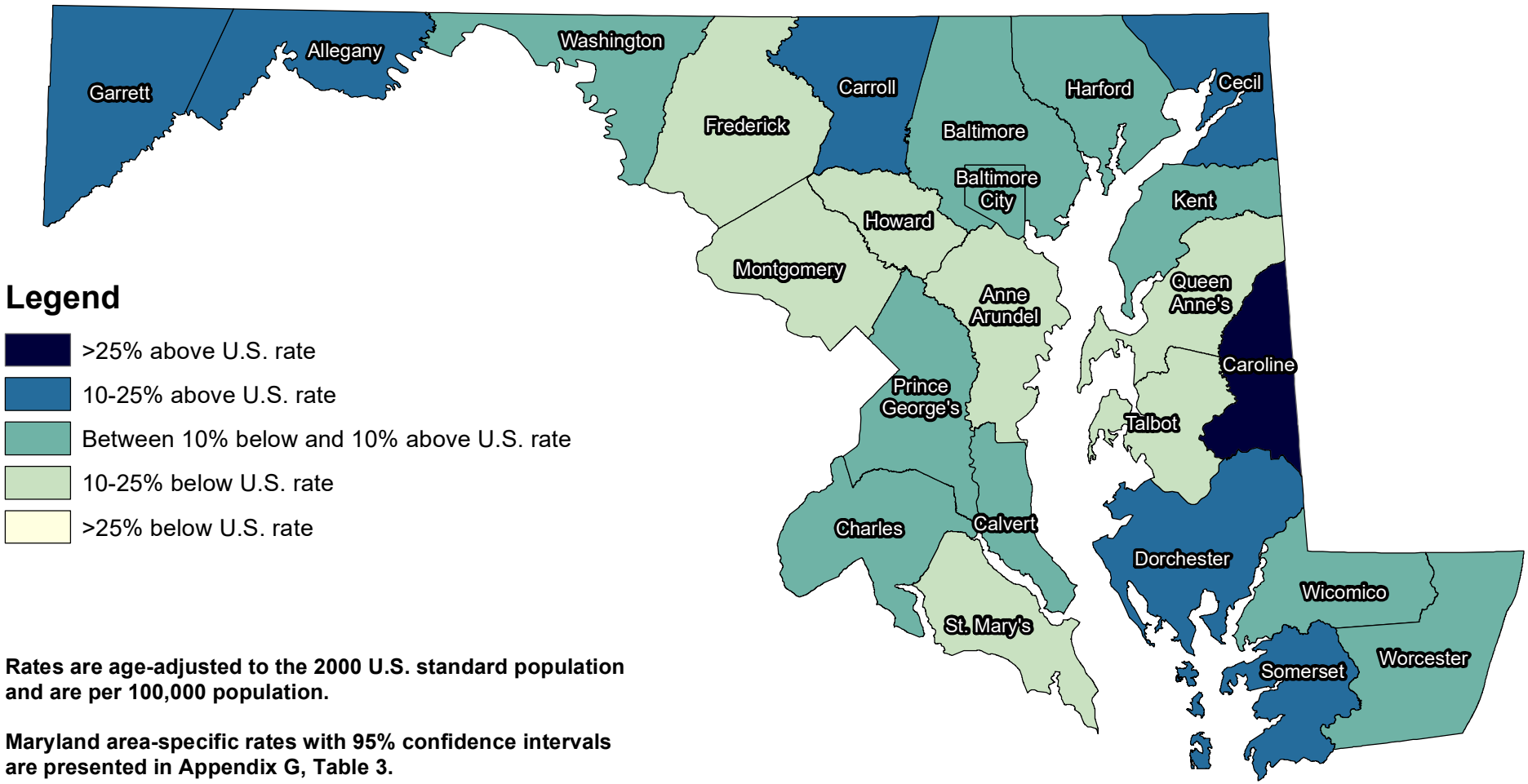
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	13.8	16.4	11.7	13.0	17.1	7.6
Allegany	15.5	21.3	10.9	15.7	**	**
Anne Arundel	12.8	14.9	11.1	12.3	16.8	**
Baltimore City	20.2	26.7	15.8	19.2	20.9	**
Baltimore	14.2	16.4	12.4	14.1	16.0	**
Calvert	13.8	16.8	11.4	13.8	**	**
Caroline	12.5	**	**	12.8	**	**
Carroll	14.7	16.9	13.1	15.1	**	**
Cecil	15.6	14.9	16.2	15.2	**	**
Charles	16.0	16.5	15.1	16.0	15.9	**
Dorchester	21.1	29.3	**	18.8	**	**
Frederick	11.7	14.8	9.4	11.6	**	**
Garrett	16.1	23.5	**	15.9	**	**
Harford	14.8	19.1	11.4	14.5	21.7	**
Howard	11.1	12.7	9.9	9.2	20.3	10.2
Kent	16.8	**	**	17.9	**	**
Montgomery	9.2	10.0	8.6	8.6	13.8	7.6
Prince George's	14.7	18.3	12.0	14.9	15.3	**
Queen Anne's	10.6	**	**	9.2	**	**
St. Mary's	12.9	18.6	7.7	13.2	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	16.5	19.8	14.1	16.6	**	**
Wicomico	19.8	22.4	18.4	18.1	27.8	**
Worcester	16.1	18.0	14.2	15.6	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Colorectal Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

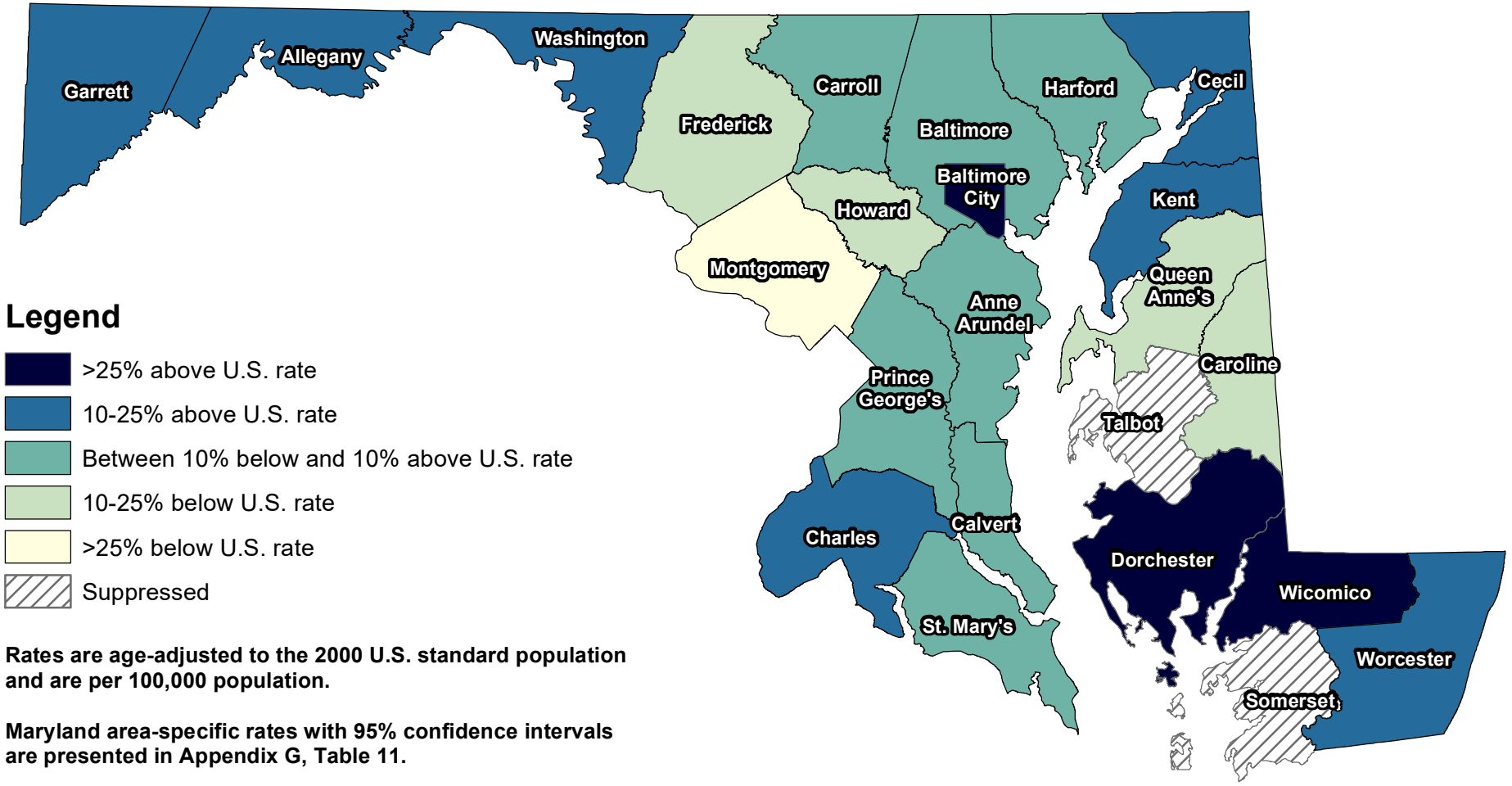
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 3.

U.S. colorectal cancer incidence rate, 2013-2017: 38.4 / 100,000

Maryland colorectal cancer incidence rate, 2013-2017: 36.0 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Colorectal Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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 G, Table 11.

U.S. colorectal cancer mortality rate, 2013-2017: 13.9 / 100,000

Maryland colorectal cancer mortality rate, 2013-2017: 13.8 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

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C. Female Breast Cancer

Incidence (New Cases)

In 2017, a total of 5,042 cases of breast cancer were reported among Maryland women. The 2017 age-adjusted incidence rate in Maryland was 133.3 per 100,000 women (129.5-137.2, 95% CI), which is statistically significantly higher than the 2017 U.S. SEER age-adjusted female breast cancer incidence rate of 127.0 per 100,000 women (126.0-128.0, 95% CI).

Mortality (Deaths)

In 2017, a total of 857 women died of breast cancer in Maryland. Female breast cancer accounted for 16.1% of cancer deaths among women and 7.9% of all cancer deaths in Maryland in 2017. Breast cancer is the second leading cause of cancer death among women in Maryland after lung cancer. The 2017 age-adjusted mortality rate for female breast cancer in Maryland was 21.6 per 100,000 women (20.1-23.0, 95% CI). This rate is statistically significantly higher than the U.S. female breast cancer mortality rate of 19.9 per 100,000 women (19.7-20.1, 95% CI). Maryland had the ninth highest female breast cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

Table 29.
Female Breast Cancer Incidence and Mortality Rates
by Race, Maryland (MD) and the United States, 2017

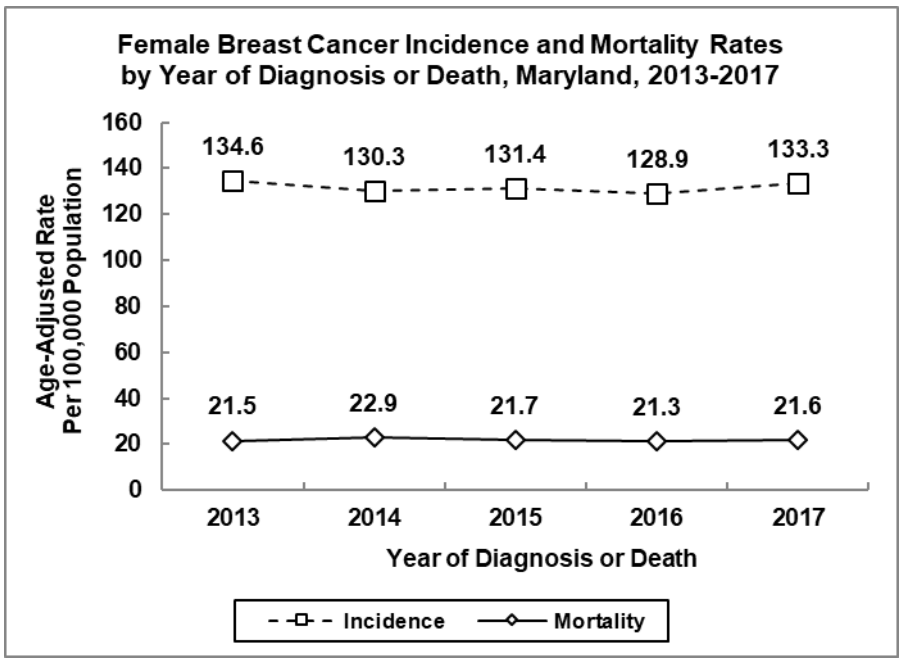
Incidence 2017	*Total**	*Whites*	*Blacks*	*Other*
MD New Cases (count)	5,042	3,237	1,479	261
MD Incidence Rate	133.3	135.5	128.9	97.5
U.S. SEER Rate	127.0	128.7	125.4	101.2
Mortality 2017	*Total*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	857	511	316	30
MD Mortality Rate	21.6	19.3	28.1	11.5
U.S. Mortality Rate	19.9	19.4	26.9	11.8

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

* Total includes unknown race and unknown jurisdiction

** MD mortality rates based on death counts of 0-19 are suppressed per MDH/CCPC Mortality Data Suppression Policy

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



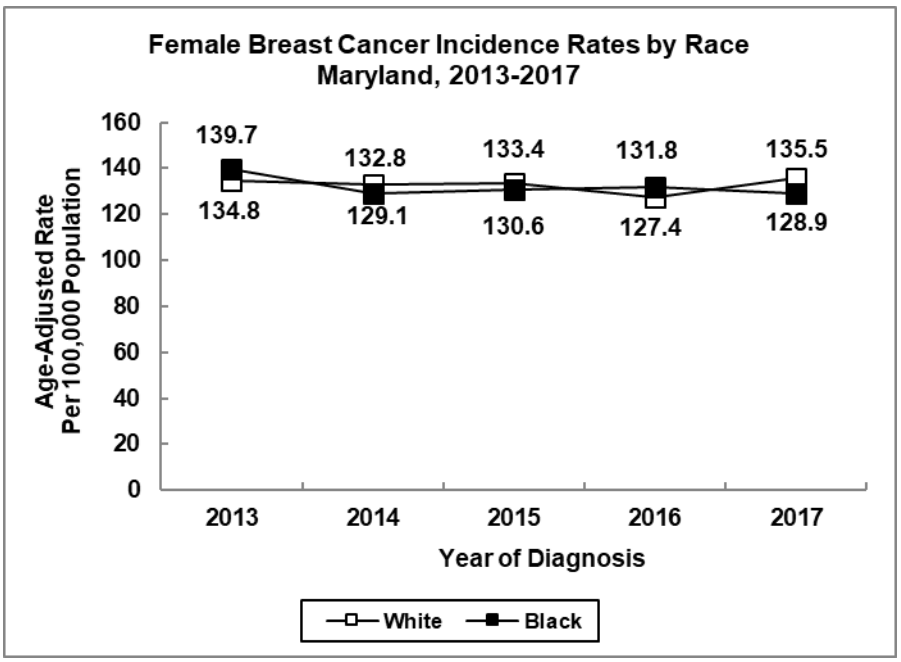
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

From 2013 to 2017, incidence rates for female breast cancer decreased in Maryland at a rate of 0.3% annually.

Breast cancer mortality rates for females decreased at a rate of 0.6% per year.

See Appendix H, Tables 1 and 2.

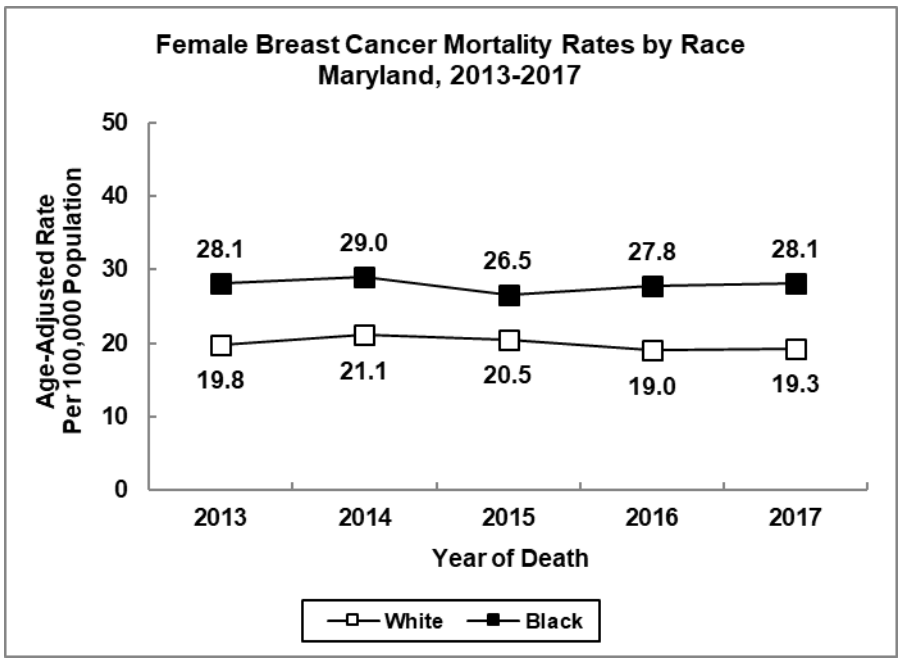


Source: Maryland Cancer Registry

Incidence Trends by Race

Female breast cancer incidence rates decreased at a rate of 1.4% per year among black females while rates among white females decreased at a rate of 0.3% per year in Maryland from 2013 to 2017.

See Appendix H, Table 3.

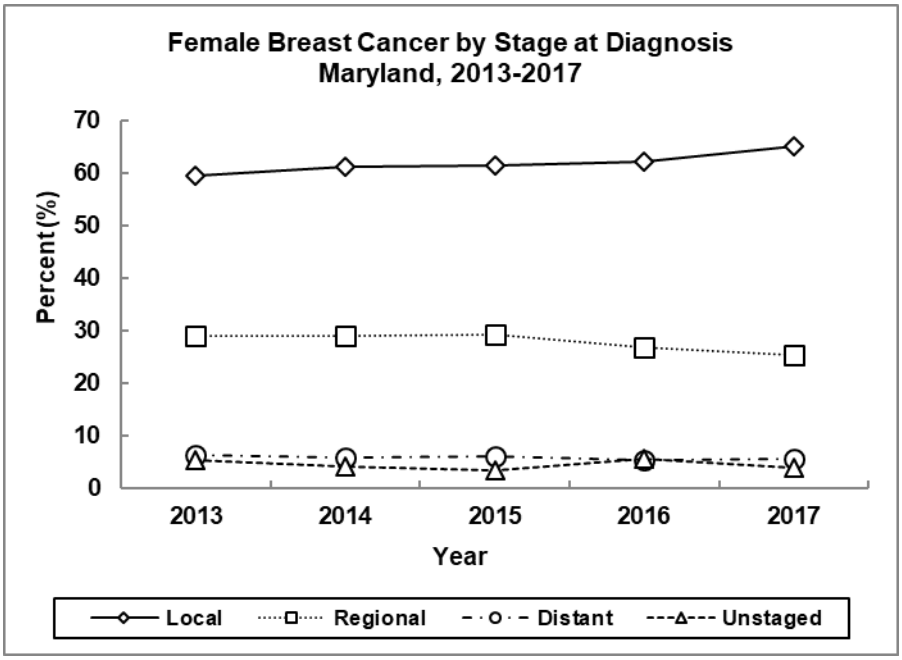


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

Female breast cancer mortality rates decreased for both black and white women from 2013 to 2017. The mortality rate in black females decreased at a rate of 0.4% per year between 2013 and 2017 and decreased at a rate of 1.5% per year among white females during the same time period.

See Appendix H, Table 5.

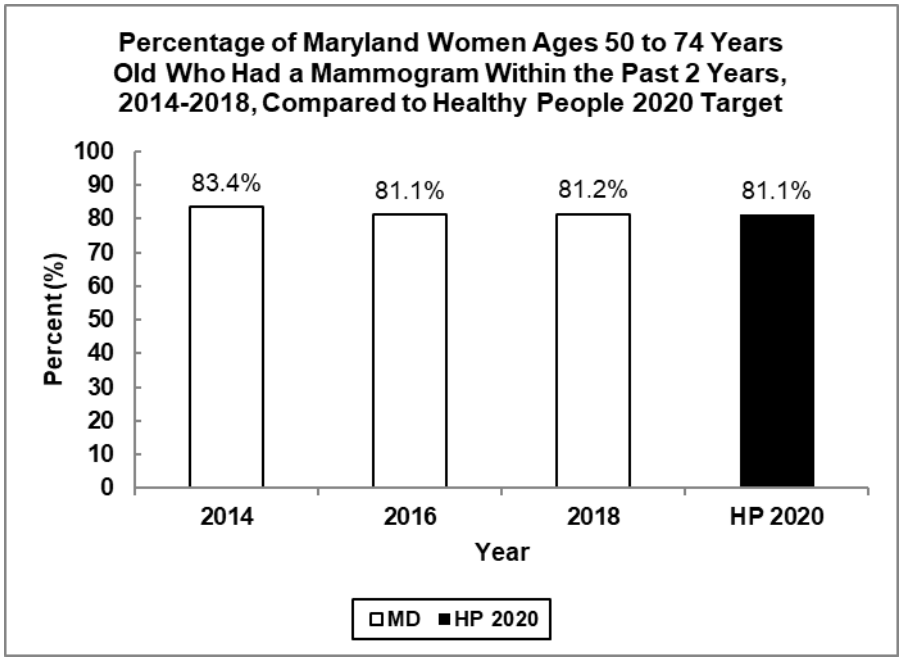


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015.

Stage at Diagnosis

In 2017, 65.2% of all female breast cancer cases in Maryland were diagnosed at the local stage, 25.4% were found at the regional stage, and 5.6% were diagnosed at the distant stage. The proportion of female breast cancers reported as unstaged in 2017 was 3.9%. Unstaged breast cancer diagnoses decreased 2.6% per year from 2013 to 2017.

See Appendix I, Table 4.



Source: Maryland BRFSS 2014, 2016, 2018
Healthy People 2020, U.S. Department of Health and Human Services

Breast Cancer Screening

The Healthy People 2020 target for the proportion of women who had a breast cancer screening based on the most recent guidelines is 81.1%. Maryland women have consistently met or surpassed the Healthy People 2020 target. In 2018, 81.2% of Maryland women ages 50 to 74 years reported receiving a mammogram within the past two years.

Public Health Evidence (quoted from the National Cancer Institute PDQ® 12/16/2020 and 1/8/2021; the United States Preventive Services Task Force [USPSTF] 1/2016 and 9/2019)

Prevention

Avoiding risk factors may help prevent cancer. The following are risk factors for breast cancer:

- Older age.
- A personal history of invasive breast cancer, ductal carcinoma in situ, lobular carcinoma in situ, or a personal history of benign (noncancer) breast disease.
- A family history of breast cancer in a first-degree relative.
- Women who have inherited changes in the *BRCA1* and *BRCA2* genes or in certain other genes.
- Having dense breast tissue.
- Reproductive history resulting in greater exposure of breast tissue to estrogen (e.g., starting menstruation before age 12, starting menopause at a later age, becoming pregnant for the first time after age 35, or never becoming pregnant).
- Taking hormone therapy for symptoms of menopause (combination hormone replacement therapy/hormone therapy - estrogen combined with progestin).
- Radiation therapy to the breast or chest.
- Obesity.
- Drinking alcohol.

Increasing protective factors may help prevent cancer. The following are protective factors for breast cancer:

- Reproductive history resulting in less exposure of breast tissue to estrogen (e.g., having an early pregnancy, breast feeding).
- Taking estrogen-only hormone therapy after hysterectomy, selective estrogen receptor modulators (e.g., tamoxifen, raloxifene), or aromatase inhibitors (e.g., anastrozole, letrozole) and inactivators (e.g., exemestane). Even though these drugs may decrease the risk of breast cancer, they are also associated with side-effects and other risks.
- Risk-reducing mastectomy for women who have high risk of breast cancer.
- Ovarian ablation (treatments that stop or lower the amount of estrogen made by the ovaries).
- Exercising four or more hours a week.

The USPSTF recommends that clinicians offer to prescribe risk-reducing medications, such as tamoxifen, raloxifene, or aromatase inhibitors, to women who are at increased risk for breast cancer and at low risk for adverse medication effects.

It is not clear whether the following affect the risk of breast cancer:

- Hormonal contraceptives.
- Environmental exposures (e.g., exposure to chemicals).

The following have little or no effect on the risk of breast cancer:

- Having an abortion.
- Making diet changes such as eating less fat or more fruits and vegetables.
- Taking vitamins, including fenretinide (a type of vitamin A).
- Cigarette smoking, both active and passive (inhaling secondhand smoke).

- Using underarm deodorant or antiperspirant.
- Taking statins (cholesterol-lowering drugs).
- Taking bisphosphonates (drugs used to treat osteoporosis and hypercalcemia) by mouth or by intravenous infusion.
- Changes in circadian rhythm (physical, mental, and behavioral changes that are mainly affected by darkness and light in 24 hour cycles).

Screening

Mammography is the most common screening test for breast cancer. Women ages 50 to 69 years old who have screening mammograms have a lower chance of dying from breast cancer than women who do not have screening mammograms. Fewer women are dying of breast cancer in the United States, but it is not known whether the lower risk of dying is because the cancer was found early by screening or whether the treatments are better.

The harms of mammography include the following:
- False-positive test results can occur (the screening test results may appear to be abnormal even though no cancer is present). False-positive results can lead to more testing and may cause anxiety.
- False-negative test results can occur (the screening test results may appear to be normal even though breast cancer is present). A woman who has a false-negative test result may delay seeking medical care even if she has symptoms. About one in five cancers are missed by mammography.
- Finding breast cancer may lead to breast cancer treatment and side effects, but it may not improve a woman's health or help her live longer.
- Mammography exposes the breast to low doses of radiation.
- There may be pain or discomfort during a mammogram.

Magnetic resonance imaging (MRI) may be used to screen women who have a high risk of breast cancer. Factors that put women at high risk include the following:
- Certain gene changes, such as changes in the *BRCA1* or *BRCA2* genes.
- A family history (first degree relative, such as a mother, daughter, or sister) with breast cancer.
- Certain genetic syndromes, such as Li-Fraumeni or Cowden syndrome.

An MRI is more likely than mammography to find a breast mass that is not cancer.

Whether a woman should be screened for breast cancer and the screening test to use depends on certain factors. Women with risk factors for breast cancer, such as certain changes in the *BRCA1* or *BRCA2* gene or certain genetic syndromes may be screened at a younger age and more often. Women who have had radiation treatment to the chest, especially at a young age, may start routine breast cancer screening at an earlier age. The benefits and risks of mammograms and MRIs for these women have not been studied.

The USPSTF recommends biennial screening mammography for women ages 50 to 74 years old. The decision to start screening mammography in women prior to age 50 years old should be an individual one. Women who place a higher value on the potential benefit than the potential harms may choose to begin biennial screening between the ages of 40 and 49 years old. For women who are at average risk for breast cancer, most of the benefit of mammography results from biennial

screening during ages 50 to 74 years old. Of all of the age groups, women ages 60 to 69 years old are most likely to avoid breast cancer death through mammography screening. While screening mammography in women ages 40 to 49 years old may reduce the risk for breast cancer death, the number of deaths averted is smaller than that in older women and the number of false-positive results and unnecessary biopsies is larger. The balance of benefits and harms is likely to improve as women move from their early to late 40s. In addition to false-positive results and unnecessary biopsies, all women undergoing regular screening mammography are at risk for the diagnosis and treatment of noninvasive and invasive breast cancer that would otherwise not have become a threat to their health, or even apparent, during their lifetime (known as "overdiagnosis"). Beginning mammography screening at a younger age and screening more frequently may increase the risk for overdiagnosis and subsequent overtreatment. Women with a parent, sibling, or child with breast cancer are at higher risk for breast cancer and thus may benefit more than average-risk women from beginning screening in their 40s.

Breast cancer screening has not been shown to benefit the following women:

- In elderly women who, if diagnosed with breast cancer through screening, will usually die of other causes.
- In women with an average risk of developing breast cancer who have screening mammography before age 40.
- In women who are not expected to live for a long time and have other diseases or conditions, as finding and treating early stage breast cancer may reduce their quality of life without helping them live longer.

Maryland Department of Health Medical Advisory Committee Public Health Intervention for Breast Cancer
For early detection of breast cancer, screen using mammography and clinical breast examination by a health professional annually for women ages 40 years and older.

Individuals should discuss risk factors for breast cancer, ways to prevent breast cancer, and screening tests with their healthcare provider.

Note: For information on the Breast Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 30.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	5,042	3,237	1,479	261
Allegany	82	s	<6	<6
Anne Arundel	453	358	76	18
Baltimore City	471	162	296	11
Baltimore	821	566	215	35
Calvert	56	43	10	<6
Caroline	24	15	9	0
Carroll	146	141	<6	<6
Cecil	74	65	8	0
Charles	105	48	53	<6
Dorchester	23	17	<6	<6
Frederick	180	158	16	<6
Garrett	32	32	0	0
Harford	261	227	23	9
Howard	278	175	56	43
Kent	15	11	<6	0
Montgomery	836	588	116	102
Prince George's	707	146	529	20
Queen Anne's	42	42	0	0
St. Mary's	83	65	14	<6
Somerset	19	15	<6	0
Talbot	39	34	<6	<6
Washington	125	116	6	<6
Wicomico	100	72	24	<6
Worcester	63	58	<6	0

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 31.
Female Breast Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	133.3	135.5	128.9	97.5
Allegany	170.4	171.8	**	**
Anne Arundel	129.7	127.8	146.1	119.9
Baltimore City	129.6	154.5	117.3	**
Baltimore	150.1	147.6	150.5	121.8
Calvert	105.3	96.1	**	**
Caroline	104.3	**	**	0.0
Carroll	135.6	137.9	**	**
Cecil	118.7	111.7	**	0.0
Charles	111.7	102.9	120.3	**
Dorchester	97.7	87.9	**	**
Frederick	119.2	120.9	131.3	**
Garrett	130.9	132.2	0.0	0.0
Harford	157.5	161.2	113.0	**
Howard	142.6	138.2	154.7	132.9
Kent	**	**	**	0.0
Montgomery	128.2	139.6	98.7	87.7
Prince George's	126.3	114.7	132.0	65.7
Queen Anne's	138.1	151.6	0.0	0.0
St. Mary's	130.1	124.1	**	**
Somerset	140.0	**	**	0.0
Talbot	124.0	120.6	**	**
Washington	129.9	129.9	**	**
Wicomico	158.5	155.2	158.1	**
Worcester	138.0	149.9	**	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 32.
Number of Deaths for Female Breast Cancer by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	857	511	316	30
Allegany	<10	<10	<10	<10
Anne Arundel	82	65	s	<10
Baltimore City	92	s	66	<10
Baltimore	134	93	s	<10
Calvert	12	11	<10	<10
Caroline	<10	<10	<10	<10
Carroll	23	22	<10	<10
Cecil	11	11	<10	<10
Charles	15	10	<10	<10
Dorchester	<10	<10	<10	<10
Frederick	28	24	<10	<10
Garrett	<10	<10	<10	<10
Harford	37	33	<10	<10
Howard	44	28	s	<10
Kent	<10	<10	<10	<10
Montgomery	138	89	37	12
Prince George's	152	s	120	<10
Queen Anne's	<10	<10	<10	<10
St. Mary's	11	<10	<10	<10
Somerset	<10	<10	<10	<10
Talbot	<10	<10	<10	<10
Washington	19	17	<10	<10
Wicomico	11	<10	<10	<10
Worcester	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 33.
Female Breast Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	21.6	19.3	28.1	11.5
Allegany	**	**	**	**
Anne Arundel	22.4	21.1	**	**
Baltimore City	24.5	22.2	25.9	**
Baltimore	22.2	21.1	25.6	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	20.9	21.3	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	18.3	18.2	**	**
Garrett	**	**	**	**
Harford	21.5	21.8	**	**
Howard	22.5	20.9	**	**
Kent	**	**	**	**
Montgomery	19.7	18.6	32.4	**
Prince George's	28.2	19.0	32.0	**
Queen Anne's	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 34.
Number of Female Breast Cancer Cases by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	24,317	15,751	7,150	1,102
Allegany	321	314	<6	<6
Anne Arundel	2,264	1,841	348	60
Baltimore City	2,269	722	1,500	34
Baltimore	3,816	2,723	952	119
Calvert	355	292	56	6
Caroline	133	100	s	<6
Carroll	729	698	19	9
Cecil	383	346	32	<6
Charles	560	302	236	17
Dorchester	149	110	s	<6
Frederick	961	831	94	29
Garrett	133	s	<6	0
Harford	1,169	1,024	112	29
Howard	1,284	864	252	156
Kent	108	89	19	0
Montgomery	4,035	2,756	665	460
Prince George's	3,403	664	2,534	142
Queen Anne's	208	200	s	<6
St. Mary's	358	294	52	10
Somerset	101	76	24	0
Talbot	190	166	20	<6
Washington	638	590	38	7
Wicomico	434	342	81	8
Worcester	282	253	24	<6

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 35.
Female Breast Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	131.7	132.9	131.9	88.2
Allegany	131.4	132.0	**	**
Anne Arundel	133.9	134.6	138.7	79.1
Baltimore City	124.9	133.2	121.3	79.1
Baltimore	140.4	141.6	143.7	87.6
Calvert	126.0	125.0	137.9	**
Caroline	127.1	113.6	211.4	**
Carroll	131.6	132.4	112.7	**
Cecil	126.0	122.5	198.7	**
Charles	124.1	128.6	125.2	67.1
Dorchester	128.4	123.1	137.9	**
Frederick	131.6	129.3	168.2	87.9
Garrett	118.0	117.4	**	0.0
Harford	143.3	146.1	120.8	100.8
Howard	138.3	141.2	152.5	106.6
Kent	138.0	134.8	159.6	0.0
Montgomery	126.6	130.2	120.8	84.6
Prince George's	128.4	105.9	133.8	98.5
Queen Anne's	131.2	138.5	**	**
St. Mary's	115.7	116.0	120.8	**
Somerset	142.3	147.5	128.5	0.0
Talbot	116.9	113.6	118.4	**
Washington	135.7	132.6	139.9	**
Wicomico	142.5	150.4	118.1	**
Worcester	135.8	139.5	108.3	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 36.
Number of Deaths for Female Breast Cancer by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	4,156	2,566	1,473	117
Allegany	50	49	<10	<10
Anne Arundel	363	287	s	<10
Baltimore City	493	s	343	<10
Baltimore	657	445	195	17
Calvert	69	56	s	<10
Caroline	21	17	<10	<10
Carroll	130	121	<10	<10
Cecil	57	54	<10	<10
Charles	102	54	s	<10
Dorchester	27	18	<10	<10
Frederick	145	125	s	<10
Garrett	27	s	<10	<10
Harford	190	161	s	<10
Howard	160	107	s	<10
Kent	18	14	<10	<10
Montgomery	624	433	146	45
Prince George's	654	133	499	22
Queen Anne's	28	s	<10	<10
St. Mary's	63	52	s	<10
Somerset	11	<10	<10	<10
Talbot	26	21	<10	<10
Washington	119	113	<10	<10
Wicomico	69	49	s	<10
Worcester	53	49	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 37.
Female Breast Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2013-2017

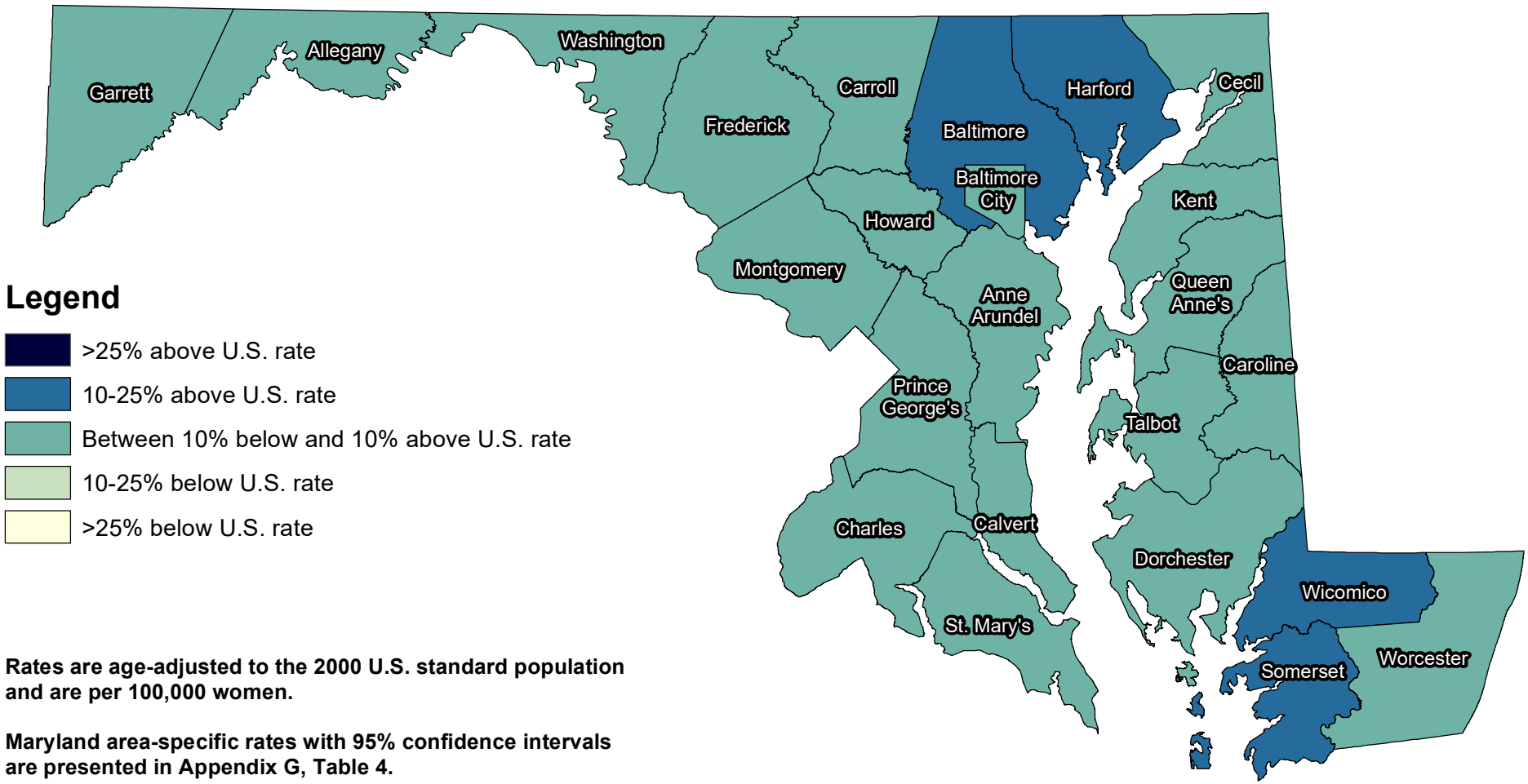
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	21.8	19.9	27.9	9.7
Allegany	17.5	17.6	**	**
Anne Arundel	20.7	19.6	30.4	**
Baltimore City	26.5	24.6	27.8	**
Baltimore	22.6	20.4	29.4	**
Calvert	23.7	23.0	**	**
Caroline	19.7	**	**	**
Carroll	23.0	22.3	**	**
Cecil	18.9	19.1	**	**
Charles	23.9	21.6	27.2	**
Dorchester	23.1	**	**	**
Frederick	20.3	19.9	**	**
Garrett	23.1	23.3	**	**
Harford	23.1	22.1	35.4	**
Howard	17.5	16.8	28.1	**
Kent	**	**	**	**
Montgomery	18.5	18.3	27.3	8.3
Prince George's	25.4	19.6	27.7	16.2
Queen Anne's	15.9	17.5	**	**
St. Mary's	21.6	21.5	**	**
Somerset	**	**	**	**
Talbot	13.3	11.0	**	**
Washington	23.2	22.9	**	**
Wicomico	21.1	19.8	25.6	**
Worcester	23.2	25.3	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Female Breast Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

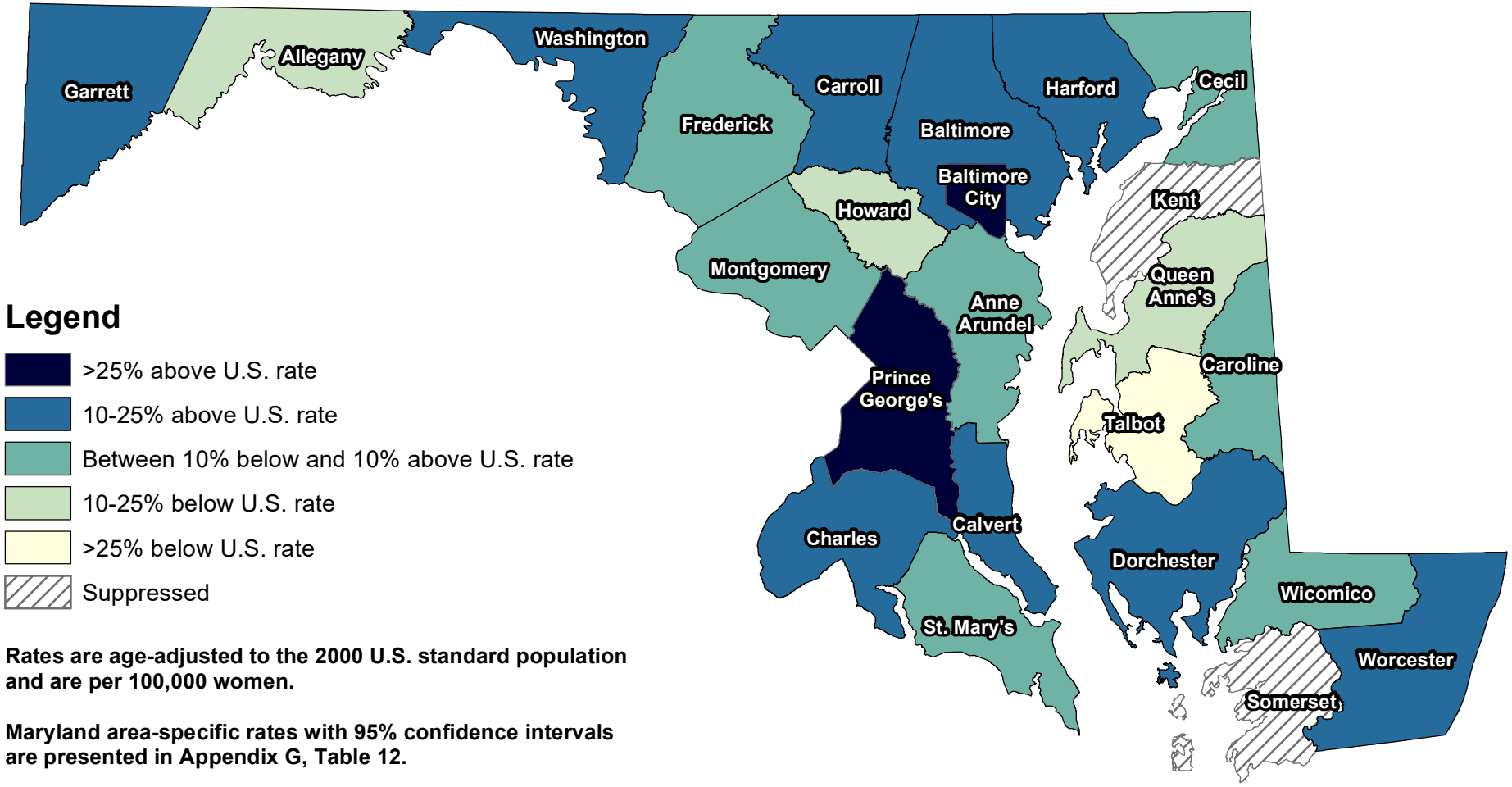
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 4.

U.S. female breast cancer incidence rate, 2013-2017: 126.8 / 100,000

Maryland female breast cancer incidence rate, 2013-2017: 131.7 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Female Breast Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



Legend

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

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 G, Table 12.

U.S. female breast cancer mortality rate, 2013-2017: 20.3 / 100,000

Maryland female breast cancer mortality rate, 2013-2017: 21.8 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

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D. Prostate Cancer

Incidence (New Cases)

In 2017, a total of 4,605 cases of prostate cancer were reported among men in Maryland. The age-adjusted prostate cancer incidence rate in Maryland for 2017 was 130.6 per 100,000 men (126.8-134.6, 95% CI), which is statistically significantly higher than the 2017 U.S. SEER age-adjusted prostate cancer incidence rate of 111.0 per 100,000 men (110.1-111.9, 95% CI).

Mortality (Deaths)

Prostate cancer is the second leading cause of cancer death among men in Maryland after lung cancer. In 2017, 555 men died of prostate cancer in Maryland, accounting for 5.1% of all cancer deaths and 10.1% of cancer deaths among men in Maryland. The 2017 age-adjusted mortality rate for prostate cancer in Maryland was 19.5 per 100,000 men (17.8-21.1, 95% CI). This rate is statistically similar to the 2017 U.S. prostate cancer mortality rate of 18.9 per 100,000 men (18.6-19.1, 95% CI). Maryland had the 17th highest prostate cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

Table 38.
Prostate Cancer Incidence and Mortality Rates
by Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Whites*	*Blacks*	*Other*
MD New Cases (count)	4,605	2,690	1,705	143
MD Incidence Rate	130.6	111.9	187.6	65.5
U.S. SEER Rate	111.0	101.9	172.2	56.2
Mortality 2017	*Total*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	555	342	199	14
MD Mortality Rate	19.5	16.7	31.2	**
U.S. Mortality Rate	18.9	17.8	36.4	9.0

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

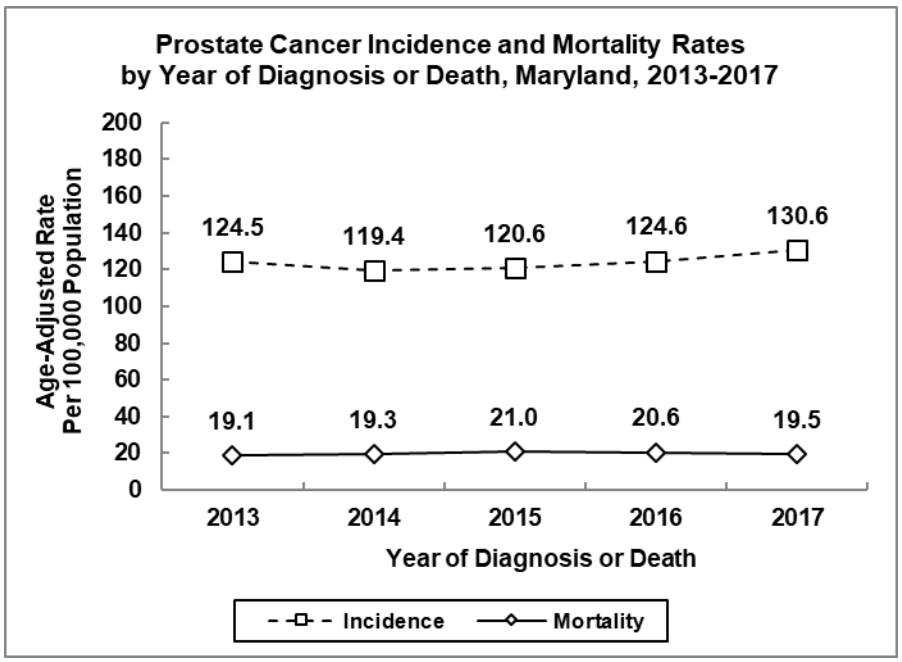
* Total includes unknown race and unknown jurisdiction

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

s = Death counts are suppressed to prevent disclosure of data in other cell(s)

** MD mortality rates based on death counts of 0-19 are suppressed per MDH/CCPC Mortality Data Suppression Policy

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



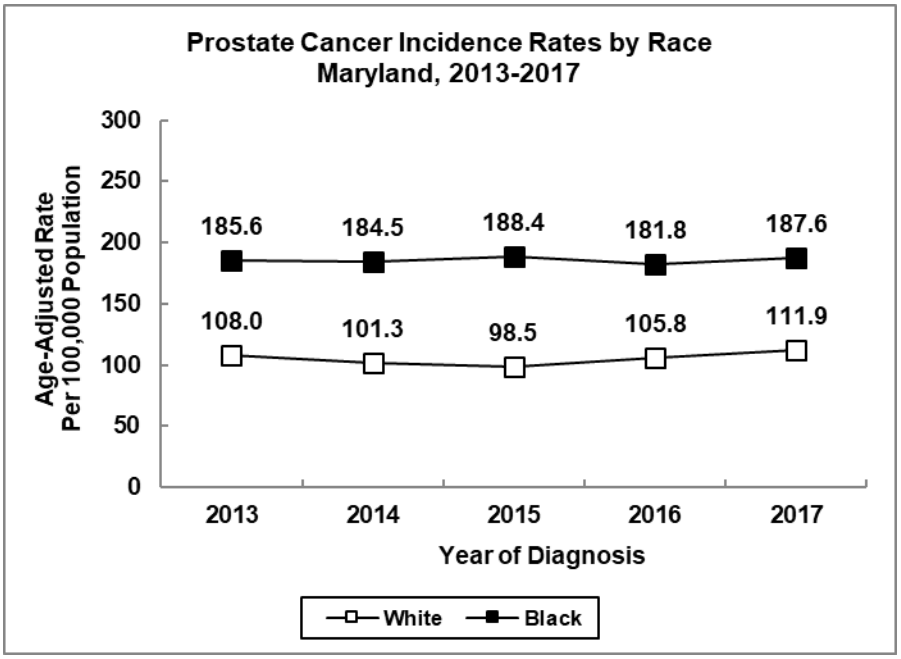
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

The prostate cancer incidence rate in Maryland increased at a rate of 1.4% per year from 2013 to 2017.

Prostate cancer mortality rates increased from 2013 to 2017, with a yearly increase of 1.1%.

See Appendix H, Tables 1 and 2.



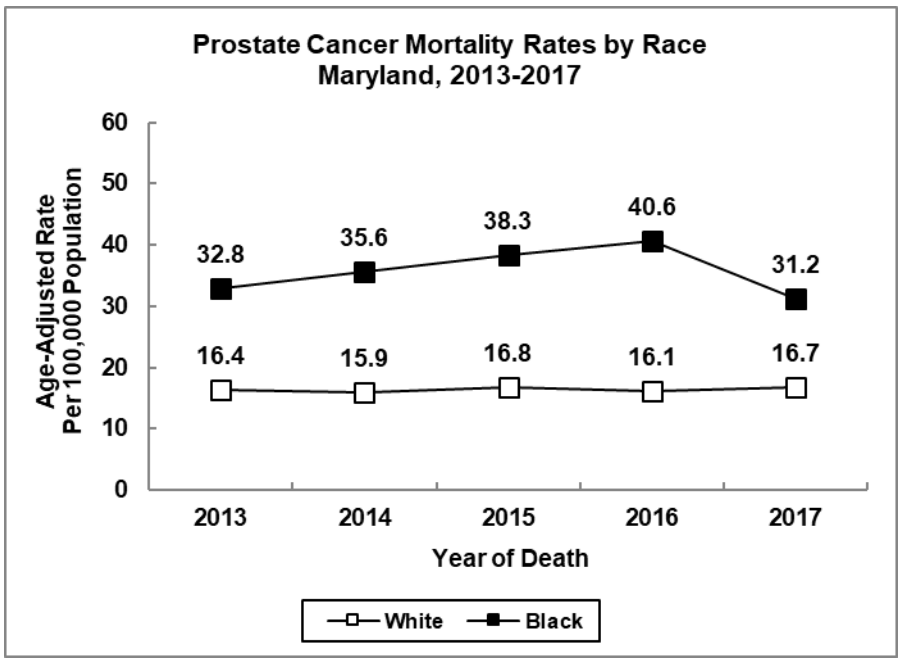
Source: Maryland Cancer Registry

Incidence Trends by Race

From 2013 to 2017, black men consistently had higher prostate cancer incidence rates than white men.

During this 5-year period, incidence rates increased 0.1% per year among black men and 1.2% per year among white men.

See Appendix H, Table 3.



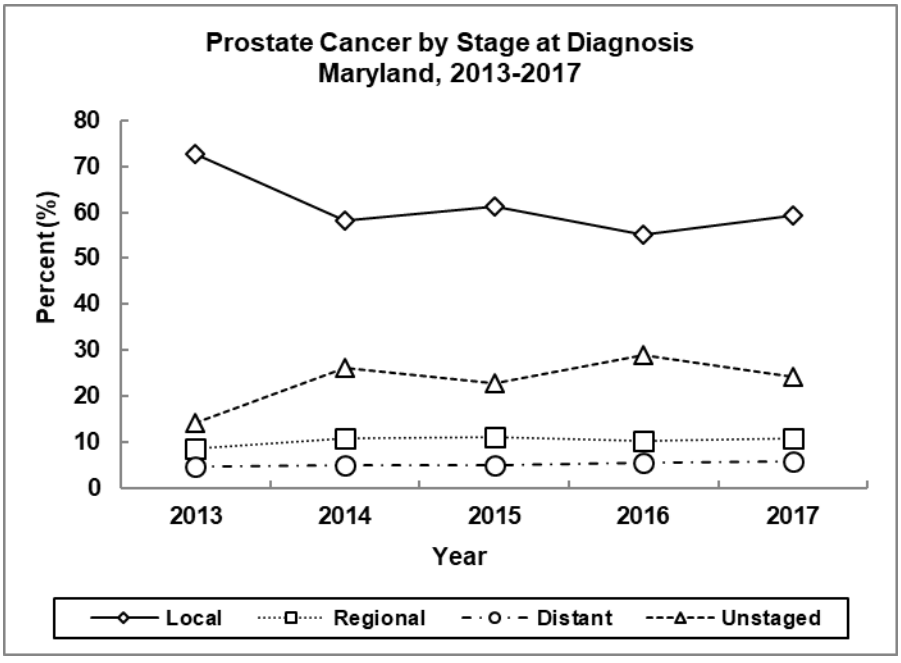
Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

From 2013 to 2017, black men consistently had higher prostate cancer mortality rates than white men.

During this 5-year period, mortality rates increased 0.3% per year among black men and increased 0.5% per year among white men.

See Appendix H, Table 5.

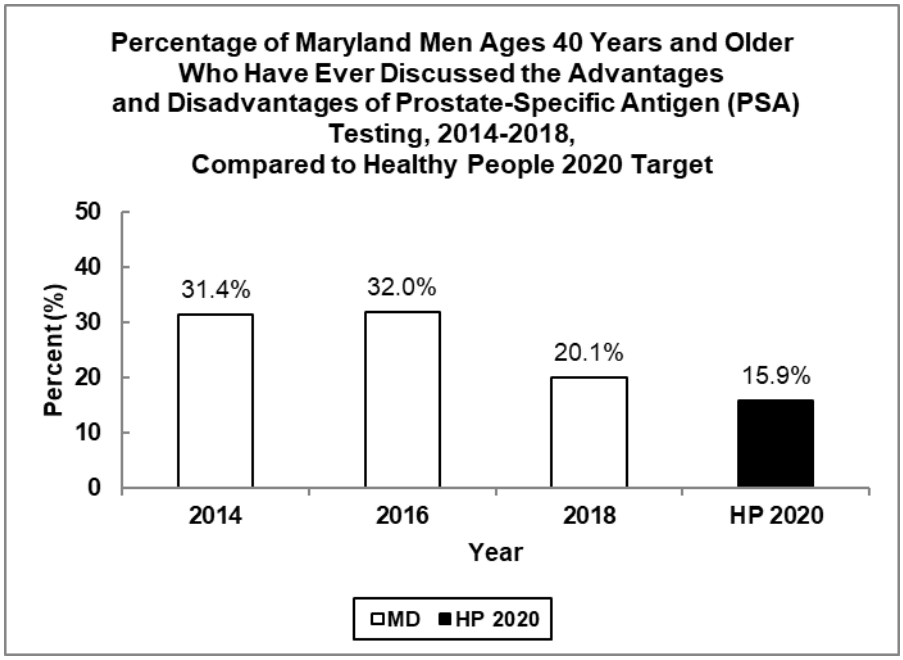


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

Of prostate cancers diagnosed in Maryland in 2017, most (59.3%) were detected at the local stage, 10.7% were found at the regional stage, and 5.8% were diagnosed at the distant stage. In 2017, 24.3% of prostate cancers were reported as unstaged.

See Appendix I, Table 5.



Source: Maryland BRFSS 2014, 2016, 2018
Healthy People 2020, U.S. Department of Health and Human Services

Prostate-Specific Antigen Test

In 2018, 20.1% Maryland men ages 40 years and older reported that they had discussed both the advantages and the disadvantages of a PSA test with a healthcare provider. This surpasses the Healthy People 2020 target of 15.9%.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 5/10/2019 and 4/10/2019, and the United States Preventive Services Task Force [USPSTF], 5/2018)

Prevention

Avoiding risk factors may help prevent cancer. The following risk factors may increase the risk of prostate cancer:

- Age, as the chance of developing prostate cancer increases as men get older, especially after age 50.
- Family history of prostate cancer.
- Race, as prostate cancer occurs more often in African American men than in white men.
- Hormones (dihydrotestosterone).
- Vitamin E taken alone.
- Taking 1 mg folic acid supplements.
- A diet high in dairy foods and calcium.

Increasing protective factors may help prevent cancer. The following protective factors may decrease the risk of prostate cancer:

- A diet with enough folate.
- Taking finasteride or dutasteride has been shown to lower the risk for prostate cancer, but it is not known if these drugs lower the risk of death from prostate cancer. In studies, men who took finasteride or dutasteride reported more side effects (e.g., erectile dysfunction, loss of desire for sex, enlarged breasts) compared to the group of men who did not.

The following have been proven not to affect the risk of prostate cancer, or their effects on prostate cancer risk are unknown:

- Taking selenium (a mineral) alone or selenium and vitamin E together.
- Decreasing fats or increasing fruits and vegetables in the diet.
- Regular use of multivitamins has not been proven to increase the risk of early or localized prostate cancer. However, a large study showed an increased risk of advanced prostate cancer among men who took multivitamins more than seven times a week.
- A diet high in lycopene, or taking lycopene supplements.

Screening

There is no standard or routine screening test for prostate cancer. Digital rectal exams and prostate-specific antigen (PSA) are currently being used or studied to screen for prostate cancer. Studies are being done to find ways to make PSA testing more accurate for early prostate cancer detection. If a man had a high PSA level and a biopsy of the prostate did not show cancer and the PSA level remains high after the biopsy, a test called the prostate cancer gene 3 (PCA3) RNA may be done. If the PCA3 RNA level is higher than normal, another biopsy may help diagnose prostate cancer.

According to the USPSTF, for men ages 55 to 69 years old, the decision to undergo periodic PSA–based screening for prostate cancer should be an individual one. Before deciding whether to be screened, men should have an opportunity to discuss the potential benefits and harms of screening with their clinician and to incorporate their values and preferences in the decision. Screening

offers a small potential benefit of reducing the chance of death from prostate cancer in some men. However, many men will experience potential harms of screening, including false-positive results that require additional testing and possible prostate biopsy; overdiagnosis and overtreatment; and treatment complications, such as incontinence and erectile dysfunction. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the balance of benefits and harms on the basis of family history, race/ethnicity, comorbid medical conditions, patient values about the benefits and harms of screening and treatment-specific outcomes, and other health needs. Clinicians should not screen men who do not express a preference for screening. The USPSTF recommends against PSA-based screening for prostate cancer in men ages 70 years and older.

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

Individuals should discuss risk factors for prostate cancer, ways to prevent prostate cancer, and screening tests with their healthcare provider.

Note: For information on the Prostate Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 39.
Number of Prostate Cancer Cases by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	4,605	2,690	1,705	143
Allegany	67	58	9	0
Anne Arundel	380	292	78	9
Baltimore City	409	97	303	<6
Baltimore	684	435	211	25
Calvert	68	52	16	0
Caroline	28	24	<6	0
Carroll	149	134	6	<6
Cecil	73	62	11	0
Charles	122	52	64	<6
Dorchester	26	s	14	<6
Frederick	140	112	23	<6
Garrett	22	22	0	0
Harford	220	176	37	<6
Howard	217	156	46	13
Kent	21	18	<6	0
Montgomery	758	498	184	57
Prince George's	726	112	589	11
Queen Anne's	56	45	11	0
St. Mary's	66	48	15	<6
Somerset	17	12	<6	<6
Talbot	62	56	6	0
Washington	117	104	13	0
Wicomico	84	51	31	0
Worcester	48	37	s	<6

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 40.
Prostate Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	130.6	111.9	187.6	65.5
Allegany	134.4	120.9	**	0.0
Anne Arundel	111.3	102.7	173.6	**
Baltimore City	130.3	90.8	150.8	**
Baltimore	135.0	116.0	195.4	91.6
Calvert	121.0	109.4	211.0	0.0
Caroline	129.6	128.5	**	0.0
Carroll	128.4	121.7	**	**
Cecil	114.3	105.3	**	0.0
Charles	132.2	97.8	169.2	**
Dorchester	115.7	**	**	**
Frederick	97.7	87.2	247.2	**
Garrett	94.5	95.2	0.0	0.0
Harford	137.6	126.6	226.7	**
Howard	119.2	116.2	198.2	**
Kent	115.2	114.1	**	0.0
Montgomery	127.1	119.7	218.5	59.7
Prince George's	152.7	90.2	183.6	**
Queen Anne's	155.1	135.9	**	0.0
St. Mary's	101.4	88.9	**	**
Somerset	102.1	**	**	**
Talbot	184.5	188.5	**	0.0
Washington	118.9	114.8	**	0.0
Wicomico	141.9	115.1	256.4	0.0
Worcester	111.5	96.8	**	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 41.
Number of Deaths for Prostate Cancer by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	555	342	199	14
Allegany	<10	<10	<10	<10
Anne Arundel	59	50	<10	<10
Baltimore City	69	s	54	<10
Baltimore	99	74	s	<10
Calvert	<10	<10	<10	<10
Caroline	<10	<10	<10	<10
Carroll	14	11	<10	<10
Cecil	13	12	<10	<10
Charles	10	<10	<10	<10
Dorchester	<10	<10	<10	<10
Frederick	<10	<10	<10	<10
Garrett	<10	<10	<10	<10
Harford	20	18	<10	<10
Howard	14	11	<10	<10
Kent	<10	<10	<10	<10
Montgomery	81	53	s	<10
Prince George's	90	s	70	<10
Queen Anne's	<10	<10	<10	<10
St. Mary's	<10	<10	<10	<10
Somerset	<10	<10	<10	<10
Talbot	<10	<10	<10	<10
Washington	12	10	<10	<10
Wicomico	10	<10	<10	<10
Worcester	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 42.
Prostate Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	19.5	16.7	31.2	**
Allegany	**	**	**	**
Anne Arundel	23.4	23.0	**	**
Baltimore City	27.8	**	34.9	**
Baltimore	21.3	19.2	34.7	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	16.0	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	15.5	13.8	36.8	**
Prince George's	26.0	**	31.8	**
Queen Anne's	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 43.

Number of Prostate Cancer Cases by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	20,871	12,229	7,783	594
Allegany	295	268	23	<6
Anne Arundel	1,783	1,405	333	36
Baltimore City	2,083	496	1,544	25
Baltimore	3,202	2,075	1,000	99
Calvert	311	241	70	0
Caroline	114	89	23	<6
Carroll	653	610	32	6
Cecil	379	340	35	<6
Charles	578	279	281	13
Dorchester	150	94	s	<6
Frederick	666	551	97	12
Garrett	105	103	<6	0
Harford	992	802	174	13
Howard	904	623	209	63
Kent	98	78	19	0
Montgomery	3,152	2,040	768	238
Prince George's	3,282	525	2,643	62
Queen Anne's	201	171	s	<6
St. Mary's	274	206	62	6
Somerset	89	51	s	<6
Talbot	197	170	27	0
Washington	479	423	52	<6
Wicomico	392	241	141	<6
Worcester	279	219	s	<6

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 44.

Prostate Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	124.1	105.2	185.6	59.7
Allegany	118.4	112.7	253.9	**
Anne Arundel	111.1	103.6	167.7	70.6
Baltimore City	138.4	93.1	164.4	77.6
Baltimore	131.0	112.1	207.9	87.0
Calvert	114.9	103.9	206.2	0.0
Caroline	112.5	101.8	177.6	**
Carroll	121.2	118.9	176.1	**
Cecil	122.4	118.1	210.0	**
Charles	145.9	117.0	192.7	**
Dorchester	126.5	101.3	212.0	**
Frederick	97.8	89.9	224.7	**
Garrett	92.9	90.5	**	0.0
Harford	129.0	119.0	237.9	**
Howard	103.9	98.5	176.8	53.4
Kent	122.8	110.1	196.3	0.0
Montgomery	110.6	101.9	193.1	54.1
Prince George's	148.8	87.8	179.3	48.4
Queen Anne's	115.5	106.9	244.7	**
St. Mary's	88.7	79.6	147.6	**
Somerset	107.6	85.4	154.2	**
Talbot	120.2	116.3	165.2	0.0
Washington	102.5	97.2	201.1	**
Wicomico	138.8	112.0	243.4	**
Worcester	121.2	106.5	281.2	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 45.
Number of Deaths for Prostate Cancer by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	2,657	1,595	1,009	53
Allegany	37	33	<10	<10
Anne Arundel	235	190	s	<10
Baltimore City	365	s	280	<10
Baltimore	415	297	s	<10
Calvert	48	36	s	<10
Caroline	s	12	<10	<10
Carroll	65	57	<10	<10
Cecil	46	40	<10	<10
Charles	51	31	s	<10
Dorchester	21	15	<10	<10
Frederick	83	73	<10	<10
Garrett	17	s	<10	<10
Harford	94	80	s	<10
Howard	101	74	s	<10
Kent	18	16	<10	<10
Montgomery	364	256	76	32
Prince George's	420	s	334	<10
Queen Anne's	20	18	<10	<10
St. Mary's	43	34	<10	<10
Somerset	<10	<10	<10	<10
Talbot	32	25	<10	<10
Washington	57	51	<10	<10
Wicomico	58	37	s	<10
Worcester	46	31	s	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 46.
Prostate Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2013-2017

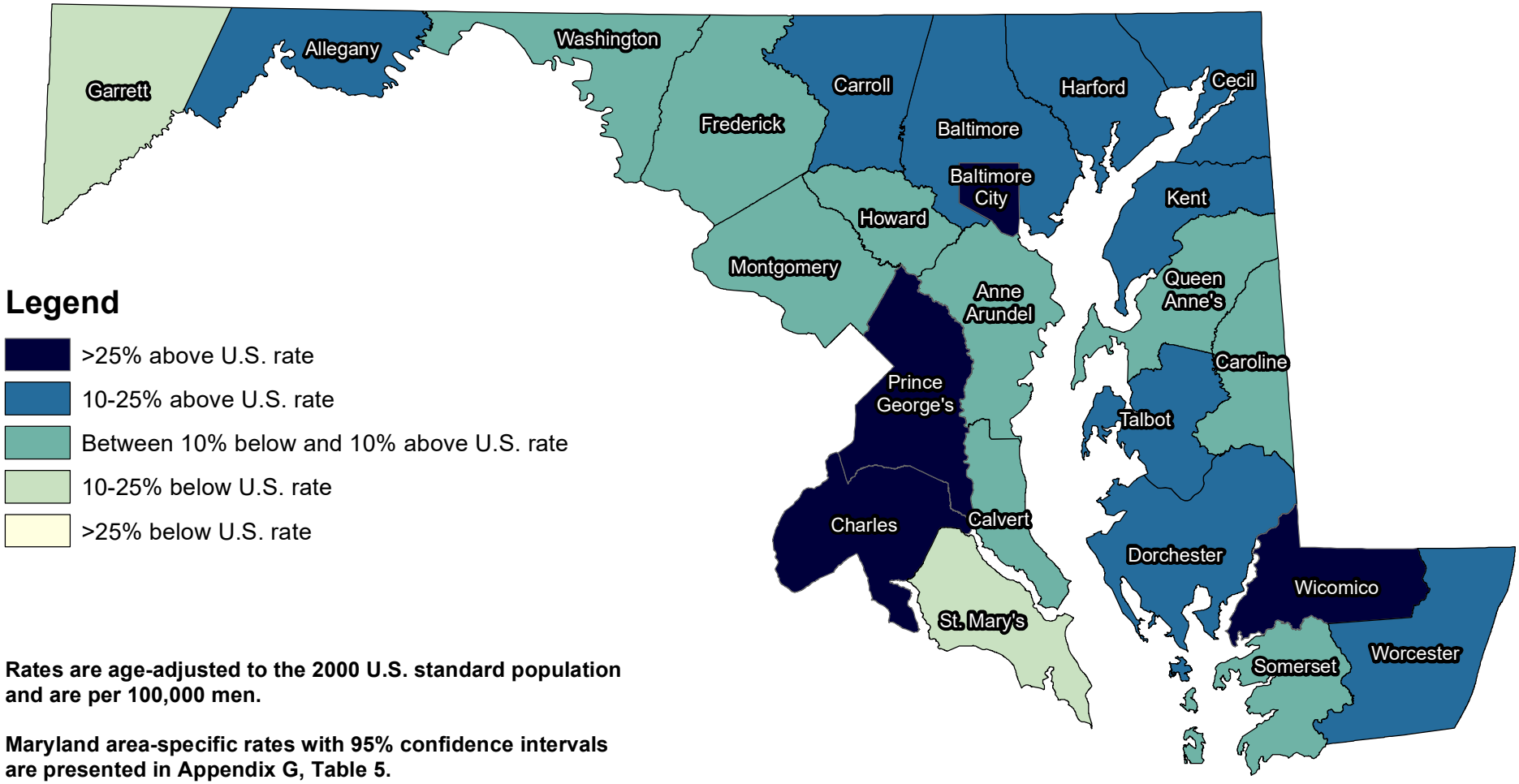
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	19.9	16.3	35.7	7.0
Allegany	16.0	14.6	**	**
Anne Arundel	20.1	18.9	32.2	**
Baltimore City	30.8	18.2	39.9	**
Baltimore	18.8	16.3	35.6	**
Calvert	25.3	22.1	**	**
Caroline	**	**	**	**
Carroll	16.0	14.9	**	**
Cecil	19.5	19.0	**	**
Charles	20.1	18.8	26.2	**
Dorchester	20.0	**	**	**
Frederick	15.7	15.2	**	**
Garrett	**	**	**	**
Harford	16.8	15.6	**	**
Howard	16.9	17.5	33.1	**
Kent	**	**	**	**
Montgomery	15.1	14.2	28.6	8.9
Prince George's	27.2	16.6	35.1	**
Queen Anne's	15.5	**	**	**
St. Mary's	18.3	17.4	**	**
Somerset	**	**	**	**
Talbot	18.4	15.8	**	**
Washington	14.1	13.3	**	**
Wicomico	25.4	20.7	48.1	**
Worcester	21.5	15.7	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Prostate Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

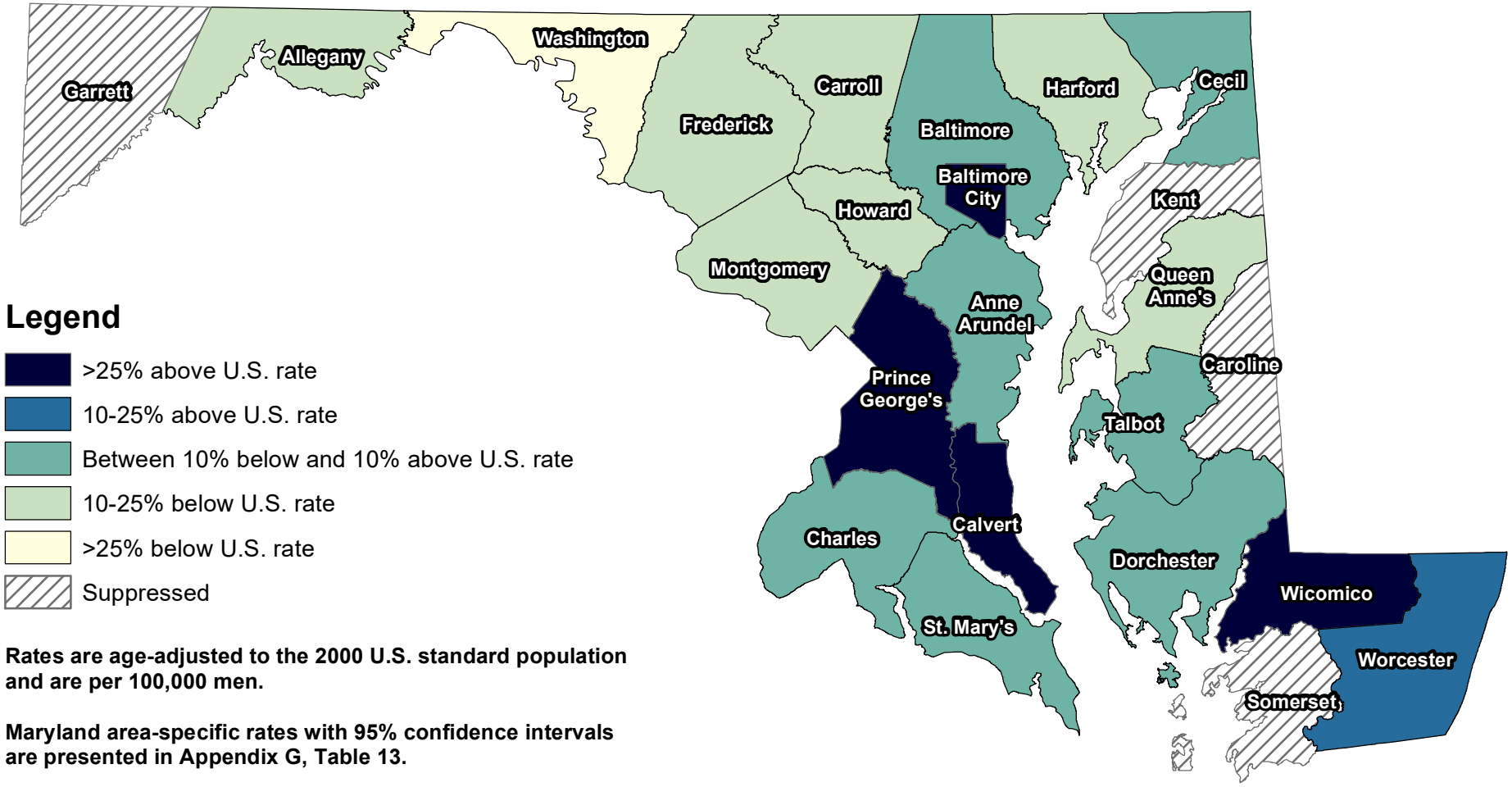
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 5.

U.S. prostate cancer incidence rate, 2013-2017: 107.0 / 100,000

Maryland prostate cancer incidence rate, 2013-2017: 124.1 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Prostate Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



Legend

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

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 G, Table 13.

U.S. prostate cancer mortality rate, 2013-2017: 19.1 / 100,000

Maryland prostate cancer mortality rate, 2013-2017: 19.9 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

E. Oral Cancer

Incidence (New Cases)

In 2017, a total of 859 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 2017 was 11.6 per 100,000 population (10.8-12.4, 95% CI), which is statistically similar to the 2017 U.S. SEER age-adjusted oral cancer incidence rate of 11.1 per 100,000 population (10.9-11.3, 95% CI).

Mortality (Deaths)

In 2017, 177 persons in Maryland died of oral cancer. The 2017 age-adjusted mortality rate for oral cancer in Maryland was 2.4 per 100,000 population (2.1-2.8, 95% CI), accounting for 1.6% of Maryland cancer deaths in 2017. This rate is statistically similar to the 2017 U.S. oral cancer mortality rate of 2.5 per 100,000 population (2.5-2.6, 95% CI). Maryland had the 27th highest oral cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

Table 47.
Oral Cancer Incidence and Mortality Rates
by Gender and Race, Maryland (MD) and the United States, 2017

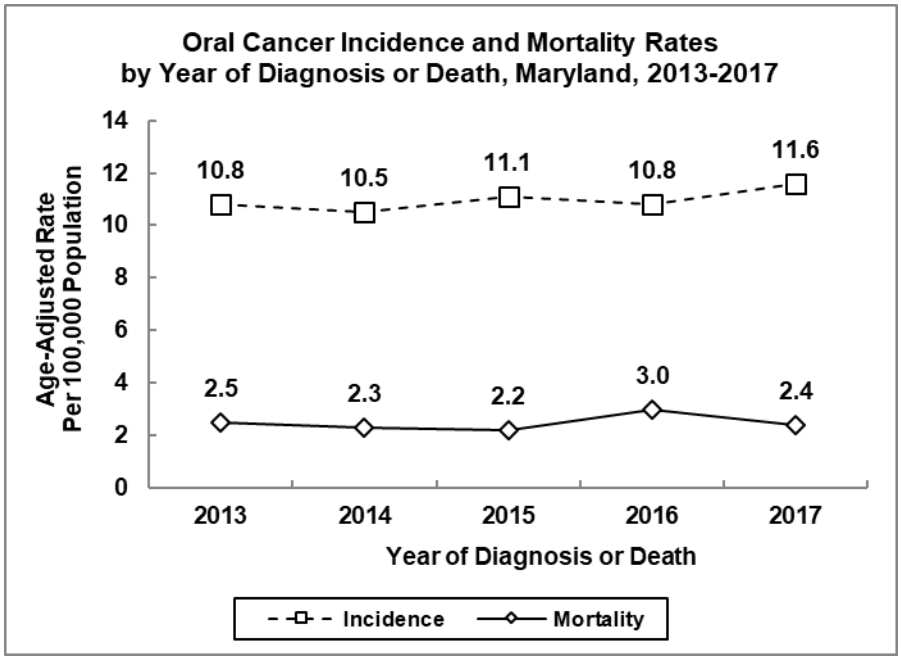
Incidence 2017	*Total**	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD New Cases (count)	859	596	263	671	153	28
MD Incidence Rate	11.6	17.3	6.8	13.8	7.6	5.4
U.S. SEER Rate	11.1	16.7	6.2	11.7	8.6	7.5
Mortality 2017	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	177	129	48	128	39	10
MD Mortality Rate	2.4	3.9	1.2	2.6	1.9	**
U.S. Mortality Rate	2.5	4.0	1.3	2.6	2.5	1.9

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

* Total also includes cases reported as transsexual, hermaphrodite, unknown gender, unknown race, and unknown jurisdiction

** MD mortality rates based on death counts of 0-19 are suppressed per MDH/CCPC Mortality Data Suppression Policy

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



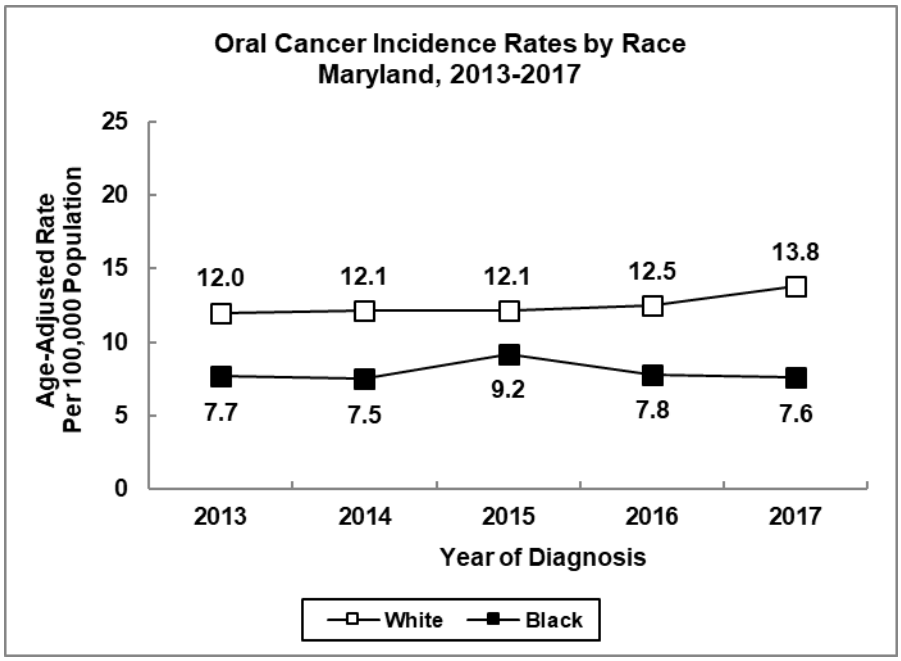
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

The incidence of oral cancer in Maryland increased at a rate of 1.7% per year from 2013 to 2017.

Oral cancer mortality rates increased from 2013 to 2017 at a rate of 1.9% annually.

See Appendix H, Tables 1 and 2.

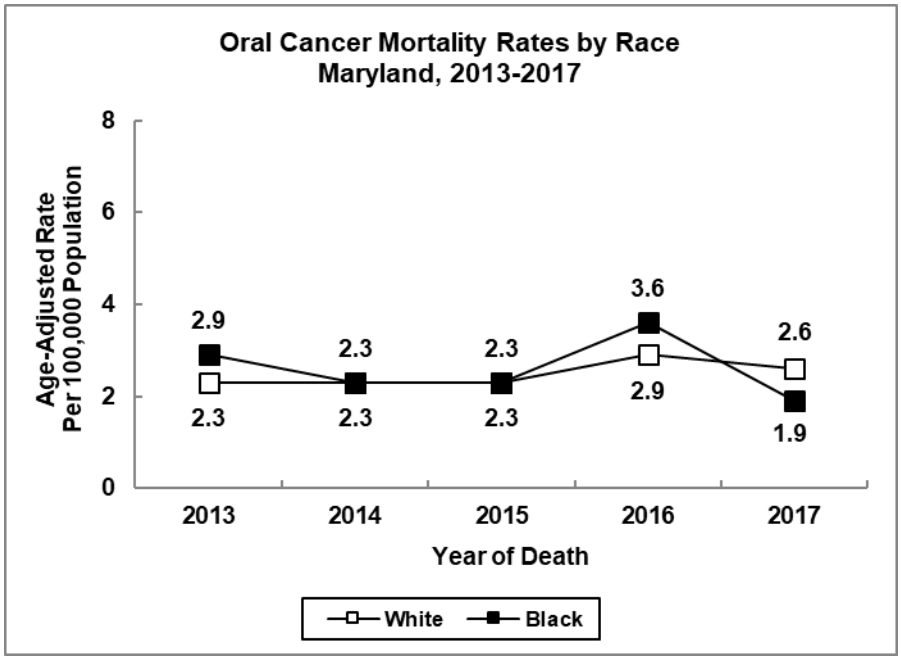


Source: Maryland Cancer Registry

Incidence Trends by Race

Over the 5-year period from 2013 to 2017, oral cancer incidence rates in Maryland increased at a rate of 0.1% per year for blacks and 3.2% per year for whites.

See Appendix H, Table 3.

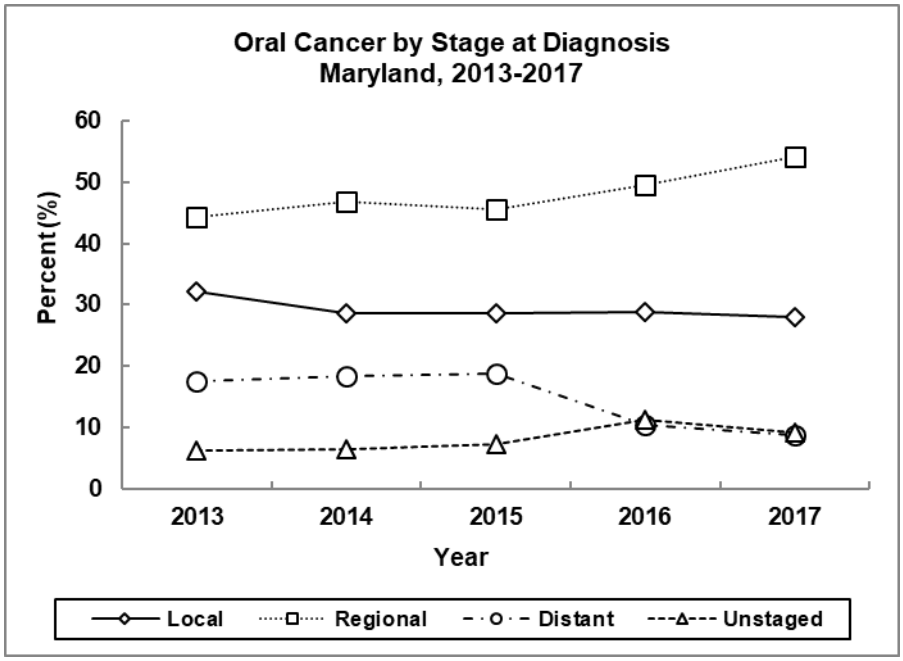


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

Over the 5-year period from 2013 to 2017, oral cancer mortality rates increased at a rate of 4.9% per year for whites and decreased at a rate of 3.9% per year for blacks.

See Appendix H, Table 5.

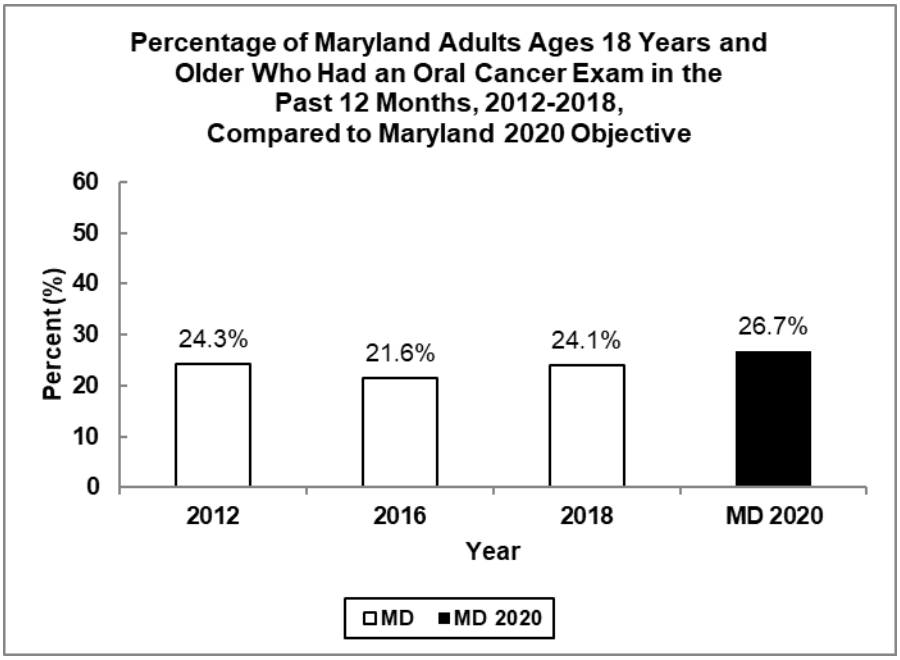


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

In 2017, 27.9% of oral cancers in Maryland were diagnosed at the local stage, 54.1% were diagnosed at the regional stage, and 8.8% were diagnosed at the distant stage. From 2013 to 2017, the proportion of oral cancers reported as unstaged increased at a rate of 14.5% per year.

See Appendix I, Table 6.



Source: Maryland BRFSS, 2012, 2016, 2018
Maryland Comprehensive Cancer Control Plan, 2016-2020

Oral Cancer Screening

Although there is no current Healthy People 2020 target for oral cancer screening, the 2020 objective from the Maryland Comprehensive Cancer Control Plan is to increase the proportion of adults ages 18 years and older who report having an oral cancer screening examination in the past 12 months to 26.7%.

In 2012, 2016, and 2018 Maryland fell short of this target. In 2018, 24.1% of Maryland adults reported that they had an oral cancer exam in the past year.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 3/18/2020 and 2/11/2021, and the United States Preventive Services Task Force [USPSTF], 11/2013)

Prevention

Avoiding risk factors may help prevent cancer. The following are risk factors for oral cancer [cancer of the oral cavity (the mouth) and oropharynx (the part of the throat at the back of the mouth)]:

- Tobacco use.
- Alcohol use.
- Tobacco *and* alcohol use (the risk is higher in people who use both tobacco and alcohol than it is in people who only use tobacco or only alcohol).
- Betel quid chewing.
- Personal history of head and neck cancer.
- Being infected with certain types of human papillomavirus (HPV), especially HPV-16.

Increasing protective factors may help prevent cancer. The following is a protective factor for oral cancer:

- Quitting smoking.

It is not clear whether avoiding these risk factors will decrease the risk of oral cancer:

- Some studies show that when people stop drinking alcohol, their risk of oral cavity cancer decreases within about 20 years.
- Although getting an HPV vaccination greatly lessens the risk of oral HPV infection, it is not yet known whether getting an HPV vaccination at any age will decrease the risk of oropharyngeal cancer from HPV infection.

Screening

There are no standard or routine screening tests for oral cancer, and no studies have shown that screening for oral cancer would decrease the risk of dying from this disease. A dentist or medical doctor may check the oral cavity during a routine check-up. The exam will include looking for lesions that may become cancerous. 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 by primary care providers; however, dental care providers and otolaryngologists may conduct a comprehensive examination of the oral cavity and pharynx during the clinical encounter.

Maryland Department of Health Office of Oral Health Public Health Interventions for Oral Cancer
• Avoid tobacco products. • Limit alcohol consumption. • Use lip balm that has an SPF of at least 15. • Eat a variety of fruits and vegetables. • Be aware of sexual behaviors leading to HPV exposure, and talk to a medical or dental provider about how the HPV vaccine might prevent oropharyngeal cancer. • Have an oral exam once a year, and ask the dental provider for an oral cancer exam during the visit.

Individuals should discuss risk factors for oral cancer, ways to prevent oral cancer, and screening tests with their healthcare provider.

Note: For information on the Oral Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 48.
Number of Oral Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	859	596	263	671	153	28
Allegany	15	10	<6	s	<6	0
Anne Arundel	88	68	20	79	6	<6
Baltimore City	93	66	27	s	51	<6
Baltimore	111	76	35	97	12	<6
Calvert	17	13	<6	17	0	0
Caroline	9	7	<6	7	<6	0
Carroll	27	16	11	s	<6	0
Cecil	19	13	6	19	0	0
Charles	18	16	<6	12	<6	<6
Dorchester	8	<6	<6	s	<6	0
Frederick	38	30	8	35	<6	<6
Garrett	<6	<6	<6	<6	0	0
Harford	47	30	17	42	<6	<6
Howard	36	24	12	28	<6	<6
Kent	<6	<6	0	<6	0	0
Montgomery	117	66	51	89	14	12
Prince George's	77	54	23	31	42	<6
Queen Anne's	11	9	<6	11	0	0
St. Mary's	22	15	7	20	<6	0
Somerset	6	<6	<6	<6	<6	0
Talbot	17	14	<6	15	<6	0
Washington	35	25	10	s	<6	0
Wicomico	22	16	6	19	<6	<6
Worcester	17	13	<6	s	<6	0

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 49.
Oral Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	11.6	17.3	6.8	13.8	7.6	5.4
Allegany	**	**	**	**	**	0.0
Anne Arundel	12.2	20.4	5.1	13.5	**	**
Baltimore City	13.6	21.1	7.7	18.3	11.3	**
Baltimore	10.6	15.7	6.4	12.8	**	**
Calvert	14.5	**	**	17.3	0.0	0.0
Caroline	**	**	**	**	**	0.0
Carroll	12.2	15.0	**	12.4	**	0.0
Cecil	12.4	**	**	13.3	0.0	0.0
Charles	11.1	20.9	**	**	**	**
Dorchester	**	**	**	**	**	0.0
Frederick	12.8	21.9	**	13.1	**	**
Garrett	**	**	**	**	0.0	0.0
Harford	14.1	18.7	9.7	13.9	**	**
Howard	9.5	13.4	**	11.6	**	**
Kent	**	**	0.0	**	0.0	0.0
Montgomery	9.2	11.0	7.6	10.6	**	**
Prince George's	7.5	12.1	4.1	11.9	6.2	**
Queen Anne's	**	**	**	**	0.0	0.0
St. Mary's	15.9	**	**	17.7	**	0.0
Somerset	**	**	**	**	**	0.0
Talbot	21.8	**	**	**	**	0.0
Washington	18.1	28.7	**	19.2	**	0.0
Wicomico	19.7	28.4	**	24.4	**	**
Worcester	18.2	**	**	19.3	**	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 50.
Number of Deaths for Oral Cancer by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	177	129	48	128	39	10
Allegany	<10	<10	<10	<10	<10	<10
Anne Arundel	14	<10	<10	s	<10	<10
Baltimore City	22	s	<10	<10	16	<10
Baltimore	25	s	<10	22	<10	<10
Calvert	<10	<10	<10	<10	<10	<10
Caroline	<10	<10	<10	<10	<10	<10
Carroll	<10	<10	<10	<10	<10	<10
Cecil	<10	<10	<10	<10	<10	<10
Charles	<10	<10	<10	<10	<10	<10
Dorchester	<10	<10	<10	<10	<10	<10
Frederick	<10	<10	<10	<10	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	<10	<10	<10	<10	<10	<10
Howard	12	<10	<10	<10	<10	<10
Kent	<10	<10	<10	<10	<10	<10
Montgomery	25	s	<10	21	<10	<10
Prince George's	20	s	<10	<10	14	<10
Queen Anne's	<10	<10	<10	<10	<10	<10
St. Mary's	<10	<10	<10	<10	<10	<10
Somerset	<10	<10	<10	<10	<10	<10
Talbot	<10	<10	<10	<10	<10	<10
Washington	<10	<10	<10	<10	<10	<10
Wicomico	<10	<10	<10	<10	<10	<10
Worcester	<10	<10	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 51.
Oral Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.4	3.9	1.2	2.6	1.9	**
Allegany	**	**	**	**	**	**
Anne Arundel	**	**	**	**	**	**
Baltimore City	3.3	**	**	**	**	**
Baltimore	2.3	**	**	2.7	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	2.0	**	**	2.5	**	**
Prince George's	2.0	**	**	**	**	**
Queen Anne's	**	**	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 52.
Number of Oral Cancer Cases by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	3,896	2,736	1,160	2,956	764	153
Allegany	66	42	24	64	<6	0
Anne Arundel	420	301	119	377	29	11
Baltimore City	413	292	121	170	238	<6
Baltimore	573	388	185	462	96	13
Calvert	78	58	20	66	12	0
Caroline	28	25	<6	24	<6	<6
Carroll	142	105	37	s	<6	<6
Cecil	92	67	25	84	<6	<6
Charles	99	79	20	73	21	<6
Dorchester	29	25	<6	24	<6	0
Frederick	167	120	47	153	9	<6
Garrett	24	16	8	24	0	0
Harford	170	113	57	156	10	<6
Howard	159	112	47	118	22	17
Kent	24	18	6	s	<6	0
Montgomery	549	346	203	417	58	69
Prince George's	368	255	113	147	200	17
Queen Anne's	41	35	6	s	<6	0
St. Mary's	103	74	29	87	14	<6
Somerset	22	18	<6	15	7	0
Talbot	52	41	11	48	<6	0
Washington	116	90	26	113	<6	0
Wicomico	90	66	24	70	17	<6
Worcester	62	44	18	55	<6	<6

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 53.
Oral Cancer Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	11.0	16.7	6.2	12.5	8.0	6.7
Allegany	13.8	18.2	8.6	14.0	**	0.0
Anne Arundel	12.6	19.2	6.9	13.7	6.1	**
Baltimore City	12.3	19.6	6.5	15.6	10.8	**
Baltimore	11.0	16.5	6.5	12.2	8.8	**
Calvert	13.6	19.9	7.3	13.5	**	0.0
Caroline	13.3	25.4	**	13.5	**	**
Carroll	12.9	19.8	6.4	13.4	**	**
Cecil	14.3	20.6	8.1	13.8	**	**
Charles	12.2	20.9	4.9	15.0	7.1	**
Dorchester	14.4	27.4	**	16.3	**	0.0
Frederick	11.6	17.4	6.5	12.0	**	**
Garrett	11.6	16.3	**	11.7	0.0	0.0
Harford	10.7	14.8	6.9	11.3	**	**
Howard	9.0	13.4	5.2	9.7	7.5	6.6
Kent	13.1	21.3	**	14.9	**	0.0
Montgomery	9.2	12.9	6.3	10.3	6.3	7.2
Prince George's	7.7	12.1	4.3	11.5	6.2	6.1
Queen Anne's	12.0	20.4	**	12.8	**	0.0
St. Mary's	16.7	24.0	9.7	17.1	**	**
Somerset	13.7	22.3	**	**	**	0.0
Talbot	16.9	27.5	**	17.9	**	0.0
Washington	12.0	19.6	5.3	12.6	**	0.0
Wicomico	15.3	24.0	7.8	16.3	12.9	**
Worcester	13.3	20.3	7.2	13.1	**	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 54.
Number of Deaths for Oral Cancer by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	866	602	264	594	236	36
Allegany	19	s	<10	19	<10	<10
Anne Arundel	88	67	21	75	s	<10
Baltimore City	132	88	44	s	92	<10
Baltimore	125	77	48	104	s	<10
Calvert	14	s	<10	10	<10	<10
Caroline	<10	<10	<10	<10	<10	<10
Carroll	19	s	<10	s	<10	<10
Cecil	14	<10	<10	12	<10	<10
Charles	24	s	<10	15	<10	<10
Dorchester	10	<10	<10	s	<10	<10
Frederick	26	s	<10	22	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	27	16	11	23	<10	<10
Howard	31	19	12	19	<10	<10
Kent	<10	<10	<10	<10	<10	<10
Montgomery	108	70	38	83	10	15
Prince George's	110	79	31	s	64	<10
Queen Anne's	<10	<10	<10	<10	<10	<10
St. Mary's	22	s	<10	20	<10	<10
Somerset	<10	<10	<10	<10	<10	<10
Talbot	<10	<10	<10	<10	<10	<10
Washington	23	s	<10	s	<10	<10
Wicomico	22	s	<10	14	<10	<10
Worcester	20	s	<10	16	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 55.
Oral Cancer Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

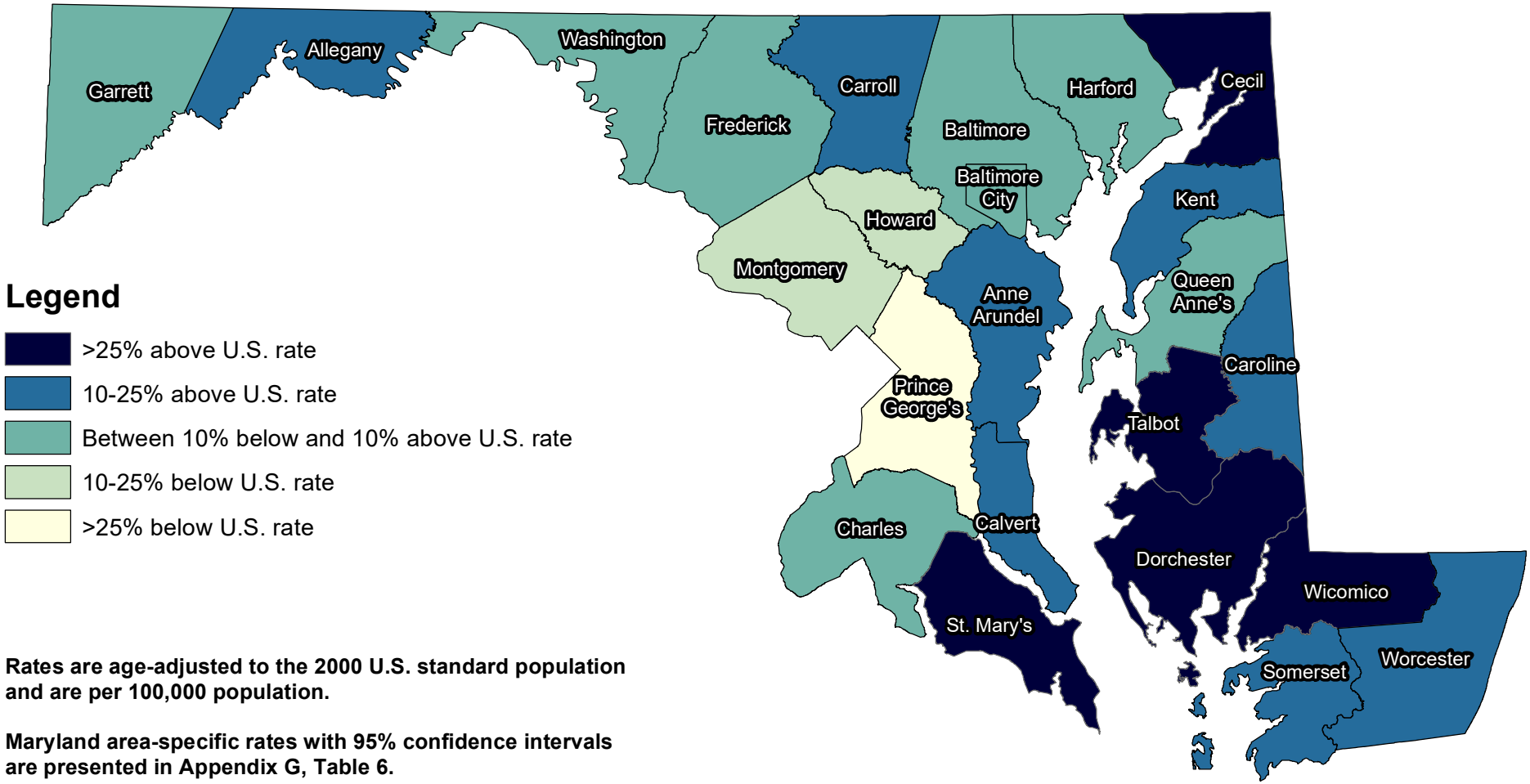
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.5	3.9	1.4	2.5	2.6	1.6
Allegany	**	**	**	**	**	**
Anne Arundel	2.7	4.5	1.3	2.8	**	**
Baltimore City	4.1	6.5	2.3	3.6	4.5	**
Baltimore	2.3	3.4	1.5	2.5	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	2.8	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	1.8	3.0	**	1.7	**	**
Garrett	**	**	**	**	**	**
Harford	1.8	**	**	1.8	**	**
Howard	1.9	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	1.8	2.7	1.2	2.0	**	**
Prince George's	2.4	4.1	1.2	3.4	2.0	**
Queen Anne's	**	**	**	**	**	**
St. Mary's	3.6	**	**	4.0	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	2.4	**	**	2.6	**	**
Wicomico	3.7	**	**	**	**	**
Worcester	4.3	**	**	**	**	**

* 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Oral Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

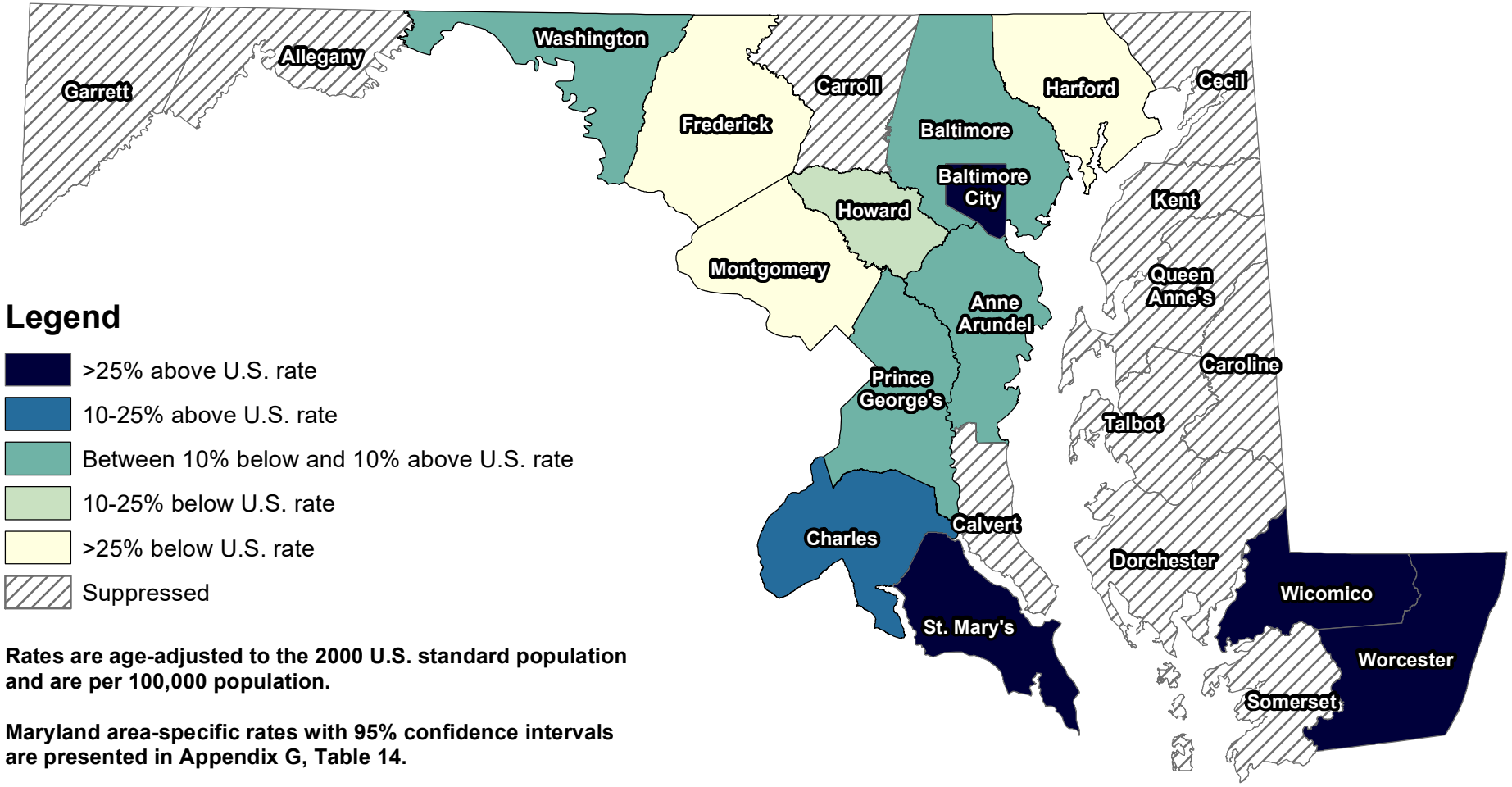
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 6.

U.S. oral cancer incidence rate, 2013-2017: 11.4 / 100,000

Maryland oral cancer incidence rate, 2013-2017: 11.0 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Oral Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



Legend

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

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 G, Table 14.

U.S. oral cancer mortality rate, 2013-2017: 2.5 / 100,000

Maryland oral cancer mortality rate, 2013-2017: 2.5 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

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 MCR. Melanoma is less frequent but is the most serious type of skin cancer and is reportable to the MCR.

Incidence (New Cases)

In 2017, a total of 1,753 cases of melanoma of the skin were reported in Maryland. The age-adjusted incidence rate for melanoma in 2017 was 25.0 per 100,000 population (23.8-26.2, 95% CI), which is statistically significantly higher than the 2017 U.S. SEER age-adjusted melanoma incidence rate of 23.5 per 100,000 population (23.2-23.8, 95% CI).

Mortality (Deaths)

In 2017, a total of 112 persons died of melanoma in Maryland. The 2017 age-adjusted mortality rate for melanoma in Maryland was 1.6 per 100,000 population (1.3-1.9, 95% CI). This rate is statistically significantly lower than the 2017 U.S. melanoma of the skin mortality rate of 2.1 per 100,000 population (2.0-2.1, 95% CI). Maryland had the 46th highest melanoma cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

Table 56.
Melanoma Incidence and Mortality Rates
by Gender and Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD New Cases (count)	1,753	1,026	727	1,703	18	10
MD Incidence Rate	25.0	32.3	19.8	37.4	0.9	**
U.S. SEER Rate	23.5	30.4	18.5	28.3	1.0	1.5
Mortality 2017	*Total*	*Males*	*Females*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	112	62	50	109	<10	<10
MD Mortality Rate	1.6	2.1	1.3	2.3	**	**
U.S. Mortality Rate	2.1	3.1	1.3	2.4	0.3	0.3

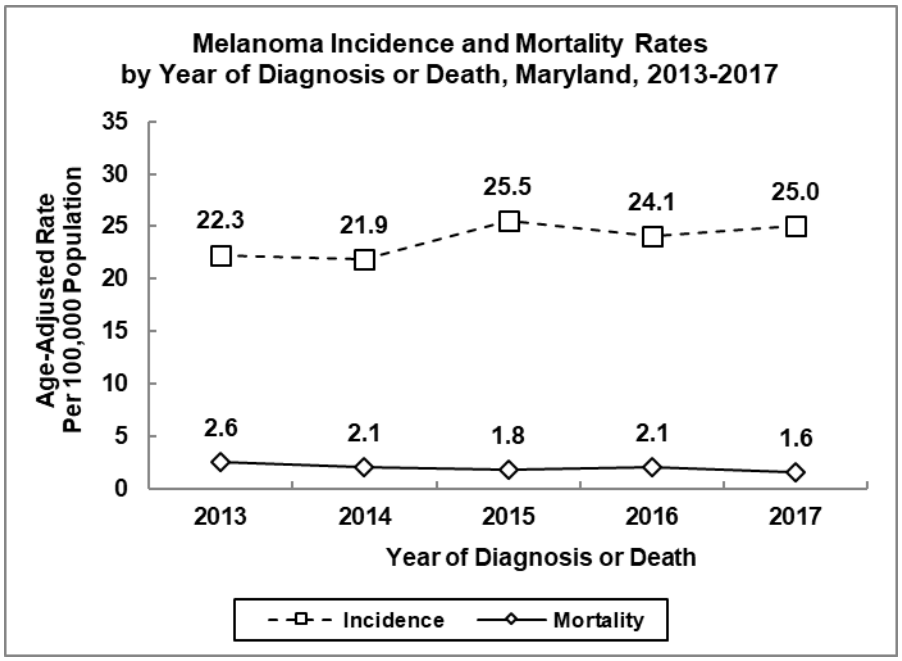
Rates are per 100,000 population and are age-adjusted to 2000 U.S. standard population

* Total also includes cases reported as transsexual, hermaphrodite, unknown gender, unknown race, and unknown jurisdiction

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

** MD incidence rates based on case counts of 1-15 are suppressed per MDH/MCR Data Use Policy and Procedures; MD mortality rates based on death counts of 0-19 are suppressed per MDH/CCPC Mortality Data Suppression Policy

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



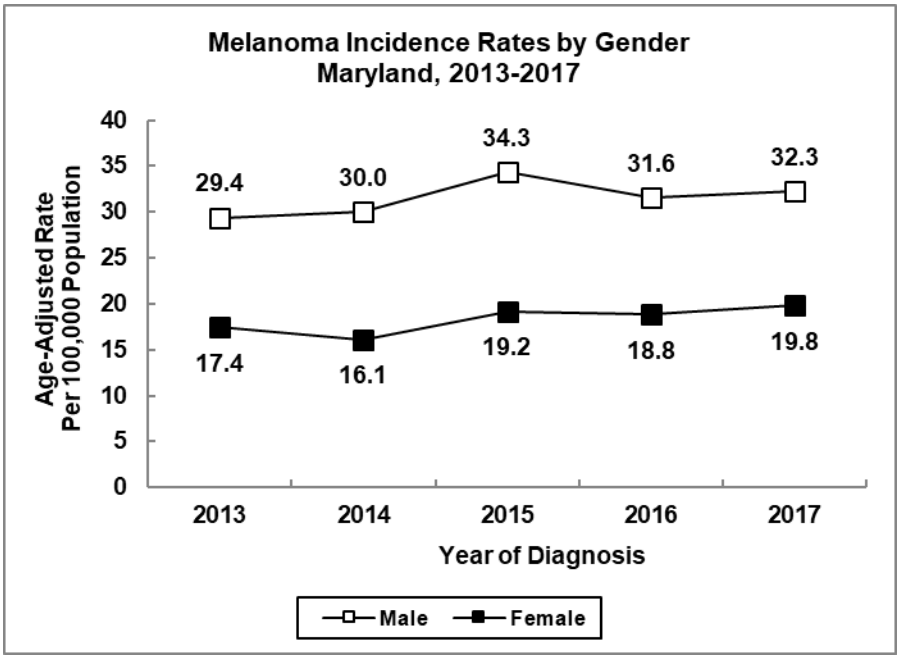
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

Melanoma incidence rates in Maryland increased at a rate of 3.3% per year from 2013 to 2017.

Melanoma mortality rates decreased at a rate of 9.3% per year from 2013 to 2017.

See Appendix H, Tables 1 and 2.

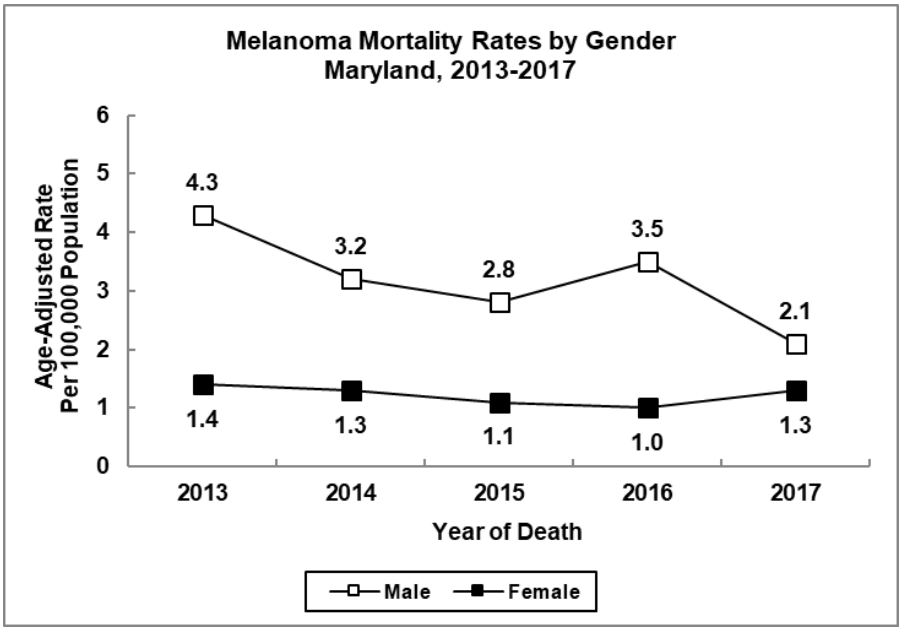


Source: Maryland Cancer Registry

Incidence Trends by Gender

Over the 5-year period from 2013 to 2017, incidence rates increased at a rate of 2.4% per year among males and increased at a rate of 4.2% per year among females. In 2017, melanoma incidence rates were 63.1% higher among males than females in Maryland.

See Appendix H, Table 4.

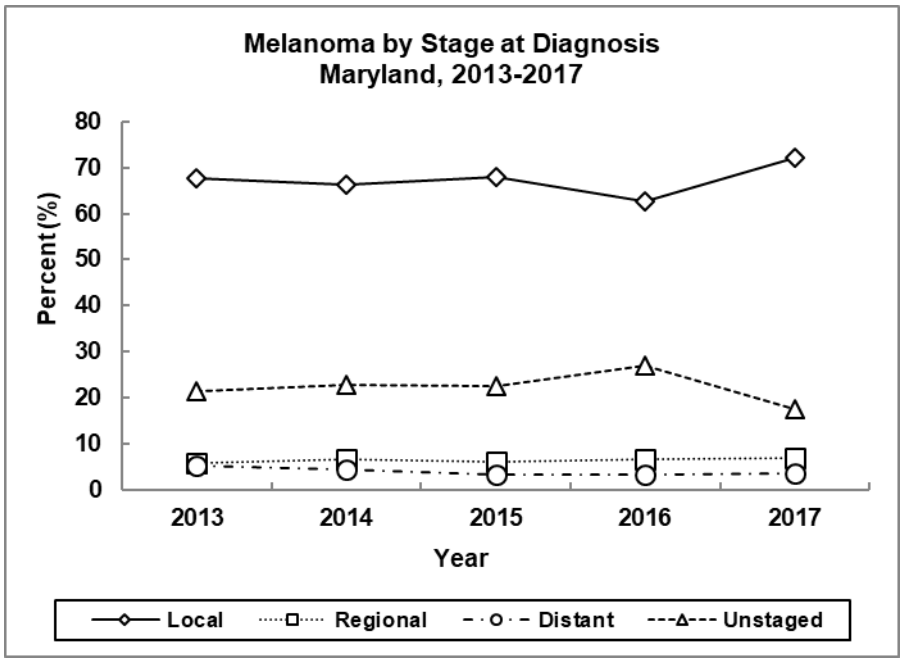


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Gender

Melanoma mortality rates in males decreased at a rate of 12.6% per year from 2013 to 2017. Female melanoma mortality rates also decreased at a rate of 4.0% per year in the same time period.

See Appendix H, Table 6.



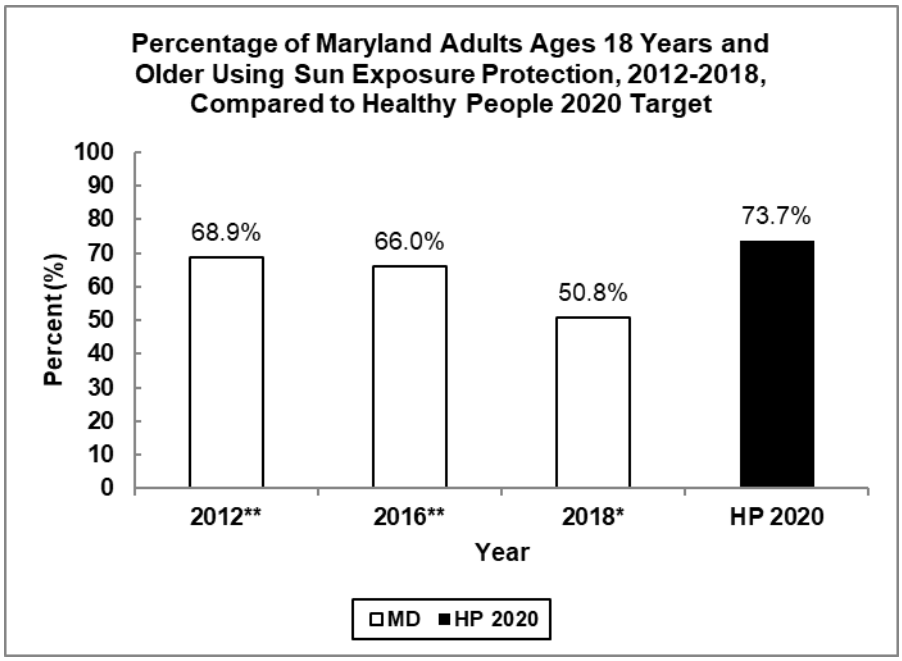
Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

During the 5-year period from 2013 to 2017, the percent of new melanoma cases diagnosed at the local stage increased 0.8% per year.

In 2017, 72.3% of all melanoma was diagnosed at the local stage, 6.8% was found at the regional stage, and 3.5% was found at the distant stage. The proportion of melanoma reported as unstaged was 17.5%.

See Appendix I, Table 7.



Source: Maryland BRFSS 2012, 2016, 2018
Healthy People 2020, U.S. Department of Health and Human Services

* The Maryland BRFSS question in the 2018 survey was phrased differently than past years. The estimate indicated is based on adults who reported "always" or "almost always" using one or more of the following measures: limiting exposure to the sun when outside for more than an hour on a warm, sunny day; using sunscreen lotion with a sun protection factor (SPF) of 15 or higher when outdoors; wearing a hat when outdoors on a sunny day; and/or wearing protective clothing when outdoors on a sunny day. These estimates exclude adults who reported not going out in the sun..

** The Maryland BRFSS 2012 and 2016 estimates are based on adults who reported "always" or "almost always" using one or more of the following measures: limiting exposure to the sun between 10 am and 4 pm; using sunscreen lotion with a sun protection factor (SPF) of 15 or higher when outdoors; wearing a hat when outdoors on a sunny day; and/or wearing protective clothing when outdoors on a sunny day. These estimates exclude adults who reported not going out in the sun.

*** The Healthy People 2020 estimate is based on adults who reported being very likely to perform the following protective measures: limit sun exposure; use sunscreen; or wear protective clothing.

Sun Exposure Protection

The Healthy People 2020 target aims to increase the percentage of persons age 18 years and older who follow sun exposure protective measures that may reduce the risk of skin cancer to 73.7%.[***]

In 2018, 50.8% of Maryland adults used at least one method of protection against sun exposure.[*] This number excludes adults who reported that they do not go out in the sun.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 4/10/2019 and 3/27/2020; and the United States Preventive Services Task Force [USPSTF], 7/2016)

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".

Avoiding risk factors may help prevent cancer. Risk factors for nonmelanoma and melanoma skin cancers are not the same.

The following are risk factors for nonmelanoma skin cancer:

- Being exposed to natural sunlight or artificial sunlight (such as from tanning beds) over long periods of time.
- Having a fair complexion, which includes the following:
  - Fair skin that freckles and burns easily, does not tan, or tans poorly.
  - Blue or green or other light-colored eyes.
  - Red or blond hair.
- Having actinic keratosis.
- Past treatment with radiation.
- Having a weakened immune system.
- Being exposed to arsenic.

The following are risk factors for melanoma skin cancer:

- Having a fair complexion, which includes the following:
  - Fair skin that freckles and burns easily, does not tan, or tans poorly.
  - Blue or green or other light-colored eyes.
  - Red or blond hair.
- Being exposed to natural sunlight or artificial sunlight (such as from tanning beds) over long periods of time.
- Having a history of many blistering sunburns, especially as a child or teenager.
- Having several large or many small moles.
- Having a family history of unusual moles (atypical nevus syndrome).
- Having a family or personal history of melanoma.
- Being white.

Although having a fair complexion is a risk factor for nonmelanoma and melanoma skin cancer, people of all skin colors can get skin cancer.

It is not known if the following lower the risk of nonmelanoma skin cancer:

- Sunscreen use and avoiding sun exposure. It is not known if sunscreen use, avoiding sun exposure, and wearing protective clothing when outdoors decreases the risk of nonmelanoma skin cancer. This is because not enough studies have been done to prove this.
  However, skin experts suggest the following:

    - Using sunscreen that protects against UV radiation.
    - Not staying out in the sun for long periods of time, especially when the sun is at its strongest.
    - Wearing long sleeve shirts, long pants, sun hats, and sunglasses, when outdoors.
- Taking the following chemopreventive agents: beta carotene, isotretinoin, selenium, celecoxib, alpha-difluoromethylornithine, nicotinamide (vitamin B3).

It is not known if the following lower the risk of melanoma:

- Sunscreen use.
- Receiving counseling or information about protecting the skin from the sun.

Screening

The only widely proposed screening procedure for skin cancer is visual examination of the skin, including both self-examination and clinical examination. The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of visual skin examination by a clinician to screen for skin cancer in adults.

Public Health Interventions for Skin Cancer (From The Surgeon General's Call to Action to Prevent Skin Cancer)
• Wear protective clothing (e.g. long-sleeved shirts and long pants and skirts; clothes made from tightly woven fabric), a hat and sunglasses. • Seek shade (use umbrellas and shelters). • Avoid outdoor activities during times of peak sunlight, which are during the midday hours of 10 a.m. to 4 p.m (daylight savings) or 9 a.m. to 3 p.m. (standard time). • Use sunscreen with an SPF of 15 or higher. • Avoid indoor tanning and sunbathing.

Individuals should discuss risk factors for skin cancer, ways to prevent skin cancer, and screening tests with their healthcare provider.

Note: For information on the Skin Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 57.
Number of Melanoma Cases by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	1,753	1,026	727	1,703	18	10
Allegany	28	10	18	28	0	0
Anne Arundel	213	115	98	207	<6	<6
Baltimore City	87	53	34	83	<6	0
Baltimore	313	171	142	310	<6	0
Calvert	41	27	14	40	0	0
Caroline	10	<6	6	10	0	0
Carroll	91	54	37	90	0	0
Cecil	36	20	16	35	0	0
Charles	19	16	<6	19	0	0
Dorchester	13	8	<6	13	0	0
Frederick	70	40	30	69	0	0
Garrett	9	6	<6	9	0	0
Harford	129	71	58	s	0	<6
Howard	120	83	37	118	0	<6
Kent	11	6	<6	11	0	0
Montgomery	262	167	95	248	<6	<6
Prince George's	65	36	29	56	<6	<6
Queen Anne's	26	19	7	26	0	0
St. Mary's	25	14	11	s	<6	0
Somerset	18	9	9	18	0	0
Talbot	28	11	17	s	<6	0
Washington	53	34	19	49	0	0
Wicomico	34	20	14	34	0	0
Worcester	42	27	15	42	0	0

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 58.
Melanoma Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	25.0	32.3	19.8	37.4	0.9	**
Allegany	30.9	**	43.4	33.5	0.0	0.0
Anne Arundel	32.9	37.2	29.8	39.7	**	**
Baltimore City	13.5	19.1	9.8	40.3	**	0.0
Baltimore	30.4	37.0	26.0	42.9	**	0.0
Calvert	39.2	56.2	**	45.2	0.0	0.0
Caroline	**	**	**	**	0.0	0.0
Carroll	46.5	59.9	36.5	49.0	0.0	0.0
Cecil	29.6	30.0	29.4	31.5	0.0	0.0
Charles	10.7	19.6	**	19.5	0.0	0.0
Dorchester	**	**	**	**	0.0	0.0
Frederick	24.6	29.8	21.1	27.9	0.0	0.0
Garrett	**	**	**	**	0.0	0.0
Harford	41.7	48.4	37.0	48.4	0.0	**
Howard	33.6	51.4	18.9	50.3	0.0	**
Kent	**	**	**	**	0.0	0.0
Montgomery	20.8	29.0	14.8	29.4	**	**
Prince George's	7.2	9.6	5.6	22.6	**	**
Queen Anne's	40.7	61.6	**	44.6	0.0	0.0
St. Mary's	21.5	**	**	25.2	**	0.0
Somerset	60.4	**	**	93.2	0.0	0.0
Talbot	42.1	**	52.5	45.5	**	0.0
Washington	27.1	37.3	18.3	27.8	0.0	0.0
Wicomico	29.2	38.0	**	40.7	0.0	0.0
Worcester	46.4	62.5	**	53.2	0.0	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 59.
Number of Deaths for Melanoma by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	112	62	50	109	<10	<10
Allegany	<10	<10	<10	<10	<10	<10
Anne Arundel	15	<10	<10	s	<10	<10
Baltimore City	<10	<10	<10	<10	<10	<10
Baltimore	25	14	11	s	<10	<10
Calvert	<10	<10	<10	<10	<10	<10
Caroline	<10	<10	<10	<10	<10	<10
Carroll	<10	<10	<10	<10	<10	<10
Cecil	<10	<10	<10	<10	<10	<10
Charles	<10	<10	<10	<10	<10	<10
Dorchester	<10	<10	<10	<10	<10	<10
Frederick	<10	<10	<10	<10	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	<10	<10	<10	<10	<10	<10
Howard	<10	<10	<10	<10	<10	<10
Kent	<10	<10	<10	<10	<10	<10
Montgomery	18	s	<10	17	<10	<10
Prince George's	<10	<10	<10	<10	<10	<10
Queen Anne's	<10	<10	<10	<10	<10	<10
St. Mary's	<10	<10	<10	<10	<10	<10
Somerset	<10	<10	<10	<10	<10	<10
Talbot	<10	<10	<10	<10	<10	<10
Washington	<10	<10	<10	<10	<10	<10
Wicomico	<10	<10	<10	<10	<10	<10
Worcester	<10	<10	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 60.
Melanoma Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	1.6	2.1	1.3	2.3	**	**
Allegany	**	**	**	**	**	**
Anne Arundel	**	**	**	**	**	**
Baltimore City	**	**	**	**	**	**
Baltimore	2.3	**	**	3.1	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	**	**	**	**	**	**
Cecil	**	**	**	**	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	**	**	**	**	**	**
Garrett	**	**	**	**	**	**
Harford	**	**	**	**	**	**
Howard	**	**	**	**	**	**
Kent	**	**	**	**	**	**
Montgomery	**	**	**	**	**	**
Prince George's	**	**	**	**	**	**
Queen Anne's	**	**	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 61.
Number of Melanoma Cases by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	8,023	4,746	3,276	7,815	85	35
Allegany	101	56	45	101	0	0
Anne Arundel	1,035	599	436	1,020	<6	<6
Baltimore City	357	199	158	344	9	<6
Baltimore	1,518	900	618	1,488	16	<6
Calvert	163	95	68	161	<6	0
Caroline	52	30	22	52	0	0
Carroll	369	226	143	363	<6	<6
Cecil	185	100	85	182	<6	0
Charles	141	96	45	134	7	0
Dorchester	44	25	19	44	0	0
Frederick	373	205	168	370	0	<6
Garrett	51	29	22	s	0	<6
Harford	542	322	220	527	<6	<6
Howard	438	258	180	427	<6	<6
Kent	52	29	23	52	0	0
Montgomery	1,165	731	434	1,115	11	14
Prince George's	271	158	113	247	14	<6
Queen Anne's	158	100	58	156	<6	0
St. Mary's	164	98	65	157	6	0
Somerset	51	23	28	51	0	0
Talbot	129	71	58	125	<6	0
Washington	230	142	88	225	0	0
Wicomico	177	95	82	174	<6	0
Worcester	189	123	66	s	0	<6

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

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 62.
Melanoma Age-Adjusted Incidence Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	23.8	31.6	18.3	35.0	1.0	1.7
Allegany	21.4	24.5	21.4	23.0	0.0	0.0
Anne Arundel	32.8	41.2	26.5	39.6	**	**
Baltimore City	11.0	15.0	8.6	32.1	**	**
Baltimore	30.2	40.7	23.1	41.2	1.6	**
Calvert	33.3	41.6	27.4	39.0	**	0.0
Caroline	27.8	35.2	21.9	32.8	0.0	0.0
Carroll	38.1	50.0	29.0	39.6	**	**
Cecil	32.5	36.9	30.0	34.5	**	0.0
Charles	18.1	28.1	10.6	30.5	**	0.0
Dorchester	19.7	21.7	18.3	26.5	0.0	0.0
Frederick	27.0	31.8	23.4	30.6	0.0	**
Garrett	23.8	30.4	19.3	23.6	0.0	**
Harford	37.1	47.8	28.7	41.8	**	**
Howard	25.6	33.6	19.4	36.8	**	**
Kent	31.4	36.0	27.5	36.8	0.0	0.0
Montgomery	19.6	27.5	13.7	27.5	**	**
Prince George's	6.2	8.9	4.4	20.0	**	**
Queen Anne's	50.0	64.4	38.5	54.1	**	0.0
St. Mary's	28.8	35.2	23.1	33.1	**	0.0
Somerset	33.0	32.0	38.7	49.3	0.0	0.0
Talbot	42.0	47.0	38.3	46.8	**	0.0
Washington	25.0	32.9	18.7	26.8	0.0	0.0
Wicomico	31.6	36.1	29.5	42.3	**	0.0
Worcester	48.1	63.6	35.4	55.3	0.0	**

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 63.
Number of Deaths for Melanoma by Jurisdiction, Gender, and Race, Maryland, 2013-2017

Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	674	444	230	642	s	<10
Allegany	11	<10	<10	s	<10	<10
Anne Arundel	90	66	24	86	<10	<10
Baltimore City	40	27	13	37	<10	<10
Baltimore	125	83	42	120	<10	<10
Calvert	12	<10	<10	s	<10	<10
Caroline	<10	<10	<10	<10	<10	<10
Carroll	33	23	10	s	<10	<10
Cecil	23	s	<10	s	<10	<10
Charles	12	<10	<10	s	<10	<10
Dorchester	<10	<10	<10	<10	<10	<10
Frederick	30	20	10	s	<10	<10
Garrett	<10	<10	<10	<10	<10	<10
Harford	35	s	<10	s	<10	<10
Howard	22	11	11	20	<10	<10
Kent	<10	<10	<10	<10	<10	<10
Montgomery	87	52	35	81	<10	<10
Prince George's	49	33	16	37	s	<10
Queen Anne's	<10	<10	<10	<10	<10	<10
St. Mary's	13	s	<10	s	<10	<10
Somerset	<10	<10	<10	<10	<10	<10
Talbot	<10	<10	<10	<10	<10	<10
Washington	30	15	15	s	<10	<10
Wicomico	13	s	<10	s	<10	<10
Worcester	15	s	<10	s	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 64.
Melanoma Age-Adjusted Mortality Rates* by Jurisdiction, Gender, and Race, Maryland, 2013-2017

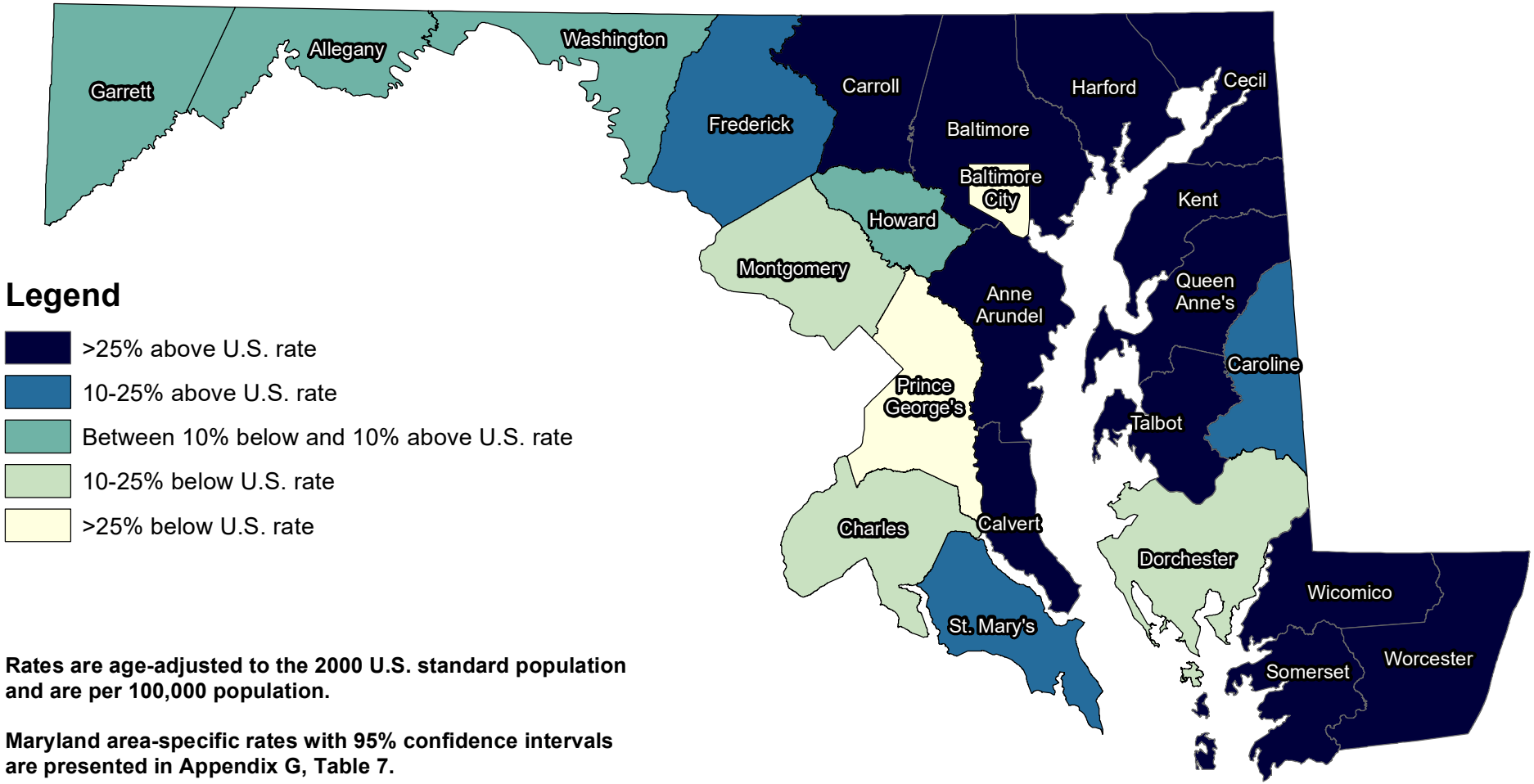
Jurisdiction	Total	Gender		Race		
		Males	Females	Whites	Blacks	Other
Maryland	2.0	3.1	1.2	2.8	0.3	**
Allegany	**	**	**	**	**	**
Anne Arundel	2.9	4.8	1.4	3.3	**	**
Baltimore City	1.3	2.1	**	3.5	**	**
Baltimore	2.4	3.9	1.4	3.0	**	**
Calvert	**	**	**	**	**	**
Caroline	**	**	**	**	**	**
Carroll	3.5	5.4	**	3.7	**	**
Cecil	4.7	**	**	5.1	**	**
Charles	**	**	**	**	**	**
Dorchester	**	**	**	**	**	**
Frederick	2.4	3.7	**	2.6	**	**
Garrett	**	**	**	**	**	**
Harford	2.5	4.3	**	2.8	**	**
Howard	1.2	**	**	1.6	**	**
Kent	**	**	**	**	**	**
Montgomery	1.4	2.0	1.0	1.8	**	**
Prince George's	1.2	2.0	**	3.2	**	**
Queen Anne's	**	**	**	**	**	**
St. Mary's	**	**	**	**	**	**
Somerset	**	**	**	**	**	**
Talbot	**	**	**	**	**	**
Washington	3.2	**	**	3.4	**	**
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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Melanoma Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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

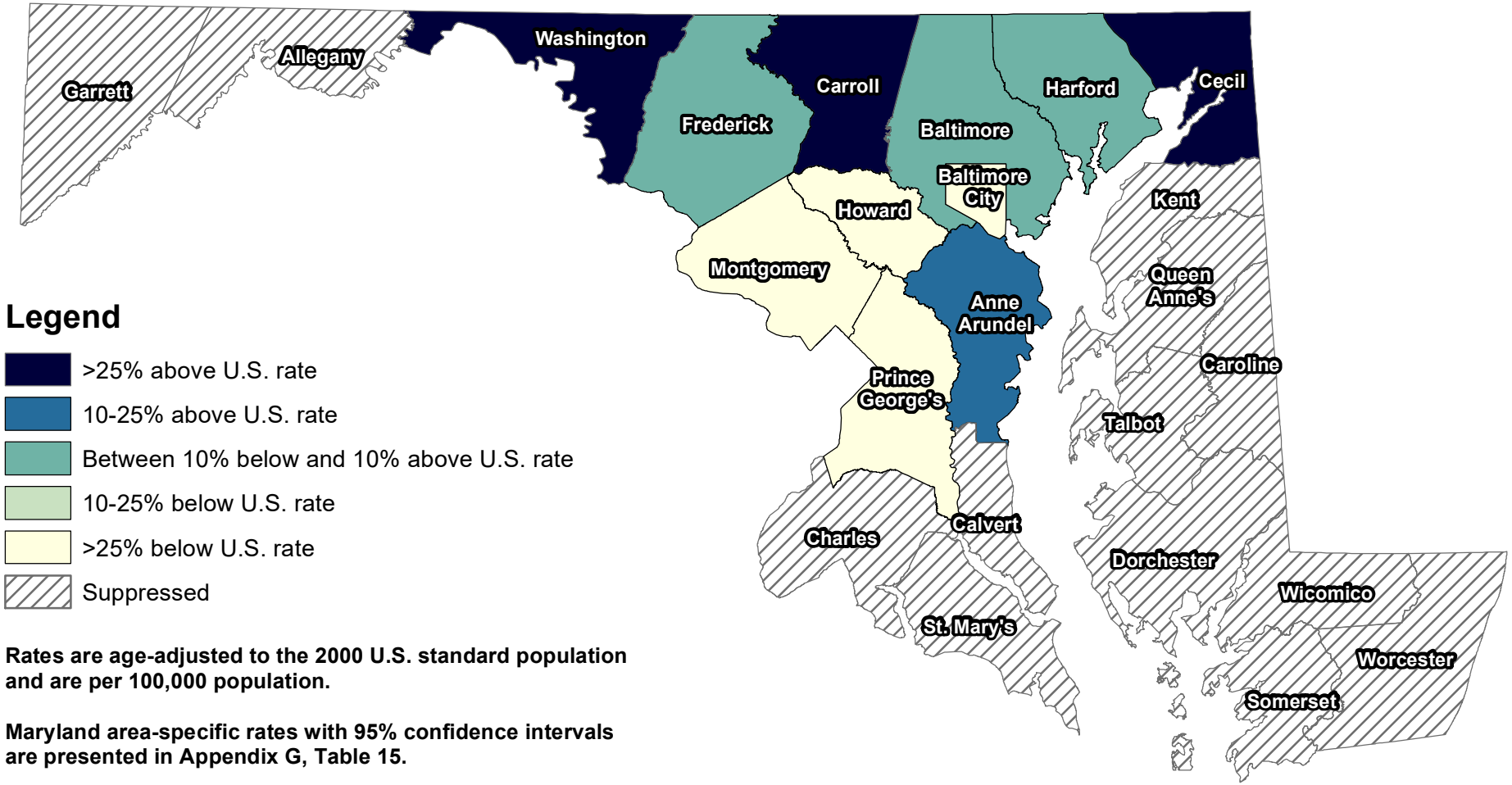
Maryland area-specific rates with 95% confidence intervals are presented in Appendix G, Table 7.

U.S. melanoma cancer incidence rate, 2013-2017: 23.6 / 100,000

Maryland melanoma cancer incidence rate, 2013-2017: 23.8 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Maryland Melanoma Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



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 G, Table 15.

U.S. melanoma cancer mortality rate, 2013-2017: 2.4 / 100,000

Maryland melanoma cancer mortality rate, 2013-2017: 2.0 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

G. Cervical Cancer

Incidence (New Cases)

A total of 228 cases of cervical cancer among women in Maryland were reported in 2017. The age-adjusted incidence rate for cervical cancer in Maryland in 2017 was 6.9 per 100,000 women (6.0-7.9, 95% CI), which is statistically similar to the 2017 U.S. SEER age-adjusted cervical cancer incidence rate of 7.5 per 100,000 women (7.2-7.7, 95% CI).

Mortality (Deaths)

In 2017, a total of 67 women died of cervical cancer in Maryland. The age-adjusted cervical cancer mortality rate in Maryland in 2017 was 1.8 per 100,000 women (1.4-2.3, 95% CI). This rate is statistically similar to the 2017 U.S. cervical cancer mortality rate of 2.2 per 100,000 women (2.2-2.3, 95% CI). Maryland had the 34th highest cervical cancer mortality rate among the states and the District of Columbia for the period from 2013 to 2017.

Table 65.
Cervical Cancer Incidence and Mortality Rates
by Race, Maryland (MD) and the United States, 2017

Incidence 2017	*Total**	*Whites*	*Blacks*	*Other*
MD New Cases (count)	228	142	63	14
MD Incidence Rate	6.9	7.4	5.5	**
U.S. SEER Rate	7.5	7.5	8.3	6.1
Mortality 2017	*Total*	*Whites*	*Blacks*	*Other*
MD Deaths (count)	67	31	s	<10
MD Mortality Rate	1.8	1.4	2.6	**
U.S. Mortality Rate	2.2	2.1	3.4	1.7

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

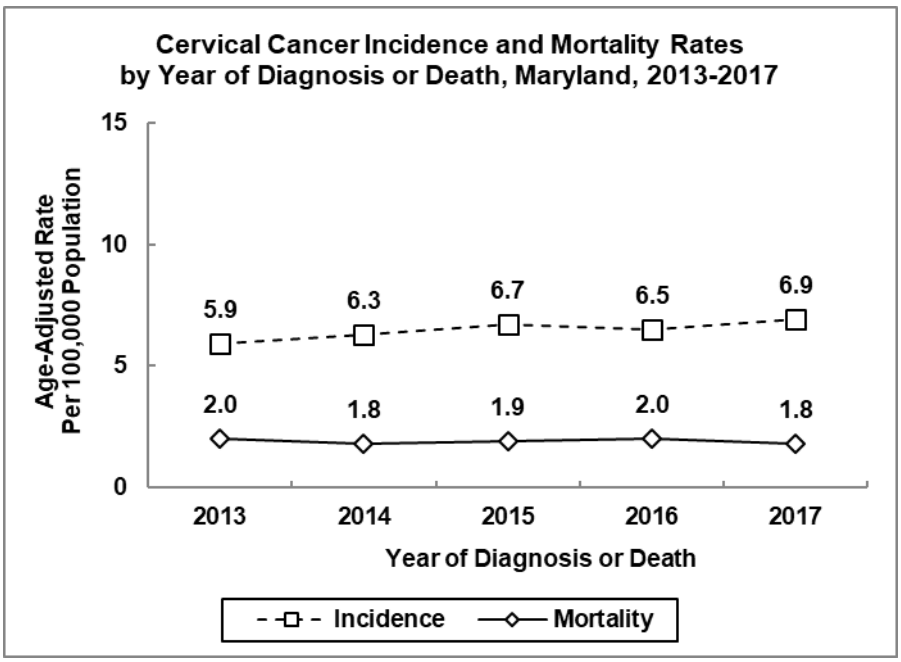
* Total includes unknown race and unknown jurisdiction

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Table 68

** MD incidence rates based on case counts of 1-15 are suppressed per MDH/MCR Data Use Policy and Procedures; MD mortality rates based on death counts of 0-19 are suppressed per MDH/CCPC Mortality Data Suppression Policy

Source: Maryland Cancer Registry
U.S. SEER, SEER*Stat
NCHS Underlying Cause of Death in CDC WONDER, 2017
U.S. SEER, Cancer Statistics Review



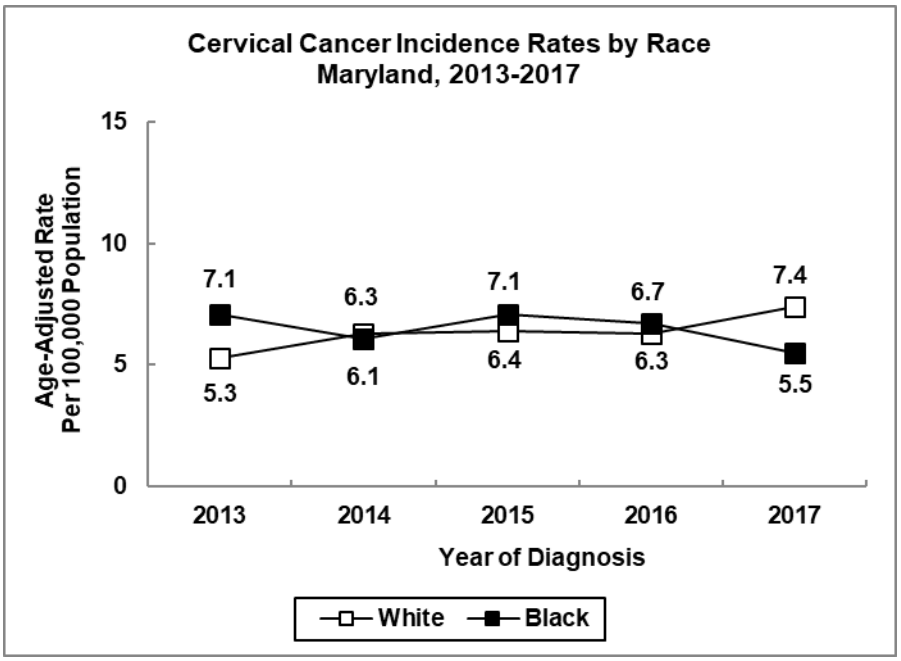
Source: Maryland Cancer Registry
NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Incidence and Mortality Trends

Cervical cancer incidence rates among Maryland women increased at a rate of 3.5% per year from 2013 to 2017.

Cervical cancer mortality rates decreased at a rate of 1.0% per year from 2013 to 2017.

See Appendix H, Tables 1 and 2.

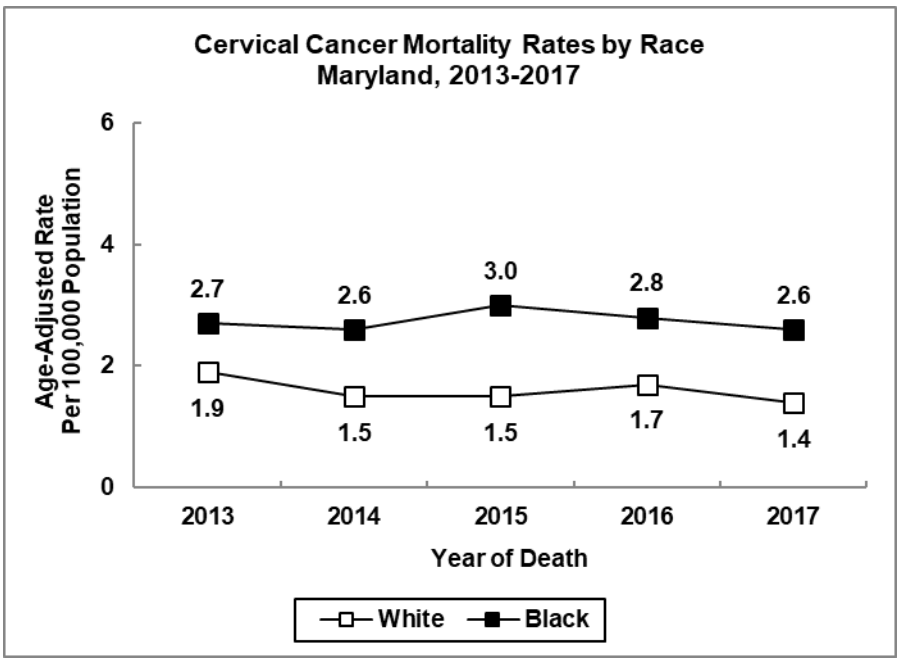


Source: Maryland Cancer Registry

Incidence Trends by Race

From 2013 to 2017, cervical cancer incidence rates among black females decreased at a rate of 4.1% per year and increased at a rate of 6.9% per year among white females.

See Appendix H, Table 3.

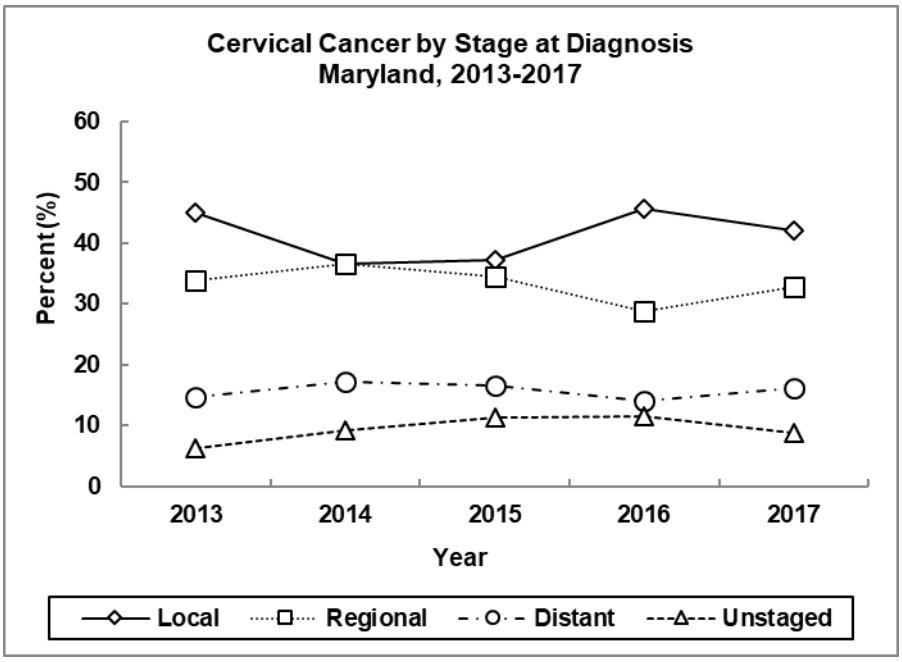


Source: NCHS Underlying Cause of Death in CDC WONDER, 2017
NCHS Compressed Mortality File in CDC WONDER, 2013-2016

Mortality Trends by Race

From 2013 to 2017, mortality rates decreased at a rate of 4.7% per year for white females while rates for black females remained steady.

See Appendix H, Table 5.

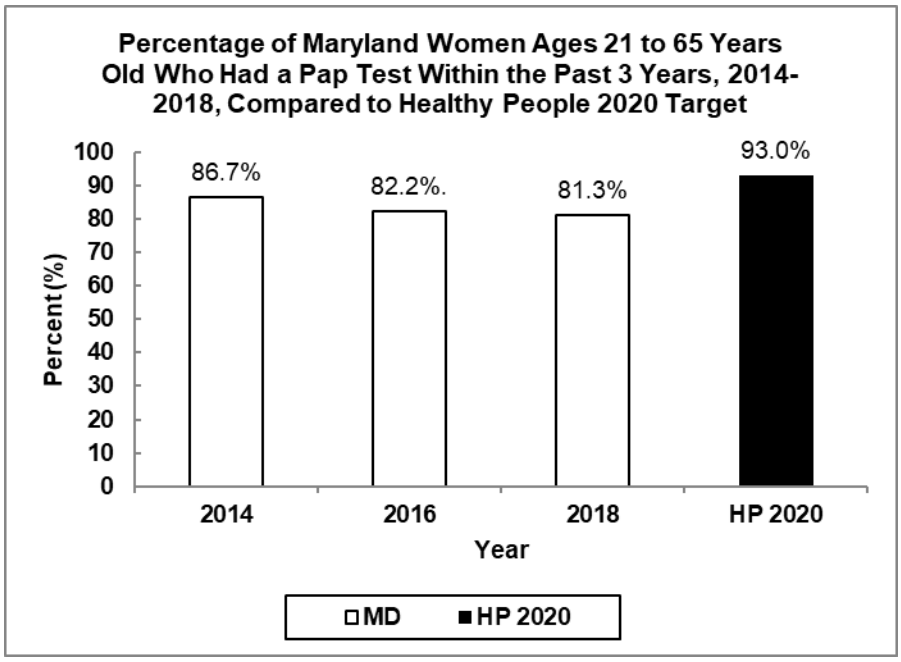


Source: Maryland Cancer Registry
Note: Due to a methodology change, SEER summary stage 2000 was used in 2016-2017, while the derived SEER summary stage 2000 was used from 2013-2015

Stage at Diagnosis

In 2017, 42.1% of all cervical cancer cases in Maryland were diagnosed at the local stage, 32.9% were diagnosed at the regional stage, and 16.2% were found at the distant stage. The proportion of cervical cancer cases reported as unstaged decreased in 2017 to 8.8%.

See Appendix I, Table 8.



Source: Maryland BRFSS 2014, 2016, 2018
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 the percentage of women who have had a cervical cancer screening test based on the most recent guidelines to 93.0%.

In 2018, 81.3% of Maryland women ages 21 to 65 years, old reported they had a Pap test within the past three years.

Public Health Evidence (quoted from the National Cancer Institute PDQ®, 9/18/2020 and 9/28/2020; the Advisory Committee on Immunization Practices [ACIP] 8/16/2019; and the United States Preventive Services Task Force [USPSTF], 8/2018)

Prevention

Avoiding risk factors may help prevent cancer. The following are risk factors for cervical cancer:

- Human Papillomavirus (HPV) infection, especially HPV types 16 and 18. Most of the time, the body's immune system can fight the HPV infection before cancer forms. Only a very small number of women infected with HPV develop cervical cancer.
- Being exposed to a drug called diethylstilbestrol while in the mother's womb.

In women who are infected with HPV, there are other risk factors that add to the increased risk of cervical cancer:

- Giving birth to many children (seven or more full-term pregnancies).
- Using oral contraceptives, also known as "the Pill", for a long time. Women who used oral contraceptives for five to nine years have a risk of cervical cancer that is three times greater than that of women who have never used oral contraceptives. The risk is four times greater after 10 or more years of use.
- Smoking cigarettes or breathing in secondhand smoke.

The following increase the risk of HPV infection:

- Having a weakened immune system.
- Being sexually active before age 18 or have had more six or more sexual partners.

Increasing protective factors may help prevent cancer. The following protective factors decrease the risk of cervical cancer:

- Avoiding sexual activity.
- Using barrier protection (e.g., condom or diaphragm) during sexual activity.
- Getting a vaccine that protects against HPV infection greatly reduces the risk of cervical cancer, although these vaccines do not protect women who are already infected with HPV. HPV vaccines have been shown to prevent infection with the types of HPV that cause most cervical cancers. Protection against HPV infection lasts for 6 to 8 years. It is not known if the protection lasts longer. Harms of HPV vaccines include dizziness, feeling faint, headache, fever, and redness, tenderness, or warmth at the place of injection. Allergic reactions are rare.

The ACIP recommends routine HPV vaccination at ages 11 or 12 years old. Vaccination can be given starting at age 9. ACIP also recommends catch-up HPV vaccination for all persons through age 26 years. ACIP does not recommend catch up vaccination for all adults aged 27 through 45 years, but recognizes that some persons who are not adequately vaccinated might be at risk for new HPV infection and might benefit from vaccination in this age range; therefore, ACIP recommends shared clinical decision-making regarding potential HPV vaccination for these persons.

Screening

Regular screening of women between the ages of 21 and 65 years old with the Pap test (or Pap smear) decreases their chance of dying from cervical cancer. When both the HPV test and Pap test are done using cells from the sample removed during a Pap test, it is called a Pap/HPV co-test. Screening women aged 30 and older with both the Pap test and the HPV test every five years finds more cervical changes that can lead to cancer than screening with the Pap test alone. Screening with both the Pap test and the HPV test lowers the number of cases of cervical cancer.

The USPSTF recommends screening for cervical cancer every three years with cervical cytology (Pap test) alone in women ages 21 to 29 years old. For women ages 30 to 65 years old, the USPSTF recommends screening every three years with cervical cytology alone, every five years with high-risk HPV (hrHPV) testing alone, or every five years with hrHPV testing in combination with cytology (co-testing). The USPSTF recommends against screening for cervical cancer in women older than 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer. The USPSTF recommends against screening for cervical cancer in women younger than 21 years, and also recommends against screening for cervical cancer in women who have had a hysterectomy with removal of the cervix and do not have a history of high-grade precancerous lesion (i.e., cervical intraepithelial neoplasia grade two or three) or cervical cancer.

The risks of cervical cancer screening include the following:

- Unnecessary follow-up tests may be done. In women younger than 21 years, screening with the Pap test may show changes in the cells of the cervix that are not cancer. This may lead to unnecessary follow-up tests and possibly treatment. Women in this age group have a very low risk of cervical cancer and it is likely that any abnormal cells will go away on their own.
- False-negative test results can occur (the screening test results may appear to be normal even though cervical cancer is present). A woman who receives a false-negative test result may delay seeking medical care even if she has symptoms.
- False-positive test results can occur (the screening test results may appear to be abnormal even though no cancer is present). This can cause anxiety and may lead to more tests and procedures (e.g., colposcopy), which also have risks. The HPV test finds many infections that will not lead to cervical dysplasia or cervical cancer, especially in women younger than 30 years. When both the Pap test and the HPV test are done, false-positive test results are more common.

Maryland Department of Health Medical Advisory Committee Public Health Intervention for Cervical Cancer
• For women ages 21 to 29 years old, screen for cervical cancer every three years with cervical cytology alone. • For women ages 30 to 65 years old, screen every three years with cervical cytology alone, every five years with high-risk HPV (hrHPV) testing alone, or every five years with hrHPV testing in combination with cytology (co-testing).

Individuals should discuss risk factors for cervical cancer, ways to prevent cervical cancer, and screening tests with their healthcare provider.

Note: For information on the Cervical Cancer Prevention and Screening PDQ®, please see Appendix C.

Table 66.
Number of Cervical Cancer Cases by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	228	142	63	14
Allegany	<6	<6	0	0
Anne Arundel	28	20	6	<6
Baltimore City	31	9	20	<6
Baltimore	26	19	<6	<6
Calvert	0	0	0	0
Caroline	<6	<6	0	0
Carroll	6	6	0	0
Cecil	6	<6	0	<6
Charles	<6	<6	<6	<6
Dorchester	<6	<6	<6	0
Frederick	11	9	<6	<6
Garrett	<6	<6	0	0
Harford	13	s	0	<6
Howard	9	s	<6	<6
Kent	0	0	0	0
Montgomery	31	15	6	<6
Prince George's	31	10	19	<6
Queen Anne's	<6	<6	<6	0
St. Mary's	<6	<6	0	0
Somerset	0	0	0	0
Talbot	<6	<6	0	0
Washington	6	<6	<6	0
Wicomico	9	s	<6	0
Worcester	<6	<6	0	0

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 67.
Cervical Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	6.9	7.4	5.5	**
Allegany	**	**	0.0	0.0
Anne Arundel	8.5	7.6	**	**
Baltimore City	9.3	**	8.2	**
Baltimore	5.6	6.7	**	**
Calvert	0.0	0.0	0.0	0.0
Caroline	**	**	0.0	0.0
Carroll	**	**	0.0	0.0
Cecil	**	**	0.0	**
Charles	**	**	**	**
Dorchester	**	**	**	0.0
Frederick	**	**	**	**
Garrett	**	**	0.0	0.0
Harford	**	**	0.0	**
Howard	**	**	**	**
Kent	0.0	0.0	0.0	0.0
Montgomery	5.0	**	**	**
Prince George's	6.2	**	5.1	**
Queen Anne's	**	**	**	0.0
St. Mary's	**	**	0.0	0.0
Somerset	0.0	0.0	0.0	0.0
Talbot	**	**	0.0	0.0
Washington	**	**	**	0.0
Wicomico	**	**	**	0.0
Worcester	**	**	0.0	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 68.
Number of Deaths for Cervical Cancer by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	67	31	s	<10
Allegany	<10	<10	<10	<10
Anne Arundel	<10	<10	<10	<10
Baltimore City	11	<10	<10	<10
Baltimore	<10	<10	<10	<10
Calvert	<10	<10	<10	<10
Caroline	<10	<10	<10	<10
Carroll	<10	<10	<10	<10
Cecil	<10	<10	<10	<10
Charles	<10	<10	<10	<10
Dorchester	<10	<10	<10	<10
Frederick	<10	<10	<10	<10
Garrett	<10	<10	<10	<10
Harford	<10	<10	<10	<10
Howard	<10	<10	<10	<10
Kent	<10	<10	<10	<10
Montgomery	<10	<10	<10	<10
Prince George's	14	<10	11	<10
Queen Anne's	<10	<10	<10	<10
St. Mary's	<10	<10	<10	<10
Somerset	<10	<10	<10	<10
Talbot	<10	<10	<10	<10
Washington	<10	<10	<10	<10
Wicomico	<10	<10	<10	<10
Worcester	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2017, as of October 5, 2020

Table 69.
Cervical Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	1.8	1.4	2.6	**
Allegany	**	**	**	**
Anne Arundel	**	**	**	**
Baltimore City	**	**	**	**
Baltimore	**	**	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	**	**	**	**
Prince George's	**	**	**	**
Queen Anne's	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2017, as of October 5, 2020

Table 70.
Number of Cervical Cancer Cases by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	1,075	629	346	60
Allegany	19	18	0	0
Anne Arundel	105	84	17	<6
Baltimore City	175	51	117	<6
Baltimore	144	103	34	<6
Calvert	8	8	0	0
Caroline	6	6	0	0
Carroll	23	21	<6	0
Cecil	20	s	<6	<6
Charles	22	10	8	<6
Dorchester	8	<6	<6	0
Frederick	34	28	<6	<6
Garrett	<6	<6	0	0
Harford	39	34	<6	<6
Howard	41	24	6	9
Kent	<6	<6	<6	0
Montgomery	165	84	38	27
Prince George's	148	38	94	<6
Queen Anne's	9	s	<6	0
St. Mary's	17	10	s	<6
Somerset	<6	<6	<6	0
Talbot	6	6	0	0
Washington	35	31	<6	0
Wicomico	23	21	<6	0
Worcester	16	14	<6	0

Total includes cases reported as unknown race and unknown jurisdiction

<6 = Case counts of 1-5 are suppressed per MDH/MCR 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, SEER*Stat Static data as of May 13, 2020

Table 71.
Cervical Cancer Age-Adjusted Incidence Rates* by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	6.4	6.3	6.5	4.9
Allegany	10.0	9.5	0.0	0.0
Anne Arundel	7.0	7.3	6.8	**
Baltimore City	10.2	10.4	10.0	**
Baltimore	5.9	6.7	4.9	**
Calvert	**	**	0.0	0.0
Caroline	**	**	0.0	0.0
Carroll	4.9	4.9	**	0.0
Cecil	7.4	7.2	**	**
Charles	5.1	**	**	**
Dorchester	**	**	**	0.0
Frederick	5.2	5.2	**	**
Garrett	**	**	0.0	0.0
Harford	5.7	6.1	**	**
Howard	4.9	4.9	**	**
Kent	**	**	**	0.0
Montgomery	5.5	4.5	6.7	5.1
Prince George's	6.0	6.6	5.3	**
Queen Anne's	**	**	**	0.0
St. Mary's	5.6	**	**	**
Somerset	**	**	**	0.0
Talbot	**	**	0.0	0.0
Washington	9.5	9.2	**	0.0
Wicomico	8.7	11.9	**	0.0
Worcester	12.1	**	**	0.0

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

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

Source: Maryland Cancer Registry, SEER*Stat Static data as of May 13, 2020

Table 72.
Number of Deaths for Cervical Cancer by Jurisdiction and Race, Maryland, 2013-2017

Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	345	180	147	18
Allegany	<10	<10	<10	<10
Anne Arundel	27	22	<10	<10
Baltimore City	68	s	45	<10
Baltimore	52	33	s	<10
Calvert	<10	<10	<10	<10
Caroline	<10	<10	<10	<10
Carroll	<10	<10	<10	<10
Cecil	<10	<10	<10	<10
Charles	<10	<10	<10	<10
Dorchester	<10	<10	<10	<10
Frederick	<10	<10	<10	<10
Garrett	<10	<10	<10	<10
Harford	<10	<10	<10	<10
Howard	<10	<10	<10	<10
Kent	<10	<10	<10	<10
Montgomery	41	22	s	<10
Prince George's	68	s	53	<10
Queen Anne's	<10	<10	<10	<10
St. Mary's	<10	<10	<10	<10
Somerset	<10	<10	<10	<10
Talbot	<10	<10	<10	<10
Washington	15	14	<10	<10
Wicomico	<10	<10	<10	<10
Worcester	<10	<10	<10	<10

<10 = Death counts of 0-9 are suppressed per MDH/CCPC Mortality Data Suppression Policy

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

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Table 73.
Cervical Cancer Age-Adjusted Mortality Rates* by Jurisdiction and Race, Maryland, 2013-2017

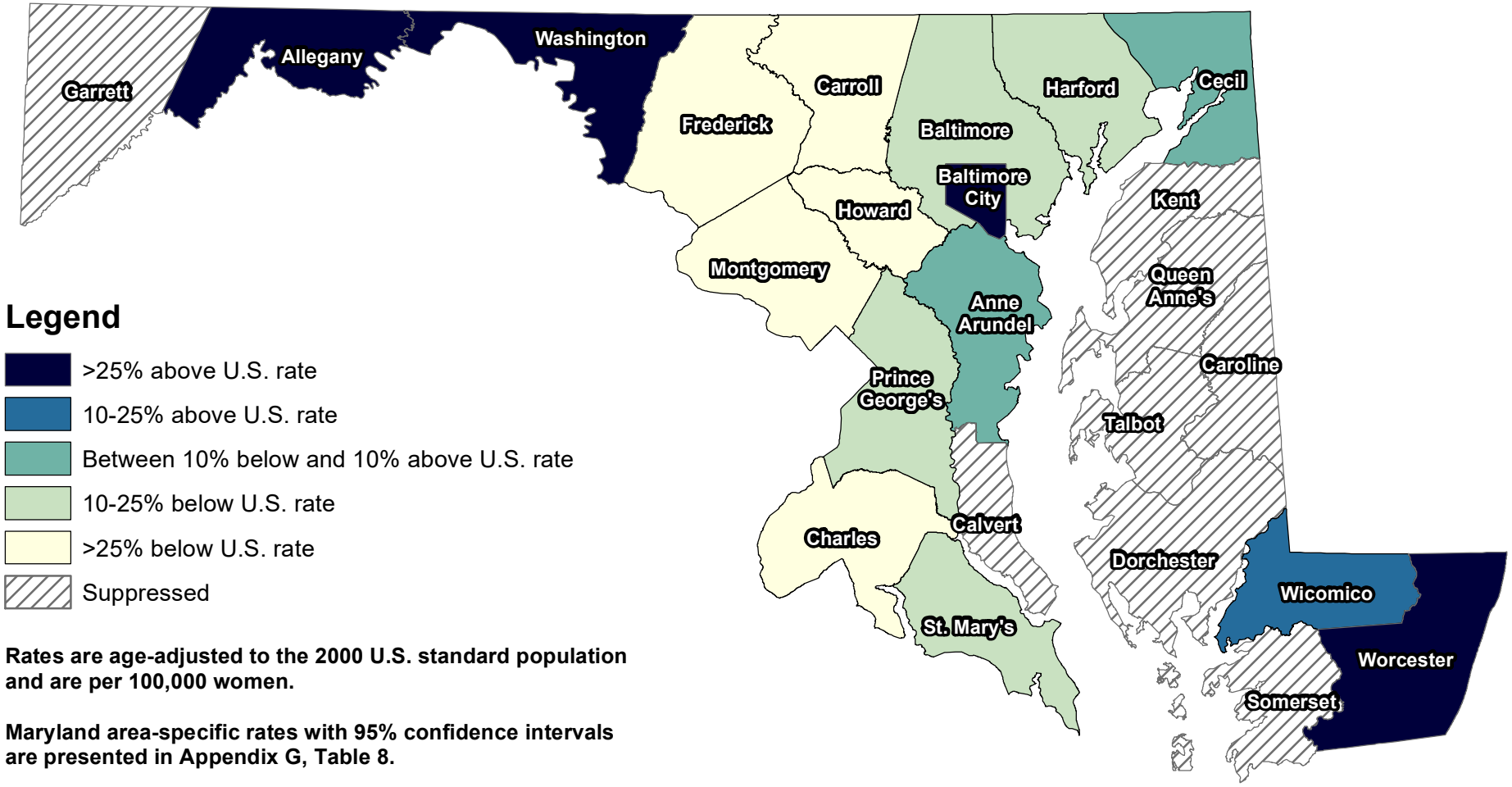
Jurisdiction	Total	Race		
		Whites	Blacks	Other
Maryland	1.9	1.6	2.7	**
Allegany	**	**	**	**
Anne Arundel	1.7	1.8	**	**
Baltimore City	3.8	3.9	3.7	**
Baltimore	1.9	1.8	**	**
Calvert	**	**	**	**
Caroline	**	**	**	**
Carroll	**	**	**	**
Cecil	**	**	**	**
Charles	**	**	**	**
Dorchester	**	**	**	**
Frederick	**	**	**	**
Garrett	**	**	**	**
Harford	**	**	**	**
Howard	**	**	**	**
Kent	**	**	**	**
Montgomery	1.3	1.1	**	**
Prince George's	2.7	**	3.0	**
Queen Anne's	**	**	**	**
St. 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 MDH/CCPC Mortality Data Suppression Policy

Source: CDC WONDER, 2013-2017, as of October 5, 2020

Maryland Cervical Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



Legend

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

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 G, Table 8.

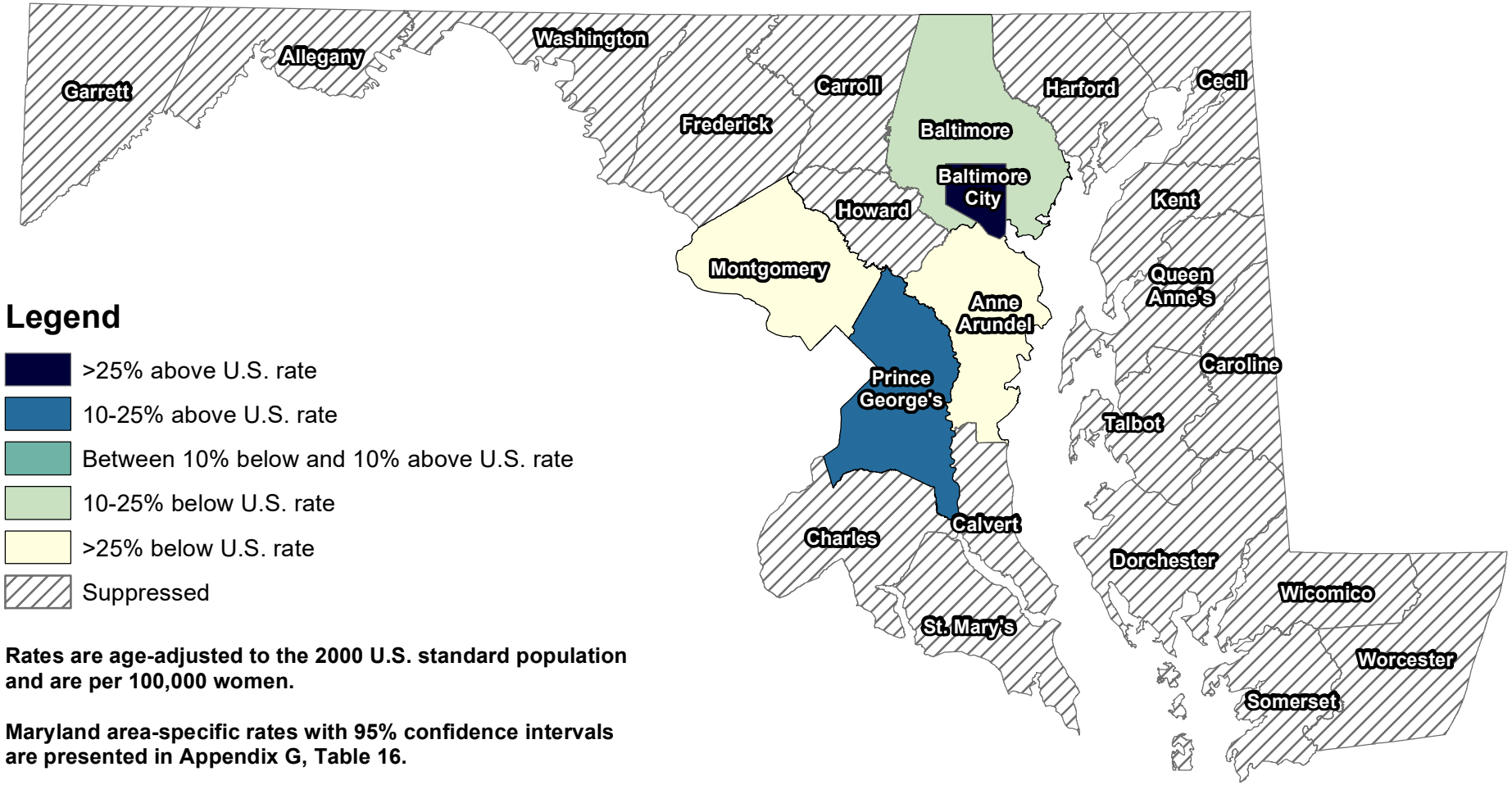
U.S. cervical cancer incidence rate, 2013-2017: 7.4 / 100,000

Maryland cervical cancer incidence rate, 2013-2017: 6.4 / 100,000

Sources: Maryland Cancer Registry
U.S. SEER, SEER*Stat Database

Note: Rates based on case counts of 1-15 are suppressed per MDH/MCR Data Use Policy and Procedures.

Maryland Cervical Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2013-2017



Legend

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

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 G, Table 16.

U.S. cervical cancer mortality rate, 2013-2017: 2.3 / 100,000

Maryland cervical cancer mortality rate, 2013-2017: 1.9 / 100,000

Sources: CDC WONDER
U.S. SEER, Cancer Statistics Review

Note: Rates based on case counts of 0-19 are suppressed per MDH/CCPC Data Use Policy and Procedures.

Appendix A

Cigarette Restitution Fund
Cancer Report Requirements

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Cigarette Restitution Fund Cancer Report Requirements

The Maryland General Assembly established the 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 MDH to conduct a baseline cancer study (2000) as well as cancer studies at least every other year thereafter.

§13-1104 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 MDH seeks to measure; and
(7) Any other factor that MDH 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 all cancers and 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 MDH 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 MDH 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 CRF CPEST Program, the MDH targets seven cancer sites: lung and bronchus, colorectal, female breast, prostate, oral, melanoma of the skin, and cervix. These cancers are targeted because they can be prevented or detected early and treated, or are a major cause of cancer death.

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 2020 CRF Cancer Report focuses on the most recent data (2017 and 5-year combined data for the period 2013 to 2017).

Section I of the 2020 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 (2018) 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 (2008 to 2017) in overall cancer incidence and mortality rates for Maryland and the U.S.; 5-year incidence and mortality trends (2013 to 2017) for all cancer sites (overall and by race); and trends in stage for all cancers diagnosed in Maryland (2013 to 2017).

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 2017 incidence and mortality rates (with 95% confidence intervals [95% CI]) 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 mortality rates for the 5-year period 2013-2017; 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 2016-2020 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 (for lung and bronchus, colorectal, oral, and melanoma of the skin only), race (except for melanoma of the skin), and jurisdiction for 2017 and for the 5-year period from 2013 to 2017. 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 2013 to 2017 by geographical area (see Appendix G for map data).

Appendix A describes the statutory basis for the Cancer Report and includes a table addressing each required component and its location in this report. Appendix C describes the sources of data used to prepare the 2020 Cancer Report and specific data considerations (e.g., data confidentiality and statistical methods). Maryland population estimates for 2017 by race and gender are presented in Appendix D. The population data in these tables can be used as denominators for calculating crude incidence and mortality rates. Appendix E depicts the 2000 U.S. standard population organized by age groupings. Appendix F 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 G presents age-adjusted incidence and mortality rates with 95% CIs by Maryland geographical area (state, region, and jurisdiction). Appendix H tables display trends in cancer incidence and mortality rates, by cancer site and race (gender used for melanoma), over the 5-year period (2013 to 2017). Appendix I tables show the distribution of cancer stage at diagnosis for all cancer sites and the targeted cancers, by year, from 2013 to 2017. Appendix J tables depict trends in incidence and mortality rates for all cancer sites from 2008 to 2017 in Maryland and the U.S.

Appendix C

Cancer Data Sources, References, and Data Considerations

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2020 Cigarette Restitution Fund (CRF) Cancer Report
Data Sources, References, and Data Considerations

I. DATA SOURCES

Data and information presented in the 2020 Cigarette Restitution Fund (CRF) Cancer Report were obtained from a variety of sources, including:

- Maryland Department of Health (MDH)
  - Center for Cancer Prevention and Control (CCPC)
  - Center for Chronic Disease Prevention and Control
  - Center for 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)

These sources and the types of information provided for the 2020 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, MDH, is the source for all Maryland-specific cancer incidence and cancer stage data used in this report. The MCR is a computerized data system that collects and consolidates reports of all new cases of reportable cancers (excluding non-genital squamous cell or basal cell skin cancer) that are diagnosed and/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 January 3, 2020, for the diagnosis year 2017.

Maryland cancer reporting law (Health-General Article §18-203 and 18-204) and regulations (Code of Maryland Regulations 10.14.01) mandate the collection of cancer information from Maryland-licensed hospitals, radiation therapy centers, diagnostic pathology laboratories, freestanding ambulatory care facilities, surgical centers, and physicians whose non-hospitalized cancer patients are not otherwise reported. The MCR has also signed the NAACCR National Interstate Data Exchange Agreement and at the point of reporting receives abstracts from 31 other states/ jurisdictions, including Alabama, Alaska, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Louisiana, Massachusetts, Michigan, Mississippi, Montana, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin, and the District of Columbia. Information on Maryland residents diagnosed and/or treated for cancer in these jurisdictions is included in this report.

2. Surveillance, Epidemiology, and End Results Program

The Surveillance, Epidemiology, and End Results (SEER) Program, managed by the NCI, is an authoritative source of information on cancer incidence, stage, and survival in the U.S.

The SEER Program, which began in 1973 and provides incidence rates representative of the U.S., collects, analyzes, and publishes cancer incidence and survival data from population-based cancer registries participating in the program. Since 2000, SEER incidence data has 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 regards to measures of poverty and education; however, it is also selectively 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 to compare national data with the most recent Maryland incidence data (2013-2017), as they provide the broadest population coverage currently available. All SEER incidence rates were obtained by the MCR from SEER*Stat (version 8.3.4), a statistical software tool for the analysis of SEER and other cancer-related databases. Additional information about SEER can be found at http://www.seer.cancer.gov.

The Maryland population estimates for 2017 presented in Appendix B were also obtained from SEER*Stat.

B. Cancer Mortality Data

Maryland mortality data for 2017 and the 5-year aggregate data (2013 to 2017) were acquired from CDC WONDER, an interactive online public health database developed by the CDC, which features statistics for U.S. and Maryland resident health events. CDC WONDER is an intuitive, web-based system that makes information from CDC available to public health professionals and the public at large. Public-use data sets about mortality (deaths), cancer incidence, HIV and AIDS, tuberculosis, natality (births), census data, and many other topics are available for query, and the requested data are readily summarized and analyzed. CDC WONDER can be accessed at https://wonder.cdc.gov/.

Maryland mortality single year data for 2017, and the 5-year aggregate data (2013 to 2017), presented in this report were obtained from the National Center for Health Statistics (NCHS) Underlying Causes of Death accessed using CDC WONDER. The Underlying Cause of Death data available on WONDER are county-level national mortality and population data spanning the years 1999-2019. Data are based on death certificates for U.S. residents. Each death certificate identifies a single underlying cause of death and demographic data. Single year data from 2013 to 2016 were obtained from

the NCHS CMF. The NCHS CMF is a county-level national mortality and population database spanning the years 1979 to 2016. 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 2013 to 2017 for Maryland and 2008 for the U.S. were obtained from the 1999-2017 CMF using ICD Tenth Revision (ICD-10) codes. The U.S. mortality rates for single year 2017 and 5-year aggregate data (2013 to 2017) were obtained from SEER, Cancer Statistics Review (CSR), which are provided by NCHS.

Maryland mortality data for 2011 were obtained from the Maryland Vital Statistics Administration. Maryland mortality single year data for 2008 through 2010, with the exception of colorectal cancer, are from MATCH whereas colorectal cancer mortality data were obtained directly from the Maryland Vital Statistics Administration due to the different definition of colorectal cancer in MATCH, which includes anal cancer. No longer accessible or in use, MATCH was an interactive online database sponsored by the MDH Cancer and Chronic Disease Bureau, Center for Chronic Disease Prevention and Control, which featured statistics for Maryland resident health events. County level births, deaths, population estimates, and hospitalizations could be obtained through a query of the MATCH online database. The official annual reports from the Maryland Vital Statistics Administration can be obtained online at https://health.maryland.gov/vsa/Pages/reports.aspx. Note: The definition of lung and bronchus cancer in MATCH included the 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.

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

The Maryland 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 and is managed by the Center for Chronic Disease Prevention and Control, Cancer and Chronic Disease Bureau at MDH. This survey provided risk behavior and cancer screening information for this report. Maryland data can be accessed at https://ibis.health.maryland.gov and Maryland and state-aggregated national data on health risk behavior can also be obtained from the CDC BRFSS website at http://www.cdc.gov/brfss.

2. Maryland Youth Risk Behavior Survey

The Maryland Youth Risk Behavior Survey (YRBS) is part of the CDC's Youth Risk Behavior Surveillance System (YRBSS) developed in 1990 to monitor behaviors affecting morbidity (disease) and mortality (death) among high school youth. The YRBSS tracks several priority health risk behaviors among youth, as well as behaviors that support health. The CDC's Youth Tobacco Survey (YTS) measures youth tobacco use behaviors, secondhand smoke exposure, and tobacco-related attitudes and beliefs for youth in middle and high school. Biennial surveillance of youth tobacco use behaviors is mandated by State statute (Maryland Health-General Code Ann. §13–1003 and §13–1004). To comply with these statutes, the Department implemented the YTS as the baseline survey in 2000 for surveillance of tobacco use behaviors for youth in middle and high school. The YTS was then conducted biennially in the fall of even years at a jurisdiction-level. In 2013, Maryland combined the YRBS and YTS (YRBS/YTS), utilizing the YRBS survey methodology, to create one survey tool to reduce the survey burden on schools and students. This survey tool is disseminated to selected schools by the Department with assistance from MSDE. All public middle schools and high schools in Maryland selected to participate in the biennial Maryland YRBS/YTS are mandated by statute to do so; however, parents may opt their child out of the survey by signing and returning the parental opt out form. Maryland data results for 2013, 2014, 2016, and 2018 can be accessed at https://phpa.health.maryland.gov/ccdpc/Reports/Pages/YRBS-Main.aspx.

3. Healthy People 2020

Healthy People (HP) 2020 is a collaboration of local and national governmental agencies and private organizations that have developed prevention-oriented national objectives to improve the health of Americans. The HP initiative is under the Office of Disease Prevention and Health Promotion at the U.S. Department of Health and Human Services (DHHS). The overarching HP 2020 goal for cancer prevention is to "reduce the number of new cases as well as the illness, disability, and death caused by cancer." To achieve this goal, measurable objectives related to cancer screening and cancer risk behaviors were established, each with a specific quantitative target. Several of these targets are used as benchmarks by which Maryland's progress can be measured. The HP 2020 objectives were released in late 2010 and additional information can be found at http://www.healthypeople.gov.

4. Maryland Comprehensive Cancer Control Plan (MCCCP), 2016-2020

The MCCCP contains goals and targets to be met by the State by the end of a 5-year period (2016 to 2020), 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 2016-2020 MCCCP was the coordinated effort of 83 stakeholders and several MDH offices and centers, with the aim of developing a cancer resource for individuals, healthcare providers, and organizations.

The MCCCP is directed by CCPC, MDH, with broad input from a partnership of public and private stakeholders. Additional information can be found at https://phpa.health.maryland.gov/cancer/cancerplan/Pages/publications.aspx.

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

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

The NCI PDQ® cancer information summaries are comprehensive, evidence-based summaries on topics that cover adult and pediatric cancer treatment, supportive and palliative care, screening, prevention, genetics, and integrative, alternative, and complementary therapies. Information provided in the individual cancer chapters under the section "Public Health Evidence" was taken primarily from the NCI PDQ® - Patient Version websites. Links to the Health Professional version of the NCI PDQ® are available below. Contents of the PDQ® are often quoted verbatim and sometimes paraphrased, and PDQ® definitions are included in the Glossary. Where appropriate, prevention or screening recommendations from the United States Preventive Services Task Force (USPSTF) or other professional medical/scientific bodies are included in the individual cancer chapters.

The PDQ® Editorial Boards are responsible for producing and maintaining comprehensive, evidence-based cancer information summaries, and are comprised of experts in cancer-related specialties. There are six total Editorial Boards, including one for screening and prevention, that meet regularly to review and update the cancer information summaries on the basis of newly published research results. Each Editorial Board is supported by a corresponding Editorial Advisory Board that reviews the PDQ® cancer information summaries on a regular basis and makes recommendations for changes to be considered by the corresponding core Editorial Board.
More information about NCI PDQ® can be accessed at:

PDQ®

http://www.cancer.gov/cancertopics/pdq

Levels of Evidence

http://www.cancer.gov/publications/pdq/levels-evidence/screening-prevention

Prevention and Screening

http://www.cancer.gov/cancertopics/pdq/prevention
http://www.cancer.gov/cancertopics/pdq/screening

Lung Cancer

Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Lung Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 3/27/2020. Available at https://www.cancer.gov/types/lung/patient/lung-prevention-pdq. Accessed 8/17/2020. [PMID: 26389497]

PDQ® Screening and Prevention Editorial Board. PDQ Lung Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 10/27/2020. Available at https://www.cancer.gov/types/lung/patient/lung-screening-pdq. Accessed 2/17/2021. [PMID: 26389428]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/lung/hp/lung-prevention-pdq

Screening – available https://www.cancer.gov/types/lung/hp/lung-screening-pdq

Colorectal Cancer
Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Colorectal Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 3/15/2019. Available at https://www.cancer.gov/types/colorectal/patient/colorectal-prevention-pdq. Accessed 10/6/2020. [PMID: 26389376]

PDQ® Screening and Prevention Editorial Board. PDQ Colorectal Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 3/15/2019. Available at https://www.cancer.gov/types/colorectal/patient/colorectal-screening-pdq. Accessed 10/6/2020. [PMID: 26389230]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/colorectal/hp/colorectal-prevention-pdq

Screening – available at https://www.cancer.gov/types/colorectal/hp/colorectal-screening-pdq

Female Breast Cancer
Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Breast Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 1/8/2021. Available at https://www.cancer.gov/types/breast/patient/breast-prevention-pdq. Accessed 2/17/2021. [PMID: 26389410]

PDQ® Screening and Prevention Editorial Board. PDQ Breast Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 12/16/2020. Available at https://www.cancer.gov/types/breast/patient/breast-screening-pdq. Accessed 2/17/2021. [PMID: 26389160]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/breast/hp/breast-prevention-pdq

Screening – available at https://www.cancer.gov/types/breast/hp/breast-screening-pdq

Prostate Cancer
Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Prostate Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 5/10/2019. Available at https://www.cancer.gov/types/prostate/patient/prostate-prevention-pdq. Accessed 10/01/2020. [PMID: 26389260]

PDQ® Screening and Prevention Editorial Board. PDQ Prostate Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 4/10/2019. Available at https://www.cancer.gov/types/prostate/patient/prostate-screening-pdq. Accessed 10/01/2020. [PMID: 26389306]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/prostate/hp/prostate-prevention-pdq

Screening – available at https://www.cancer.gov/types/prostate/hp/prostate-screening-pdq

Oral Cancer
Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Oral Cavity, Pharyngeal, and Laryngeal Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 2/11/2021. Available at https://www.cancer.gov/types/head-and-neck/patient/oral-prevention-pdq. Accessed 2/17/2021. [PMID: 26389257]

PDQ® Screening and Prevention Editorial Board. PDQ Oral Cavity, Pharyngeal, and Laryngeal Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 3/18/2020. Available at https://www.cancer.gov/types/head-and-neck/patient/oral-screening-pdq. Accessed 9/30/2020. [PMID: 26389441]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/head-and-neck/hp/oral-prevention-pdq

Screening – available at https://www.cancer.gov/types/head-and-neck/hp/oral-screening-pdq

Skin Cancer
Patient Version

PDQ® Screening and Prevention Editorial Board. PDQ Skin Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 4/10/2019. Available at https://www.cancer.gov/types/skin/patient/skin-prevention-pdq. Accessed 9/28/2020. [PMID: 26389434]

PDQ® Screening and Prevention Editorial Board. PDQ Skin Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 3/27/2020. Available at https://www.cancer.gov/types/skin/patient/skin-screening-pdq. Accessed 9/28/2020. [PMID: 26389182]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/skin/hp/skin-prevention-pdq

Screening – available at https://www.cancer.gov/types/skin/hp/skin-screening-pdq

Cervical Cancer
Patient Version
PDQ® Screening and Prevention Editorial Board. PDQ Cervical Cancer Prevention. Bethesda, MD: National Cancer Institute. Updated 9/28/2020. Available at https://www.cancer.gov/types/cervical/patient/cervical-prevention-pdq. Accessed 2/17/2021. [PMID: 26389339]

PDQ® Screening and Prevention Editorial Board. PDQ Cervical Cancer Screening. Bethesda, MD: National Cancer Institute. Updated 9/18/2020. Available at https://www.cancer.gov/types/cervical/patient/cervical-screening-pdq. Accessed 9/29/2020. [PMID: 26389215]

Health Professional Version
Prevention – available at https://www.cancer.gov/types/cervical/hp/cervical-prevention-pdq

Screening – available at https://www.cancer.gov/types/cervical/hp/cervical-screening-pdq

B. Maryland Department of Health Center for Cancer Prevention and Control Medical Advisory Committees

The Center for Cancer Prevention and Control convened Medical Advisory Committees to formulate guidelines for cancer screening, diagnosis, and/or treatment for use by programs funded by the Maryland Department of Health. All guidelines are located at: http://phpa.dhmh.maryland.gov/cancer/Pages/resources.aspx

C. Additional Medical Literature

The USPSTF recommendations are used throughout the report and the contents of the USPSTF Recommendation Statements are often quoted verbatim and sometimes paraphrased. For additional information, the website is https://www.uspreventiveservicestaskforce.org/uspstf/

Lung Cancer

Final Recommendation Statement: Lung Cancer: Screening. U.S. Preventive Services Task Force. December 31, 2013. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening. Accessed 8/18/2020.

Colorectal Cancer

Final Recommendation Statement: Colorectal Cancer: Screening. U.S. Preventive Services Task Force. June 15, 2016. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening. Accessed 10/6/2020.

Final Recommendation Statement: Aspirin Use to Prevent Cardiovascular Disease and Colorectal Cancer: Preventive Medication. U.S. Preventive Services Task Force. April 11, 2016. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/aspirin-to-prevent-cardiovascular-disease-and-cancer. Accessed 10/6/2020.

Female Breast Cancer

Final Recommendation Summary: Breast Cancer: Medication Use to Reduce Risk. U.S. Preventive Services Task Force. September 3, 2019. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/breast-cancer-medications-for-risk-reduction. Accessed 10/7/2020.

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Meites E, Szilagyi PG, Chesson HW, Unger ER, Romero JR, Markowitz LE**.** Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices *MMWR*. 2019;68(32);698-702.

DATA CONSIDERATIONS

A. Data Confidentiality

MDH regards all individual data reported to and received and processed by the MCR as confidential and ensures they are secured from unauthorized access and disclosure. The MCR manages and releases cancer information in accordance with Health-General Article, §§18-203 – 204 and §4-101 et seq., Annotate Code of Maryland, and Code of Maryland Regulations 10.14.01 ("Cancer Registry").

Because incidence data and mortality data come from different sources, separate suppression procedures are employed for release of non-confidential data. For the number of cancer cases collected by the 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* (July 2016; https://phpa.health.maryland.gov/cancer/Pages/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. Age-adjusted incidence rates based on counts of 15 or fewer (non-zero) are presented with asterisks (**) because the rates are unstable and do not provide reliable information.

Mortality data for this report are from CDC WONDER. ICD-10 codes listed in Appendix F of this report were used for identifying the type of cancer for extraction. Data obtained from CDC WONDER are subject to CDC data use restrictions, which differ slightly from those of the *MDH/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 CDC 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 0-9 are suppressed and denoted by "<10." 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 of less than 20 (i.e., 0-19 deaths) are presented with asterisks (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 *MDH/MCR Data Use Policy* for incidence rate suppression.

B. Gender

Gender is reported to the MCR as: a) male; b) female; c) hermaphrodite; d) transsexual; and e) unknown (not stated), but numbers and rates for only males and females are provided in this report. As a result, the totals shown in the count for number of cancer cases may not equal the sum of males and females because of cases in the other gender categories.

C. County

County is reported to the MCR as the jurisdiction of residence for each cancer case (i.e., one of the 24 jurisdictions in Maryland) or is categorized as unknown. As a result, the totals shown in the count for number of cancer cases may not equal the sum of the cancer cases across all 24 jurisdictions because of cases with unknown county.

D. Rate Analysis

Individual year incidence rates for 2017 were calculated using Maryland resident cancer cases diagnosed from January 1 through December 31 of that year, and reported to the MCR as of January 3, 2020. The individual year mortality data for 2017 consist of deaths that occurred between January 1 and December 31 of that year. Multiple year incidence rates presented were calculated for 5-year rates using MCR 2013-2017 data. Corresponding mortality rates were extracted from CDC WONDER, as 5-year combined data from 2013 to 2017.

Age-adjustment, also called age-standardization, is a tool used to control for different and changing age distributions of populations in the U.S. (by states, regions, and counties), and to enable meaningful comparisons of rates over time and across these populations. Age-adjusted rates do not include cancer cases for which age has not been reported. 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 the Glossary for the definition of APC.

E. Confidence Intervals and Statistical Significance

Age-adjusted rates for specific geographic areas (e.g., national, states, regions, and counties) can be compared to determine whether differences in incidence or mortality exist between these areas. It is important to note however, that 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. In these instances, two unadjusted rates cannot be compared side-by-side to determine whether they are statistically significantly different.

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. Confidence intervals are useful in defining a range within which the typical rate for a geographic area can be expected to lie. Most confidence intervals are, by convention, calculated at the 95% level, which means that 95% of hypothetically observed confidence intervals generated will contain the true value of interest. 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 calculated from the SEER*Stat software. Confidence intervals for Maryland mortality rates were generated using CDC WONDER, and confidence intervals for U.S. mortality rates were queried using SEER's Cancer Query System. The following formula can be used to approximate the 95% CI for age-adjusted rates:

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

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

where R = age-adjusted cancer incidence or mortality rate and 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 that there is a statistically significant difference between the rates. For example, Maryland's 2016 lung cancer incidence rate was 54.0 per 100,000, with a 95% confidence interval of 52.2-55.7. The 2016 U.S. SEER age-adjusted lung cancer incidence rate was 50.1 per 100,000 population, with a 95% confidence interval of 49.7-50.5. 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 there is not a statistically significant difference between the rates. 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 NAACCR, Cancer in North America (May 2010) are used in this report to determine whether the differences between the two rates are statistically significant. An approximate confidence interval for the rate ratio of two age-adjusted rates can be calculated using the following formula:

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

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

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

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

F. 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 cancer site are from SEER Cancer Statistics Review (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 (2013-2017) 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 (2013-2017) U.S. rate was used as a basis for comparison with rates for Maryland jurisdictions. 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 10% and 25%, but less than 10% and more than 25% do not include the endpoints of the range.

G. 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, other, and unknown (not stated), regardless of Hispanic ethnicity. The "other" race category includes cases reported as American Indian or Alaskan Native, Asian or Pacific Islander, and any other race category, except those cases with unknown or missing race. However, only white, black, and other races are included in the Cancer Report, with the "other" race category only including American Indian or Alaska Native and Asian or Pacific Islander cases. This change is to match how CDC WONDER reports race for mortality data (see below). The MCR uses the NCI's 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 U.S. Census Bureau, developed a race-bridging methodology for assigning multiple-race groups to single-race categories. The category of "other" races in this report includes the American Indian or Alaska Native race category and the Asian or Pacific Islander race category. 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 "other" (i.e., Asian or Pacific Islander and Native American or Alaskan Native). "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 2017 and 5-year aggregate data (2013 to 2017) obtained from SEER CSR only report U.S. mortality for whites and blacks.

H. Healthy People 2020 Targets

In the 2020 CRF Cancer Report, quantitative HP 2020 targets are compared to Maryland data related to cancer risk behaviors and adherence to cancer screening recommendations (see Section I.C.4). Specifically, HP 2020 targets are compared to data from the Maryland BRFSS. The data from these Maryland surveys are weighted to the age, race, and gender of the Maryland population and, 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.

The target-setting method used for the HP 2020 objective for sun exposure protection was a 10% improvement from the national baseline in 2008 using data from the National Health Interview Survey (NHIS). The questions used to define sun exposure protective measures used by NHIS slightly differed from the questions used by the Maryland BRFSS, although the information gathered by both surveys is similar. Therefore, one could use the sun exposure protection data from the Maryland BRFSS as a form of comparison to the HP 2020, however, interpretations should remain cautious due to the different measures used for data gathering.

I. Appendices

Please refer to additional appendices for:

- Cigarette Restitution Fund Cancer Report Requirements (Appendix A)
- Cancer Report Format (Appendix B)
- Maryland Population Estimates, 2017 (Appendix D)
- U.S. Standard Population, 2000 (Appendix E)
- Definitions of International Classification of Diseases (ICD) Codes Used for Cancer Incidence and Mortality (Appendix F)
- Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2011-2015 (Appendix G)

- Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2013-2017 (Appendix H)
- Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2013-2017 (Appendix I)
- Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2008-2017 (Appendix J)

Appendix D

Maryland Population Estimates, 2017

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Maryland Population Estimates by Jurisdiction, 2017

Jurisdiction	Total All Genders	Total Males	Total Females	Total Whites	White Males	White Females	Total Blacks	Black Males	Black Females
Maryland	**6,024,891**	**2,920,753**	**3,104,138**	**3,632,537**	**1,795,726**	**1,836,811**	**1,919,108**	**897,923**	**1,021,185**
Baltimore Metropolitan Area	**2,748,920**	**1,324,816**	**1,424,104**	**1,702,804**	**837,633**	**865,171**	**856,563**	**395,371**	**461,192**
Anne Arundel	571,592	283,298	288,294	436,832	217,888	218,944	104,776	51,286	53,490
Baltimore City	609,841	286,199	323,642	195,718	97,040	98,678	392,164	178,585	213,579
Baltimore	828,603	392,874	435,729	519,551	250,570	268,981	249,566	113,130	136,436
Carroll	167,620	82,978	84,642	156,454	77,224	79,230	6,825	3,757	3,068
Harford	251,890	123,198	128,692	204,432	100,439	103,993	37,578	18,063	19,515
Howard	319,374	156,269	163,105	189,817	94,472	95,345	65,654	30,550	35,104
Eastern Shore Region	**453,803**	**221,529**	**232,274**	**361,058**	**176,311**	**184,747**	**81,596**	**39,870**	**41,726**
Caroline	33,108	16,251	16,857	27,235	13,408	13,827	5,053	2,388	2,665
Cecil	102,573	50,986	51,587	92,340	45,849	46,491	8,027	4,100	3,927
Dorchester	32,145	15,299	16,846	21,857	10,531	11,326	9,691	4,495	5,196
Kent	19,437	9,284	10,153	16,006	7,683	8,323	3,085	1,440	1,645
Queen Anne's	49,667	24,649	25,018	45,182	22,410	22,772	3,456	1,762	1,694
Somerset	25,913	13,938	11,975	14,188	7,284	6,904	11,313	6,447	4,866
Talbot	37,020	17,534	19,486	31,247	14,818	16,429	4,966	2,348	2,618
Wicomico	102,363	48,511	53,852	69,674	33,177	36,497	28,783	13,470	15,313
Worcester	51,577	25,077	26,500	43,329	21,151	22,178	7,222	3,420	3,802
National Capital Area	**1,957,045**	**944,440**	**1,012,605**	**900,251**	**450,487**	**449,764**	**818,792**	**380,172**	**438,620**
Montgomery	1,048,244	506,760	541,484	652,405	320,703	331,702	215,274	100,531	114,743
Prince George's	908,801	437,680	471,121	247,846	129,784	118,062	603,518	279,641	323,877
Northwest Region	**501,894**	**251,690**	**250,204**	**429,302**	**211,798**	**217,504**	**52,931**	**30,491**	**22,440**
Allegany	71,386	37,139	34,247	64,011	31,838	32,173	6,299	4,789	1,510
Frederick	250,959	123,658	127,301	209,342	103,108	106,234	27,016	13,582	13,434
Garrett	29,261	14,423	14,838	28,695	14,123	14,572	381	240	141
Washington	150,288	76,470	73,818	127,254	62,729	64,525	19,235	11,880	7,355
Southern Region	**363,229**	**178,278**	**184,951**	**239,122**	**119,497**	**119,625**	**109,226**	**52,019**	**57,207**
Calvert	91,365	45,232	46,133	75,953	37,802	38,151	12,733	6,199	6,534
Charles	159,451	76,922	82,529	72,873	36,185	36,688	78,673	37,113	41,560
St. Mary's	112,413	56,124	56,289	90,296	45,510	44,786	17,820	8,707	9,113

Source: SEER*Stat static data as of February 19, 2020

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Appendix E

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 F

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, D09.0
Lung and Bronchus	C34.0-C34.9	Excludes codes 9050-9055, 9140, and 9590-9989	C34
Colorectal	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

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Appendix G

Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2013-2017

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Appendix G

Table 1: All Cancer Sites Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	447.3	445.0	449.6
Baltimore Metropolitan Area ^	467.7	463.9	471.6
Anne Arundel	456.3	448.8	464.0
Baltimore City	486.0	478.3	493.8
Baltimore	483.8	477.6	490.1
Carroll	484.0	470.4	498.0
Harford	506.5	494.9	518.3
Howard	397.7	387.9	407.6
Eastern Shore Region	497.3	489.0	505.6
Caroline	477.7	447.1	510.0
Cecil	530.5	511.4	550.0
Dorchester	476.8	447.6	507.5
Kent	459.5	424.3	497.4
Queen Anne's	489.9	464.9	515.9
Somerset	489.5	454.3	526.8
Talbot	457.3	432.0	483.9
Wicomico	530.2	511.1	549.9
Worcester	491.2	468.5	514.9
National Capital Area	389.6	385.7	393.4
Montgomery	377.9	372.9	383.0
Prince George's	404.8	398.8	410.8
Northwest Region	462.5	454.7	470.4
Allegany	509.0	488.7	529.9
Frederick	446.4	435.0	458.0
Garrett	411.5	383.6	441.1
Washington	473.5	459.3	488.0
Southern Region	441.3	431.6	451.1
Calvert	457.0	438.2	476.5
Charles	442.2	427.3	457.5
St. Mary's	427.2	410.4	444.6

* 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 G

Table 2: Lung and Bronchus Cancer Incidence Age-Adjusted Incidence Rates by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	55.4	54.6	56.2
Baltimore Metropolitan Area ^	60.0	58.6	61.4
Anne Arundel	62.3	59.5	65.2
Baltimore City	80.7	77.6	83.9
Baltimore	64.2	62.0	66.4
Carroll	55.7	51.2	60.5
Harford	69.5	65.2	73.9
Howard	38.1	35.1	41.4
Eastern Shore Region	69.9	67.0	73.0
Caroline	70.5	59.4	83.3
Cecil	88.0	80.5	96.2
Dorchester	63.1	53.5	74.3
Kent	56.7	45.5	70.5
Queen Anne's	68.3	59.4	78.3
Somerset	78.4	65.0	93.9
Talbot	47.7	40.6	56.1
Wicomico	78.7	71.6	86.4
Worcester	62.0	54.8	70.2
National Capital Area	35.9	34.7	37.1
Montgomery	30.4	29.0	31.9
Prince George's	43.0	41.0	45.0
Northwest Region	58.8	56.1	61.6
Allegany	76.3	68.9	84.3
Frederick	47.1	43.4	51.0
Garrett	44.8	36.5	54.8
Washington	69.3	64.0	74.9
Southern Region	58.3	54.8	62.0
Calvert	58.1	51.5	65.4
Charles	51.9	46.8	57.5
St. Mary's	67.4	60.8	74.7

* 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 G

Table 3: Colorectal Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	36.0	35.4	36.7
Baltimore Metropolitan Area ^	36.3	35.2	37.4
Anne Arundel	34.5	32.4	36.7
Baltimore City	39.9	37.7	42.2
Baltimore	36.9	35.2	38.6
Carroll	42.7	38.7	46.9
Harford	39.2	36.0	42.6
Howard	31.0	28.3	33.9
Eastern Shore Region	39.6	37.3	42.1
Caroline	50.3	40.4	62.0
Cecil	45.0	39.5	51.1
Dorchester	44.8	36.0	55.2
Kent	37.8	28.3	50.2
Queen Anne's	33.5	26.9	41.2
Somerset	43.9	33.7	56.4
Talbot	29.6	23.2	37.5
Wicomico	40.3	35.2	46.1
Worcester	37.7	31.4	45.0
National Capital Area	32.5	31.4	33.6
Montgomery	29.7	28.3	31.1
Prince George's	36.2	34.5	38.1
Northwest Region	37.7	35.5	40.0
Allegany	45.7	39.7	52.4
Frederick	33.9	30.9	37.2
Garrett	43.0	34.2	53.5
Washington	37.5	33.5	41.7
Southern Region	38.2	35.4	41.1
Calvert	40.6	35.1	46.7
Charles	41.0	36.5	45.9
St. Mary's	32.6	28.1	37.6

* 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 G

Table 4: Female Breast Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	131.7	130.0	133.4
Baltimore Metropolitan Area ^	138.3	135.4	141.2
Anne Arundel	133.9	128.3	139.7
Baltimore City	124.9	119.6	130.3
Baltimore	140.4	135.8	145.1
Carroll	131.6	121.9	141.9
Harford	143.3	135.0	152.0
Howard	138.3	130.7	146.3
Eastern Shore Region	131.9	125.9	138.2
Caroline	127.1	105.8	151.6
Cecil	126.0	113.3	139.8
Dorchester	128.4	107.1	152.9
Kent	138.0	109.5	172.4
Queen Anne's	131.2	113.1	151.5
Somerset	142.3	114.1	175.6
Talbot	116.9	99.0	137.6
Wicomico	142.5	128.9	157.3
Worcester	135.8	118.4	155.2
National Capital Area	127.2	124.3	130.2
Montgomery	126.6	122.6	130.6
Prince George's	128.4	124.0	132.9
Northwest Region	132.4	126.6	138.5
Allegany	131.4	116.4	147.9
Frederick	131.6	123.2	140.4
Garrett	118.0	97.9	141.5
Washington	135.7	125.0	147.1
Southern Region	121.9	115.2	129.0
Calvert	126.0	112.8	140.5
Charles	124.1	113.8	135.1
St. Mary's	115.7	103.8	128.6

* 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

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Table 5: Prostate Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	124.1	122.3	125.8
Baltimore Metropolitan Area ^	120.9	118.1	123.8
Anne Arundel	111.1	105.9	116.6
Baltimore City	138.4	132.3	144.8
Baltimore	131.0	126.4	135.7
Carroll	121.2	111.8	131.3
Harford	129.0	120.9	137.6
Howard	103.9	97.0	111.3
Eastern Shore Region	122.1	116.5	127.8
Caroline	112.5	92.3	136.2
Cecil	122.4	109.8	136.1
Dorchester	126.5	106.6	149.5
Kent	122.8	99.1	151.7
Queen Anne's	115.5	99.7	133.3
Somerset	107.6	86.0	133.5
Talbot	120.2	103.3	139.7
Wicomico	138.8	125.0	153.7
Worcester	121.2	107.1	137.2
National Capital Area	127.2	124.0	130.4
Montgomery	110.6	106.7	114.7
Prince George's	148.8	143.5	154.3
Northwest Region	102.4	97.3	107.8
Allegany	118.4	105.1	133.0
Frederick	97.8	90.2	105.9
Garrett	92.9	75.5	113.8
Washington	102.5	93.4	112.4
Southern Region	119.3	112.2	126.6
Calvert	114.9	101.8	129.2
Charles	145.9	133.6	159.0
St. Mary's	88.7	78.3	100.2

* 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

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Table 6: Oral Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	11.0	10.6	11.3
Baltimore Metropolitan Area ^	11.3	10.7	11.9
Anne Arundel	12.6	11.4	13.9
Baltimore City	12.3	11.1	13.6
Baltimore	11.0	10.1	12.0
Carroll	12.9	10.8	15.4
Harford	10.7	9.1	12.5
Howard	9.0	7.6	10.5
Eastern Shore Region	14.3	12.9	15.7
Caroline	13.3	8.8	19.6
Cecil	14.3	11.4	17.7
Dorchester	14.4	9.3	21.4
Kent	13.1	8.3	20.6
Queen Anne's	12.0	8.5	16.6
Somerset	13.7	8.5	21.3
Talbot	16.9	12.2	23.0
Wicomico	15.3	12.2	18.9
Worcester	13.3	10.1	17.5
National Capital Area	8.5	8.0	9.1
Montgomery	9.2	8.5	10.1
Prince George's	7.7	6.9	8.5
Northwest Region	11.9	10.7	13.2
Allegany	13.8	10.5	17.8
Frederick	11.6	9.8	13.5
Garrett	11.6	7.2	17.9
Washington	12.0	9.8	14.4
Southern Region	13.9	12.3	15.7
Calvert	13.6	10.6	17.2
Charles	12.2	9.9	15.0
St. Mary's	16.7	13.6	20.4

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

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

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Table 7: Melanoma Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	23.8	23.3	24.3
Baltimore Metropolitan Area ^	31.8	30.8	32.9
Anne Arundel	32.8	30.8	35.0
Baltimore City	11.0	9.8	12.2
Baltimore	30.2	28.7	31.8
Carroll	38.1	34.1	42.3
Harford	37.1	34.0	40.5
Howard	25.6	23.2	28.2
Eastern Shore Region	36.3	34.0	38.7
Caroline	27.8	20.6	36.8
Cecil	32.5	27.8	37.8
Dorchester	19.7	14.1	27.1
Kent	31.4	22.5	43.1
Queen Anne's	50.0	42.2	58.9
Somerset	33.0	24.3	43.9
Talbot	42.0	34.2	51.4
Wicomico	31.6	27.0	36.8
Worcester	48.1	40.6	56.6
National Capital Area	13.7	13.0	14.4
Montgomery	19.6	18.4	20.8
Prince George's	6.2	5.4	7.0
Northwest Region	25.6	23.7	27.5
Allegany	21.4	17.3	26.3
Frederick	27.0	24.3	30.0
Garrett	23.8	17.5	31.9
Washington	25.0	21.8	28.6
Southern Region	25.5	23.2	28.0
Calvert	33.3	28.2	39.1
Charles	18.1	15.1	21.4
St. Mary's	28.8	24.5	33.7

* 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

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Table 8: Cervical Cancer Incidence
Age-Adjusted Incidence Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Incidence Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	6.4	6.1	6.9
Baltimore Metropolitan Area ^	5.9	5.3	6.6
Anne Arundel	7.0	5.7	8.6
Baltimore City	10.2	8.7	11.9
Baltimore	5.9	4.9	7.0
Carroll	4.9	3.0	7.5
Harford	5.7	4.0	7.8
Howard	4.9	3.5	6.7
Eastern Shore Region	8.1	6.4	10.0
Caroline	**	**	**
Cecil	7.4	4.4	11.7
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	8.7	5.5	13.2
Worcester	12.1	6.3	20.7
National Capital Area	5.7	5.1	6.4
Montgomery	5.5	4.7	6.5
Prince George's	6.0	5.1	7.1
Northwest Region	7.1	5.7	8.7
Allegany	10.0	5.7	16.2
Frederick	5.2	3.6	7.4
Garrett	**	**	**
Washington	9.5	6.5	13.3
Southern Region	4.8	3.5	6.4
Calvert	**	**	**
Charles	5.1	3.2	7.8
St. Mary's	5.6	3.2	9.1

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

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

^ Area rate does not include Baltimore City

Source: Maryland Cancer Registry

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Table 9: All Cancer Sites Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	157.4	156.0	158.7
Baltimore Metropolitan Area ^	155.8	153.6	158.1
Anne Arundel	162.5	157.9	167.1
Baltimore City	215.5	210.4	220.7
Baltimore	161.9	158.4	165.4
Carroll	153.8	146.1	161.5
Harford	165.9	159.2	172.6
Howard	119.5	114.0	125.1
Eastern Shore Region	175.7	170.9	180.5
Caroline	176.7	158.0	195.3
Cecil	189.1	177.6	200.7
Dorchester	191.6	173.5	209.7
Kent	148.1	129.3	167.0
Queen Anne's	153.5	139.8	167.2
Somerset	178.1	156.8	199.5
Talbot	134.1	121.6	146.6
Wicomico	203.5	191.7	215.3
Worcester	174.3	161.4	187.1
National Capital Area	134.6	132.3	136.9
Montgomery	116.1	113.3	118.9
Prince George's	158.3	154.5	162.2
Northwest Region	156.5	152.0	161.0
Allegany	168.2	156.9	179.5
Frederick	147.9	141.2	154.6
Garrett	137.5	121.8	153.1
Washington	168.7	160.3	177.0
Southern Region	166.1	160.0	172.2
Calvert	164.9	153.3	176.5
Charles	161.3	151.9	170.7
St. Mary's	174.0	162.9	185.2

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

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 10: Lung and Bronchus Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	38.6	37.9	39.3
Baltimore Metropolitan Area ^	39.7	38.5	40.8
Anne Arundel	42.6	40.2	44.9
Baltimore City	57.6	55.0	60.3
Baltimore	41.7	39.9	43.5
Carroll	39.1	35.2	42.9
Harford	44.8	41.3	48.3
Howard	24.6	22.1	27.1
Eastern Shore Region	51.0	48.5	53.5
Caroline	58.4	47.8	68.9
Cecil	61.7	55.2	68.3
Dorchester	50.1	41.2	58.9
Kent	36.9	28.2	47.5
Queen Anne's	44.5	37.2	51.7
Somerset	63.2	50.6	75.8
Talbot	32.2	26.0	38.4
Wicomico	57.2	51.0	63.4
Worcester	48.5	41.9	55.1
National Capital Area	26.8	25.8	27.9
Montgomery	22.2	20.9	23.4
Prince George's	33.0	31.2	34.7
Northwest Region	39.7	37.5	42.0
Allegany	47.3	41.3	53.2
Frederick	34.1	30.9	37.3
Garrett	28.8	22.2	36.6
Washington	46.6	42.2	51.0
Southern Region	42.4	39.3	45.4
Calvert	41.3	35.4	47.1
Charles	37.0	32.5	41.5
St. Mary's	50.5	44.5	56.5

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

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 11: Colorectal Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	13.8	13.4	14.2
Baltimore Metropolitan Area ^	13.5	12.9	14.2
Anne Arundel	12.8	11.6	14.1
Baltimore City	20.2	18.6	21.7
Baltimore	14.2	13.1	15.2
Carroll	14.7	12.3	17.0
Harford	14.8	12.8	16.8
Howard	11.1	9.4	12.8
Eastern Shore Region	14.4	13.0	15.8
Caroline	12.5	7.9	18.7
Cecil	15.6	12.5	19.4
Dorchester	21.1	15.3	28.4
Kent	16.8	10.4	25.7
Queen Anne's	10.6	7.2	15.0
Somerset	**	**	**
Talbot	**	**	**
Wicomico	19.8	16.1	23.5
Worcester	16.1	12.5	20.6
National Capital Area	11.6	11.0	12.3
Montgomery	9.2	8.4	10.0
Prince George's	14.7	13.5	15.9
Northwest Region	14.1	12.8	15.5
Allegany	15.5	12.2	19.4
Frederick	11.7	9.8	13.6
Garrett	16.1	11.2	22.4
Washington	16.5	14.0	19.1
Southern Region	14.4	12.6	16.2
Calvert	13.8	10.6	17.5
Charles	16.0	13.1	19.0
St. Mary's	12.9	10.1	16.3

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

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

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 12: Female Breast Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	21.8	21.1	22.5
Baltimore Metropolitan Area ^	21.4	20.3	22.5
Anne Arundel	20.7	18.5	22.9
Baltimore City	26.5	24.1	28.9
Baltimore	22.6	20.8	24.4
Carroll	23.0	18.9	27.0
Harford	23.1	19.8	26.5
Howard	17.5	14.8	20.3
Eastern Shore Region	19.2	17.0	21.4
Caroline	19.7	11.8	30.7
Cecil	18.9	14.2	24.6
Dorchester	23.1	14.7	34.7
Kent	**	**	**
Queen Anne's	15.9	10.5	23.2
Somerset	**	**	**
Talbot	13.3	8.3	20.1
Wicomico	21.1	16.3	26.9
Worcester	23.2	16.8	31.3
National Capital Area	21.5	20.3	22.7
Montgomery	18.5	17.0	20.0
Prince George's	25.4	23.4	27.4
Northwest Region	20.9	18.6	23.2
Allegany	17.5	12.8	23.4
Frederick	20.3	16.9	23.7
Garrett	23.1	15.1	33.9
Washington	23.2	18.9	27.5
Southern Region	23.1	20.0	26.1
Calvert	23.7	18.3	30.2
Charles	23.9	19.1	28.6
St. Mary's	21.6	16.5	27.7

* 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/CCPC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 13: Prostate Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	19.9	19.1	20.6
Baltimore Metropolitan Area ^	18.3	17.1	19.5
Anne Arundel	20.1	17.4	22.7
Baltimore City	30.8	27.5	34.0
Baltimore	18.8	16.9	20.6
Carroll	16.0	12.3	20.5
Harford	16.8	13.4	20.6
Howard	16.9	13.5	20.3
Eastern Shore Region	20.1	17.7	22.6
Caroline	**	**	**
Cecil	19.5	14.1	26.4
Dorchester	20.0	12.4	30.6
Kent	**	**	**
Queen Anne's	15.5	9.5	24.0
Somerset	**	**	**
Talbot	18.4	12.6	26.0
Wicomico	25.4	19.2	33.0
Worcester	21.5	15.7	28.8
National Capital Area	19.9	18.5	21.4
Montgomery	15.1	13.5	16.7
Prince George's	27.2	24.5	30.0
Northwest Region	15.5	13.3	17.7
Allegany	16.0	11.2	22.0
Frederick	15.7	12.4	19.6
Garrett	**	**	**
Washington	14.1	10.7	18.4
Southern Region	20.9	17.3	24.5
Calvert	25.3	18.4	34.0
Charles	20.1	14.7	26.9
St. Mary's	18.3	13.1	24.8

* 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/CCPC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 14: Oral Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.5	2.3	2.7
Baltimore Metropolitan Area ^	2.3	2.0	2.5
Anne Arundel	2.7	2.2	3.4
Baltimore City	4.1	3.4	4.8
Baltimore	2.3	1.9	2.7
Carroll	**	**	**
Harford	1.8	1.2	2.7
Howard	1.9	1.3	2.7
Eastern Shore Region	2.9	2.4	3.6
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	3.7	2.3	5.6
Worcester	4.3	2.6	6.8
National Capital Area	2.1	1.8	2.4
Montgomery	1.8	1.5	2.2
Prince George's	2.4	1.9	2.9
Northwest Region	2.3	1.8	2.9
Allegany	**	**	**
Frederick	1.8	1.2	2.7
Garrett	**	**	**
Washington	2.4	1.5	3.6
Southern Region	2.9	2.2	3.8
Calvert	**	**	**
Charles	2.8	1.8	4.3
St. Mary's	3.6	2.2	5.4

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

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

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 15: Melanoma Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	2.0	1.9	2.2
Baltimore Metropolitan Area ^	2.5	2.2	2.8
Anne Arundel	2.9	2.3	3.5
Baltimore City	1.3	0.9	1.7
Baltimore	2.4	2.0	2.9
Carroll	3.5	2.4	5.0
Harford	2.5	1.7	3.5
Howard	1.2	0.8	1.9
Eastern Shore Region	3.0	2.3	3.7
Caroline	**	**	**
Cecil	4.7	3.0	7.2
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	**	**	**
Worcester	**	**	**
National Capital Area	1.3	1.1	1.5
Montgomery	1.4	1.1	1.7
Prince George's	1.2	0.9	1.6
Northwest Region	2.5	2.0	3.2
Allegany	**	**	**
Frederick	2.4	1.6	3.4
Garrett	**	**	**
Washington	3.2	2.1	4.6
Southern Region	2.1	1.5	2.9
Calvert	**	**	**
Charles	**	**	**
St. Mary's	**	**	**

* 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/CCPC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

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Table 16: Cervical Cancer Mortality
Age-Adjusted Mortality Rates
by Geographical Area, Maryland, 2013-2017

Geographical Area	Mortality Rates*	95% Confidence Interval	
		Lower CI	Upper CI
Maryland	1.9	1.7	2.1
Baltimore Metropolitan Area ^	1.5	1.2	1.8
Anne Arundel	1.7	1.1	2.5
Baltimore City	3.8	2.9	4.8
Baltimore	1.9	1.4	2.5
Carroll	**	**	**
Harford	**	**	**
Howard	**	**	**
Eastern Shore Region	1.6	1.0	2.4
Caroline	**	**	**
Cecil	**	**	**
Dorchester	**	**	**
Kent	**	**	**
Queen Anne's	**	**	**
Somerset	**	**	**
Talbot	**	**	**
Wicomico	**	**	**
Worcester	**	**	**
National Capital Area	1.9	1.5	2.2
Montgomery	1.3	0.9	1.8
Prince George's	2.7	2.0	3.4
Northwest Region	2.2	1.5	3.1
Allegany	**	**	**
Frederick	**	**	**
Garrett	**	**	**
Washington	**	**	**
Southern Region	**	**	**
Calvert	**	**	**
Charles	**	**	**
St. Mary's	**	**	**

* 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/CCPC Mortality Data Suppression Policy

^ Area rate does not include Baltimore City

Source: CDC WONDER, 2013-2017

Appendix H

Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2013-2017

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Appendix H. Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2013-2017

Table 1: Cancer Incidence Rates by Cancer Site and Year Maryland, 2013-2017

Cancer Site	2013	2014	2015	2016	2017	APC 2013-2017	MD Trend
All Cancer Sites	452.2	442.0	449.3	443.6	449.6	-0.1%	↓
Lung	56.6	55.8	55.5	54.0	55.1	-0.9%	↓
Colorectal	35.9	37.3	35.9	35.4	35.8	-0.6%	↓
Female Breast	134.6	130.3	131.4	128.9	133.3	-0.3%	↓
Prostate	124.5	119.4	120.6	124.6	130.6	1.4%	↑
Oral	10.8	10.5	11.1	10.8	11.6	1.7%	↑
Melanoma	22.3	21.9	25.5	24.1	25.0	3.3%	↑
Cervical	5.9	6.3	6.7	6.5	6.9	3.5%	↑

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, 2013-2017

Cancer Site	2013	2014	2015	2016	2017	APC 2013-2017	MD Trend
All Cancer Sites	162.9	161.8	155.1	156.5	151.5	-1.8%	↓
Lung	41.1	41.3	37.6	37.5	35.9	-3.6%	↓
Colorectal	14.0	14.4	13.5	13.8	13.3	-1.4%	↓
Female Breast	21.5	22.9	21.7	21.3	21.6	-0.6%	↓
Prostate	19.1	19.3	21.0	20.6	19.5	1.1%	↑
Oral	2.5	2.3	2.2	3.0	2.4	1.9%	↑
Melanoma	2.6	2.1	1.8	2.1	1.6	-9.3%	↓
Cervical	2.0	1.8	1.9	2.0	1.8	-1.0%	↓

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

APC = Annual Percent Change (%)

Source: CDC WONDER, 2013-2017

Appendix H. Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2013-2017

Table 3: Cancer Incidence Rates by Race and Year Maryland, 2013-2017

Cancer Site	Race	2013	2014	2015	2016	2017	APC 2013-2017
All Cancer Sites	White	461.8	450.6	462.1	453.0	462.8	0.1%
	Black	446.6	443.6	441.8	430.4	436.6	-0.8%
Lung	White	58.9	57.6	59.7	57.0	57.6	-0.5%
	Black	55.3	56.7	51.0	50.4	54.0	-1.6%
Colorectal	White	34.1	35.8	35.1	35.2	34.7	0.2%
	Black	41.3	41.8	39.1	36.3	40.0	-2.0%
Female Breast	White	134.8	132.8	133.4	127.4	135.5	-0.3%
	Black	139.7	129.1	130.6	131.8	128.9	-1.4%
Prostate	White	108.0	101.3	98.5	105.8	111.9	1.2%
	Black	185.6	184.5	188.4	181.8	187.6	0.1%
Oral	White	12.0	12.1	12.1	12.5	13.8	3.2%
	Black	7.7	7.5	9.2	7.8	7.6	0.1%
Cervix	White	5.3	6.3	6.4	6.3	7.4	6.9%
	Black	7.1	6.1	7.1	6.7	5.5	-4.1%

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

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Table 4: Melanoma Incidence Rates by Gender and Year Maryland, 2013-2017

Cancer Site	Gender	2013	2014	2015	2016	2017	APC 2013-2017
Melanoma	Male	29.4	30.0	34.3	31.6	32.3	2.4%
	Female	17.4	16.1	19.2	18.8	19.8	4.2%

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

APC = Annual Percent Change (%)

Source: Maryland Cancer Registry

Appendix H. Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race or Gender, and Year, 2013-2017

Table 5: Mortality Rates by Race and Year Maryland, 2013-2017

Cancer Site	Race	2013	2014	2015	2016	2017	APC 2013-2017
All Cancer Sites	White	161.6	160.6	152.2	154.7	151.1	-1.7%
	Black	182.0	181.0	176.3	176.2	166.6	-2.0%
Lung	White	42.4	43.7	38.2	39.3	38.1	-3.1%
	Black	41.8	40.2	39.7	37.7	34.1	-4.6%
Colorectal	White	12.8	13.8	12.8	13.1	12.7	-0.7%
	Black	18.2	18.0	17.3	16.4	16.0	-3.4%
Female Breast	White	19.8	21.1	20.5	19.0	19.3	-1.5%
	Black	28.1	29.0	26.5	27.8	28.1	-0.4%
Prostate	White	16.4	15.9	16.8	16.1	16.7	0.5%
	Black	32.8	35.6	38.3	40.6	31.2	0.3%
Oral	White	2.3	2.3	2.3	2.9	2.6	4.9%
	Black	2.9	2.3	2.3	3.6	1.9	-3.9%
Cervix	White	1.9	1.5	1.5	1.7	1.4	-4.7%
	Black	2.7	2.6	3.0	2.8	2.6	0.0%

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

APC = Annual Percent Change (%)

Source: CDC WONDER, 2013-2017

Table 6: Melanoma Mortality Rates by Gender and Year Maryland, 2013-2017

Cancer Site	Gender	2013	2014	2015	2016	2017	APC 2013-2017
Melanoma	Male	4.3	3.2	2.8	3.5	2.1	-12.6%
	Female	1.4	1.3	1.1	1.0	1.3	-4.0%

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

APC = Annual Percent Change (%)

Source: CDC WONDER, 2013-2017

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Appendix I

Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2013-2017

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Appendix I

Table 1: All Cancer Sites
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	45.9%	44.0%	44.9%	42.9%	43.9%
Regional	20.3%	20.8%	20.8%	19.3%	19.8%
Distant	23.3%	23.1%	23.0%	22.8%	22.5%
Unstaged	10.6%	12.0%	11.4%	15.0%	13.8%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 2: Lung Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	20.1%	21.2%	21.7%	26.1%	27.0%
Regional	24.0%	22.9%	23.2%	22.2%	23.6%
Distant	48.1%	48.6%	48.5%	42.4%	40.0%
Unstaged	7.8%	7.3%	6.7%	9.3%	9.4%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 3: Colorectal Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	34.1%	35.2%	34.4%	32.3%	30.8%
Regional	34.5%	34.0%	33.3%	34.4%	35.3%
Distant	21.1%	22.4%	21.4%	19.8%	21.1%
Unstaged	10.3%	8.4%	10.8%	13.5%	12.8%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 4: Female Breast Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	59.6%	61.1%	61.4%	62.2%	65.2%
Regional	29.0%	29.0%	29.3%	26.8%	25.4%
Distant	6.3%	5.8%	5.9%	5.3%	5.6%
Unstaged	5.2%	4.1%	3.4%	5.6%	3.9%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Appendix I

Table 5: Prostate Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	72.8%	58.3%	61.3%	55.2%	59.3%
Regional	8.6%	10.7%	11.0%	10.2%	10.7%
Distant	4.7%	5.0%	5.0%	5.6%	5.8%
Unstaged	14.0%	26.0%	22.7%	29.0%	24.3%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 6: Oral Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	32.1%	28.6%	28.5%	28.8%	27.9%
Regional	44.2%	46.8%	45.5%	49.5%	54.1%
Distant	17.5%	18.3%	18.7%	10.4%	8.8%
Unstaged	6.2%	6.3%	7.3%	11.3%	9.1%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 7: Melanoma
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	67.7%	66.3%	68.1%	62.8%	72.3%
Regional	5.8%	6.5%	6.0%	6.7%	6.8%
Distant	5.1%	4.3%	3.3%	3.3%	3.5%
Unstaged	21.5%	22.9%	22.6%	27.1%	17.5%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Table 8: Cervical Cancer
Distribution of Cancer Stage at Diagnosis by Year
Maryland, 2013-2017

Stage	2013	2014	2015	2016	2017
	%	%	%	%	%
Local	45.0%	36.7%	37.3%	45.6%	42.1%
Regional	33.9%	36.7%	34.6%	28.8%	32.9%
Distant	14.8%	17.2%	16.7%	14.0%	16.2%
Unstaged	6.3%	9.3%	11.4%	11.6%	8.8%

Source: Maryland Cancer Registry

Note: Due to a methodology change, SEER summary stage 2000 was used in 2016 and 2017, while the derived SEER summary stage 2000 was used from 2013 to 2015

Appendix J

Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2008-2017

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Appendix J. Trends in All Cancer Sites Incidence and Mortality Rates in Maryland and U.S. by Year, 2008-2017

Table 1: All Cancer Sites Incidence Rates by Year
Maryland and U.S., 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	APC 2008-2017	Trend
Maryland	470.8	443.7	449.8	440.7	432.1	452.2	442.0	449.3	443.6	449.6	-0.2%	↓
U.S.	468.5	464.8	451.9	443.7	436.7	431.0	428.6	429.5	424.1	427.0	-1.1%	↓

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

APC = Annual Percent Change (%)

Sources: Maryland Cancer Registry

U.S. SEER, SEER*Stat Database

Table 2: All Cancer Sites Mortality Rates by Year
Maryland and U.S., 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	APC 2008-2017	Trend
Maryland	180.6	177.7	170.9	165.7	165.7	162.9	161.8	155.1	156.5	151.5	-1.8%	↓
U.S.	175.3	173.1	171.8	168.7	166.4	163.0	161.3	158.7	155.9	152.6	-1.5%	↓

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

APC = Annual Percent Change (%)

Sources: CDC WONDER, 2012-2017 (MD)

Maryland Vital Statistics Administration from MATCH, 2008-2010 (MD)

Maryland Vital Statistics Administration, 2011 (MD)

CDC WONDER, 2008 (U.S.)

U.S. SEER, Cancer Statistics Review, 2009-2017 (U.S.)

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