JUN 2 1 2011

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

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

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

Re:     HB 935 (Chap. 203) of the Acts of 2003 and Health-General Article, Section 13-1104 (e)
         2010 Cigarette Restitution Fund Revised Cancer Report

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

Pursuant to Health-General Article, Section 13-1104 (e), Annotated Code of Maryland, the Department of Health and Mental Hygiene is directed to produce a biennial report on the cancers targeted under the Cigarette Restitution Fund Program's Cancer Prevention, Education, Screening, and Treatment Program. Enclosed is the revised Cigarette Restitution Fund (CRF) Program Cancer Report for 2010. This report includes the most currently available Maryland data on cancer incidence and mortality for 2007 and replaces the version issued in December 2010 as mortality data was not available at the time.

I hope you find this information useful. If you have questions about this report, please contact Ms. Courtney Lewis, Director, Center for Cancer Surveillance and Control at 410-767-0824.

Sincerely,

Joshua M. Sharfstein, M.D.
Secretary

Enclosure

cc:     Carlessia A. Hussein, R.N., Dr.P.H.
         Russell W. Moy, M.D., M.P.H.
         Wynee Hawk, R.N., J.D.
         Donna Gugel, M.H.S.
         Courtney Lewis, M.P.H.
         Sarah Albert, MSAR #2251

**Maryland Department of Health and Mental Hygiene**

# Cancer Report 2010 Revised

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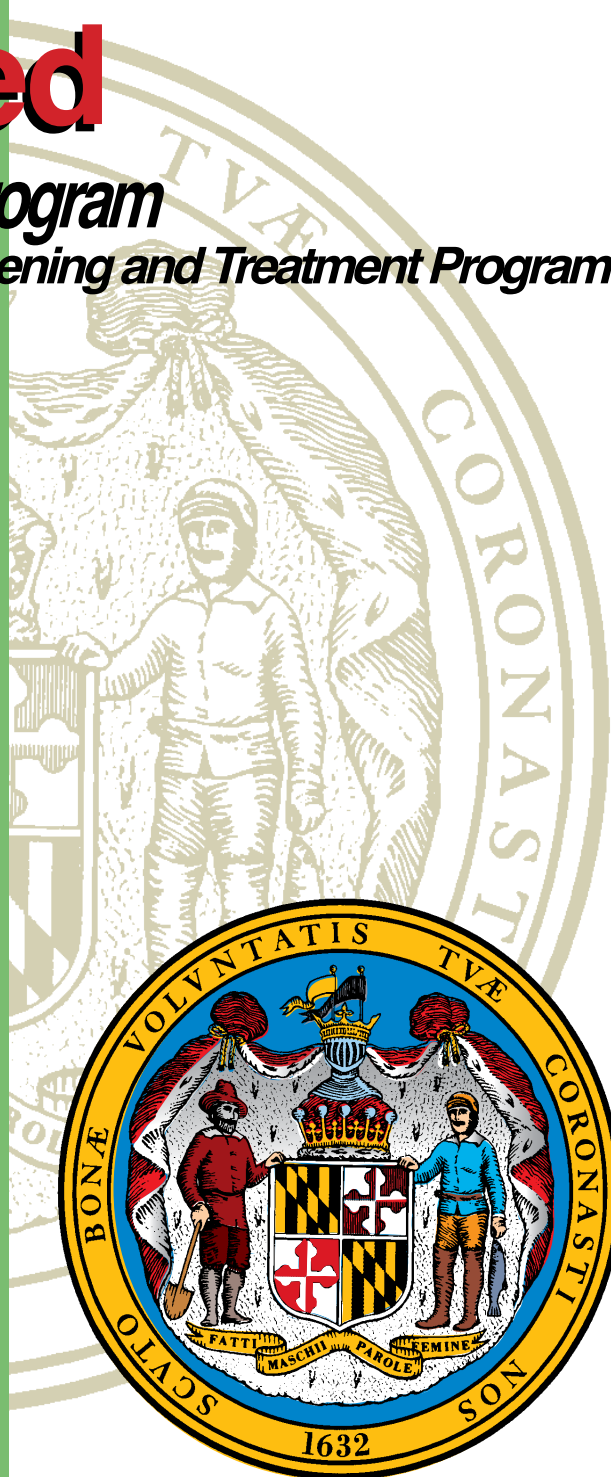### Cancer Prevention, Education, Screening and Treatment Program

Martin O'Malley
Governor
of Maryland

Anthony G. Brown
Lieutenant Governor
of Maryland

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

Carlessia A. Hussein, R.N., Dr.P.H
Director
Cigarette Restitution Fund Program
DHMH

**December 2010
Updated March 2011**

**Maryland Department of Health and Mental Hygiene**

# 2010 Cancer Report - Revised

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

Prepared by:

**Carolyn F. Poppell, M.S.**
Epidemiologist, Surveillance and Evaluation Unit
Center for Cancer Surveillance and Control

**Maya King, M.P.H.**
Research Analyst, Surveillance and Evaluation Unit
Center for Cancer Surveillance and Control

**Carmela Groves, R.N., M.S.**
Program Manager, Surveillance and Evaluation Unit
Center for Cancer Surveillance and Control

**Diane M. Dwyer, M.D.**
Medical Director
Center for Cancer Surveillance and Control

**Kelly Sage, M.S.**
Acting Director
Center for Cancer Surveillance and Control

**Carlessia A. Hussein, R.N., Dr.P.H.**
Director
Cigarette Restitution Fund Program

Maryland Department of Health and Mental Hygiene

201 W. Preston Street • Baltimore, Maryland 21201

Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – Joshua M. Sharfstein, M.D. Secretary

JUN 2 1 2011

Dear Fellow Marylanders:

Cancer is the second leading cause of death in Maryland and in the nation. Over 26,000 Marylanders were diagnosed with cancer in the year 2007, and more than 10,000 died from cancer. Technical advances and improved resources have led to earlier diagnosis and better treatment of many cancers. As a result, rates of new diagnoses and rates of death from all cancers combined are declining for men and women overall, and more people diagnosed with cancer are surviving each year.

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

The enclosed 2010 Cancer Report of the Cigarette Restitution Fund Program reviews total cancers and the seven specific cancer sites targeted by the Cancer Prevention, Education, Screening and Treatment Program: lung and bronchus, colon and rectum, female breast, prostate, oral, melanoma of the skin, and cervix. These cancers were selected based on proven interventions for prevention (lung and bronchus and melanoma of the skin) and early detection and treatment (colon and rectum, female breast, cervix, and oral), or the magnitude of the impact on incidence and mortality (prostate). This version of the report updates the December 2010 version to include the most recent mortality data.

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

Sincerely,

Joshua M. Sharfstein, M.D.
Secretary

# Acknowledgments

# Dedication

We dedicate this report to all persons whose lives have been touched by cancer.

While this publication reflects numbers and statistics, we recognize that each number represents an individual and the impact that a cancer diagnosis places on them and their loved ones.  We hope to make a difference for cancer survivors and the people in their lives so together they may face the many challenges related to cancer diagnosis and treatment.

# Table of Contents

# I.   Executive Summary

## A.  Introduction

This publication is the Cigarette Restitution Fund Program (CRFP) 2010 Cancer Report. The primary purpose of the Cancer Report, which is required biennially by Maryland law, is to assist local health departments and local community health coalitions under the CRFP in planning and implementing comprehensive cancer prevention, education, screening, and treatment programs.  The data and the "Public Health Intervention" recommendations are intended to guide local health departments, Statewide Academic Health Centers, community health coalitions, other community organizations, and policy makers as they decide how to allocate limited resources (e.g., staff time, funding) for the maximum benefit, with the goal of reducing cancer mortality and eliminating racial disparities.

The CRFP was established in 2000 to provide for the distribution of funds received as a result of multi-state litigation against the tobacco industry.  This program provided approximately $11.5 million in Fiscal Year 2010 to combat cancer.  The CRFP law established the Cancer Prevention, Education, Screening and Treatment (CPEST) Program within the Maryland Department of Health and Mental Hygiene (DHMH).  The primary goal of the CPEST Program is to reduce mortality and morbidity rates for cancer and tobacco-related diseases in the State of Maryland.

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

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

This revised 2010 CRFP Cancer Report includes information on cancer incidence, mortality, stage of disease at diagnosis, public health evidence for prevention and screening, recommended areas for public health intervention, and Maryland screening behaviors compared to the Healthy People 2010 targets for cancer prevention and screening

**B. Major Highlights of the Report**

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

- In 2007, a total of 26,377 new cases of cancer were diagnosed in Maryland.
- The overall cancer incidence rate declined steadily in Maryland from 1998 to 2007, at a pace comparable to the decline in the U.S. rate.
- Incidence rates for all cancer sites have remained slightly higher among whites than blacks in Maryland from 2003 to 2007, although rates declined for both races over the period.
- Mortality rates for all cancer sites decreased from 1998 to 2007. Blacks have a higher mortality rates than whites, although the average yearly decline for blacks is greater than the decline for whites.
- Maryland ranks 20th among all states and the District of Columbia in total cancer mortality for the period 2003-2007, no change from the period 2002-2006.

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

- Lung cancer is the leading cause of cancer deaths in both men and women in Maryland; it accounts for 27.6% of all cancer deaths in 2007.
- Lung cancer incidence and mortality rates decreased in Maryland from 2003 to 2007; the 2007 lung cancer incidence rate in Maryland continued to remain higher than the U.S. rate.
- From 2003-2007, lung cancer incidence rates in Maryland declined more rapidly among blacks than whites.
- Tobacco use is the primary cause of lung cancer; tobacco smoking causes an estimated 90% of lung cancer in males and 78% of lung cancer in females.
- The public health intervention for lung cancer is the prevention and cessation of tobacco use.
- Smoking rates among Maryland adults continue to decline. In 2008, 14.9% of adults age 18 years and older were current smokers; Maryland had not yet attained the Healthy People 2010 goal of reducing the percentage of adult smokers to 12%.

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

- In 2007, the Maryland incidence rate for colorectal cancer was lower than the U.S. rate.
- Incidence and mortality rates for colorectal cancer declined in Maryland from 2003 to 2007. Incidence and mortality rates decreased faster among Maryland blacks than whites over the period.
- The recommended public health intervention for colorectal cancer is early detection with screening colonoscopy or with a combination of fecal occult blood testing and flexible sigmoidoscopy.
- The percentage of Maryland adults age 50 years and older ever receiving colonoscopy or sigmoidoscopy screening increased from 69% in 2006 to 75% in 2008.

- Maryland continues to surpass the Healthy People 2010 target for colorectal cancer screening.

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

- Breast cancer is the second leading cause of cancer deaths among women after lung cancer; Maryland ranks 6th in the nation for breast cancer mortality in the U.S.
- Both incidence and mortality rates for female breast cancer declined from 2003 to 2007.
- The recommended public health intervention for breast cancer is early detection using mammography and clinical breast examination by a health care professional.
- Maryland women continue to surpass the Healthy People 2010 target for mammography screening.

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

- Prostate cancer is the second leading cause of cancer death among men after lung cancer; Maryland ranks 11th in prostate cancer mortality in the U.S.
- Prostate cancer incidence and mortality rates decreased from 2003 to 2007.
- Racial disparities in prostate cancer incidence and mortality decreased from 2003 to 2007, largely due to declines among black men. Prostate cancer incidence and mortality rates for black men in Maryland decreased more than 3% per year during this period.
- The recommended public health intervention for prostate cancer is that clinicians should discuss with their patients the potential benefits and uncertainties regarding prostate cancer screening and treatment, consider individual patient preferences, and individualize the decision to screen.

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

- Oral cancer incidence decreased an average of more than 7% per year among blacks and almost 4% per year among whites in Maryland from 2003 to 2007; whereas, mortality rates increased in this time period for blacks and whites.
- There is extensive evidence that tobacco use causes oral cancer.
- The recommended public health interventions for oral cancer are: avoidance and cessation of tobacco use; avoidance and reduction of alcohol consumption; avoidance of sun and use of lip balm that blocks ultraviolet (UV) light; and screening for oral cancer targeted to individuals 40 years of age and older.
- Marylanders have consistently surpassed the Healthy People 2010 target for oral cancer screening. In 2008, 40% of Marylanders age 40 years and older reported having an oral cancer exam in the past year.

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

- Melanoma incidence rates in Maryland increased an average of 2.3% per year from 2003 to 2007. The rate of increase was twice as high among males as females.

- Mortality rates increased from 2003 to 2007 for both females and males.
- The recommended public health intervention for skin cancer is reduction of exposure to UV light by: 1) avoiding the sun, especially between 10 a.m. and 4 p.m., 2) wearing sun protective clothing, hat, and sunglasses when exposed to sunlight, 3) avoiding artificial sources of UV light (e.g., tanning booths), and 4) using sunscreens with a SPF of 15 or higher, if sun exposure cannot be avoided.

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

- Cervical cancer incidence among Maryland women decreased steadily from 2003 to 2007; in 2007, the statewide cervical cancer incidence rate was lower than the U.S. rate.
- Disparities in cervical cancer incidence between white and black women decreased in Maryland from 2003 to 2007. Incidence rates for black women decreased an average of 10.8% per year, compared to a decrease of 7.2% per year among white women.
- Mortality rates for cervical cancer increased from 2003 to 2007, with blacks having an increase of 2.8% and whites having a decrease of 0.1% per year.
- The recommended public health interventions for cervical cancer are early detection using the Pap test for women beginning within 3 years of onset of sexual activity or by age 21 years, whichever comes first, and human papillomavirus (HPV) vaccination.
- In 2008, 84% of Maryland women age 18 years and older had a Pap test within the past 3 years, slightly below the Healthy People 2010 target of 90%.
- The Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommends the HPV vaccine as a means for preventing cervical cancer. ACIP recommends the vaccine be given routinely to girls when they are age 11 or 12 years. The ACIP recommendation also allows for vaccination of girls beginning at age 9 years, and for vaccination of girls and women age 13-26 years who have not been previously vaccinated.

**C. Major Changes to this Report from the 2009 Cancer Report**

- This report presents incidence and mortality data for 2007 and 5-year aggregate data for 2003-2007.
- County-specific incidence and mortality tables included in previous CRF Cancer Reports have been removed.

**Important note:** The 2006 case counts presented in this report for Montgomery and Prince George's counties are underreported for all cancer sites combined due to delay in case reporting. Cancers reported to the MCR after the annual cutoff date are not included in the MCR official Maryland case counts and rates. The case undercounts resulted in lower than actual age-adjusted incidence rates for Montgomery and Prince George's counties, for the National Capital geographic region, and to a lesser degree, for Maryland, for 2006, thereby affecting the 5-year period 2003-2007.

4

## II. All Cancer Sites

*Incidence (New Cases)*

A total of 26,377 new cases of cancer diagnosed in 2007 in Maryland residents were reported to the Maryland Cancer Registry. The total age-adjusted cancer incidence rate for Maryland in 2007 was 455.3 per 100,000 population (449.8-460.9, 95% Confidence Interval [C.I.]). The 2007 Maryland cancer incidence rate is similar to the 2007 U.S. SEER rate of 458.0 per 100,000 population (456.5-459.5, 95% C.I.).

*Mortality (Deaths)*

Cancer is the second leading cause of death in Maryland, accounting for 23.3% of all deaths in 2007. A total of 10,179 Maryland residents died from cancer in 2007. The Maryland mortality rate for all cancer sites was 180.4 per 100,000 population (176.9-183.9, 95% C.I.) for 2007. This rate is similar to the 2007 U.S. cancer mortality rate of 178.4 per 100,000 population (177.9-178.8, 95% C.I.). Maryland ranks 20th highest among all states and the District of Columbia in total cancer mortality for the period 2003-2007.

**Table 1.**
**All Cancer Sites Incidence and Mortality Rates\***
**by Gender and Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Males | Females | Whites | Blacks | Other |
|---|---|---|---|---|---|---|
| New Cases (count) | 26,377 | 13,409 | 12,952 | 18,978 | 6,251 | 948 |
| MD Incidence Rate | 455.3 | 528.9 | 404.1 | 460.5 | 444.0 | 343.9 |
| U.S. SEER Rate | 458.0 | 533.0 | 405.3 | 464.6 | 474.8 | 307.2 |
| Mortality 2007 | Total | Males | Females | Whites | Blacks | Other |
| Deaths (count) | 10,179 | 5,144 | 5,035 | 7,317 | 2,664 | 198 |
| MD Mortality Rate | 180.4 | 219.5 | 155.0 | 176.6 | 207.7 | 83.4 |
| U.S. Mortality Rate | 178.4 | 217.5 | 151.3 | 177.5 | 215.5 | 108.4 |

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

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

Sources: MD incidence data from Maryland Cancer Registry

      U.S. SEER rates from SEER*Stat software

      MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Cancer Incidence Rates**
**All Cancer Sites**
**Maryland and U.S., 1998-2007**
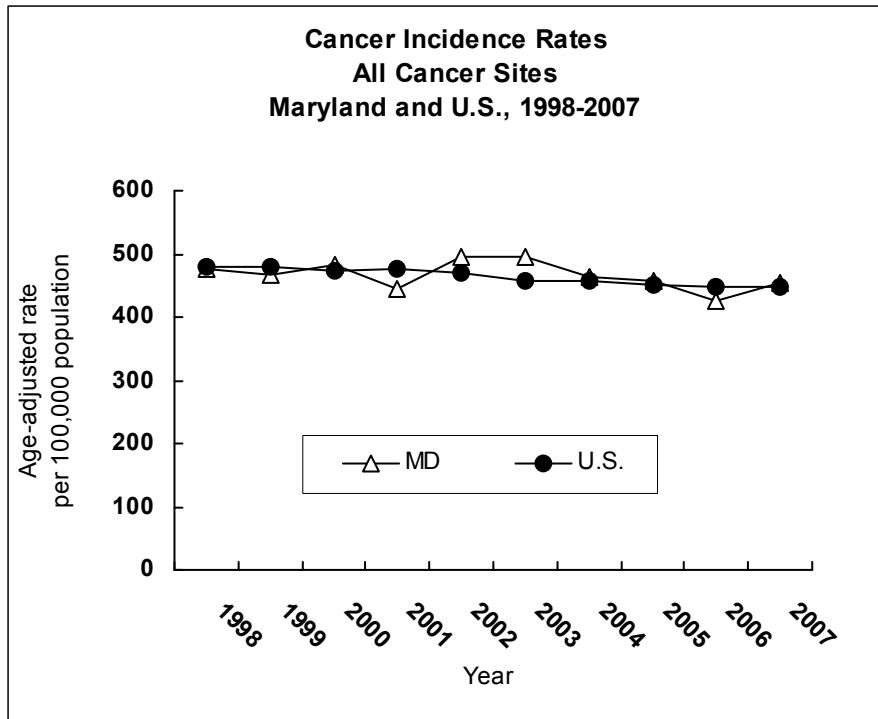


Sources:  Maryland Cancer Registry (MD rates)
            NCI SEER*Stat (U.S. SEER 13 rates)

### Maryland vs. United States, All Cancer Sites Incidence Rates, All Age Groups

All cancer sites incidence rates in Maryland declined over the 10-year period from 1998 to 2007, at a pace comparable to the U.S. rate.

Maryland incidence rates decreased at a rate of 0.7% per year; U.S. incidence rates decreased at a rate of 0.9% per year.

**Cancer Mortality Rates**
**All Cancer Sites**
**Maryland and U.S., 1998-2007**
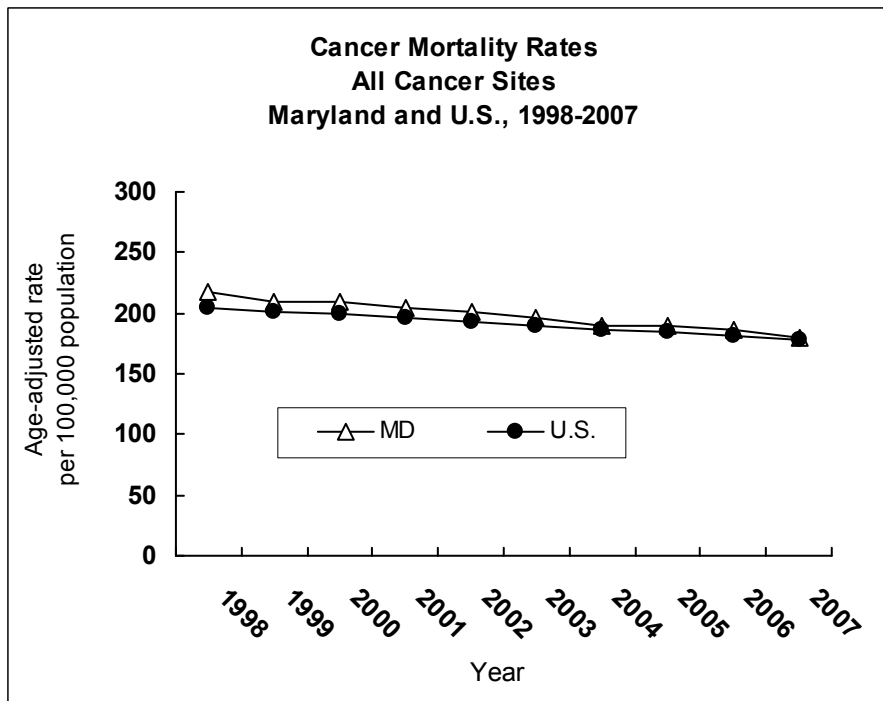


Source:  NCHS Compressed Mortality File in CDC WONDER

### Maryland vs. United States, All Cancer Sites Mortality Rates, All Age Groups

Maryland cancer mortality rates have declined since 1998.  From 1998 to 2007, all cancer sites mortality rates in Maryland decreased at a rate of 1.9% per year.  The U.S. mortality rate for all cancer sites declined at a rate of 1.5% per year over the same period.
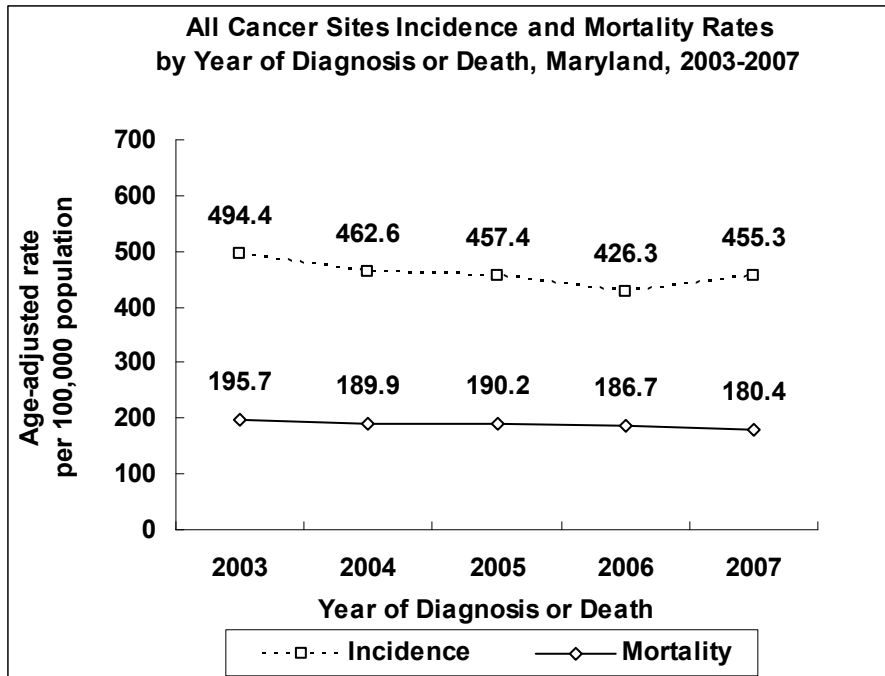
6

**All Cancer Sites Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
Sources:  Maryland Cancer Registry (incidence rates)
            NCHS Compressed Mortality File in CDC WONDER (mortality rates)

*Incidence and Mortality Trends*

In Maryland, the incidence rate for all cancer sites decreased at a rate of 2.4% per year from 2003 to 2007.

Cancer mortality rates decreased at a rate of 1.8% per year from 2003 to 2007.
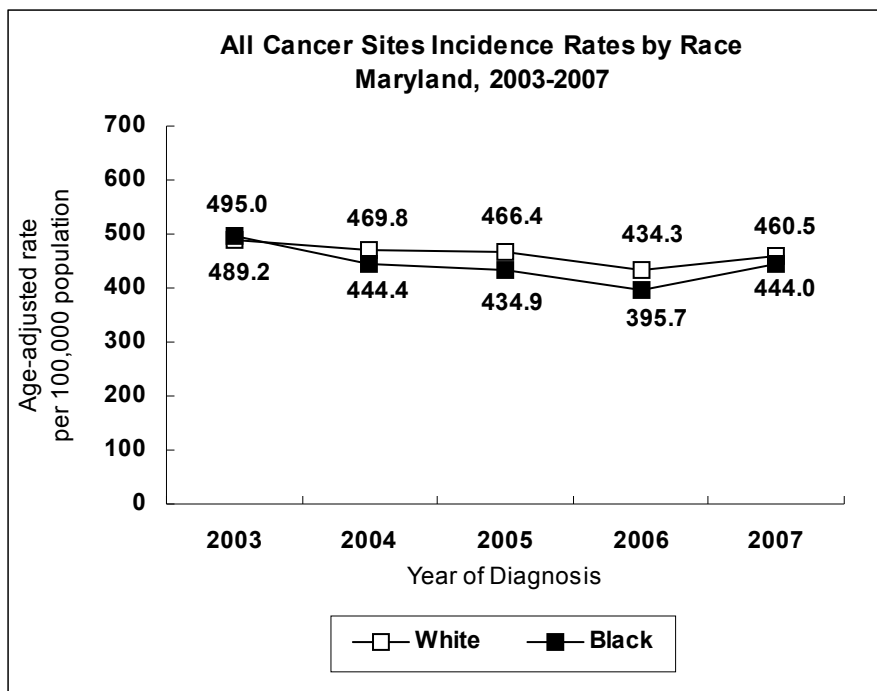
See Appendix I, Tables 1 and 2.

**All Cancer Sites Incidence Rates by Race
Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry

*Incidence Trends by Race*

Incidence rates for all cancer sites have remained higher among whites than blacks in Maryland, although rates have generally declined for both races.  From 2003 to 2007, incidence rates for all cancer sites decreased at a rate of 2.0% per year among whites and 3.3% per year among blacks.

See Appendix I, Table 3.
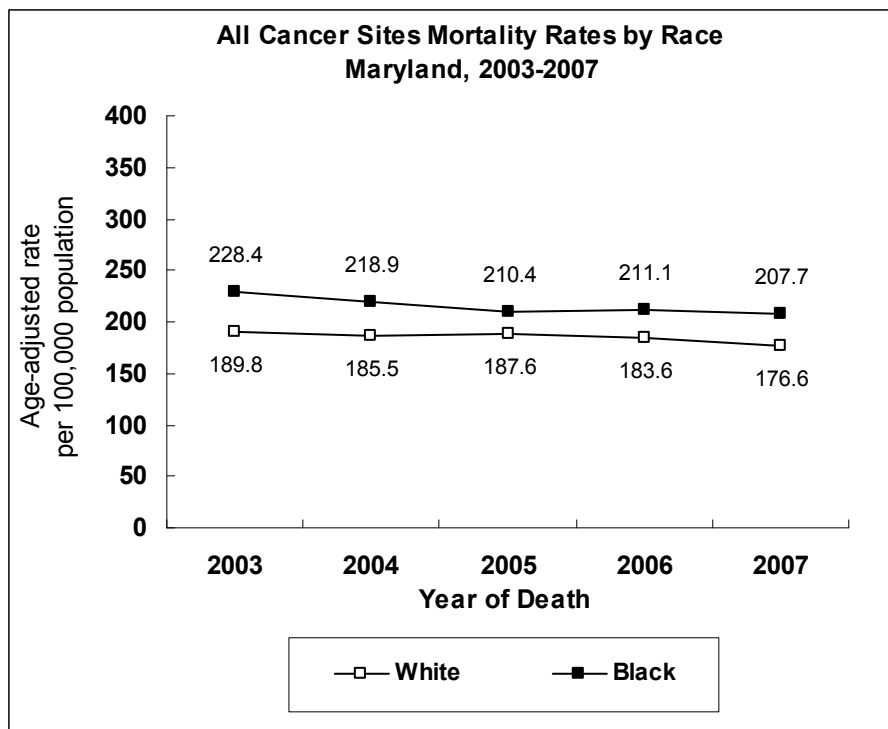
7

**All Cancer Sites Mortality Rates by Race
Maryland, 2003-2007**



Age-adjusted rate per 100,000 population

| Year | White | Black |
|------|-------|-------|
| 2003 | 189.8 | 228.4 |
| 2004 | 185.5 | 218.9 |
| 2005 | 187.6 | 210.4 |
| 2006 | 183.6 | 211.1 |
| 2007 | 176.6 | 207.7 |

Year of Death

—□— White  —■— Black

Rates are age-adjusted to 2000 U.S. standard population
Source: NCHS Compressed Mortality File in CDC WONDER

## Mortality Trends by Race

Blacks have higher mortality rates of all cancer sites than whites. Both blacks and whites showed declines in cancer mortality from 2003 to 2007, with declines of 2.2% per year for blacks and 1.5% per year for whites.

See Appendix I, Table 5.

**All Cancer Sites by Stage at Diagnosis
Maryland, 2003-2007**



Percent

—◇— Localized    ··□·· Regional
—○— Distant      —△— Unstaged
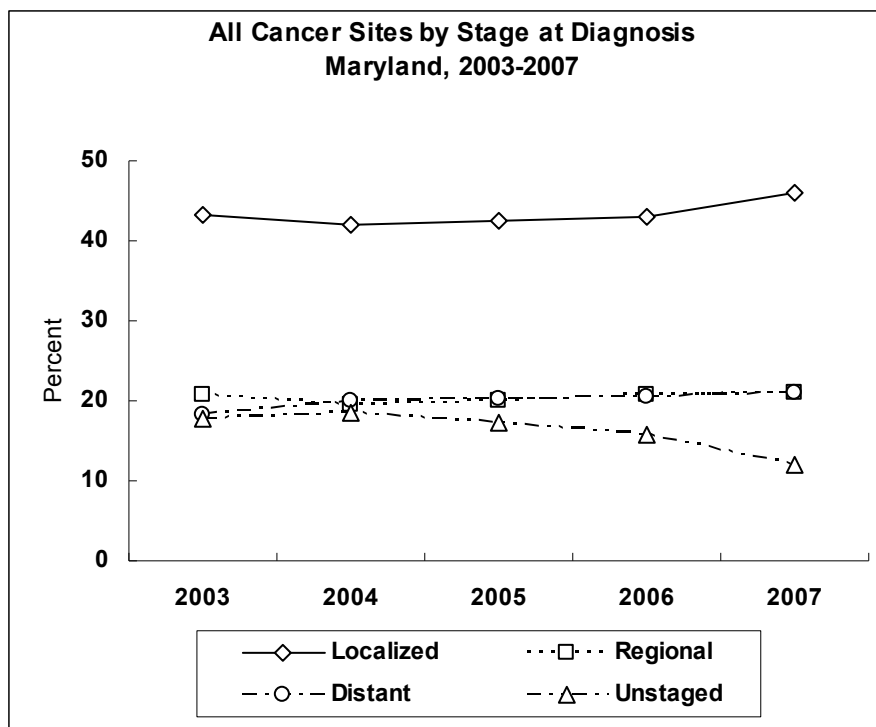
Source: Maryland Cancer Registry

## Stage at Diagnosis

Of all cancers diagnosed in Maryland in 2007, 45.9% were found at the localized (early) stage, 21.1% at the regional stage, and 20.9% at the distant (late) stage. The proportion of all cancers reported as unstaged has steadily decreased in recent years.

See Appendix J, Table 1.

8

**Maryland and U.S. All Cancer Sites Mortality Rates, 2007 Compared to Healthy People 2010 Target**

| | Rate |
|---|---|
| HP 2010 target | 158.6 |
| U.S. 2007 | 178.4 |
| Maryland 2007 | 180.4 |
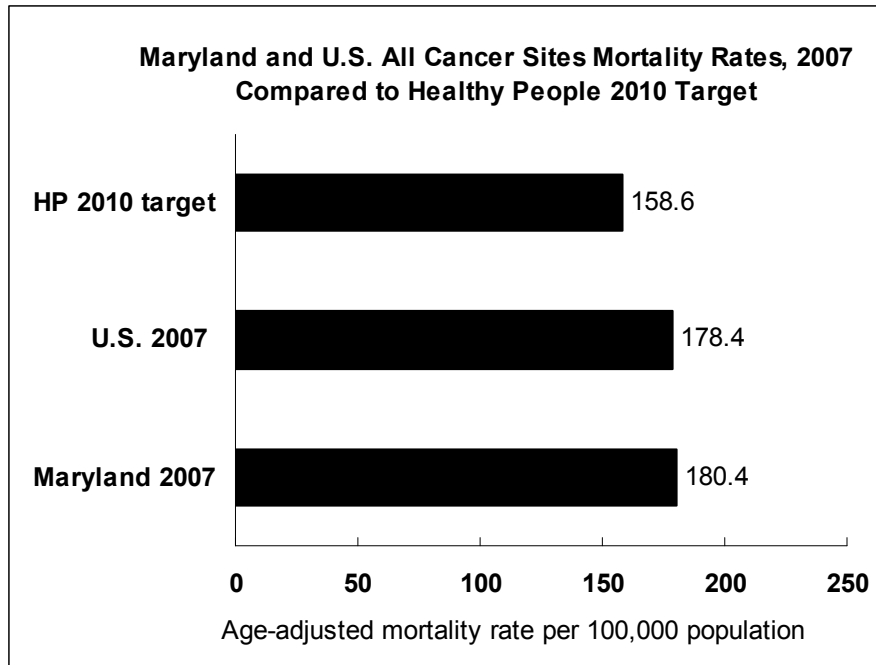
Age-adjusted mortality rate per 100,000 population

The overall cancer mortality rate in Maryland for 2007, is 180.4 per 100,000 population. The Healthy People 2010 goal is to reduce cancer mortality to 158.6 per 100.000 population.

## Summary – Identification of Targeted Cancers

The cancers targeted under the Cigarette Restitution Fund in 2010 include: lung and bronchus, colon and rectum, prostate, breast, cervical, oral, and melanoma of the skin. These cancers were chosen due to the capacity to prevent, detect early, and effectively treat these cancers, and due to the magnitude of their impact on incidence and mortality. The remaining sections of this report address these targeted cancers. The public health interventions to reduce the impact of these and other cancers among Marylanders are listed in the chart below.

---

**Public Health Interventions for Targeted and Other Cancers**

» Prevention, including:
- stopping tobacco use or not starting it
- being physically active
- eating a healthy diet
- limiting alcohol use
- staying at a healthy weight

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

» Human papillomavirus vaccine to prevent cervical cancer

» Protection of the skin from excessive sun and other sources of ultraviolet light exposure

» Men should be made aware of availability of prostate cancer screening tests and should discuss potential benefits and harms with their health care provider

---

**Table 2.**
**Number of Cancer Cases for All Cancer Sites**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 26,377 | 13,409 | 12,952 | 18,978 | 6,251 | 948 | 200 |
| | | | | | | | |
| Allegany | 449 | 228 | 221 | 440 | s | <6 | 0 |
| Anne Arundel | 2,488 | 1,241 | 1,244 | 2,145 | 275 | 55 | 13 |
| Baltimore City | 2,975 | 1,465 | 1,509 | 1,057 | 1,858 | 50 | 10 |
| Baltimore County | 4,155 | 2,079 | 2,073 | 3,364 | 673 | 102 | 16 |
| Calvert | 424 | 228 | 195 | 374 | 47 | <6 | <6 |
| Caroline | 168 | 89 | 79 | 145 | s | 0 | <6 |
| Carroll | 825 | 417 | 407 | 789 | 16 | s | <6 |
| Cecil | 512 | 250 | 262 | 486 | 23 | <6 | <6 |
| Charles | 554 | 305 | 247 | 366 | 169 | s | <6 |
| Dorchester | 194 | 97 | 97 | 139 | s | 0 | <6 |
| Frederick | 889 | 431 | 458 | 809 | 47 | 19 | 14 |
| Garrett | 149 | 86 | 63 | 149 | 0 | 0 | 0 |
| Harford | 1,244 | 677 | 566 | 1,102 | 118 | 17 | 7 |
| Howard | 1,128 | 564 | 564 | 871 | 160 | 85 | 12 |
| Kent | 140 | 74 | 66 | 118 | s | <6 | 0 |
| Montgomery | 4,193 | 2,065 | 2,126 | 3,166 | 564 | 407 | 56 |
| Prince George's | 3,001 | 1,555 | 1,445 | 977 | 1,868 | 119 | 37 |
| Queen Anne's | 274 | 158 | 115 | 246 | 20 | <6 | <6 |
| Saint Mary's | 441 | 240 | 201 | 375 | 55 | s | <6 |
| Somerset | 145 | 75 | 70 | 100 | 39 | <6 | <6 |
| Talbot | 281 | 148 | 133 | 241 | s | <6 | 0 |
| Washington | 790 | 438 | 352 | 742 | 37 | s | <6 |
| Wicomico | 490 | 250 | 240 | 394 | 91 | <6 | <6 |
| Worcester | 395 | 222 | 173 | 337 | 37 | s | <6 |
| Unknown | 73 | 27 | 46 | 46 | 12 | <6 | s |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

Source:  Maryland Cancer Registry

**Table 3.**
**All Cancer Sites Age-Adjusted Incidence Rates***
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | **Males** | **Females** | **Whites** | **Blacks** | **Other** |
| Maryland | 455.3 | 528.9 | 404.1 | 460.5 | 444.0 | 343.9 |
| | | | | | | |
| Allegany | 486.8 | 558.4 | 436.1 | 495.3 | ** | ** |
| Anne Arundel | 486.0 | 533.4 | 452.3 | 492.5 | 447.2 | 376.3 |
| Baltimore City | 459.6 | 548.4 | 402.6 | 440.7 | 465.2 | 445.9 |
| Baltimore County | 458.5 | 526.2 | 410.3 | 459.9 | 465.9 | 346.3 |
| Calvert | 515.0 | 625.2 | 432.2 | 540.5 | 397.0 | ** |
| Caroline | 488.6 | 584.1 | 410.7 | 497.0 | 464.7 | 0.0 |
| Carroll | 473.7 | 528.8 | 435.8 | 474.3 | 266.1 | ** |
| Cecil | 523.5 | 546.3 | 509.5 | 529.4 | 503.6 | ** |
| Charles | 468.9 | 594.5 | 381.0 | 453.0 | 499.4 | 398.1 |
| Dorchester | 463.0 | 527.2 | 415.5 | 435.3 | 552.6 | 0.0 |
| Frederick | 426.8 | 473.1 | 400.8 | 430.0 | 324.3 | 253.0 |
| Garrett | 409.6 | 503.9 | 333.0 | 413.2 | 0.0 | 0.0 |
| Harford | 515.6 | 630.5 | 434.1 | 515.2 | 529.2 | 287.5 |
| Howard | 445.1 | 499.7 | 409.4 | 455.2 | 435.6 | 337.6 |
| Kent | 522.3 | 597.0 | 469.4 | 519.5 | 513.0 | ** |
| Montgomery | 411.6 | 468.7 | 374.9 | 415.7 | 439.7 | 315.4 |
| Prince George's | 409.8 | 506.1 | 345.4 | 385.6 | 424.1 | 335.9 |
| Queen Anne's | 524.8 | 643.2 | 418.8 | 529.0 | 435.7 | ** |
| Saint Mary's | 492.1 | 580.0 | 425.2 | 507.4 | 426.8 | ** |
| Somerset | 521.7 | 586.2 | 469.5 | 494.0 | 528.9 | ** |
| Talbot | 519.2 | 595.0 | 459.5 | 512.3 | 577.7 | ** |
| Washington | 506.7 | 629.2 | 422.8 | 505.2 | 614.5 | ** |
| Wicomico | 493.7 | 575.9 | 432.8 | 511.6 | 454.2 | ** |
| Worcester | 534.6 | 641.5 | 451.7 | 528.0 | 397.4 | 4,886.7 |

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

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

Source:  Maryland Cancer Registry

**Table 4.**
**All Cancer Sites Cases and Age-Adjusted Incidence Rates***
**Among Hispanics$^{\S}$ by Geographical Area in Maryland, 2007**

| Jurisdiction | Cases | Rate |
|---|---|---|
| **Maryland** | 565 | 291.6 |
| | | |
| Allegany | <6 | ** |
| Anne Arundel | 49 | 561.8 |
| Baltimore City | 36 | 368.9 |
| Baltimore County | 35 | 243.9 |
| Calvert | <6 | ** |
| Caroline | <6 | ** |
| Carroll | 11 | ** |
| Cecil | 6 | ** |
| Charles | 13 | ** |
| Dorchester | <6 | ** |
| Frederick | 19 | 332.2 |
| Garrett | 0 | 0.0 |
| Harford | 18 | 443.2 |
| Howard | 18 | 314.6 |
| Kent | <6 | ** |
| Montgomery | 211 | 240.2 |
| Prince George's | 107 | 261.2 |
| Queen Anne's | <6 | ** |
| St. Mary's | 7 | ** |
| Somerset | 0 | 0.0 |
| Talbot | <6 | ** |
| Washington | 11 | ** |
| Wicomico | <6 | ** |
| Worcester | 0 | 0.0 |
| **Region** | **Cases** | **Rate** |
| Baltimore Metropolitan Area ^ | 167 | 370.2 |
| Eastern Shore Region | 21 | 364.5 |
| National Capital Area | 318 | 245.2 |
| Northwest Region | 33 | 445.8 |
| Southern Region | 24 | 589.8 |

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

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

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

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

^ Includes Baltimore City

Source: Maryland Cancer Registry

**Table 5.**
**Number of Deaths for All Cancer Sites**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 10,179 | 5,144 | 5,035 | 7,317 | 2,664 | 198 |
| | | | | | | |
| Allegany | 194 | 103 | 91 | 188 | <6 | <6 |
| Anne Arundel | 986 | 484 | 502 | 864 | 108 | 14 |
| Baltimore City | 1,427 | 728 | 699 | 465 | 956 | 6 |
| Baltimore County | 1,661 | 824 | 837 | 1,385 | 255 | 21 |
| Calvert | 150 | 85 | 65 | 126 | s | <6 |
| Caroline | 78 | 49 | 29 | 69 | s | <6 |
| Carroll | 293 | 145 | 148 | 284 | s | <6 |
| Cecil | 207 | 115 | 92 | 191 | s | <6 |
| Charles | 209 | 104 | 105 | 148 | s | <6 |
| Dorchester | 91 | 40 | 51 | 73 | s | <6 |
| Frederick | 387 | 209 | 178 | 350 | s | <6 |
| Garrett | 68 | 32 | 36 | 67 | <6 | <6 |
| Harford | 430 | 230 | 200 | 392 | s | <6 |
| Howard | 318 | 154 | 164 | 263 | 46 | 9 |
| Kent | 64 | 32 | 32 | 56 | s | <6 |
| Montgomery | 1,257 | 592 | 665 | 971 | 190 | 96 |
| Prince George's | 1,218 | 623 | 595 | 441 | 746 | 31 |
| Queen Anne's | 122 | 74 | 48 | 107 | s | <6 |
| Saint Mary's | 155 | 78 | 77 | 135 | s | <6 |
| Somerset | 55 | 24 | 31 | 35 | s | <6 |
| Talbot | 94 | 49 | 45 | 78 | s | <6 |
| Washington | 309 | 156 | 153 | 286 | s | <6 |
| Wicomico | 256 | 138 | 118 | 212 | s | <6 |
| Worcester | 150 | 76 | 74 | 131 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

## Table 6.
## All Cancer Sites Age-Adjusted Mortality Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 180.4 | 219.5 | 155.0 | 176.6 | 207.7 | 83.4 |
| | | | | | | |
| Allegany | 195.0 | 251.2 | 164.3 | 193.9 | ** | ** |
| Anne Arundel | 205.8 | 233.6 | 186.2 | 209.5 | 196.8 | ** |
| Baltimore City | 221.5 | 285.8 | 181.8 | 186.2 | 245.4 | ** |
| Baltimore County | 178.4 | 213.2 | 156.1 | 177.5 | 201.0 | 78.6 |
| Calvert | 198.5 | 265.6 | 152.9 | 198.4 | 218.5 | ** |
| Caroline | 224.1 | 327.0 | 146.7 | 233.2 | ** | ** |
| Carroll | 173.9 | 201.1 | 155.7 | 175.5 | ** | ** |
| Cecil | 220.0 | 278.7 | 177.5 | 214.7 | 357.6 | ** |
| Charles | 201.7 | 252.1 | 170.8 | 202.9 | 208.6 | ** |
| Dorchester | 205.0 | 219.2 | 196.4 | 214.8 | 180.1 | ** |
| Frederick | 197.4 | 257.4 | 155.7 | 196.0 | 264.8 | ** |
| Garrett | 179.8 | 185.0 | 178.1 | 178.4 | ** | ** |
| Harford | 187.7 | 229.3 | 157.0 | 190.7 | 174.0 | ** |
| Howard | 142.7 | 166.5 | 128.6 | 153.5 | 142.9 | ** |
| Kent | 222.9 | 255.5 | 207.2 | 227.2 | ** | ** |
| Montgomery | 127.0 | 147.5 | 115.8 | 126.0 | 165.0 | 86.6 |
| Prince George's | 183.4 | 235.4 | 151.6 | 173.5 | 201.5 | 98.2 |
| Queen Anne's | 239.3 | 306.8 | 176.8 | 237.8 | ** | ** |
| Saint Mary's | 186.3 | 214.2 | 170.2 | 196.4 | 154.2 | ** |
| Somerset | 201.9 | 200.6 | 195.9 | 177.1 | 264.7 | ** |
| Talbot | 152.6 | 185.1 | 128.6 | 143.7 | 214.7 | ** |
| Washington | 192.9 | 230.4 | 169.6 | 187.6 | 375.9 | ** |
| Wicomico | 254.3 | 331.5 | 198.6 | 269.8 | 208.2 | ** |
| Worcester | 197.7 | 219.9 | 183.8 | 200.4 | 193.2 | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 7.**
**Number of Cancer Cases for All Cancer Sites**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 128,322 | 64,392 | 63,804 | 93,515 | 29,201 | 4,387 | 1,219 |
| | | | | | | | |
| Allegany | 2,281 | 1,178 | 1,103 | 2,212 | 61 | 8 | 0 |
| Anne Arundel | 11,596 | 5,970 | 5,595 | 10,005 | 1,266 | 239 | 86 |
| Baltimore City | 14,927 | 7,533 | 7,385 | 5,986 | 8,620 | 220 | 101 |
| Baltimore County | 21,824 | 10,700 | 11,117 | 17,574 | 3,537 | 529 | 184 |
| Calvert | 1,875 | 949 | 922 | 1,613 | 224 | 10 | 28 |
| Caroline | 826 | 420 | 405 | 697 | 116 | 7 | 6 |
| Carroll | 4,130 | 2,080 | 2,048 | 3,934 | 120 | 52 | 24 |
| Cecil | 2,257 | 1,168 | 1,089 | 2,127 | 98 | 16 | 16 |
| Charles | 2,521 | 1,324 | 1,190 | 1,805 | 631 | 58 | 27 |
| Dorchester | 930 | 502 | 427 | 712 | 208 | s | <6 |
| Frederick | 5,135 | 2,513 | 2,618 | 4,743 | 273 | 84 | 35 |
| Garrett | 741 | 391 | 349 | 732 | s | 0 | <6 |
| Harford | 5,640 | 3,007 | 2,631 | 5,070 | 456 | 90 | 24 |
| Howard | 5,128 | 2,473 | 2,651 | 4,005 | 734 | 332 | 57 |
| Kent | 674 | 358 | 316 | 576 | 87 | <6 | s |
| Montgomery † | 19,696 | 9,345 | 10,338 | 15,046 | 2,525 | 1,879 | 246 |
| Prince George's † | 14,508 | 7,203 | 7,290 | 5,139 | 8,536 | 639 | 194 |
| Queen Anne's | 1,170 | 672 | 495 | 1,036 | 114 | 11 | 9 |
| Saint Mary's | 1,936 | 1,050 | 883 | 1,626 | 248 | 32 | 30 |
| Somerset | 663 | 365 | 298 | 460 | 190 | s | <6 |
| Talbot | 1,280 | 637 | 643 | 1,097 | 173 | s | <6 |
| Washington | 3,693 | 1,936 | 1,756 | 3,506 | 138 | 37 | 12 |
| Wicomico | 2,222 | 1,124 | 1,098 | 1,754 | 423 | 35 | 10 |
| Worcester | 1,743 | 935 | 807 | 1,491 | 187 | 58 | 7 |
| Unknown | 926 | 559 | 350 | 569 | s | s | 104 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

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

Source: Maryland Cancer Registry

**Table 8.**
**All Cancer Sites Age-Adjusted Incidence Rates***
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 458.9 | 530.0 | 410.0 | 463.9 | 441.9 | 357.2 |
| | | | | | | |
| Allegany | 485.9 | 570.5 | 431.0 | 486.4 | 669.4 | ** |
| Anne Arundel | 469.0 | 538.6 | 418.3 | 472.0 | 449.1 | 348.2 |
| Baltimore City | 461.4 | 569.6 | 392.0 | 488.6 | 438.7 | 409.5 |
| Baltimore County | 489.3 | 553.3 | 446.3 | 480.4 | 545.8 | 406.9 |
| Calvert | 479.6 | 547.5 | 432.0 | 485.2 | 419.2 | ** |
| Caroline | 490.4 | 550.4 | 443.1 | 485.7 | 495.8 | ** |
| Carroll | 497.4 | 566.7 | 453.3 | 493.3 | 498.1 | 720.6 |
| Cecil | 488.3 | 551.6 | 441.0 | 486.7 | 475.7 | 556.2 |
| Charles | 449.3 | 552.0 | 377.7 | 454.1 | 430.8 | 375.5 |
| Dorchester | 454.6 | 559.3 | 380.5 | 454.6 | 443.5 | ** |
| Frederick | 519.0 | 590.6 | 477.6 | 524.3 | 444.2 | 306.6 |
| Garrett | 406.8 | 463.0 | 361.5 | 404.7 | ** | 0.0 |
| Harford | 488.7 | 582.5 | 418.6 | 489.7 | 474.7 | 404.5 |
| Howard | 431.3 | 474.2 | 405.5 | 438.5 | 439.9 | 302.9 |
| Kent | 507.6 | 582.1 | 454.1 | 512.9 | 439.9 | ** |
| Montgomery † | 410.8 | 452.9 | 384.6 | 414.4 | 430.0 | 327.1 |
| Prince George's † | 408.7 | 480.9 | 359.5 | 399.8 | 407.7 | 372.1 |
| Queen Anne's | 466.5 | 564.1 | 379.2 | 460.8 | 494.5 | ** |
| Saint Mary's | 459.2 | 544.1 | 394.7 | 463.4 | 415.7 | 392.7 |
| Somerset | 487.3 | 584.3 | 417.2 | 470.5 | 526.1 | ** |
| Talbot | 486.7 | 535.5 | 447.3 | 479.2 | 529.7 | ** |
| Washington | 483.8 | 571.7 | 426.4 | 483.7 | 546.3 | 540.8 |
| Wicomico | 467.8 | 545.8 | 416.3 | 473.0 | 443.5 | 543.5 |
| Worcester | 488.0 | 557.2 | 434.9 | 481.5 | 418.4 | 3,364.1 |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

**Table 9.**
**Number of Cancer Deaths for All Cancer Sites**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 51,360 | 25,907 | 25,453 | 37,364 | 12,981 | 1,015 |
| | | | | | | |
| Allegany | 972 | 511 | 461 | 952 | s | <6 |
| Anne Arundel | 4,706 | 2,397 | 2,309 | 4,078 | 555 | 73 |
| Baltimore City | 7,552 | 3,831 | 3,721 | 2,824 | 4,691 | 37 |
| Baltimore County | 8,846 | 4,412 | 4,434 | 7,512 | 1,227 | 107 |
| Calvert | 769 | 403 | 366 | 639 | s | <6 |
| Caroline | 382 | 211 | 171 | 318 | s | <6 |
| Carroll | 1,505 | 767 | 738 | 1,451 | 43 | 11 |
| Cecil | 955 | 505 | 450 | 910 | s | <6 |
| Charles | 1,093 | 558 | 535 | 801 | 272 | 20 |
| Dorchester | 426 | 233 | 193 | 323 | s | <6 |
| Frederick | 1,768 | 922 | 846 | 1,642 | 118 | 8 |
| Garrett | 319 | 168 | 151 | 315 | <6 | <6 |
| Harford | 2,112 | 1,083 | 1,029 | 1,903 | 185 | 24 |
| Howard | 1,498 | 721 | 777 | 1,182 | 241 | 75 |
| Kent | 301 | 156 | 145 | 251 | s | <6 |
| Montgomery | 6,415 | 2,998 | 3,417 | 5,105 | 864 | 446 |
| Prince George's | 6,228 | 3,091 | 3,137 | 2,395 | 3,654 | 179 |
| Queen Anne's | 503 | 284 | 219 | 439 | s | <6 |
| Saint Mary's | 835 | 469 | 366 | 705 | s | <6 |
| Somerset | 325 | 182 | 143 | 241 | s | <6 |
| Talbot | 516 | 262 | 254 | 440 | s | <6 |
| Washington | 1,517 | 778 | 739 | 1,447 | s | <6 |
| Wicomico | 1,063 | 545 | 518 | 836 | 219 | 8 |
| Worcester | 754 | 420 | 334 | 655 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

# Table 10.
## All Cancer Sites Age-Adjusted Mortality Rates*
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 188.5 | 229.6 | 161.8 | 184.6 | 215.0 | 94.6 |
| | | | | | | |
| Allegany | 196.0 | 249.6 | 162.7 | 197.0 | 158.1 | ** |
| Anne Arundel | 203.1 | 242.4 | 176.9 | 203.1 | 219.0 | 116.3 |
| Baltimore City | 233.2 | 301.0 | 191.7 | 218.5 | 244.9 | 73.9 |
| Baltimore County | 193.2 | 233.5 | 166.6 | 193.2 | 211.4 | 87.0 |
| Calvert | 215.0 | 264.6 | 182.0 | 211.9 | 248.6 | ** |
| Caroline | 225.6 | 289.7 | 178.8 | 220.4 | 263.1 | ** |
| Carroll | 188.5 | 229.4 | 162.0 | 188.5 | 201.7 | ** |
| Cecil | 216.4 | 263.0 | 184.3 | 217.5 | 215.0 | ** |
| Charles | 220.0 | 276.9 | 185.6 | 224.3 | 217.2 | 138.8 |
| Dorchester | 202.4 | 266.0 | 160.6 | 198.4 | 213.6 | ** |
| Frederick | 188.5 | 237.9 | 156.8 | 189.7 | 211.3 | ** |
| Garrett | 172.1 | 203.7 | 149.2 | 171.1 | ** | ** |
| Harford | 193.9 | 229.5 | 168.1 | 193.6 | 209.3 | 115.3 |
| Howard | 143.4 | 168.5 | 130.9 | 146.3 | 161.2 | 79.1 |
| Kent | 208.2 | 249.7 | 184.2 | 202.4 | 243.8 | ** |
| Montgomery | 135.8 | 156.5 | 123.8 | 137.3 | 162.7 | 91.6 |
| Prince George's | 194.9 | 240.6 | 167.1 | 186.6 | 209.0 | 116.1 |
| Queen Anne's | 206.9 | 249.2 | 168.6 | 203.0 | 264.7 | ** |
| Saint Mary's | 213.0 | 271.0 | 171.6 | 216.2 | 218.2 | ** |
| Somerset | 238.7 | 304.0 | 191.6 | 240.9 | 235.3 | ** |
| Talbot | 177.3 | 211.6 | 151.3 | 171.7 | 220.9 | ** |
| Washington | 194.8 | 238.4 | 166.6 | 193.7 | 308.4 | ** |
| Wicomico | 223.3 | 277.5 | 187.3 | 223.4 | 232.0 | ** |
| Worcester | 200.6 | 248.8 | 163.8 | 200.2 | 208.0 | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland All Cancer Sites Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007



## Legend

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate
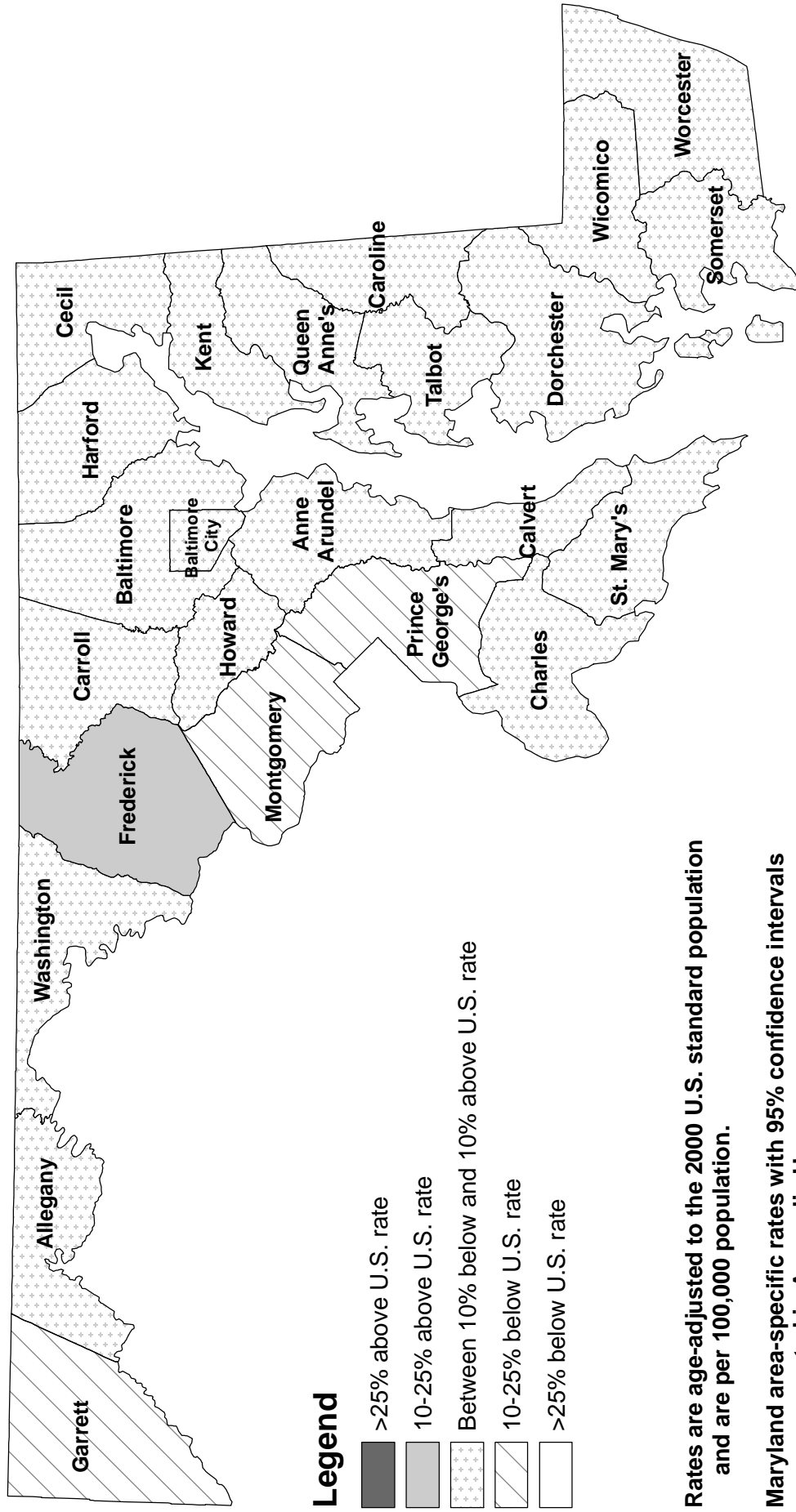
Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

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

U.S. all cancer sites incidence rate, 2003-2007:  461.6/100,000

Maryland all cancer sites incidence rate, 2003-2007:  458.9/100,000

Source:  MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland All Cancer Sites Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

Garrett
Allegany
Washington
Frederick
Carroll
Howard
Montgomery
Harford
Baltimore
Baltimore City
Cecil
Kent
Queen Anne's
Caroline
Talbot
Dorchester
Wicomico
Somerset
Worcester
Anne Arundel
Prince George's
Calvert
St. Mary's
Charles

**Legend**

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate
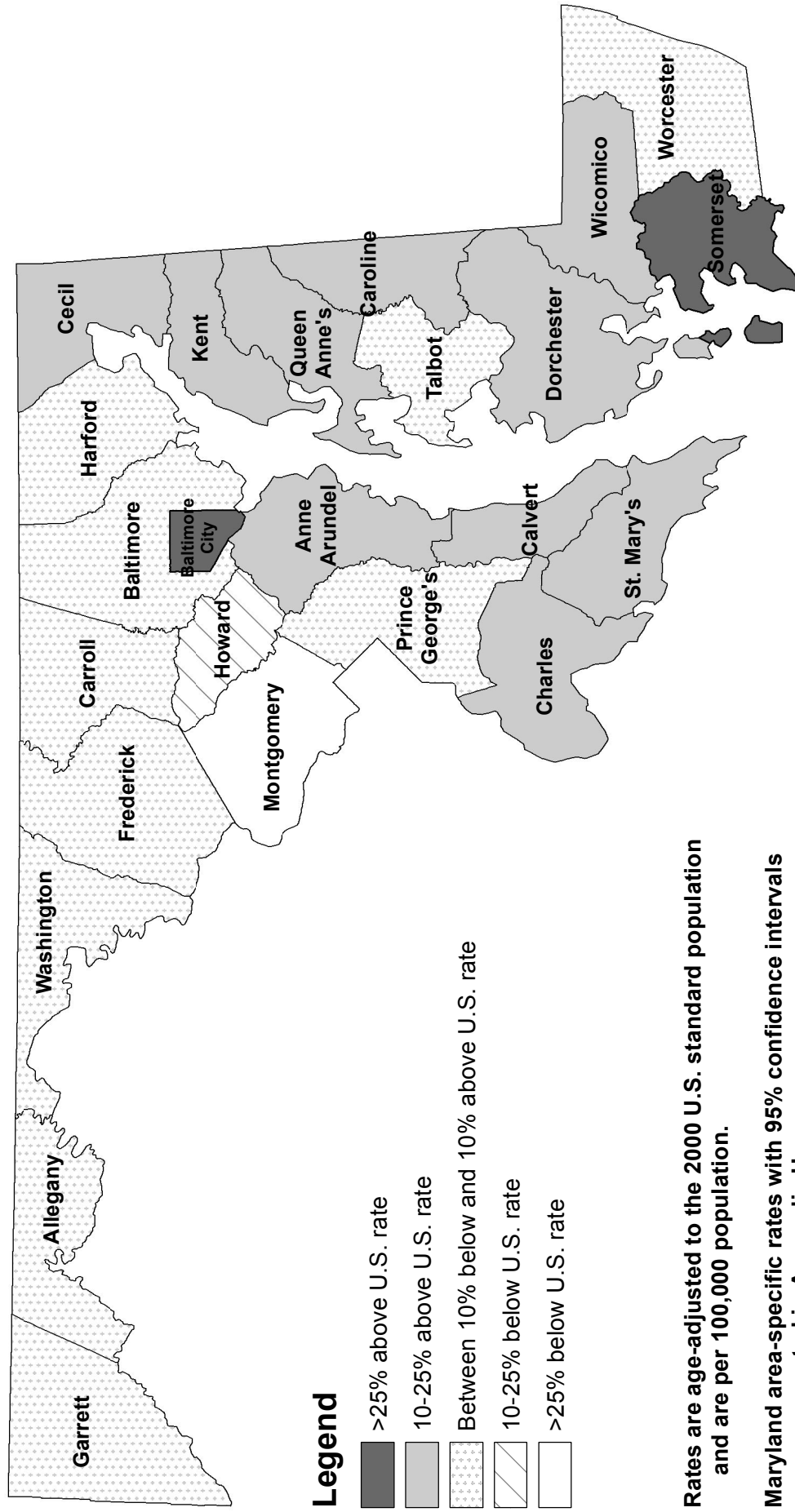
Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

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

U.S. all cancer sites mortality rate, 2003-2007:  183.6/100,000

Maryland all cancer sites mortality rate, 2003-2007:  188.5/100,000

Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER

20

# III. Targeted Cancers

# A. Lung and Bronchus Cancer

### *Incidence (New Cases)*

There were 3,522 new cases of lung and bronchus cancer (called lung cancer) reported among Maryland residents in 2007. The 2007 Maryland age-adjusted lung cancer incidence rate was 62.4 per 100,000 population (60.4-64.6, 95% C.I.), which is statistically significantly higher than the 2007 U.S. SEER lung cancer incidence rate of 59.9 per 100,000 population (59.4-60.5, 95% C.I.).

### *Mortality (Deaths)*

There were 2,812 lung cancer deaths among Maryland residents in 2007. In 2007, lung cancer accounted for 27.6% of all cancer deaths in Maryland and was the leading cause of cancer deaths in both men and women. The 2007 age-adjusted lung cancer mortality rate was 50.1 per 100,000 population (48.2-51.9, 95% C.I.) in Maryland. This rate is similar to the 2007 U.S. mortality rate for lung and bronchus cancer of 50.6 per 100,000 population (50.4-50.9, 95% C.I.). Maryland had the 22nd highest lung cancer mortality rate among the states and the District of Columbia for the period 2003-2007.

**Table 11.**
**Lung Cancer Incidence and Mortality Rates\***
**by Gender and Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Males | Females | Whites | Blacks | Other |
|---|---|---|---|---|---|---|
| New Cases (count) | 3,522 | 1,799 | 1,720 | 2,640 | 794 | s |
| MD Incidence Rate | 62.4 | 74.2 | 54.2 | 64.3 | 60.3 | 36.0 |
| U.S. SEER Rate | 59.9 | 71.8 | 51.2 | 61.6 | 68.1 | 36.7 |
| Mortality 2007 | Total | Males | Females | Whites | Blacks | Other |
| Deaths (count) | 2,812 | 1,497 | 1,315 | 2,116 | 654 | 42 |
| MD Mortality Rate | 50.1 | 62.9 | 41.1 | 51.4 | 51.2 | 18.0 |
| U.S. Mortality Rate | 50.6 | 65.0 | 40.0 | 51.2 | 55.6 | 26.4 |

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

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Table 12

Sources: MD incidence data from Maryland Cancer Registry

      U.S. SEER rates from SEER\*Stat software

      MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Lung Cancer Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

| | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| Incidence | 70.7 | 69.1 | 68.0 | 63.4 | 62.5 |
| Mortality | 57.3 | 53.0 | 54.9 | 52.6 | 50.1 |

Year of Diagnosis or Death

- □- - Incidence    —◇— Mortality

Rates are age-adjusted to 2000 U.S. standard population
Sources:  Maryland Cancer Registry (incidence rates)
          NCHS Compressed Mortality File in CDC WONDER (mortality rates)
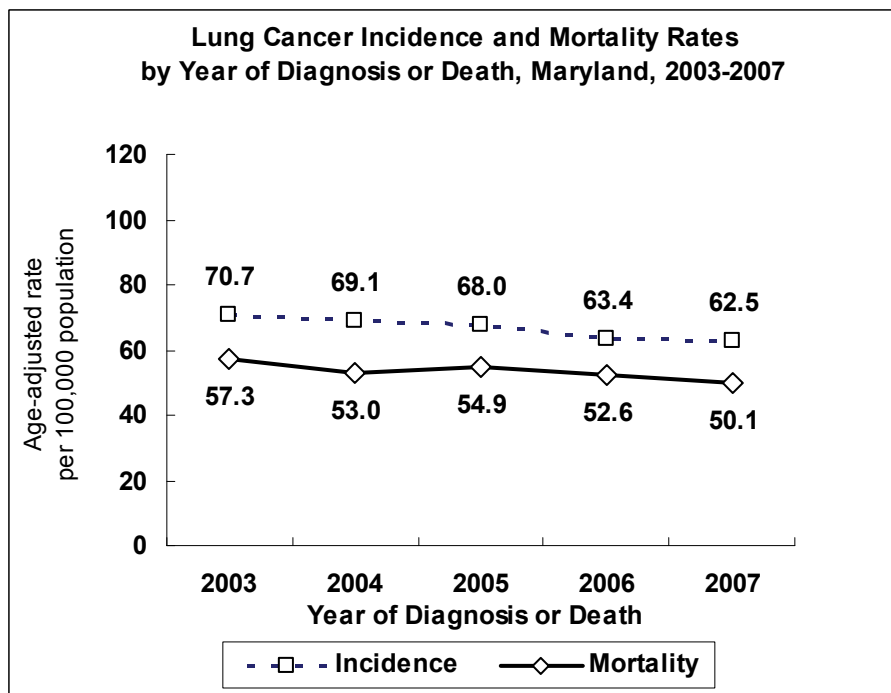
### Incidence and Mortality Trends

Lung cancer incidence rates in Maryland decreased at a rate of 3.3% per year from 2003 to 2007.

Lung cancer mortality rates decreased at a rate of 2.7% per year from 2003 to 2007.

See Appendix I, Tables 1 and 2.

**Lung Cancer Incidence Rates by Race
Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

| | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| White | 73.6 | 71.1 | 69.5 | 67.1 | 64.3 |
| Black | 71.2 | 67.7 | 66.2 | 55.3 | 60.3 |

Year of Diagnosis

—□— White    —■— Black

Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry
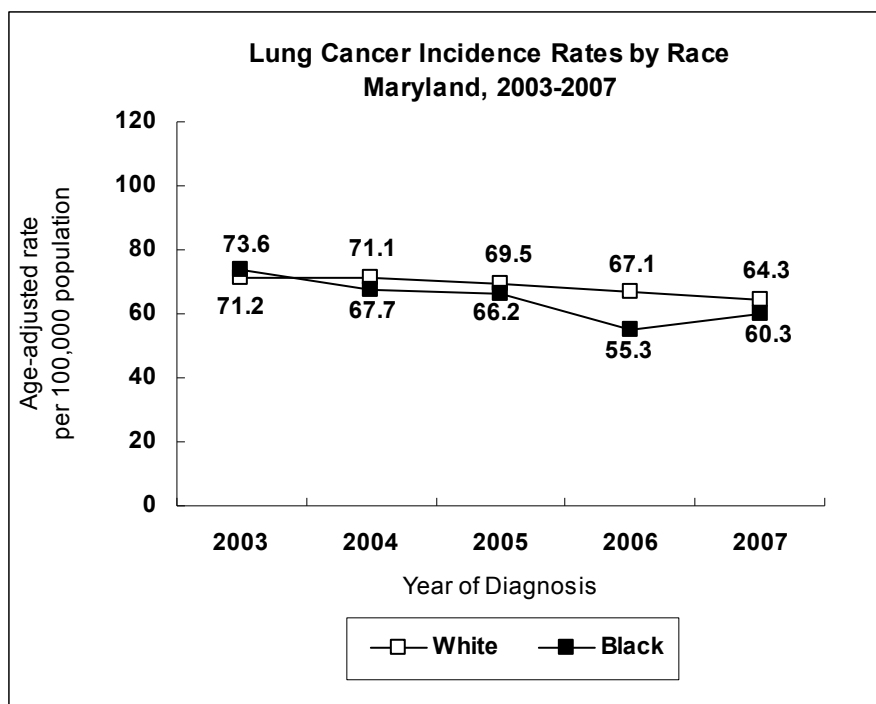
### Incidence Trends by Race

In recent years, lung cancer incidence rates in Maryland have been decreasing at a faster pace among blacks than whites, and by 2007, the incidence rates were lower among blacks.  From 2003 to 2007, lung cancer incidence rates for blacks declined at a rate of 5.8% per year, compared to a decline of 2.6% per year among whites.

See Appendix I, Table 3.

22

**Lung Cancer Mortality Rates by Race
Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

64.3    57.6    55.5    53.2    51.2
56.5    53.3    55.9    53.7    51.4

Year of Death

White    Black
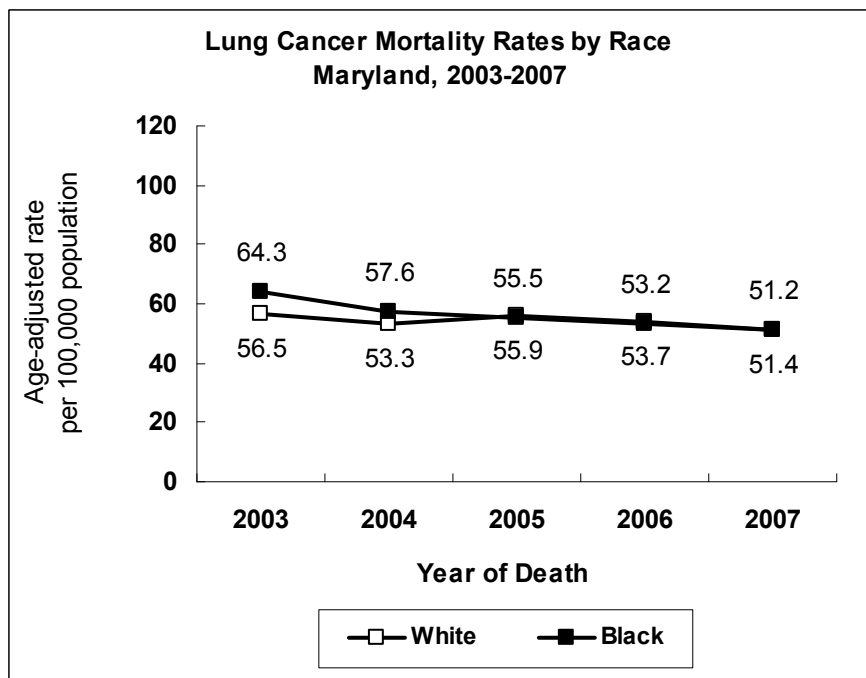
Rates are age-adjusted to 2000 U.S. standard population
Source:  NCHS Compressed Mortality File in CDC WONDER

## Mortality Trends by Race

Lung cancer mortality rates are declining for both blacks and whites. From 2003 to 2007, rates decreased at a rate of 5.2% per year for blacks, and 1.8% per year for whites.

See Appendix I, Table 5.

**Lung Cancer by Stage at Diagnosis
Maryland, 2003-2007**

Percent

Localized    Regional
Distant      Unstaged
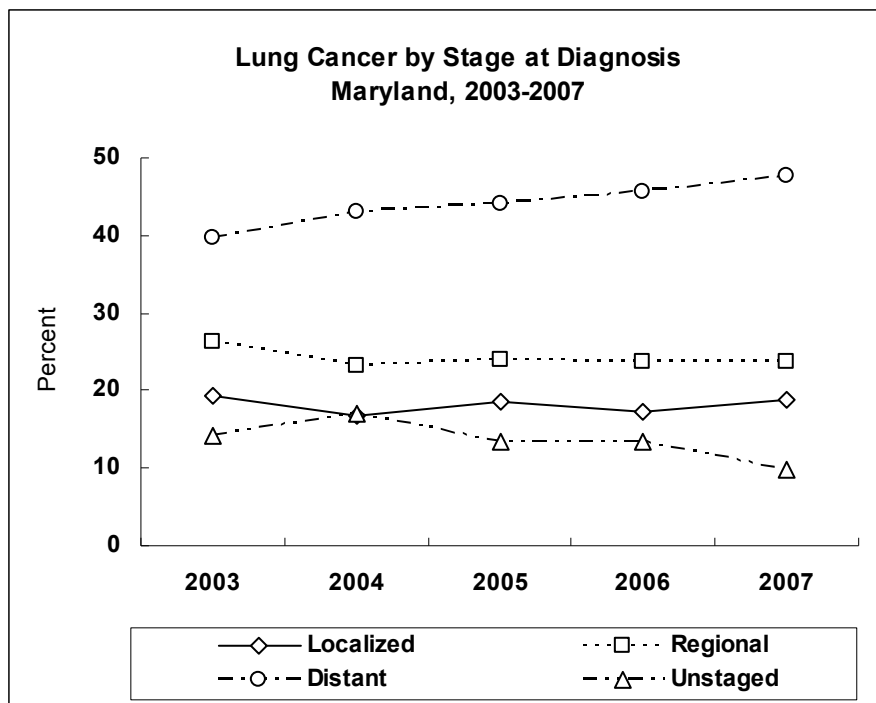
Source:  Maryland Cancer Registry

## Stage at Diagnosis

A higher proportion of lung cancer cases are diagnosed at the distant stage than at the localized or regional stage of cancer.  In 2007, 47.8% of lung cancer cases in Maryland were diagnosed at the distant stage, 23.7% were detected at the regional stage, and 18.7% were found at the local-ized stage.  The propor-tion of lung cancers re-ported as unstaged has declined in recent years.

See Appendix J, Table 2.

**Current Smokers\* in Maryland Among Adults
Age 18 Years and Older (2000-2008)
Compared to Healthy People 2010 Target**

Percent

| Year | Percent |
|------|---------|
| 2000 | 20.5% |
| 2001 | 21.1% |
| 2002 | 21.9% |
| 2003 | 20.1% |
| 2004 | 19.6% |
| 2005 | 18.9% |
| 2006 | 17.7% |
| 2007 | 17.1% |
| 2008 | 14.9% |
| HP 2010 | 12% |
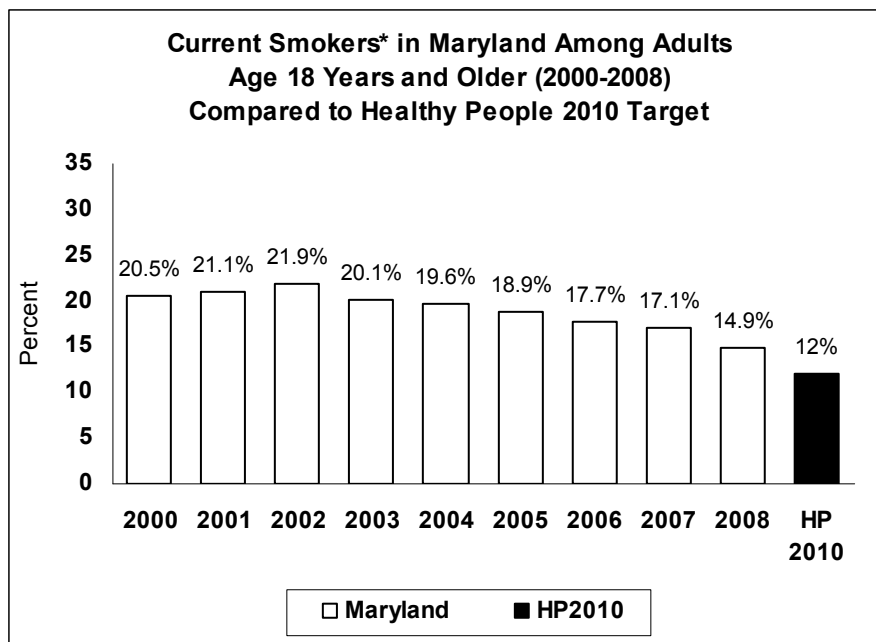
□ Maryland   ■ HP2010

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

Sources: Maryland BRFSS
   Healthy People 2010, U.S. Department of Health and Human Services (2000)

## Smoking Prevalence Among Maryland Adults

One Healthy People 2010 target is to reduce the percentage of adults who are current smokers to 12%. Although Maryland has not yet attained this goal, the percentage of adult smokers has declined at a rate of 3.9% per year since 2000, with a consistent downward trend since 2003.

**Current Use of Cigarettes\* by Maryland Youth
in Grades 9-12 (2000-2008)
Compared to Healthy People 2010 Target**

Percent

| Year | Percent |
|------|---------|
| 2000 | 23.0% |
| 2002 | 18.7% |
| 2006 | 14.7% |
| 2008 | 15.3% |
| HP 2010 | 16.0% |

□ 2000   □ 2002   □ 2006   □ 2008   ■ HP 2010
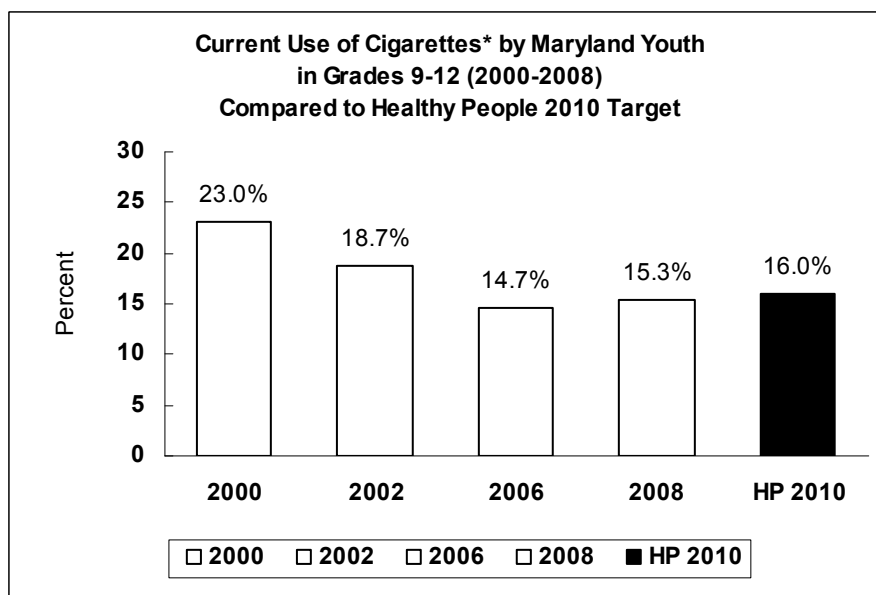
\* Current use of cigarettes is defined as smoking cigarettes on 1 or more days in the previous 30 days.

Sources: MYTS
   Healthy People 2010, U.S. Department of Health and Human Services (2000)

## Cigarette Use by Maryland Youth

Healthy People 2010 has established a target of reducing the percentage of youth in grades 9-12 who have smoked cigarettes in the previous 30 days to 16%.

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

# Public Health Evidence (quoted from National Cancer Institute [NCI], Physician Data Query [PDQ], 8/6/2009 and 10/19/2009, and United States Preventive Services Task Force [USPSTF], 5/2004)

## Primary Prevention

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

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

## Screening

Based on fair evidence, screening with chest x-ray and/or sputum cytology does not reduce mortality from lung cancer. Evidence is inadequate to determine whether screening with low-dose helical computed tomography (LDCT) decreases mortality from lung cancer. Based on solid evidence, screening with chest x-ray (CXR) and/or sputum cytology or with LDCT would lead to false-positive tests with unnecessary invasive diagnostic procedures and treatments.

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

## Chemoprevention

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

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

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

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

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

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

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

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

- ***Administration and Management:***
✓ Have sufficient funding, internal capacity, and skilled staff for effective tobacco prevention and control programs.

# Table 12.
# Number of Lung and Bronchus Cancer Cases
# by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 3,522 | 1,799 | 1,720 | 2,640 | 794 | s | <6 |
| | | | | | | | |
| Allegany | 71 | 40 | 31 | 71 | 0 | 0 | 0 |
| Anne Arundel | 381 | 189 | 191 | 346 | s | <6 | 0 |
| Baltimore City | 482 | 234 | 248 | s | 314 | <6 | 0 |
| Baltimore County | 624 | 319 | 305 | 539 | 76 | 9 | 0 |
| Calvert | 59 | 29 | 29 | 51 | 8 | 0 | 0 |
| Caroline | 27 | 18 | 9 | s | <6 | 0 | 0 |
| Carroll | 106 | 57 | 49 | 102 | <6 | <6 | <6 |
| Cecil | 75 | 35 | 40 | s | <6 | 0 | 0 |
| Charles | 56 | 34 | 22 | 41 | s | <6 | 0 |
| Dorchester | 33 | 17 | 16 | 23 | 10 | 0 | 0 |
| Frederick | 131 | 74 | 57 | 122 | s | <6 | 0 |
| Garrett | s | s | <6 | s | 0 | 0 | 0 |
| Harford | 173 | 89 | 84 | 160 | s | <6 | 0 |
| Howard | 127 | 56 | 71 | 107 | 13 | 7 | 0 |
| Kent | 25 | 12 | 13 | 18 | 7 | 0 | 0 |
| Montgomery | 393 | 194 | 198 | 287 | 69 | s | <6 |
| Prince George's | 333 | 162 | 171 | 141 | 181 | 11 | 0 |
| Queen Anne's | 41 | 20 | 21 | s | <6 | 0 | 0 |
| Saint Mary's | 53 | 26 | 27 | 46 | 7 | 0 | 0 |
| Somerset | 27 | 14 | 13 | 15 | s | <6 | 0 |
| Talbot | 36 | 15 | 21 | 30 | 6 | 0 | 0 |
| Washington | 105 | 70 | 35 | 96 | s | <6 | 0 |
| Wicomico | 90 | 51 | 39 | 76 | 14 | 0 | 0 |
| Worcester | 53 | 29 | 24 | 46 | <6 | <6 | 0 |
| Unknown | <6 | <6 | <6 | <6 | <6 | 0 | 0 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

Source:  Maryland Cancer Registry

## Table 13.
## Lung and Bronchus Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 62.4 | 74.2 | 54.2 | 64.3 | 60.3 | 36.0 |
| | | | | | | |
| Allegany | 72.9 | 97.5 | 53.3 | 75.0 | 0.0 | 0.0 |
| Anne Arundel | 76.8 | 85.3 | 70.2 | 81.1 | 51.8 | ** |
| Baltimore City | 75.0 | 89.4 | 65.5 | 68.9 | 78.6 | ** |
| Baltimore County | 68.7 | 83.1 | 58.9 | 71.5 | 62.3 | ** |
| Calvert | 76.9 | 86.6 | 67.9 | 78.7 | ** | 0.0 |
| Caroline | 79.8 | 116.6 | ** | 91.2 | ** | 0.0 |
| Carroll | 62.4 | 73.6 | 53.7 | 62.7 | ** | ** |
| Cecil | 78.0 | 80.2 | 77.6 | 81.7 | ** | 0.0 |
| Charles | 50.4 | 68.3 | 36.7 | 53.2 | ** | ** |
| Dorchester | 76.2 | 89.6 | 69.2 | 67.9 | ** | 0.0 |
| Frederick | 68.1 | 89.2 | 54.1 | 69.2 | ** | ** |
| Garrett | 50.5 | ** | ** | 50.8 | 0.0 | 0.0 |
| Harford | 75.1 | 87.8 | 66.3 | 77.7 | ** | ** |
| Howard | 55.7 | 58.4 | 55.2 | 61.1 | ** | ** |
| Kent | 88.1 | ** | ** | 72.4 | ** | 0.0 |
| Montgomery | 40.2 | 46.3 | 36.1 | 38.5 | 63.5 | 31.1 |
| Prince George's | 50.1 | 58.2 | 45.3 | 56.7 | 46.9 | ** |
| Queen Anne's | 80.6 | 85.2 | 76.4 | 88.5 | ** | 0.0 |
| Saint Mary's | 61.8 | 68.4 | 58.4 | 66.1 | ** | 0.0 |
| Somerset | 98.5 | ** | ** | ** | ** | ** |
| Talbot | 58.1 | ** | 63.7 | 56.0 | ** | 0.0 |
| Washington | 67.1 | 102.7 | 40.9 | 64.2 | ** | ** |
| Wicomico | 89.5 | 117.2 | 69.3 | 96.6 | ** | 0.0 |
| Worcester | 67.0 | 79.8 | 56.7 | 64.7 | ** | ** |

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

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

Source:  Maryland Cancer Registry

**Table 14.**
**Number of Lung and Bronchus Cancer Deaths**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 2,812 | 1,497 | 1,315 | 2,116 | 654 | 42 |
| | | | | | | |
| Allegany | 65 | 37 | 28 | s | <6 | <6 |
| Anne Arundel | 296 | 144 | 152 | 280 | s | <6 |
| Baltimore City | 401 | 214 | 187 | s | 269 | <6 |
| Baltimore County | 478 | 249 | 229 | 411 | s | <6 |
| Calvert | 39 | 25 | 14 | 32 | s | <6 |
| Caroline | 19 | 12 | 7 | 17 | <6 | <6 |
| Carroll | 95 | 52 | 43 | 92 | <6 | <6 |
| Cecil | 61 | 31 | 30 | 56 | <6 | <6 |
| Charles | 52 | 27 | 25 | 40 | s | <6 |
| Dorchester | 24 | 9 | 15 | 23 | <6 | <6 |
| Frederick | 113 | 71 | 42 | 104 | s | <6 |
| Garrett | 22 | 15 | 7 | s | <6 | <6 |
| Harford | 137 | 73 | 64 | 127 | s | <6 |
| Howard | 73 | 36 | 37 | 63 | s | <6 |
| Kent | 17 | 10 | 7 | 11 | s | <6 |
| Montgomery | 291 | 144 | 147 | 225 | 43 | 23 |
| Prince George's | 289 | 159 | 130 | 123 | 159 | 7 |
| Queen Anne's | 39 | 23 | 16 | 36 | <6 | <6 |
| Saint Mary's | 44 | 22 | 22 | 38 | s | <6 |
| Somerset | 19 | 9 | 10 | 14 | <6 | <6 |
| Talbot | 30 | 16 | 14 | 25 | <6 | <6 |
| Washington | 80 | 48 | 32 | 73 | s | <6 |
| Wicomico | 86 | 46 | 40 | 73 | s | <6 |
| Worcester | 42 | 25 | 17 | 36 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

**Table 15.**
**Lung and Bronchus Cancer Age-Adjusted Mortality Rates\***
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 50.1 | 62.9 | 41.1 | 51.4 | 51.2 | 18.0 |
| | | | | | | |
| Allegany | 66.2 | 90.1 | 51.1 | 68.1 | ** | ** |
| Anne Arundel | 60.6 | 67.9 | 55.6 | 66.3 | ** | ** |
| Baltimore City | 63.1 | 83.6 | 49.2 | 54.6 | 69.4 | ** |
| Baltimore County | 51.7 | 64.2 | 43.3 | 53.2 | 51.7 | ** |
| Calvert | 51.5 | 72.3 | ** | 50.7 | ** | ** |
| Caroline | 54.8 | ** | ** | 58.3 | ** | ** |
| Carroll | 56.5 | 71.1 | 47.6 | 57.1 | ** | ** |
| Cecil | 65.2 | 73.5 | 60.2 | 63.6 | ** | ** |
| Charles | 50.7 | 61.2 | 41.6 | 53.8 | ** | ** |
| Dorchester | 54.8 | ** | ** | 69.0 | ** | ** |
| Frederick | 57.8 | 85.9 | 36.9 | 58.2 | ** | ** |
| Garrett | 57.0 | ** | ** | 57.4 | ** | ** |
| Harford | 59.1 | 69.4 | 50.4 | 60.7 | ** | ** |
| Howard | 34.2 | 39.7 | 31.1 | 38.5 | ** | ** |
| Kent | 58.6 | ** | ** | ** | ** | ** |
| Montgomery | 29.7 | 35.2 | 26.2 | 29.6 | 39.0 | 20.3 |
| Prince George's | 43.9 | 58.7 | 33.7 | 49.2 | 41.9 | ** |
| Queen Anne's | 76.6 | 94.4 | 59.5 | 79.8 | ** | ** |
| Saint Mary's | 54.6 | 63.0 | 50.2 | 57.9 | ** | ** |
| Somerset | 70.8 | ** | ** | ** | ** | ** |
| Talbot | 50.7 | 58.9 | ** | 47.9 | ** | ** |
| Washington | 51.3 | 70.2 | 37.0 | 49.2 | ** | ** |
| Wicomico | 84.7 | 109.7 | 69.0 | 91.5 | ** | ** |
| Worcester | 53.0 | 71.1 | 39.4 | 51.8 | ** | ** |

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

\*\* Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 16.**
**Number of Lung and Bronchus Cancer Cases**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 18,181 | 9,374 | 8,785 | 13,788 | 3,990 | 385 | 18 |
| | | | | | | | |
| Allegany | 401 | 237 | 164 | 391 | s | <6 | 0 |
| Anne Arundel | 1,706 | 875 | 823 | 1,528 | 154 | 24 | 0 |
| Baltimore City | 2,651 | 1,406 | 1,245 | 1,104 | 1,539 | 8 | 0 |
| Baltimore County | 3,355 | 1,648 | 1,707 | 2,826 | 485 | 44 | 0 |
| Calvert | 279 | 140 | 138 | 242 | s | <6 | 0 |
| Caroline | 154 | 85 | 69 | 136 | s | <6 | 0 |
| Carroll | 581 | 326 | 255 | 559 | 15 | s | <6 |
| Cecil | 387 | 196 | 191 | 375 | 12 | 0 | 0 |
| Charles | 330 | 181 | 149 | 260 | s | <6 | 0 |
| Dorchester | 176 | 100 | 76 | 133 | s | <6 | 0 |
| Frederick | 700 | 383 | 316 | 661 | 33 | 6 | 0 |
| Garrett | 97 | 60 | 37 | 97 | 0 | 0 | 0 |
| Harford | 849 | 466 | 382 | 770 | 68 | 11 | 0 |
| Howard | 542 | 265 | 277 | 448 | 70 | 24 | 0 |
| Kent | 110 | 57 | 53 | 89 | 21 | 0 | 0 |
| Montgomery † | 1,962 | 887 | 1,073 | 1,560 | 238 | 158 | 6 |
| Prince George's † | 1,761 | 905 | 854 | 764 | 928 | s | <6 |
| Queen Anne's | 196 | 104 | 91 | 174 | s | <6 | 0 |
| Saint Mary's | 294 | 155 | 139 | 257 | 37 | 0 | 0 |
| Somerset | 139 | 90 | 49 | 95 | s | <6 | 0 |
| Talbot | 197 | 76 | 121 | 175 | 22 | 0 | 0 |
| Washington | 541 | 326 | 215 | 514 | s | <6 | 0 |
| Wicomico | 414 | 223 | 191 | 340 | 68 | 6 | 0 |
| Worcester | 286 | 148 | 138 | 245 | 31 | 10 | 0 |
| Unknown | 73 | 35 | 32 | 45 | 16 | <6 | s |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

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

Source: Maryland Cancer Registry

## Table 17.
## Lung and Bronchus Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 66.6 | 80.0 | 57.0 | 68.6 | 64.3 | 35.5 |
| | | | | | | |
| Allegany | 82.1 | 113.8 | 58.5 | 81.9 | ** | ** |
| Anne Arundel | 72.0 | 82.9 | 63.3 | 74.5 | 58.2 | 43.6 |
| Baltimore City | 82.2 | 108.2 | 65.2 | 89.4 | 78.7 | ** |
| Baltimore County | 74.5 | 85.8 | 66.8 | 74.7 | 82.9 | 34.2 |
| Calvert | 76.1 | 87.2 | 67.9 | 77.6 | 69.4 | ** |
| Caroline | 92.0 | 115.3 | 76.0 | 95.2 | 72.5 | ** |
| Carroll | 72.5 | 93.0 | 58.2 | 72.4 | ** | ** |
| Cecil | 86.5 | 97.8 | 78.8 | 88.5 | ** | 0.0 |
| Charles | 64.5 | 85.4 | 51.0 | 70.6 | 51.1 | ** |
| Dorchester | 84.1 | 112.2 | 65.6 | 82.6 | 89.8 | ** |
| Frederick | 74.8 | 95.4 | 60.4 | 76.5 | 62.4 | ** |
| Garrett | 52.0 | 68.9 | 36.8 | 52.3 | 0.0 | 0.0 |
| Harford | 75.7 | 94.4 | 61.8 | 76.0 | 76.7 | ** |
| Howard | 51.8 | 57.9 | 48.1 | 55.0 | 47.4 | 27.9 |
| Kent | 80.9 | 90.6 | 77.1 | 77.3 | 104.8 | 0.0 |
| Montgomery † | 42.4 | 45.3 | 40.7 | 43.5 | 46.8 | 31.4 |
| Prince George's † | 53.9 | 66.6 | 45.4 | 59.4 | 49.6 | 43.6 |
| Queen Anne's | 79.1 | 89.4 | 70.0 | 78.7 | 87.6 | ** |
| Saint Mary's | 73.1 | 82.2 | 65.5 | 77.0 | 62.6 | 0.0 |
| Somerset | 101.6 | 142.6 | 62.3 | 93.7 | 113.0 | ** |
| Talbot | 70.0 | 60.7 | 77.9 | 70.7 | 66.3 | 0.0 |
| Washington | 70.8 | 97.8 | 51.4 | 70.1 | 102.7 | ** |
| Wicomico | 86.9 | 109.1 | 71.0 | 90.6 | 74.0 | ** |
| Worcester | 74.2 | 83.8 | 67.0 | 72.6 | 67.1 | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

# Table 18.
## Number of Lung and Bronchus Cancer Deaths
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 14,563 | 7,899 | 6,664 | 10,929 | 3,407 | 227 |
| | | | | | | |
| Allegany | 305 | 186 | 119 | 300 | <6 | <6 |
| Anne Arundel | 1,439 | 771 | 668 | 1,289 | 134 | 16 |
| Baltimore City | 2,332 | 1,284 | 1,048 | 914 | 1,410 | 8 |
| Baltimore County | 2,565 | 1,339 | 1,226 | 2,234 | 315 | 16 |
| Calvert | 215 | 120 | 95 | 183 | s | <6 |
| Caroline | 128 | 78 | 50 | 111 | s | <6 |
| Carroll | 443 | 253 | 190 | 429 | s | <6 |
| Cecil | 304 | 155 | 149 | 291 | s | <6 |
| Charles | 330 | 177 | 153 | 253 | s | <6 |
| Dorchester | 140 | 75 | 65 | 112 | s | <6 |
| Frederick | 463 | 274 | 189 | 440 | s | <6 |
| Garrett | 85 | 54 | 31 | s | <6 | <6 |
| Harford | 662 | 371 | 291 | 599 | 57 | 6 |
| Howard | 358 | 184 | 174 | 284 | 57 | 17 |
| Kent | 81 | 44 | 37 | s | s | <6 |
| Montgomery | 1,424 | 672 | 752 | 1,153 | 167 | 104 |
| Prince George's | 1,569 | 888 | 681 | 694 | 832 | 43 |
| Queen Anne's | 162 | 93 | 69 | 142 | s | <6 |
| Saint Mary's | 252 | 146 | 106 | 217 | s | <6 |
| Somerset | 116 | 67 | 49 | 89 | s | <6 |
| Talbot | 150 | 71 | 79 | 129 | s | <6 |
| Washington | 461 | 272 | 189 | 441 | s | <6 |
| Wicomico | 358 | 199 | 159 | 292 | s | <6 |
| Worcester | 221 | 126 | 95 | 188 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source: NCHS Compressed Mortality File in CDC WONDER

## Table 19.
## Lung and Bronchus Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 53.5 | 68.7 | 42.8 | 54.1 | 56.2 | 21.6 |
| | | | | | | |
| Allegany | 61.6 | 89.3 | 41.7 | 62.0 | ** | ** |
| Anne Arundel | 61.7 | 75.5 | 51.4 | 63.7 | 53.0 | 29.4 |
| Baltimore City | 72.4 | 99.8 | 54.4 | 72.5 | 73.1 | ** |
| Baltimore County | 56.3 | 70.1 | 46.6 | 57.9 | 54.9 | 11.7 |
| Calvert | 60.6 | 79.3 | 47.4 | 61.2 | 62.7 | ** |
| Caroline | 75.9 | 106.0 | 53.8 | 77.5 | 70.5 | ** |
| Carroll | 55.4 | 73.0 | 43.2 | 55.6 | ** | ** |
| Cecil | 69.1 | 79.6 | 62.2 | 69.7 | ** | ** |
| Charles | 67.0 | 89.1 | 54.2 | 71.0 | 58.5 | ** |
| Dorchester | 66.0 | 85.1 | 54.1 | 68.9 | 56.8 | ** |
| Frederick | 49.9 | 70.6 | 35.5 | 51.2 | 42.1 | ** |
| Garrett | 45.2 | 63.4 | 30.0 | 45.5 | ** | ** |
| Harford | 59.8 | 76.6 | 47.3 | 59.8 | 65.4 | ** |
| Howard | 34.9 | 41.1 | 30.6 | 35.8 | 37.3 | 21.0 |
| Kent | 57.7 | 70.8 | 50.1 | 49.8 | 104.2 | ** |
| Montgomery | 30.6 | 34.9 | 27.7 | 31.4 | 32.8 | 22.0 |
| Prince George's | 49.0 | 66.9 | 36.7 | 53.8 | 46.2 | 26.1 |
| Queen Anne's | 65.1 | 78.0 | 52.7 | 63.6 | 83.8 | ** |
| Saint Mary's | 64.7 | 84.0 | 50.5 | 67.4 | 58.9 | ** |
| Somerset | 84.4 | 105.8 | 64.0 | 88.5 | 77.2 | ** |
| Talbot | 52.6 | 57.1 | 48.8 | 51.0 | 60.8 | ** |
| Washington | 59.9 | 81.9 | 44.0 | 59.7 | 94.1 | ** |
| Wicomico | 75.1 | 99.8 | 58.2 | 77.8 | 66.0 | ** |
| Worcester | 57.3 | 73.5 | 44.8 | 55.6 | 68.9 | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Lung Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Legend**

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate
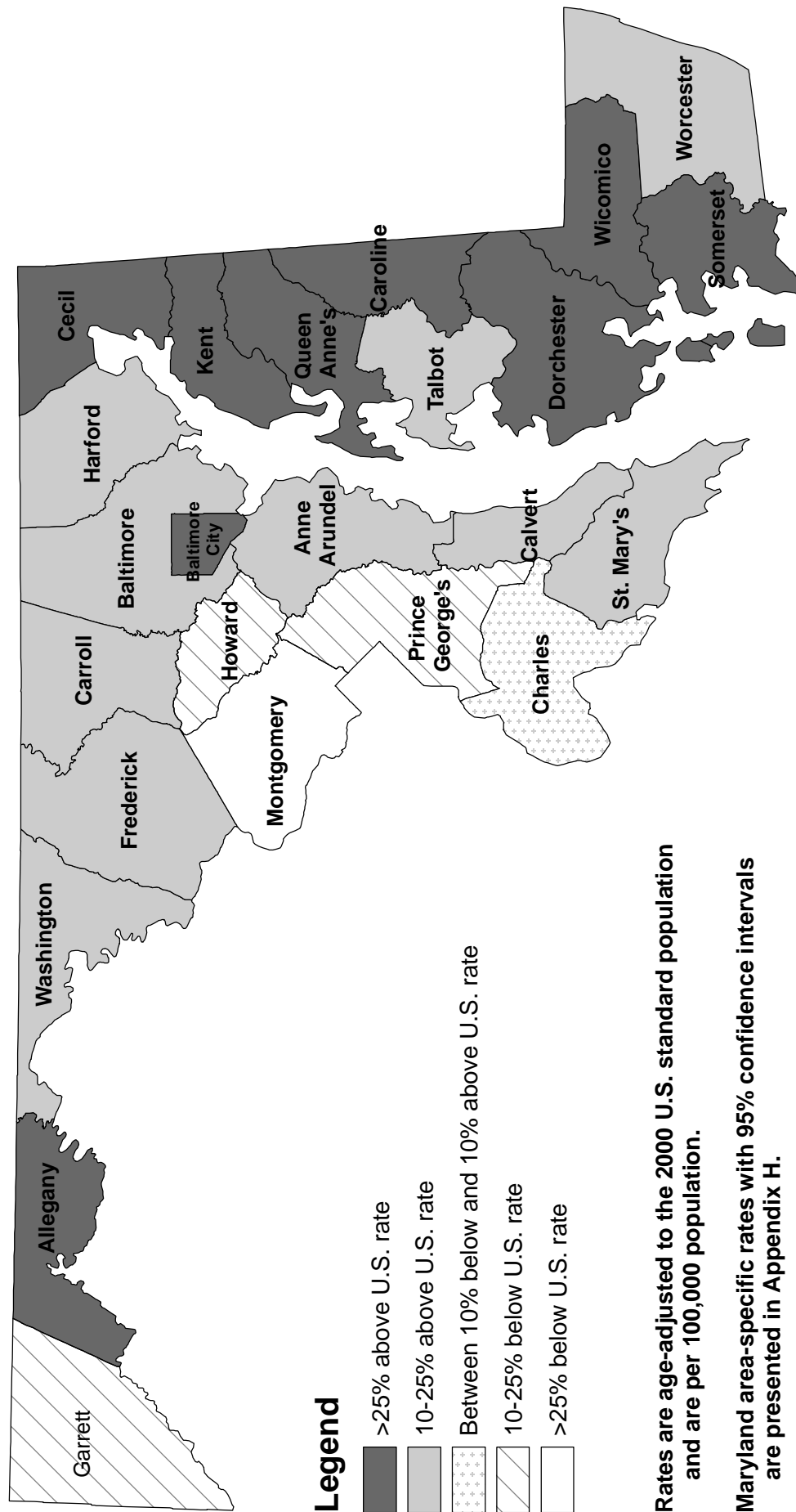
Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

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

U.S. lung cancer incidence rate, 2003-2007: 62.5/100,000

Maryland lung cancer incidence rate, 2003-2007: 66.6/100,000

Source: MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

Map county labels: Garrett, Allegany, Washington, Frederick, Carroll, Montgomery, Howard, Baltimore, Baltimore City, Harford, Cecil, Kent, Queen Anne's, Caroline, Anne Arundel, Prince George's, Charles, Calvert, St. Mary's, Talbot, Dorchester, Wicomico, Worcester, Somerset

# Maryland Lung Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Legend**

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate
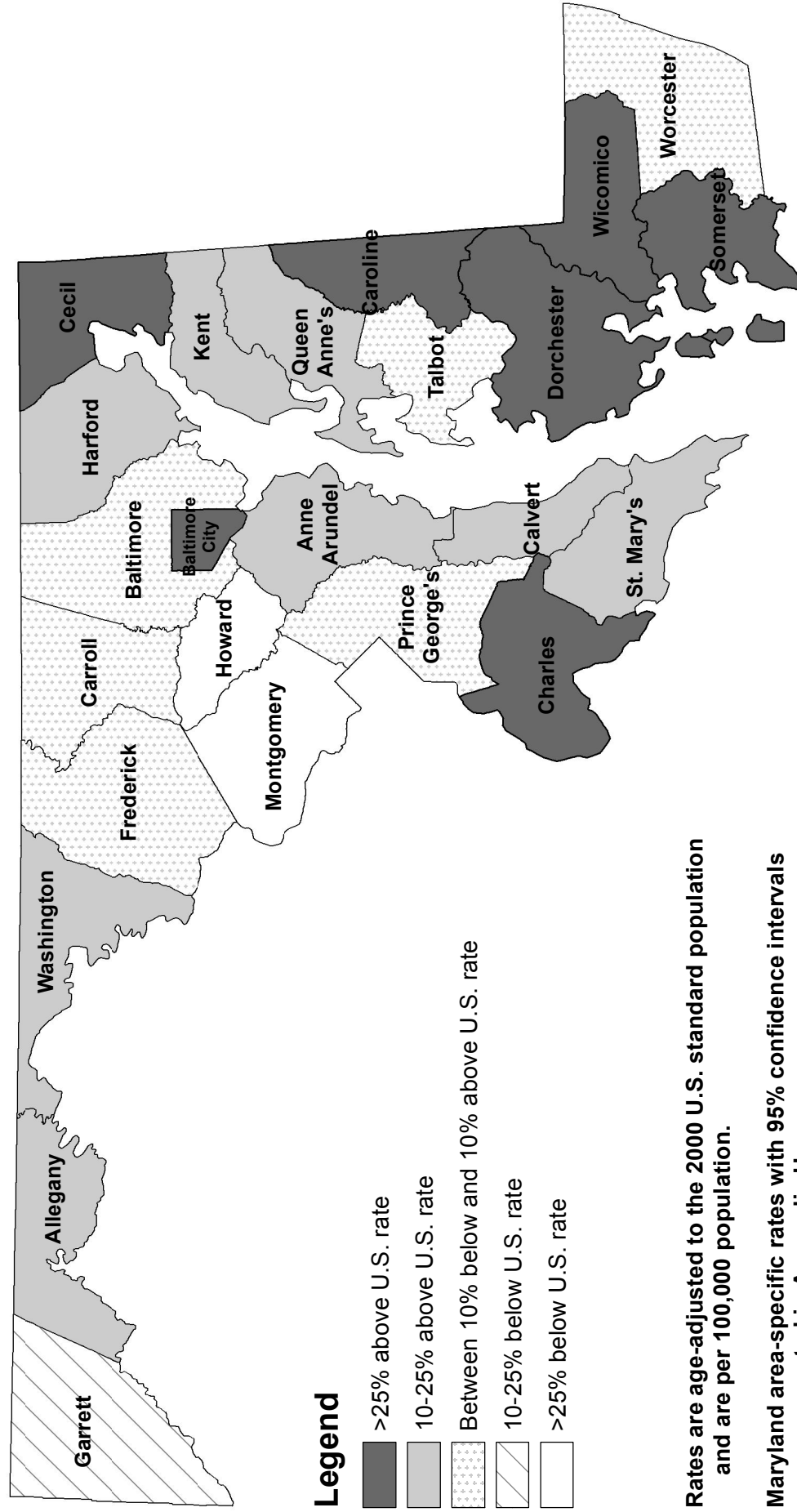
**Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.**

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

**U.S. lung cancer mortality rate, 2003-2007:  52.4/100,000**

**Maryland lung cancer mortality rate, 2003-2007:  53.5/100,000**

**Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER**

Counties shown on map: Garrett, Allegany, Washington, Frederick, Montgomery, Carroll, Howard, Baltimore, Baltimore City, Harford, Cecil, Kent, Queen Anne's, Caroline, Talbot, Anne Arundel, Prince George's, Calvert, Charles, St. Mary's, Dorchester, Wicomico, Worcester, Somerset

# B. Colon and Rectum Cancer

## Incidence (New Cases)

In 2007, there were 2,382 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 2007 was 41.6 per 100,000 population (40.0-43.4, 95% C.I.), which is statistically significantly lower than the 2007 U.S. SEER age-adjusted colorectal cancer incidence rate of 45.5 per 100,000 population (45.0-46.0, 95% C.I.).

## Mortality (Deaths)

A total of 989 persons died of colorectal cancer in 2007 in Maryland.  In 2007, colorectal cancer accounted for 9.7% of all cancer deaths and was the second leading cause of cancer deaths in Maryland.  The age-adjusted colorectal cancer mortality rate in Maryland was 17.5 per 100,000 population (16.4-18.6, 95% C.I.).  This rate is similar to the 2007 U.S. colorectal cancer mortality rate of 16.8 per 100,000 population (16.6-16.9, 95% C.I.).  Maryland had the 16th highest colorectal cancer mortality rate among the states and the District of Columbia for the period 2003-2007.

**Table 20.**
**Colorectal Cancer Incidence and Mortality Rates***
**by Gender and Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Males | Females | Whites | Blacks | Other |
|---|---|---|---|---|---|---|
| New Cases (count) | 2,382 | 1,206 | 1,175 | 1,688 | 597 | 84 |
| MD Incidence Rate | 41.6 | 48.8 | 35.8 | 40.6 | 44.8 | 32.1 |
| U.S. SEER Rate | 45.5 | 52.8 | 39.7 | 44.7 | 55.8 | 37.8 |
| Mortality 2007 | Total | Males | Females | Whites | Blacks | Other |
| Deaths (count) | 989 | 520 | 469 | 658 | 305 | 26 |
| MD Mortality Rate | 17.5 | 22.2 | 14.1 | 15.7 | 24.1 | 11.0 |
| U.S. Mortality Rate | 16.8 | 20.0 | 14.2 | 16.3 | 23.4 | 11.0 |

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

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

Sources:  MD incidence data from Maryland Cancer Registry

U.S. SEER rates from SEER*Stat software

MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Colorectal Cancer Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland
2003-2007**

Age-adjusted rate per 100,000 population

| | | | | |
|---|---|---|---|---|
| 54.6 | 48.7 | 46.3 | 41.3 | 41.6 |
| 19.5 | 19.1 | 18.7 | 18.4 | 17.5 |

2003    2004    2005    2006    2007

**Year of Diagnosis or Death**

··· □ ··· **Incidence**      —◇— **Mortality**
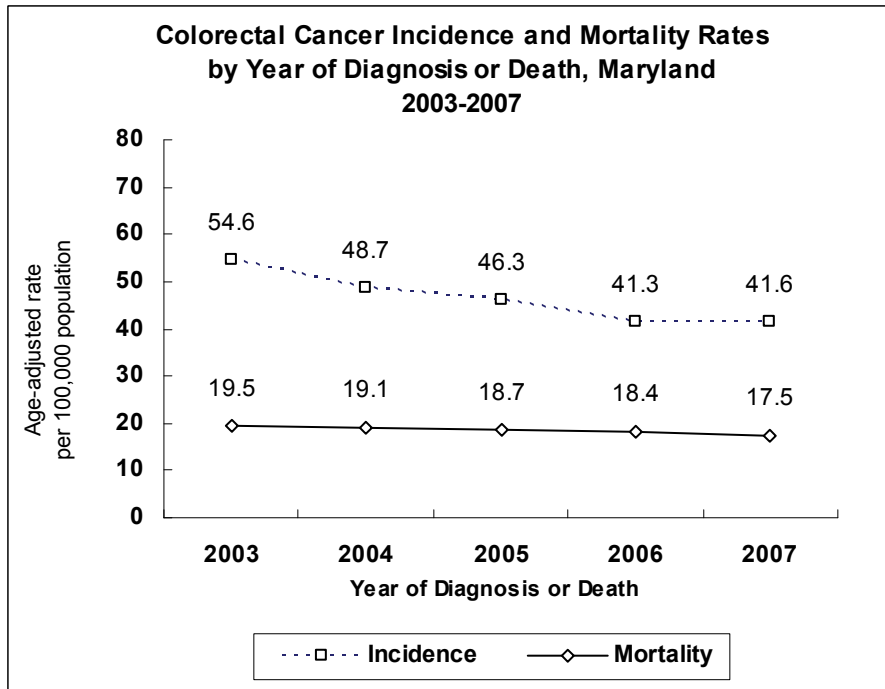
Rates are age-adjusted to 2000 U.S. standard population
Sources:  Maryland Cancer Registry (incidence rates)
          NCHS Compressed Mortality File in CDC WONDER (mortality rates)

*Incidence and Mortality Trends*

Incidence rates for colorectal cancer have been declining in Maryland. From 2003 to 2007, incidence rates declined at a rate of 6.8% per year.

Colorectal cancer mortality rates declined at a rate of 2.5% per year from 2003 to 2007.
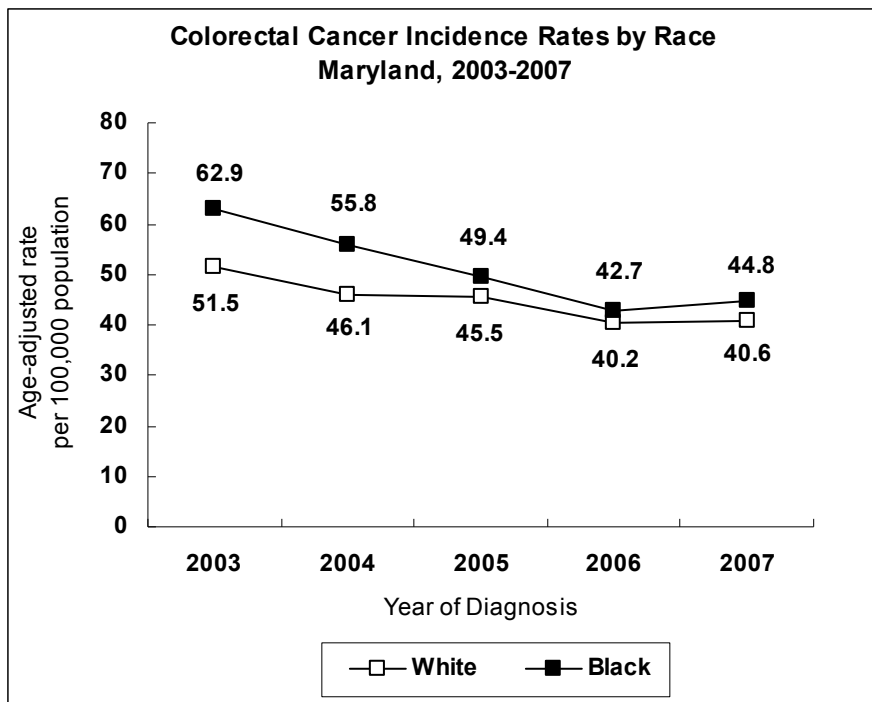
See Appendix I, Tables 1 and 2.

**Colorectal Cancer Incidence Rates by Race
Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

| | | | | |
|---|---|---|---|---|
| 62.9 | 55.8 | 49.4 | 42.7 | 44.8 |
| 51.5 | 46.1 | 45.5 | 40.2 | 40.6 |

2003    2004    2005    2006    2007

Year of Diagnosis

—□— **White**     —■— **Black**

Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry

*Incidence Trends by Race*

From 2003 to 2007, colorectal cancer incidence rates declined at a rate of 9.0% per year for blacks and 5.9% per year among whites. In 2007, the incidence rate for colorectal cancer was 40.6 for whites and 44.8 for blacks in Maryland.

See Appendix I, Table 3.
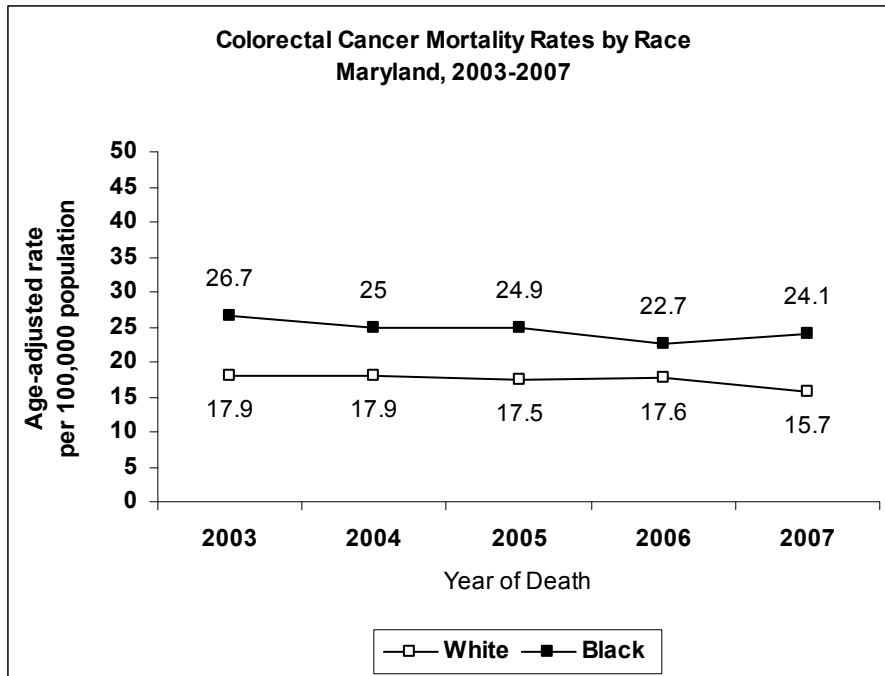
**Colorectal Cancer Mortality Rates by Race**
**Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

White: 17.9 (2003), 17.9 (2004), 17.5 (2005), 17.6 (2006), 15.7 (2007)
Black: 26.7 (2003), 25 (2004), 24.9 (2005), 22.7 (2006), 24.1 (2007)

Year of Death

—□— White    —■— Black

Rates are age-adjusted to 2000 U.S. standard population
Source:  NCHS Compressed Mortality File in CDC WONDER

## Mortality Trends by Race

From 2003 to 2007, colorectal cancer mortality rates declined for blacks and whites.  Mortality rates in blacks decreased at a rate of 3.0% per year; whereas, among whites, the decline was 2.8% per year.

See Appendix I, Table 5.

**Colorectal Cancer by Stage at Diagnosis**
**Maryland, 2003-2007**

Percent

Year

—◇— Localized    ···□··· Regional
—○— Distant    —△— Unstaged
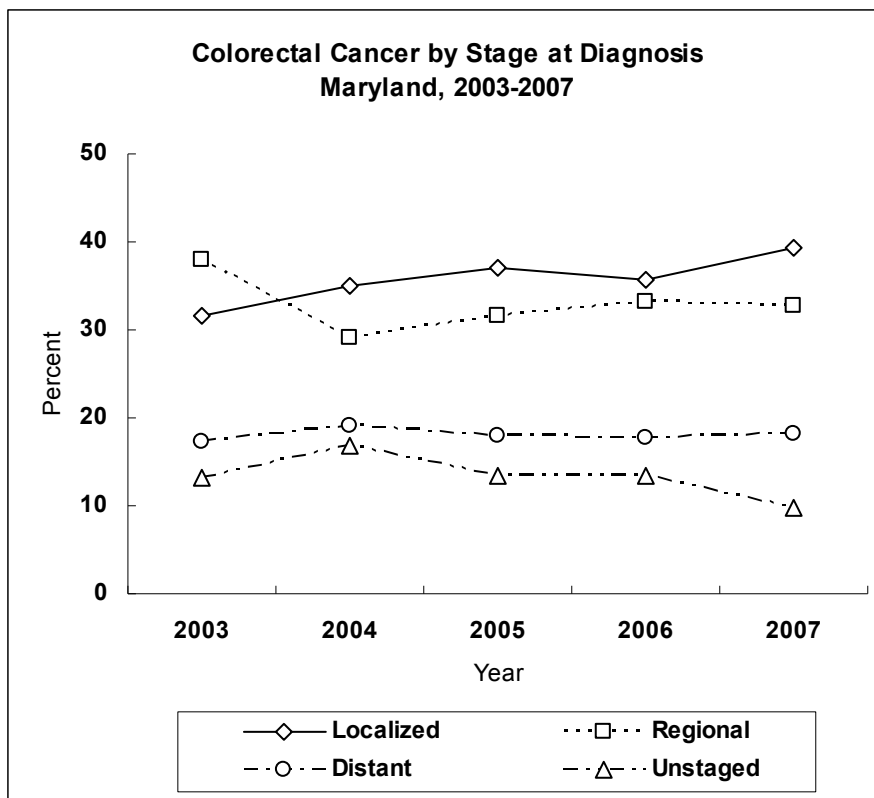
Source:  Maryland Cancer Registry

## Stage at Diagnosis

In 2007, 39.3% of colorectal cancers diagnosed in Maryland were detected at the localized stage, 32.8% were detected at the regional stage, and 18.1% were found at the distant stage. The proportion of colorectal cancers reported as unstaged has decreased in recent years.

See Appendix J, Table 3.

**Percentage of Maryland Adults Age 50 Years and Older
Having a Fecal Occult Blood Test within Past 2 Years,
Compared to Healthy People 2010 Target
1999-2008**

| Year | Percent |
|------|---------|
| 1999 | 38% † |
| 2001 | 43% † |
| 2002 | 44% § |
| 2004 | 36% § |
| 2006 | 32% § |
| 2008 | 28% § |
| HP 2010 | 33% |

Legend: □ Maryland   ■ HP 2010

Note: Graphic includes results from both the Maryland BRFSS and Maryland
Cancer Survey. See Appendix C for a cautionary note on comparing
these data.
Sources: † Maryland BRFSS 1999 and 2001
§ Maryland Cancer Survey 2002, 2004, 2006, and 2008
Healthy People 2010 Midcourse Review, U.S. Department of Health
and Human Services (2006)

**Percentage of Maryland Adults Age 50 Years and Older
Ever Having a Sigmoidoscopy or Colonoscopy Screening
Compared to Healthy People 2010 Target
1999-2008**

| Year | Percent |
|------|---------|
| 1999 | 50% † |
| 2001 | 52% † |
| 2002 | 58% § |
| 2004 | 63% § |
| 2006 | 69% § |
| 2008 | 75% § |
| HP 2010 | 50% |

Legend: □ Maryland   ■ HP 2010

Note: Graphic includes results from both the Maryland BRFSS and Maryland
Cancer Survey. See Appendix C for a cautionary note on comparing
these data.
Sources: † Maryland BRFSS 1999 and 2001
§ Maryland Cancer Survey 2002, 2004, 2006, and 2008
Healthy People 2010, U.S. Department of Health and Human Services
(2000)

### Screening with Fecal Occult Blood Test

One Healthy People 2010 target for colorectal cancer is to increase to 33% the proportion of adults age 50 years and older who received a fecal occult blood test (FOBT) in the preceding 2 years. FOBT testing in Maryland increased steadily from 1999 to 2002, surpassing the Healthy People 2010 target, but declined to 28% by 2008. The declining rate of FOBT screening has occurred in parallel with the increased use of endoscopy (see below).

### Screening with Sigmoidoscopy or Colonoscopy

The second Healthy People 2010 target for colorectal cancer is to increase to 50% the proportion of adults age 50 years and older who ever received a sigmoidoscopy. In 2008, 75% of Maryland adults age 50 years and older reported ever having a sigmoidoscopy or colonoscopy, surpassing the Healthy People target. (Note: The Maryland BRFSS and MCS ask respondents whether they have ever had either a sigmoidoscopy or colonoscopy.)

# Public Health Evidence (quoted from NCI PDQ, 4/1/2010 and 6/30/2009, and USPSTF, 11/2008)

**Prevention**

Based on fair evidence, removal of adenomatous polyps reduces the risk of colorectal cancer (CRC). Harms of polyp removal include infrequent perforation of the colon during the procedure, as well as bleeding and infection following the procedure. There is inadequate evidence to suggest that a diet low in fat and high in fiber, fruits, and vegetables decreases the risk of CRC; however, there are no known harms from dietary modification, including reduction of fatty acids and increase in the intake of fiber, fruits, and vegetables. Obesity is associated with a two-fold risk increase in CRC in premenopausal women. Cigarette smoking is associated with an increased tendency to form adenomas and to develop CRC.

**Screening**

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

**Chemoprevention**

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

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

**Table 21.**
**Number of Colorectal Cancer Cases**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 2,382 | 1,206 | 1,175 | 1,688 | 597 | 84 | 13 |
| | | | | | | | |
| Allegany | 53 | 28 | 25 | 50 | <6 | <6 | 0 |
| Anne Arundel | 188 | 91 | 97 | 158 | 27 | <6 | <6 |
| Baltimore City | 288 | 136 | 152 | s | 184 | <6 | 0 |
| Baltimore County | 390 | 186 | 203 | 319 | 65 | 6 | 0 |
| Calvert | 38 | 21 | 17 | 32 | 6 | 0 | 0 |
| Caroline | 19 | 9 | 10 | s | <6 | 0 | 0 |
| Carroll | 65 | 36 | 29 | 65 | 0 | 0 | 0 |
| Cecil | 46 | 24 | 22 | s | <6 | 0 | 0 |
| Charles | 52 | 31 | 21 | 32 | s | <6 | 0 |
| Dorchester | 24 | 10 | 14 | 14 | 10 | 0 | 0 |
| Frederick | 82 | 49 | 33 | 76 | <6 | <6 | <6 |
| Garrett | 16 | 9 | 7 | 16 | 0 | 0 | 0 |
| Harford | 108 | 59 | 49 | 93 | s | <6 | 0 |
| Howard | 97 | 54 | 43 | 76 | 14 | s | <6 |
| Kent | s | <6 | <6 | <6 | <6 | 0 | 0 |
| Montgomery | 343 | 169 | 174 | 258 | 44 | s | <6 |
| Prince George's | 289 | 139 | 150 | 103 | 167 | s | <6 |
| Queen Anne's | 32 | 17 | 15 | s | <6 | 0 | 0 |
| Saint Mary's | 40 | 21 | 19 | 33 | <6 | <6 | 0 |
| Somerset | 17 | s | <6 | 11 | 6 | 0 | 0 |
| Talbot | 22 | 12 | 10 | 14 | 8 | 0 | 0 |
| Washington | 74 | 43 | 31 | 71 | <6 | <6 | 0 |
| Wicomico | 50 | 26 | 24 | 42 | 8 | 0 | 0 |
| Worcester | 39 | 19 | 20 | 30 | <6 | s | 0 |
| Unknown | <6 | 0 | <6 | <6 | <6 | 0 | <6 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

Source:  Maryland Cancer Registry

# Table 22.
## Colorectal Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 41.6 | 48.8 | 35.8 | 40.6 | 44.8 | 32.1 |
| | | | | | | |
| Allegany | 55.5 | 67.6 | 45.4 | 53.4 | ** | ** |
| Anne Arundel | 38.6 | 41.1 | 36.1 | 38.1 | 48.2 | ** |
| Baltimore City | 44.6 | 52.5 | 39.4 | 40.7 | 47.2 | ** |
| Baltimore County | 41.9 | 47.2 | 37.1 | 41.0 | 46.1 | ** |
| Calvert | 47.8 | 57.5 | 39.2 | 49.2 | ** | 0.0 |
| Caroline | 55.3 | ** | ** | 54.4 | ** | 0.0 |
| Carroll | 38.1 | 45.8 | 30.9 | 39.6 | 0.0 | 0.0 |
| Cecil | 47.8 | 53.3 | 41.6 | 47.5 | ** | 0.0 |
| Charles | 48.7 | 72.9 | 33.9 | 41.3 | 69.3 | ** |
| Dorchester | 57.0 | ** | ** | ** | ** | 0.0 |
| Frederick | 39.5 | 52.8 | 27.1 | 40.3 | ** | ** |
| Garrett | 41.9 | ** | ** | 42.3 | 0.0 | 0.0 |
| Harford | 47.2 | 58.9 | 38.3 | 46.1 | ** | ** |
| Howard | 41.0 | 46.2 | 34.3 | 42.7 | ** | ** |
| Kent | ** | ** | ** | ** | ** | 0.0 |
| Montgomery | 33.3 | 38.5 | 29.2 | 32.8 | 34.3 | 28.3 |
| Prince George's | 41.7 | 47.7 | 37.7 | 40.9 | 40.1 | ** |
| Queen Anne's | 65.0 | 74.5 | ** | 67.3 | ** | 0.0 |
| Saint Mary's | 44.8 | 47.7 | 41.1 | 44.9 | ** | ** |
| Somerset | 63.7 | ** | ** | ** | ** | 0.0 |
| Talbot | 39.8 | ** | ** | ** | ** | 0.0 |
| Washington | 46.2 | 63.7 | 33.9 | 46.6 | ** | ** |
| Wicomico | 51.0 | 61.1 | 40.5 | 53.7 | ** | 0.0 |
| Worcester | 48.6 | 53.3 | 42.8 | 43.5 | ** | ** |

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

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

Source:  Maryland Cancer Registry

**Table 23.**
**Number of Colorectal Cancer Deaths**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 989 | 520 | 469 | 658 | 305 | 26 |
| | | | | | | |
| Allegany | 19 | 9 | 10 | 18 | <6 | <6 |
| Anne Arundel | 95 | 41 | 54 | 79 | s | <6 |
| Baltimore City | 152 | 85 | 67 | s | 103 | <6 |
| Baltimore County | 158 | 76 | 82 | 131 | s | <6 |
| Calvert | 18 | 10 | 8 | 14 | <6 | <6 |
| Caroline | 6 | <6 | <6 | s | <6 | <6 |
| Carroll | 31 | 13 | 18 | 29 | <6 | <6 |
| Cecil | 17 | 11 | 6 | 15 | <6 | <6 |
| Charles | 30 | 17 | 13 | 21 | s | <6 |
| Dorchester | 11 | <6 | s | 6 | <6 | <6 |
| Frederick | 36 | 14 | 22 | 31 | <6 | <6 |
| Garrett | 6 | <6 | <6 | <6 | <6 | <6 |
| Harford | 26 | 16 | 10 | 24 | <6 | <6 |
| Howard | 25 | 18 | 7 | 21 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 | <6 | <6 |
| Montgomery | 115 | 66 | 49 | 78 | 21 | 16 |
| Prince George's | 133 | 69 | 64 | s | 84 | <6 |
| Queen Anne's | 12 | s | <6 | 9 | <6 | <6 |
| Saint Mary's | 13 | 6 | 7 | 11 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 | <6 | <6 |
| Talbot | 11 | <6 | s | 8 | <6 | <6 |
| Washington | 30 | 19 | 11 | 27 | <6 | <6 |
| Wicomico | 24 | 16 | 8 | 16 | s | <6 |
| Worcester | 13 | s | <6 | 12 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

**Table 24.**
**Colorectal Cancer Age-Adjusted Mortality Rates***
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Others |
| Maryland | 17.5 | 22.2 | 14.1 | 15.7 | 24.1 | 11.0 |
| | | | | | | |
| Allegany | 18.5 | ** | ** | 17.8 | ** | ** |
| Anne Arundel | 20.7 | 19.4 | 20.7 | 19.9 | 31.5 | ** |
| Baltimore City | 23.1 | 34.4 | 16.5 | 17.9 | 26.5 | ** |
| Baltimore County | 16.7 | 19.6 | 14.4 | 16.2 | 19.9 | ** |
| Calvert | 23.3 | ** | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** | ** | ** |
| Carroll | 18.0 | ** | 18.3 | 17.5 | ** | ** |
| Cecil | 19.2 | ** | ** | ** | ** | ** |
| Charles | 31.9 | 55.7 | ** | 32.4 | ** | ** |
| Dorchester | ** | ** | ** | ** | ** | ** |
| Frederick | 18.5 | ** | 18.5 | 18.0 | ** | ** |
| Garrett | ** | ** | ** | ** | ** | ** |
| Harford | 11.9 | 16.1 | ** | 12.3 | ** | ** |
| Howard | 10.5 | 17.5 | ** | 12.2 | ** | ** |
| Kent | ** | ** | ** | ** | ** | ** |
| Montgomery | 11.7 | 16.6 | 8.5 | 9.9 | 17.5 | 14.9 |
| Prince George's | 20.0 | 24.6 | 16.5 | 17.2 | 23.4 | ** |
| Queen Anne's | ** | ** | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** | ** | ** |
| Washington | 18.2 | 27.3 | ** | 17.2 | ** | ** |
| Wicomico | 23.3 | 35.5 | ** | 19.8 | ** | ** |
| Worcester | ** | ** | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

# Table 25.
# Number of Colorectal Cancer Cases
# by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 12,811 | 6,362 | 6,438 | 9,073 | 3,205 | 441 | 92 |
| | | | | | | | |
| Allegany | 286 | 153 | 133 | 275 | s | <6 | 0 |
| Anne Arundel | 1,048 | 567 | 480 | 866 | 148 | 26 | 8 |
| Baltimore City | 1,593 | 743 | 848 | 609 | 961 | 17 | 6 |
| Baltimore County | 2,183 | 1,041 | 1,141 | 1,757 | 373 | 40 | 13 |
| Calvert | 203 | 94 | 108 | 167 | s | <6 | <6 |
| Caroline | 87 | 53 | 34 | 75 | 12 | 0 | 0 |
| Carroll | 410 | 208 | 202 | 394 | 12 | <6 | <6 |
| Cecil | 237 | 126 | 111 | 221 | s | <6 | <6 |
| Charles | 301 | 162 | 139 | 210 | 82 | <6 | <6 |
| Dorchester | 121 | 70 | 51 | 92 | 29 | 0 | 0 |
| Frederick | 505 | 261 | 243 | 464 | 32 | s | <6 |
| Garrett | 86 | 42 | 44 | s | <6 | 0 | 0 |
| Harford | 503 | 250 | 253 | 449 | 44 | s | <6 |
| Howard | 481 | 255 | 226 | 362 | 79 | s | <6 |
| Kent | 62 | 30 | 32 | 52 | 10 | 0 | 0 |
| Montgomery † | 1,810 | 863 | 945 | 1,354 | 242 | 192 | 22 |
| Prince George's † | 1,527 | 718 | 808 | 519 | 919 | 75 | 14 |
| Queen Anne's | 123 | 68 | 55 | 107 | s | <6 | <6 |
| Saint Mary's | 208 | 121 | 87 | 166 | 34 | s | <6 |
| Somerset | 70 | 42 | 28 | 47 | s | <6 | 0 |
| Talbot | 132 | 71 | 61 | 109 | 23 | 0 | 0 |
| Washington | 362 | 182 | 180 | 341 | 17 | <6 | <6 |
| Wicomico | 234 | 124 | 110 | 180 | 47 | s | <6 |
| Worcester | 170 | 92 | 78 | 141 | 20 | 9 | 0 |
| Unknown | 69 | 26 | 41 | s | 26 | <6 | 9 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

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

Source: Maryland Cancer Registry

# Table 26.
# Colorectal Cancer Age-Adjusted Incidence Rates*
# by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 46.4 | 53.7 | 40.9 | 44.7 | 50.8 | 37.5 |
| | | | | | | |
| Allegany | 58.3 | 75.0 | 46.6 | 57.6 | ** | ** |
| Anne Arundel | 44.2 | 53.6 | 36.9 | 42.2 | 57.7 | 44.4 |
| Baltimore City | 49.0 | 56.9 | 43.8 | 47.8 | 49.4 | 35.7 |
| Baltimore County | 47.9 | 54.1 | 43.3 | 45.8 | 60.7 | 32.8 |
| Calvert | 54.3 | 54.1 | 53.3 | 53.5 | 63.1 | ** |
| Caroline | 51.1 | 71.2 | 36.1 | 51.6 | ** | 0.0 |
| Carroll | 50.8 | 59.2 | 44.4 | 50.6 | ** | ** |
| Cecil | 53.1 | 61.1 | 46.0 | 52.3 | ** | ** |
| Charles | 60.3 | 77.7 | 48.3 | 58.2 | 64.3 | ** |
| Dorchester | 58.2 | 80.4 | 42.9 | 56.3 | 62.5 | 0.0 |
| Frederick | 53.1 | 65.2 | 44.8 | 53.0 | 56.1 | ** |
| Garrett | 46.4 | 50.4 | 43.3 | 46.1 | ** | 0.0 |
| Harford | 45.6 | 50.5 | 41.2 | 45.5 | 46.2 | ** |
| Howard | 42.8 | 50.9 | 36.9 | 42.0 | 50.9 | 31.0 |
| Kent | 43.9 | 48.9 | 39.2 | 42.8 | ** | 0.0 |
| Montgomery † | 37.9 | 42.6 | 34.4 | 36.6 | 42.8 | 34.8 |
| Prince George's † | 45.1 | 48.8 | 42.1 | 40.6 | 47.7 | 43.1 |
| Queen Anne's | 50.2 | 59.7 | 42.1 | 48.7 | ** | ** |
| Saint Mary's | 50.0 | 64.5 | 39.0 | 47.7 | 57.8 | ** |
| Somerset | 51.3 | 66.9 | 37.9 | 46.4 | 61.6 | ** |
| Talbot | 48.6 | 59.5 | 38.8 | 45.8 | 70.1 | 0.0 |
| Washington | 46.6 | 54.3 | 40.5 | 45.9 | 73.2 | ** |
| Wicomico | 49.2 | 62.0 | 40.1 | 47.8 | 49.5 | ** |
| Worcester | 45.8 | 53.5 | 39.1 | 44.0 | 44.8 | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual

   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

**Table 27.**
**Number of Colorectal Cancer Deaths**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 5,049 | 2,553 | 2,496 | 3,513 | 1,438 | 98 |
| | | | | | | |
| Allegany | 94 | 44 | 50 | 92 | <6 | <6 |
| Anne Arundel | 443 | 236 | 207 | 368 | 67 | 8 |
| Baltimore City | 743 | 345 | 398 | s | 466 | <6 |
| Baltimore County | 878 | 439 | 439 | 720 | 148 | 10 |
| Calvert | 91 | 45 | 46 | 72 | s | <6 |
| Caroline | 32 | 19 | 13 | 29 | <6 | <6 |
| Carroll | 176 | 80 | 96 | 164 | s | <6 |
| Cecil | 94 | 49 | 45 | 89 | <6 | <6 |
| Charles | 144 | 82 | 62 | 101 | s | <6 |
| Dorchester | 52 | 27 | 25 | 36 | s | <6 |
| Frederick | 185 | 86 | 99 | 166 | s | <6 |
| Garrett | 26 | 12 | 14 | 25 | <6 | <6 |
| Harford | 170 | 87 | 83 | 149 | s | <6 |
| Howard | 154 | 92 | 62 | 109 | 36 | 9 |
| Kent | 30 | 16 | 14 | 23 | s | <6 |
| Montgomery | 581 | 297 | 284 | 448 | 88 | 45 |
| Prince George's | 650 | 312 | 338 | 229 | 405 | 16 |
| Queen Anne's | 53 | 30 | 23 | 44 | s | <6 |
| Saint Mary's | 76 | 45 | 31 | 63 | s | <6 |
| Somerset | 19 | 13 | 6 | s | <6 | <6 |
| Talbot | 47 | 25 | 22 | 35 | s | <6 |
| Washington | 135 | 74 | 61 | 128 | s | <6 |
| Wicomico | 114 | 57 | 57 | 79 | s | <6 |
| Worcester | 62 | 41 | 21 | 55 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

## Table 28.
## Colorectal Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 18.6 | 22.7 | 15.7 | 17.3 | 24.6 | 9.1 |
| | | | | | | |
| Allegany | 18.8 | 21.6 | 18.0 | 19.0 | ** | ** |
| Anne Arundel | 19.6 | 23.8 | 16.2 | 18.7 | 27.6 | ** |
| Baltimore City | 22.8 | 27.5 | 19.9 | 20.6 | 24.7 | ** |
| Baltimore County | 19.0 | 23.2 | 15.9 | 18.2 | 26.3 | ** |
| Calvert | 25.7 | 28.5 | 23.4 | 24.5 | 35.6 | ** |
| Caroline | 19.2 | 26.1 | ** | 20.5 | ** | ** |
| Carroll | 22.3 | 24.1 | 20.5 | 21.6 | ** | ** |
| Cecil | 21.8 | 25.9 | 18.5 | 21.8 | ** | ** |
| Charles | 31.0 | 44.8 | 22.5 | 29.4 | 38.8 | ** |
| Dorchester | 25.1 | 32.4 | 20.3 | 22.4 | 34.1 | ** |
| Frederick | 20.0 | 21.1 | 18.4 | 19.5 | 29.7 | ** |
| Garrett | 13.8 | ** | ** | 13.4 | ** | ** |
| Harford | 16.1 | 17.9 | 14.1 | 15.7 | 21.8 | ** |
| Howard | 15.2 | 21.5 | 10.8 | 14.0 | 24.9 | ** |
| Kent | 22.1 | 27.5 | ** | 18.7 | ** | ** |
| Montgomery | 12.3 | 15.5 | 10.1 | 11.9 | 16.9 | 9.1 |
| Prince George's | 20.9 | 23.6 | 18.7 | 17.8 | 24.6 | 11.5 |
| Queen Anne's | 22.2 | 27.7 | 17.5 | 20.7 | ** | ** |
| Saint Mary's | 19.8 | 25.6 | 15.0 | 19.5 | ** | ** |
| Somerset | 13.9 | ** | ** | ** | ** | ** |
| Talbot | 15.9 | 19.8 | 13.1 | 13.4 | ** | ** |
| Washington | 17.1 | 23.0 | 13.1 | 16.8 | ** | ** |
| Wicomico | 23.8 | 28.9 | 20.0 | 20.9 | 35.2 | ** |
| Worcester | 16.1 | 23.0 | 10.1 | 16.4 | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Colorectal Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

Garrett

Allegany

Washington

Frederick

Carroll

Montgomery

Howard

Baltimore

Baltimore City

Harford

Cecil

Kent

Queen Anne's

Caroline

Anne Arundel

Talbot

Dorchester

Wicomico

Worcester

Somerset

Prince George's

Calvert

St. Mary's

Charles

## Legend

>25% above U.S. rate

10-25% above U.S. rate

Between 10% below and 10% above U.S. rate

10-25% below U.S. rate

>25% below U.S. rate
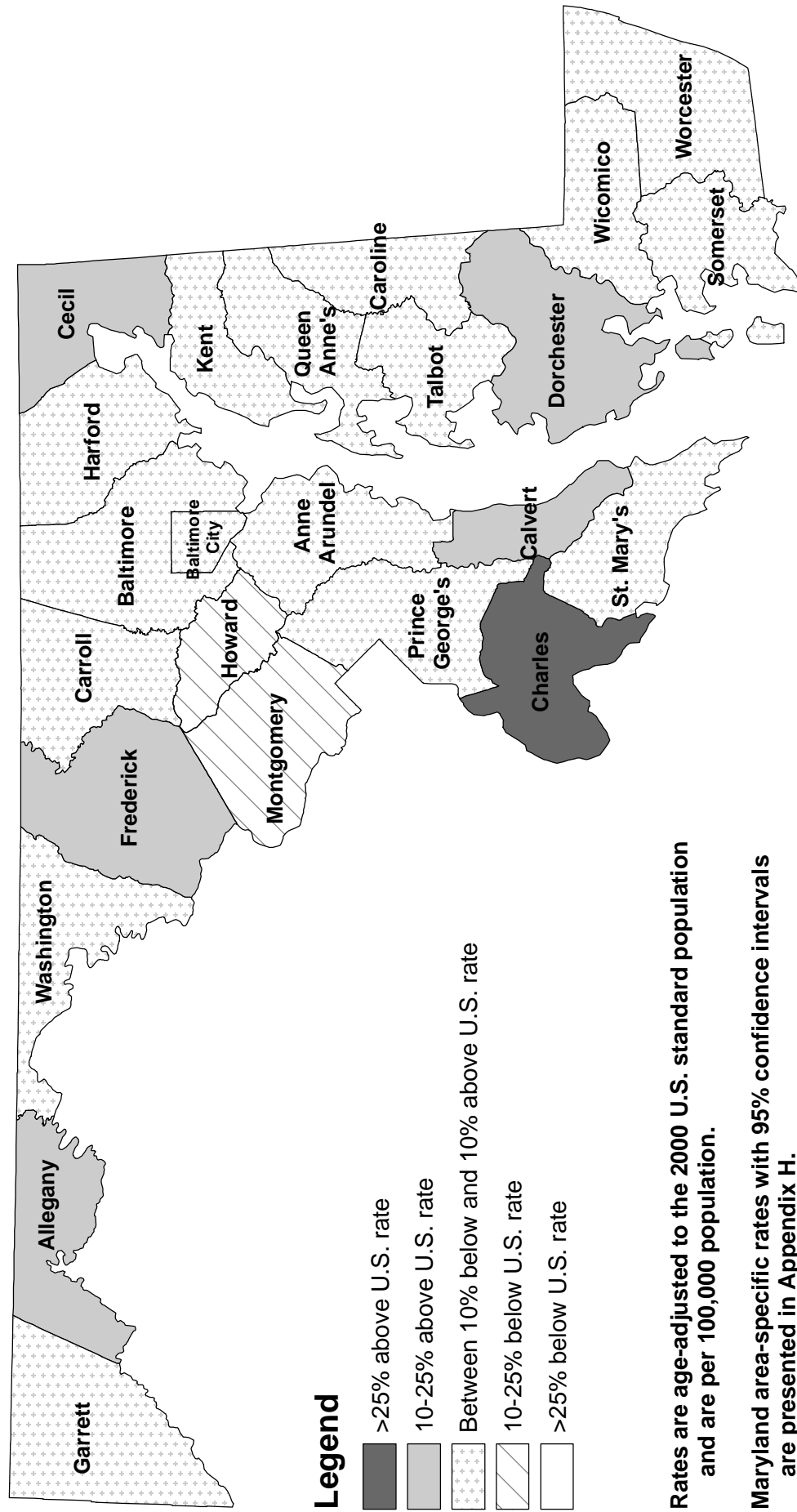
Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

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

U.S. colorectal cancer incidence rate, 2003-2007: 47.9/100,000

Maryland colorectal cancer incidence rate, 2003-2007: 46.4/100,000

Source: MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland Colorectal Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007



**Legend**

- ■ >25% above U.S. rate
- ▨ 10-25% above U.S. rate
- ▧ Between 10% below and 10% above U.S. rate
- ⧄ 10-25% below U.S. rate
- □ >25% below U.S. rate
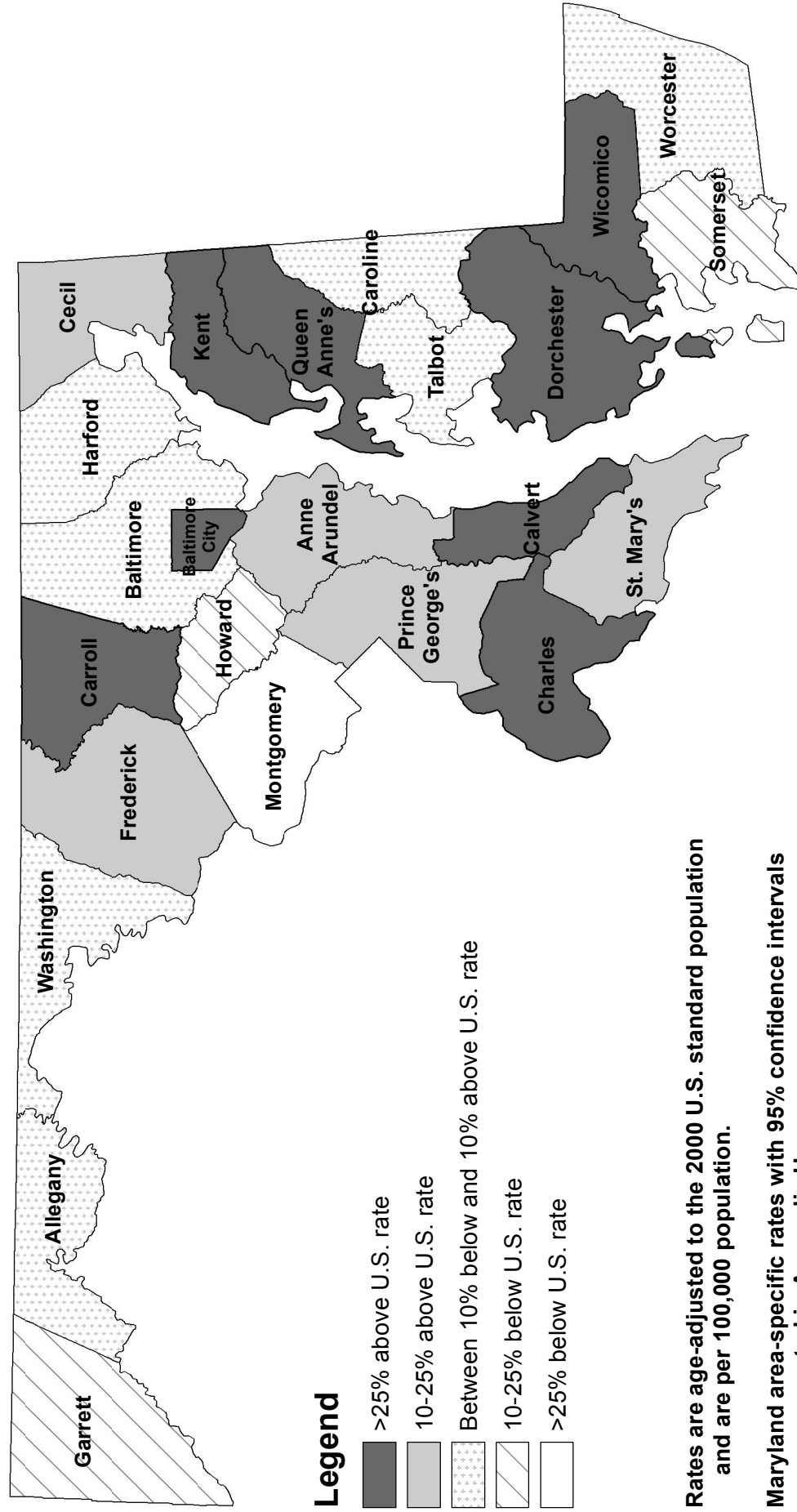
**Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.**

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

**U.S. colorectal cancer mortality rate, 2003-2007: 17.6/100,000**

**Maryland colorectal cancer mortality rate, 2003-2007: 18.6/100,000**

**Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER**

51

# C. Female Breast Cancer

## Incidence (New Cases)

In 2007, a total of 3,976 cases of breast cancer were reported among Maryland women. The 2007 age-adjusted incidence rate in Maryland was 123.2 per 100,000 women (119.4-127.2, 95% C.I.); this rate is similar to the 2007 U.S. SEER age-adjusted incidence rate for breast cancer of 123.4 per 100,000 women (122.3-124.4, 95% C.I.).

## Mortality (Deaths)

In 2007, a total of 814 women died of breast cancer in Maryland. Female breast cancer accounted for 8.0% of all cancer deaths in Maryland in 2007. Breast cancer is the second leading cause of cancer death among women in Maryland after lung cancer. The 2007 age-adjusted mortality rate for breast cancer in Maryland was 24.8 per 100,000 women (23.1-26.6, 95% C.I.). This rate is similar to the 2007 U.S. breast cancer mortality rate of 22.9 per 100,000 population of women (22.7-23.2, 95% C.I.). Maryland ranked 6th highest for female breast cancer mortality among the states and the District of Columbia for the period 2003-2007.

**Table 29.**
**Female Breast Incidence and Mortality Rates\***
**by Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Whites | Blacks | Other |
|---|---|---|---|---|
| New Cases (count) | 3,976 | 2,781 | 1,012 | 170 |
| MD Incidence Rate | 123.2 | 125.4 | 117.2 | 102.3 |
| U.S. SEER Rate | 123.4 | 126.3 | 120.7 | 90.8 |
| Mortality 2007 | Total | Whites | Blacks | Other |
| Deaths (count) | 814 | 535 | 266 | 13 |
| MD Mortality Rate | 24.8 | 22.8 | 32.4 | ** |
| U.S. Mortality Rate | 22.9 | 22.4 | 31.4 | 11.3 |

\* Rates are per 100,000 and are age-adjusted to 2000 U.S. standard population
\*\* MD mortality rates based on death counts of 0-15 are suppressed per DHMH/CCSC
    Mortality Data Suppression Policy
Sources: MD incidence data from Maryland Cancer Registry
            U.S. SEER rates from SEER*Stat software
            MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Female Breast Cancer Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**

Incidence:
133.4, 124.2, 118.6, 112.8, 123.2

Mortality:
26.8, 27.1, 25.8, 25.0, 24.8

Age-adjusted rate per 100,000 population

Year of Diagnosis or Death

···□··· Incidence    —◇— Mortality

Rates are age-adjusted to 2000 U.S. standard population
Sources:  Maryland Cancer Registry (incidence rates)
          NCHS Compressed Mortality File in CDC WONDER (mortality rates)

**Female Breast Cancer Incidence Rates by Race
Maryland, 2003-2007**

White:
136.3, 127.4, 121.1, 115.0, 125.4

Black:
118.6, 114.0, 108.7, 109.7, 117.2

Age-adjusted rate per 100,000 population

Year of Diagnosis

—□— White    —■— Black

Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry

54

**Female Breast Cancer Mortality Rates by Race
Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

| Year | White | Black |
|------|-------|-------|
| 2003 | 24.4 | 34.9 |
| 2004 | 25.6 | 32.9 |
| 2005 | 24.9 | 28.8 |
| 2006 | 23.7 | 30.2 |
| 2007 | 22.8 | 32.4 |

Year of Death

□ White    ■ Black

Rates are age-adjusted to 2000 U.S. standard population
Source: NCHS Compressed Mortality File in CDC WONDER

*Mortality Trends by Race*

Female breast cancer mortality rates declined from 2003 to 2007. Mortality rates in blacks decreased at a rate of 2.3% per year compared to whites who had a decrease of 2.1% per year.

See Appendix I, Table 5.

**Female Breast Cancer by Stage at Diagnosis
Maryland, 2003-2007**

Percent

◇ Localized    □ Regional
○ Distant      △ Unstaged

Year
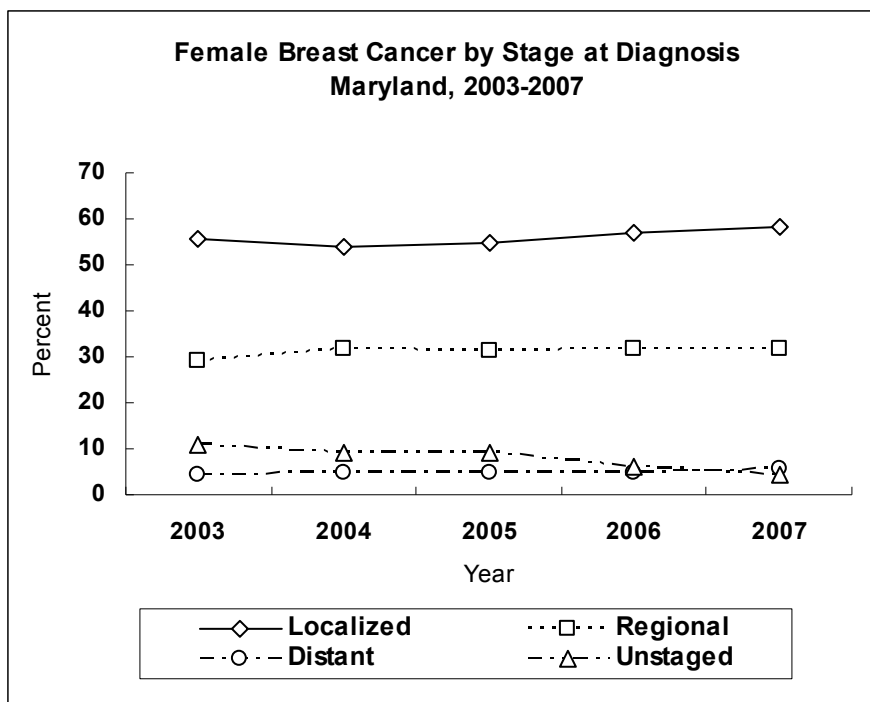
Source: Maryland Cancer Registry

*Stage of Disease at Diagnosis*

In 2007, 58.4% of all female breast cancer cases in Maryland were diagnosed at the local stage, 31.6% were found at the regional stage, and 5.8% were diagnosed at the distant stage.

See Appendix J, Table 4.

**Percentage of Maryland Women Age 40 Years and Older
Having a Mammogram within Past 2 Years, 1995 - 2008
Compared to Healthy People 2010 Target**

| Year | Percent |
|------|---------|
| 1995 | 77% |
| 1996 | 80% |
| 1997 | 80% |
| 1998 | 79% |
| 1999 | 81% |
| 2000 | 82% |
| 2002 | 82% |
| 2004 | 79% |
| 2006 | 80% |
| 2008 | 77% |
| HP2010 | 70% |

Legend: □ Maryland  ■ HP 2010
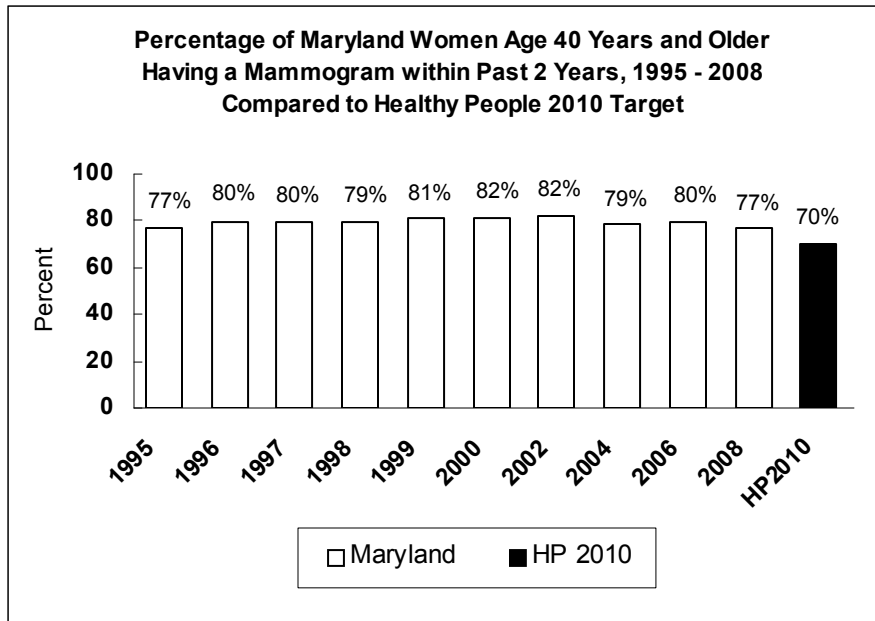
### Breast Cancer Screening

The Healthy People 2010 target for breast cancer is to increase to 70% the proportion of women age 40 years and older who received a mammogram within the preceding 2 years. Maryland women have consistently surpassed this target. In 2008, 77% of Maryland women age 40 years and older reported receiving a mammogram within the preceding 2 years.

Sources: Maryland BRFSS
Healthy People 2010, U.S. Department of Health and Human Services (2000)

56

## Public Health Evidence (quoted from NCI PDQ, 4/29/2010 and 4/9/2010; USPSTF Chemoprevention 7/2002, Screening 11/2009)

**Primary Prevention**

Factors associated with increased female breast cancer risk are: combination hormone therapy (HT) with estrogen-progestin (evidence for increased risk with estrogen only therapy is mixed); ionizing radiation; obesity in postmenopausal women who have not used HT; alcohol (dose-dependent association); inherited gene mutations associated with breast cancer. Solid evidence shows that exercising vigorously more than 4 hours per week and breast-feeding are associated with reduced breast cancer risk. It is uncertain whether reducing weight or decreasing alcohol exposure would decrease the risk of breast cancer.

**Screening**

Based on fair evidence, screening mammography in women aged 40-70 years decreases breast cancer mortality. The benefit is higher for older women, in part because their breast cancer risk is higher. Relative breast cancer-specific mortality is decreased by 15%-20%. Absolute mortality benefit for women screened annually starting at age 40 years is 4 per 10,000 at 10.7 years. The comparable mortality benefit for women screened annually starting at age 50 years is approximately 5 per 1,000. The United States Preventive Services Task Force (USPSTF) recommends that the decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take patient context into account, including the patient's values regarding specific benefits and harms. Based on solid evidence, screening mammography may lead to the following harms: treatment of insignificant cancers; additional testing; false sense of security and delay in cancer diagnosis; radiation-induced cell mutations that can cause breast cancer, especially if exposed before age 30 years. Based on fair evidence, screening by clinical breast examination reduces breast cancer mortality, but leads to additional testing and a false reassurance that may delay cancer diagnosis. Based on fair evidence, teaching breast self-examination (BSE) does not reduce breast cancer mortality; BSE leads to more breast biopsies and to the diagnosis of more benign breast lesions.

**Chemoprevention**

The USPSTF recommends against the routine use of tamoxifen or raloxifene (selective estrogen receptor modulators) for the primary prevention of breast cancer in women at low or average risk for breast cancer. The USPSTF recommends that clinicians discuss chemoprevention with women at high risk for breast cancer and at low risk for adverse effects of chemoprevention. Clinicians should inform patients of the potential benefits and harms of chemoprevention. Based on solid evidence for tamoxifen and fair evidence for raloxifene, treatment reduces the incidence of breast cancer in postmenopausal women. Tamoxifen also reduced the risk of breast cancer in high-risk premenopausal women. Treatment with tamoxifen reduced breast cancer by about 50%. Treatment with raloxifene has a similar effect on reduction of invasive breast cancer but appears to be less effective for prevention of noninvasive tumors. Based on solid evidence, tamoxifen treatment increases the risk of endometrial cancer, thrombotic vascular events (pulmonary embolism, stroke, deep venous thrombosis), and cataracts. Based on fair evidence, raloxifene also increases venous pulmonary embolism and deep venous thrombosis but not endometrial cancer. Aromatase inhibitors or inactivators reduce the incidence of new breast cancers in postmenopausal women who have a history of breast cancer but may cause decreased bone mineral density, increased falls, and decreased cognitive function.

| **Public Health Intervention for Breast Cancer (DHMH Breast Cancer Medical Advisory Committee, 2009)** |
| --- |
| Early detection of breast cancer:<br>➢ Screen using mammography and a clinical breast examination by a health professional, every 1-2 years for women age 40 years and older. |

**Table 30.**
**Number of Female Breast Cancer Cases**
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 3,976 | 2,781 | 1,012 | 170 | 13 |
| | | | | | |
| Allegany | 52 | s | 0 | <6 | 0 |
| Anne Arundel | 357 | 289 | 47 | 21 | 0 |
| Baltimore City | 395 | 122 | 266 | <6 | <6 |
| Baltimore County | 603 | 478 | 103 | s | <6 |
| Calvert | 67 | 56 | s | 0 | <6 |
| Caroline | 24 | s | <6 | 0 | 0 |
| Carroll | 137 | 134 | <6 | <6 | 0 |
| Cecil | 82 | s | <6 | 0 | 0 |
| Charles | 76 | 47 | s | <6 | 0 |
| Dorchester | 27 | 19 | 8 | 0 | 0 |
| Frederick | 146 | 133 | 7 | 6 | 0 |
| Garrett | 21 | 21 | 0 | 0 | 0 |
| Harford | 168 | 139 | s | <6 | <6 |
| Howard | 178 | 139 | 27 | 12 | 0 |
| Kent | 25 | s | <6 | 0 | 0 |
| Montgomery | 742 | 571 | 95 | s | <6 |
| Prince George's | 473 | 123 | 337 | s | <6 |
| Queen Anne's | 34 | 30 | <6 | <6 | 0 |
| Saint Mary's | 67 | 56 | s | <6 | 0 |
| Somerset | 19 | 13 | 6 | 0 | 0 |
| Talbot | 48 | 42 | <6 | <6 | 0 |
| Washington | 93 | 89 | <6 | <6 | 0 |
| Wicomico | 68 | 52 | s | <6 | 0 |
| Worcester | 54 | 43 | s | <6 | 0 |
| Unknown | 20 | 12 | s | 0 | <6 |

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

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

Source:  Maryland Cancer Registry

## Table 31.
## Female Breast Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 123.2 | 125.4 | 117.2 | 102.3 |
| | | | | |
| Allegany | 106.7 | 107.3 | 0.0 | ** |
| Anne Arundel | 125.2 | 120.1 | 129.6 | 208.0 |
| Baltimore City | 108.1 | 96.6 | 113.4 | ** |
| Baltimore County | 122.0 | 122.0 | 111.5 | 109.3 |
| Calvert | 142.4 | 143.0 | ** | 0.0 |
| Caroline | 125.2 | 124.8 | ** | 0.0 |
| Carroll | 144.2 | 146.7 | ** | ** |
| Cecil | 161.7 | 166.9 | ** | 0.0 |
| Charles | 109.7 | 105.0 | 120.4 | ** |
| Dorchester | 123.2 | 116.6 | ** | 0.0 |
| Frederick | 126.3 | 127.7 | ** | ** |
| Garrett | 106.3 | 107.0 | 0.0 | 0.0 |
| Harford | 126.0 | 118.9 | 205.8 | ** |
| Howard | 124.6 | 133.5 | 111.3 | ** |
| Kent | 182.6 | 198.7 | ** | 0.0 |
| Montgomery | 128.2 | 136.3 | 114.1 | 97.1 |
| Prince George's | 106.8 | 94.4 | 117.7 | ** |
| Queen Anne's | 120.4 | 120.0 | ** | ** |
| Saint Mary's | 138.0 | 140.9 | ** | ** |
| Somerset | 122.3 | ** | ** | 0.0 |
| Talbot | 170.5 | 179.1 | ** | ** |
| Washington | 110.4 | 110.6 | ** | ** |
| Wicomico | 125.3 | 125.5 | ** | ** |
| Worcester | 153.8 | 144.1 | ** | ** |

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

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

Source:  Maryland Cancer Registry

## Table 32.
## Number of Female Breast Cancer Deaths
## by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 814 | 535 | 266 | 13 |
| | | | | |
| Allegany | 12 | 11 | <6 | <6 |
| Anne Arundel | 78 | 64 | s | <6 |
| Baltimore City | 103 | s | 82 | <6 |
| Baltimore County | 120 | 95 | s | <6 |
| Calvert | 12 | 8 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 |
| Carroll | 22 | 21 | <6 | <6 |
| Cecil | 13 | s | <6 | <6 |
| Charles | 18 | 12 | s | <6 |
| Dorchester | <6 | <6 | <6 | <6 |
| Frederick | 31 | 28 | <6 | <6 |
| Garrett | 9 | s | <6 | <6 |
| Harford | 29 | 22 | s | <6 |
| Howard | 26 | 23 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 |
| Montgomery | 114 | 89 | s | <6 |
| Prince George's | 131 | s | 92 | <6 |
| Queen Anne's | 12 | 11 | <6 | <6 |
| Saint Mary's | 16 | s | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 |
| Talbot | 7 | 6 | <6 | <6 |
| Washington | 23 | 21 | <6 | <6 |
| Wicomico | 13 | 12 | <6 | <6 |
| Worcester | 13 | 10 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source: NCHS Compressed Mortality File in CDC WONDER

# Table 33.
## Female Breast Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 24.8 | 22.8 | 32.4 | ** |
| | | | | |
| Allegany | ** | ** | ** | ** |
| Anne Arundel | 28.3 | 27.4 | ** | ** |
| Baltimore City | 27.6 | 15.7 | 35.2 | ** |
| Baltimore County | 23.3 | 22.5 | 26.1 | ** |
| Calvert | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** |
| Carroll | 21.6 | 21.6 | ** | ** |
| Cecil | ** | ** | ** | ** |
| Charles | 26.4 | ** | ** | ** |
| Dorchester | ** | ** | ** | ** |
| Frederick | 26.5 | 26.6 | ** | ** |
| Garrett | ** | ** | ** | ** |
| Harford | 22.5 | 19.4 | ** | ** |
| Howard | 19.3 | 22.6 | ** | ** |
| Kent | ** | ** | ** | ** |
| Montgomery | 19.5 | 19.9 | 28.8 | ** |
| Prince George's | 30.5 | 25.3 | 33.6 | ** |
| Queen Anne's | ** | ** | ** | ** |
| Saint Mary's | 33.7 | 40.9 | ** | ** |
| Somerset | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** |
| Washington | 24.9 | 23.5 | ** | ** |
| Wicomico | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 34.**
**Number of Female Breast Cancer Cases**
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 19,176 | 13,613 | 4,676 | 727 | 160 |
| | | | | | |
| Allegany | 280 | 274 | <6 | <6 | 0 |
| Anne Arundel | 1,653 | 1,385 | 208 | 54 | 6 |
| Baltimore City | 1,902 | 733 | 1,121 | 30 | 18 |
| Baltimore County | 3,179 | 2,453 | 621 | 72 | 33 |
| Calvert | 266 | 229 | s | <6 | <6 |
| Caroline | 129 | 112 | s | <6 | 0 |
| Carroll | 616 | 586 | 19 | s | <6 |
| Cecil | 297 | 285 | s | <6 | 0 |
| Charles | 368 | 239 | 118 | s | <6 |
| Dorchester | 117 | 92 | s | <6 | 0 |
| Frederick | 779 | 708 | 47 | s | <6 |
| Garrett | 120 | 117 | <6 | 0 | <6 |
| Harford | 730 | 650 | 71 | s | <6 |
| Howard | 905 | 716 | 123 | 59 | 7 |
| Kent | 106 | 97 | 9 | 0 | 0 |
| Montgomery † | 3,488 | 2,671 | 437 | 341 | 39 |
| Prince George's † | 2,444 | 748 | 1,591 | 78 | 27 |
| Queen Anne's | 135 | 122 | s | <6 | 0 |
| Saint Mary's | 242 | 209 | 26 | 7 | 0 |
| Somerset | 74 | 52 | 22 | 0 | 0 |
| Talbot | 191 | 162 | s | <6 | 0 |
| Washington | 467 | 453 | 8 | 6 | 0 |
| Wicomico | 327 | 252 | 66 | <6 | <6 |
| Worcester | 247 | 205 | 30 | 12 | 0 |
| Unknown | 114 | 63 | 37 | <6 | s |

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

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

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

Source:  Maryland Cancer Registry

## Table 35.
## Female Breast Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction and Race, Maryland, 2003-2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 122.4 | 125.0 | 113.6 | 95.7 |
| | | | | |
| Allegany | 115.7 | 115.9 | ** | ** |
| Anne Arundel | 120.2 | 118.7 | 123.3 | 117.4 |
| Baltimore City | 102.8 | 113.8 | 95.4 | 96.2 |
| Baltimore County | 130.4 | 125.6 | 150.0 | 91.8 |
| Calvert | 119.8 | 122.2 | 111.2 | ** |
| Caroline | 143.5 | 147.1 | ** | ** |
| Carroll | 133.9 | 132.6 | 154.0 | ** |
| Cecil | 118.9 | 121.0 | ** | ** |
| Charles | 109.3 | 104.8 | 118.1 | ** |
| Dorchester | 108.1 | 112.5 | 82.3 | ** |
| Frederick | 139.5 | 139.1 | 126.0 | 145.1 |
| Garrett | 125.2 | 122.8 | ** | 0.0 |
| Harford | 113.2 | 113.3 | 122.5 | ** |
| Howard | 129.6 | 136.5 | 113.6 | 85.5 |
| Kent | 159.0 | 173.0 | ** | 0.0 |
| Montgomery † | 128.1 | 133.8 | 113.0 | 97.6 |
| Prince George's † | 114.0 | 111.4 | 115.1 | 74.5 |
| Queen Anne's | 101.9 | 103.8 | ** | ** |
| Saint Mary's | 105.9 | 110.9 | 77.3 | ** |
| Somerset | 106.9 | 103.7 | 119.1 | 0.0 |
| Talbot | 141.3 | 139.5 | 150.1 | ** |
| Washington | 114.9 | 116.6 | ** | ** |
| Wicomico | 127.3 | 127.1 | 122.1 | ** |
| Worcester | 139.1 | 134.7 | 121.6 | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
  due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

# Table 36.
# Number of Female Breast Cancer Deaths
# by Jurisdiction and Race, Maryland, 2003-2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 4,110 | 2,784 | 1,259 | 67 |
| | | | | |
| Allegany | 75 | 72 | <6 | <6 |
| Anne Arundel | 352 | 294 | 52 | 6 |
| Baltimore City | 591 | s | 389 | <6 |
| Baltimore County | 659 | 531 | 121 | 7 |
| Calvert | 71 | 58 | s | <6 |
| Caroline | 23 | 20 | <6 | <6 |
| Carroll | 118 | 114 | <6 | <6 |
| Cecil | 62 | 60 | <6 | <6 |
| Charles | 92 | 63 | s | <6 |
| Dorchester | 18 | 15 | <6 | <6 |
| Frederick | 138 | 126 | s | <6 |
| Garrett | 35 | s | <6 | <6 |
| Harford | 157 | 134 | s | <6 |
| Howard | 120 | 98 | s | <6 |
| Kent | 21 | 17 | <6 | <6 |
| Montgomery | 567 | 428 | 114 | 25 |
| Prince George's | 622 | 182 | 425 | 15 |
| Queen Anne's | 41 | 36 | <6 | <6 |
| Saint Mary's | 55 | 49 | s | <6 |
| Somerset | 24 | 17 | s | <6 |
| Talbot | 31 | 25 | s | <6 |
| Washington | 110 | 107 | <6 | <6 |
| Wicomico | 77 | 61 | s | <6 |
| Worcester | 51 | 42 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

**Table 37.**
**Female Breast Cancer Age-Adjusted Mortality Rates***
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 25.9 | 24.3 | 31.8 | 9.7 |
| | | | | |
| Allegany | 25.6 | 24.9 | ** | ** |
| Anne Arundel | 26.1 | 25.6 | 31.2 | ** |
| Baltimore City | 31.0 | 27.2 | 33.2 | ** |
| Baltimore County | 25.4 | 24.6 | 30.6 | ** |
| Calvert | 34.0 | 33.6 | ** | ** |
| Caroline | 24.1 | 24.6 | ** | ** |
| Carroll | 25.5 | 25.5 | ** | ** |
| Cecil | 25.1 | 25.6 | ** | ** |
| Charles | 29.4 | 29.5 | 27.8 | ** |
| Dorchester | 15.4 | ** | ** | ** |
| Frederick | 25.0 | 24.8 | ** | ** |
| Garrett | 36.7 | 36.9 | ** | ** |
| Harford | 24.9 | 23.7 | 39.8 | ** |
| Howard | 18.8 | 20.3 | 19.0 | ** |
| Kent | 24.7 | 24.2 | ** | ** |
| Montgomery | 20.3 | 20.0 | 30.2 | 7.7 |
| Prince George's | 30.4 | 25.2 | 33.4 | ** |
| Queen Anne's | 31.2 | 31.5 | ** | ** |
| Saint Mary's | 24.8 | 26.7 | ** | ** |
| Somerset | 34.1 | 31.6 | ** | ** |
| Talbot | 20.7 | 19.4 | ** | ** |
| Washington | 25.0 | 25.2 | ** | ** |
| Wicomico | 28.8 | 29.5 | 28.4 | ** |
| Worcester | 26.7 | 25.9 | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data
   Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

# Maryland Female Breast Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007



**Legend**

- >25% above U.S. rate
- 10-25% above U.S. rate
- Between 10% below and 10% above U.S. rate
- 10-25% below U.S. rate
- >25% below U.S. rate
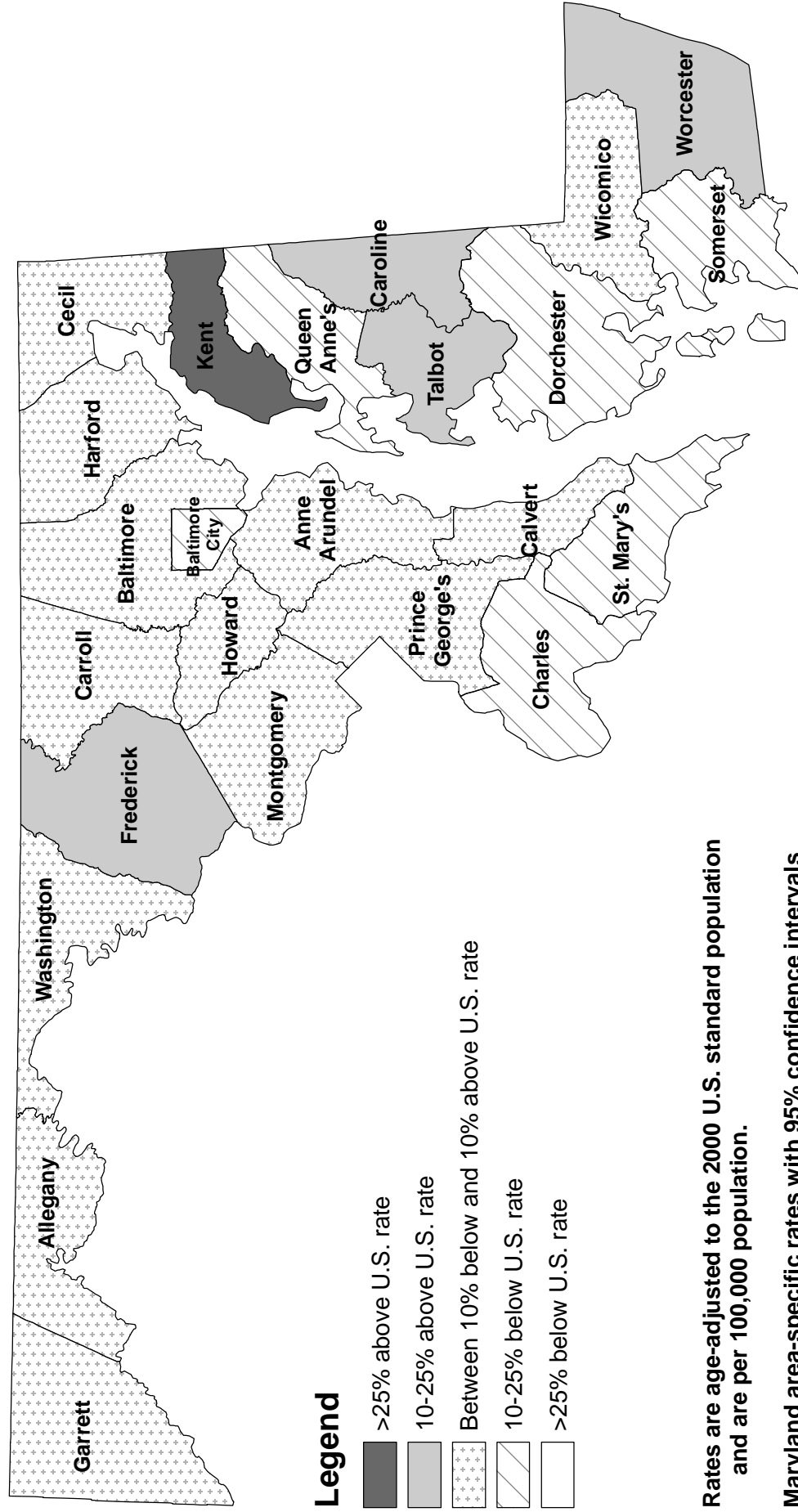
Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.

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

U.S. female breast cancer incidence rate, 2003-2007:  122.9/100,000

Maryland female breast cancer incidence rate, 2003-2007:  122.4/100,000

Source:  MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

66

# Maryland Female Breast Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Legend**

| | |
|---|---|
| ▓ | >25% above U.S. rate |
| ░ | 10-25% above U.S. rate |
| ⁛ | Between 10% below and 10% above U.S. rate |
| ▨ | 10-25% below U.S. rate |
| ☐ | >25% below U.S. rate |
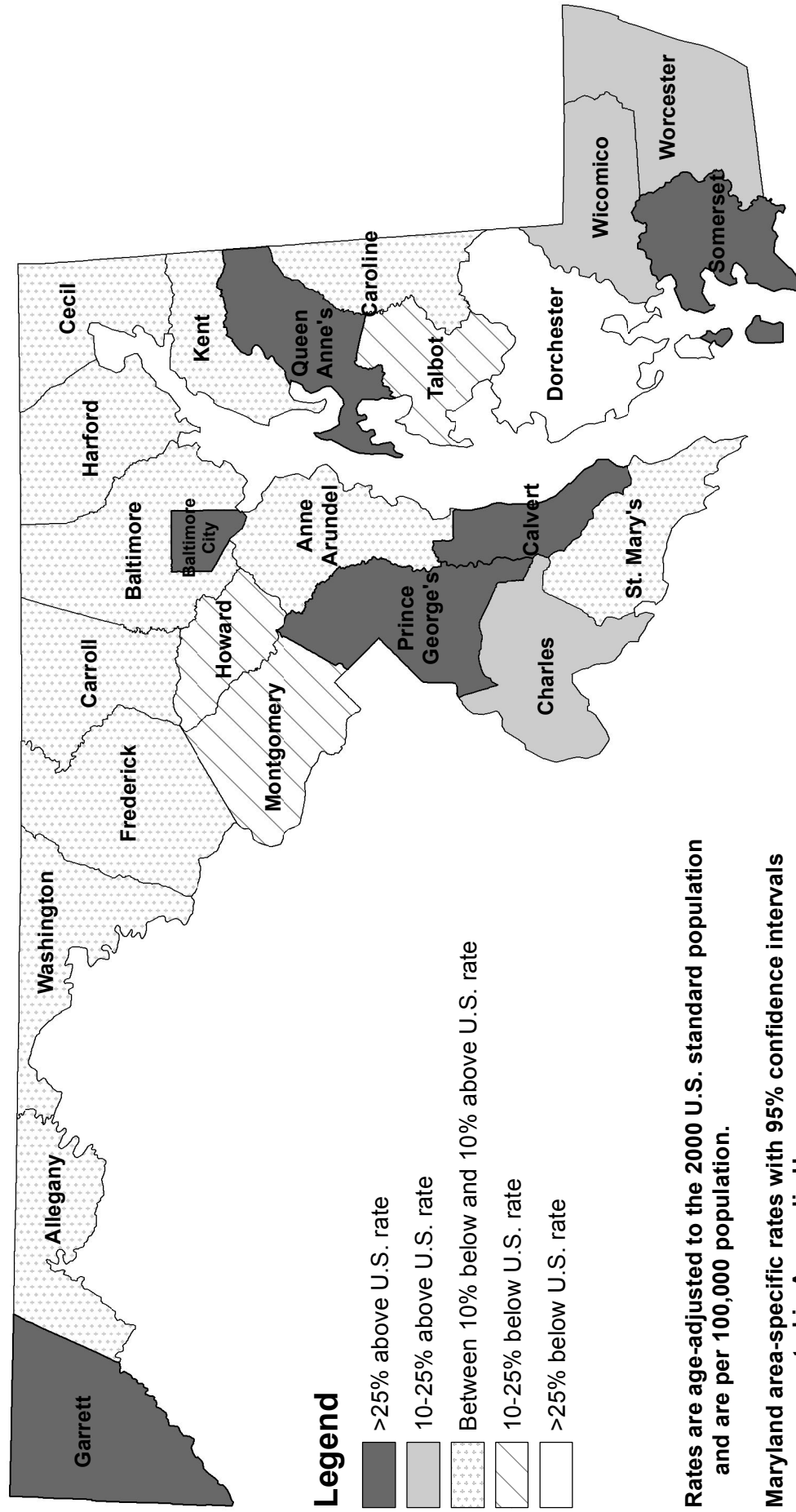
**Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.**

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

**U.S. female breast cancer mortality rate, 2003-2007: 24.0 /100,000**

**Maryland female breast cancer mortality rate, 2003-2007: 25.9/100,000**

**Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER**

# D. Prostate Cancer

## Incidence (New Cases)

In 2007, a total of 4,274 cases of prostate cancer were reported among men in Maryland. The age-adjusted prostate cancer incidence rate in Maryland for 2007 was 162.5 per 100,000 men (157.5-167.5, 95% C.I.); this is similar to the 2007 U.S. SEER age-adjusted incidence rate for prostate cancer of 159.8 per 100,000 men (158.5-161.2, 95% C.I.).

## Mortality (Deaths)

Prostate cancer is the second leading cause of cancer deaths among men in Maryland, after lung cancer. In 2007, 550 men died of prostate cancer in Maryland, accounting for 5.4% of all cancer deaths in Maryland. The 2007 age-adjusted mortality rate for prostate cancer in Maryland was 26.6 per 100,000 men (24.4-28.9, 95% C.I.). This rate is statistically significantly higher than the 2007 U.S. mortality rate for prostate cancer of 23.5 per 100,000 men (23.2-23.8, 95% C.I.). Maryland had the 11th highest mortality rate for prostate cancer among the states and the District of Columbia for the period 2003-2007.

**Table 38.**
**Prostate Cancer Incidence and Mortality Rates\***
**by Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Whites | Blacks | Other |
|---|---|---|---|---|
| New Cases (count) | 4,274 | 2,813 | 1,230 | 175 |
| MD Incidence Rate | 162.5 | 146.5 | 209.0 | 143.3 |
| U.S. SEER Rate | 159.8 | 151.9 | 227.8 | 88.0 |
| Mortality 2007 | Total | Whites | Blacks | Other |
| Deaths (count) | 550 | 367 | s | <6 |
| MD Mortality Rate | 26.6 | 23.0 | 45.3 | ** |
| U.S. Mortality Rate | 23.5 | 21.6 | 51.5 | 11.0 |

\* Rates are per 100,000 and are age-adjusted to 2000 U.S. standard population
 s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Table 41
<6 = MD death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy
** MD mortality rates based on death counts of 0-15 are suppressed per DHMH/CCSC
    Mortality Data Suppression Policy
Sources: MD incidence data from Maryland Cancer Registry
          U.S. SEER rates from SEER*Stat software
          MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Prostate Cancer Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**

| | | | | |
|---|---|---|---|---|
| 176.7 | 148.0 | 147.2 | 153.9 | 162.5 |
| 29.1 | 28.8 | 25.9 | 26.3 | 26.6 |

Age-adjusted rate per 100,000 population

Year of Diagnosis or Death

- - -□- - - Incidence    —◇— Mortality
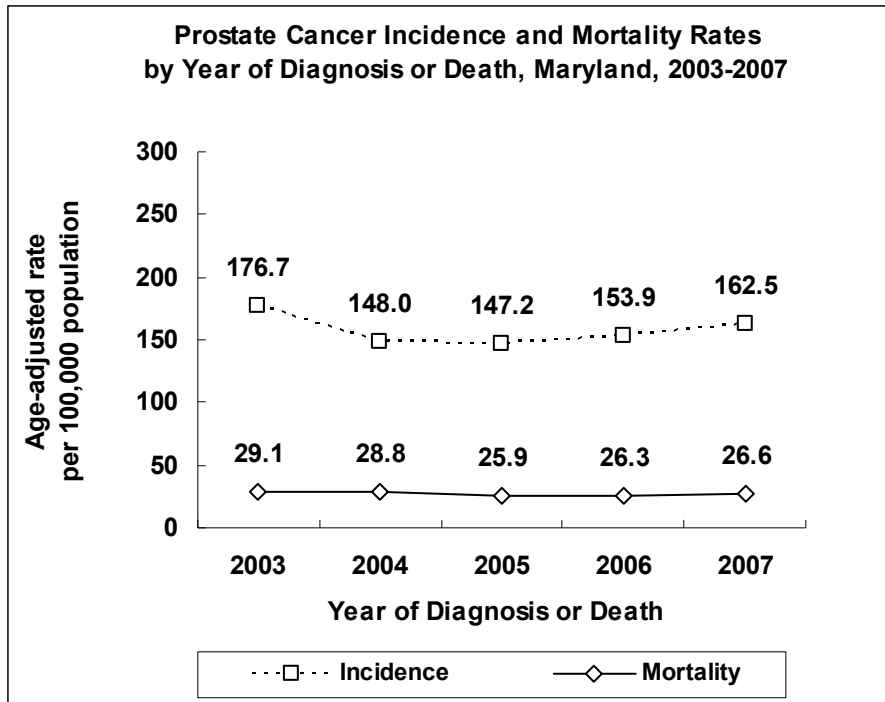
Rates are age-adjusted to 2000 U.S. standard population
Sources: Maryland Cancer Registry (incidence rates)
NCHS Compressed Mortality File in CDC WONDER (mortality rates)

### Incidence and Mortality Trends

The prostate cancer incidence rate in Maryland decreased at a rate of 1.3% per year from 2003 to 2007.

Prostate cancer mortality rates declined from 2003 to 2007, with a yearly decline of 2.7%.

See Appendix I, Tables 1 and 2.
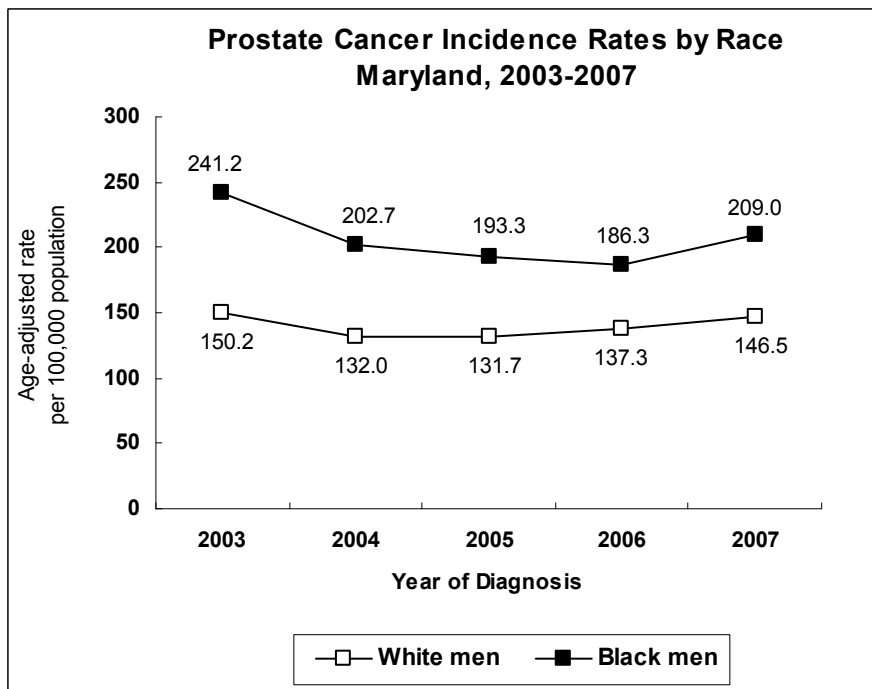
**Prostate Cancer Incidence Rates by Race
Maryland, 2003-2007**

| | | | | |
|---|---|---|---|---|
| 241.2 | 202.7 | 193.3 | 186.3 | 209.0 |
| 150.2 | 132.0 | 131.7 | 137.3 | 146.5 |

Age-adjusted rate per 100,000 population

Year of Diagnosis

—□— White men    —■— Black men

Rates are age-adjusted to 2000 U.S. standard population
Source: Maryland Cancer Registry

### Incidence Trends by Race

From 2003 to 2007, black men had consistently higher prostate cancer incidence rates than white men, although this disparity has been reduced over time.

Incidence rates for black men decreased at a rate of 3.6% per year during this 5-year period, while rates for white men held relatively steady (decrease of 0.1% per year).

See Appendix I, Table 3.
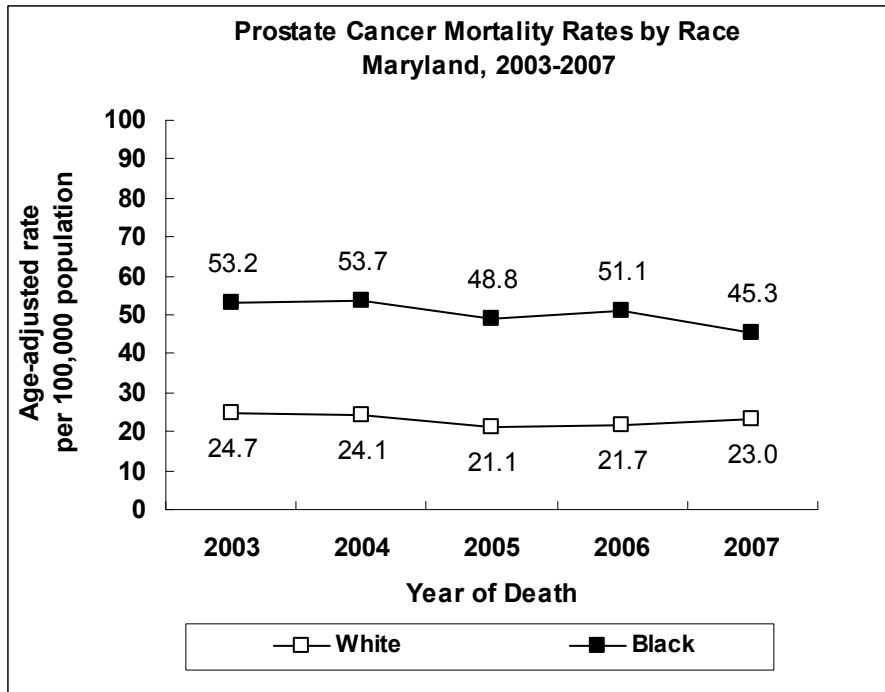
**Prostate Cancer Mortality Rates by Race**
**Maryland, 2003-2007**

Age-adjusted rate per 100,000 population

Black: 53.2, 53.7, 48.8, 51.1, 45.3

White: 24.7, 24.1, 21.1, 21.7, 23.0

Year of Death: 2003, 2004, 2005, 2006, 2007

—□— White    —■— Black

Rates are age-adjusted to 2000 U.S. standard population
Source: NCHS Compressed Mortality File in CDC WONDER

### Mortality Trends by Race

Prostate cancer mortality rates declined from 2003 to 2007. Mortality rates in blacks declined at a rate of 3.6% per year compared to whites with a decline of 2.4% per year. While a gap exists, the difference is smaller in 2007 as compared to 2003.

See Appendix I, Table 5.

**Prostate Cancer by Stage at Diagnosis**
**Maryland, 2003-2007**

Percent

Year: 2003, 2004, 2005, 2006, 2007

—◇— Localized    ···□··· Regional
—○— Distant    —△— Unstaged
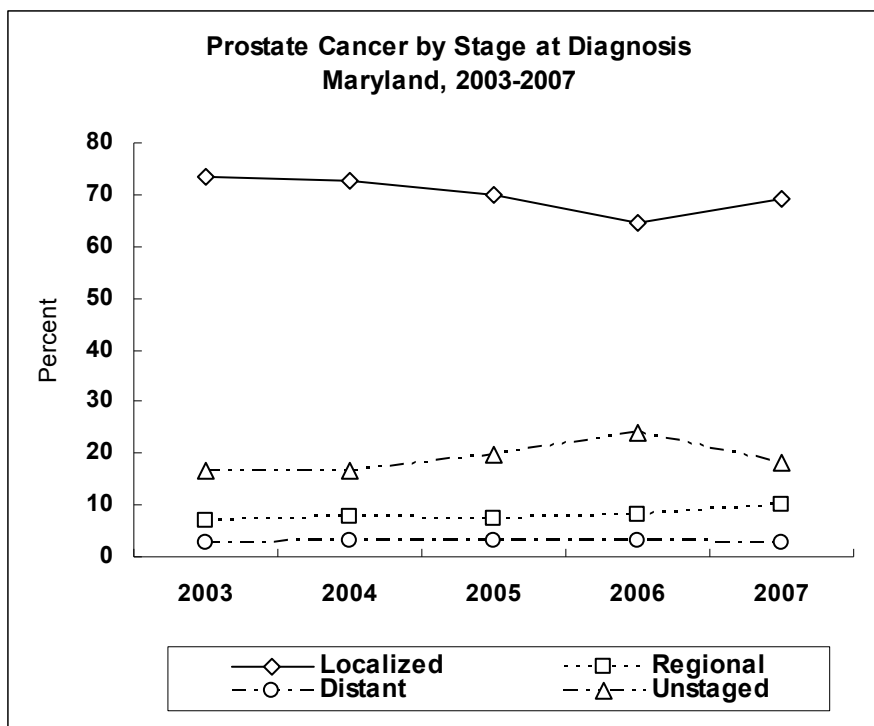
Source: Maryland Cancer Registry

### Stage at Diagnosis

Of prostate cancers diagnosed in Maryland in 2007, 69.1% were detected at the localized stage, 10% were found at the regional stage, and 2.7% were diagnosed at the distant stage.

See Appendix J, Table 5.

**Percentage of Maryland Men Age 50 Years and Older Having a Prostate-Specific Antigen (PSA) Test 1999-2008**

| Year | Ever had PSA | Had PSA in last year |
|------|--------------|----------------------|
| 1999 | 75% † | 58% † |
| 2001 | 79% † | 61% † |
| 2002 | 75% § | 61% § |
| 2004 | 78% § | 62% § |
| 2006 | 76% § | 58% § |
| 2008 | 76% § | 59% § |

□ Ever had PSA    ▨ Had PSA in last year
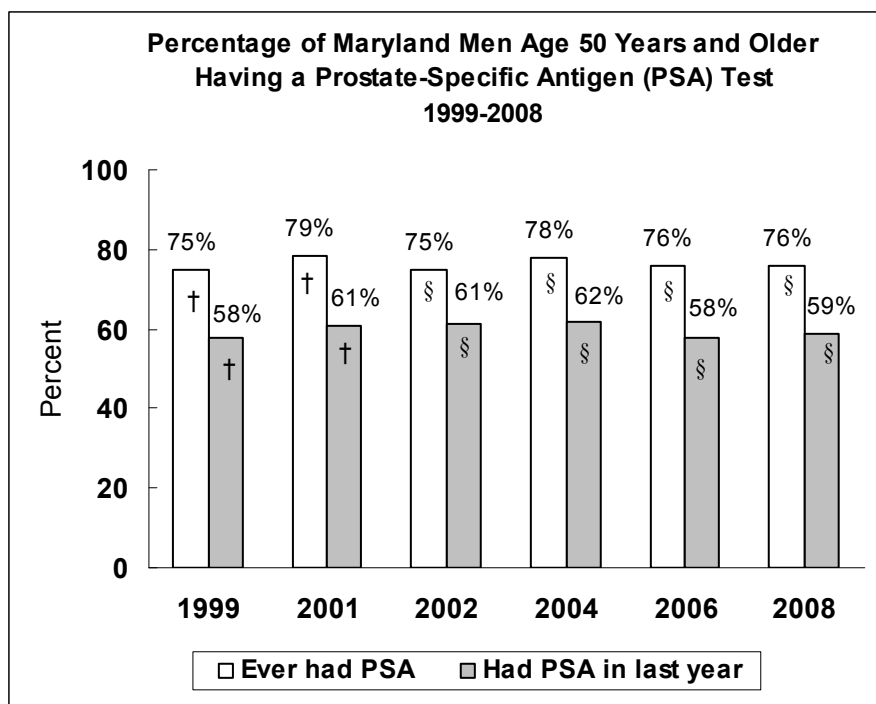
*Prostate-Specific Antigen Test*

There is no Healthy People 2010 objective for prostate cancer detection.

In 2008, 76% of Maryland men age 50 years and older reported that they have ever had a prostate-specific antigen (PSA) test, and 59% of men age 50 years and older had a PSA in the last year. Screening rates have been relatively stable from 1999 to 2008.

Note:  Graphic includes results from both the Maryland BRFSS and Maryland Cancer Survey.
        See Appendix C for a cautionary note on comparing these data.
Sources:  † Maryland BRFSS 1999 and 2001
            § Maryland Cancer Survey 2002, 2004, 2006, and 2008

## Public Health Evidence (quoted from NCI PDQ, 7/27/2009 and 9/3/2010, and USPSTF, 8/2008)

### Primary Prevention

The Selenium and Vitamin E Cancer Prevention Trial failed to demonstrate that these drugs reduce the period prevalence of prostate cancer.

### Screening

The prostate specific antigen (PSA) blood test and the digital rectal examination (DRE) are two commonly used screening tests to detect prostate cancer. The evidence is insufficient to determine whether screening for prostate cancer with DRE or PSA reduces mortality from prostate cancer. The USPSTF concluded that current evidence is insufficient to assess the balance of benefits and harms of screening for prostate cancer in men younger than age 75 years, and recommended against screening for prostate cancer in men age 75 years or older. Screening tests are able to detect prostate cancer at an early stage, but it is not clear whether this earlier detection and consequent earlier treatment leads to any change in the disease natural history and outcome of the disease. Observational evidence shows a trend toward lower mortality for prostate cancer in some countries, but the relationship between these trends and intensity of screening is not clear, and associations with screening patterns are inconsistent. The observed trends may be due to screening or factors such as improved treatment. Solid evidence indicates that screening with PSA and/or DRE detects some prostate cancers that would never have caused clinical problems. Thus, screening leads to some degree of overtreatment. Current prostate cancer treatments, including radical prostatectomy and radiation therapy, result in permanent side effects in many men, including erectile dysfunction, and urinary incontinence. The screening process itself can lead to adverse psychological effects in men who have a prostate biopsy but not prostate cancer; prostate biopsies are associated with complications.

### Chemoprevention

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

---

**Public Health Intervention for Prostate Cancer (DHMH Prostate Cancer Medical Advisory Committee, 2010)**

➢ On the basis of available data, men should be made aware of the availability of the PSA and DRE prostate cancer screening tests in order to make an informed choice about screening. Men ages 50-69 years with at least a 10-year life expectancy are most likely to benefit from screening.

➢ Clinicians should discuss with their patients the uncertainties and potential benefits and harms associated with prostate cancer screening and subsequent diagnosis and treatment, consider individual patient preferences, and individualize the decision to screen.

➢ Men may benefit from having a baseline PSA test *offered*, beginning at age 40 years of age. PSA screening thereafter would be guided by the results of baseline and subsequent screening tests, age, and risk factors of race, and family history.

**Table 39.**
**Number of Prostate Cancer Cases**
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 4,274 | 2,813 | 1,230 | 175 | 56 |
| | | | | | |
| Allegany | 56 | s | <6 | 0 | 0 |
| Anne Arundel | 348 | 299 | 44 | <6 | <6 |
| Baltimore City | 432 | 133 | 276 | s | <6 |
| Baltimore County | 572 | 401 | 134 | 30 | 7 |
| Calvert | 55 | 46 | 9 | 0 | 0 |
| Caroline | 24 | s | <6 | 0 | 0 |
| Carroll | 127 | 114 | 6 | s | <6 |
| Cecil | 68 | 61 | <6 | <6 | 0 |
| Charles | 109 | 70 | s | <6 | 0 |
| Dorchester | 25 | s | <6 | 0 | 0 |
| Frederick | 119 | 108 | 6 | <6 | <6 |
| Garrett | 27 | 27 | 0 | 0 | 0 |
| Harford | 186 | 159 | 22 | <6 | <6 |
| Howard | 170 | 120 | 32 | 12 | 6 |
| Kent | 33 | s | <6 | 0 | 0 |
| Montgomery | 812 | 582 | 144 | 66 | 20 |
| Prince George's | 622 | 157 | 434 | 21 | 10 |
| Queen Anne's | 51 | 43 | <6 | <6 | <6 |
| Saint Mary's | 80 | 69 | 11 | 0 | 0 |
| Somerset | 13 | s | <6 | 0 | 0 |
| Talbot | 60 | 54 | 6 | 0 | 0 |
| Washington | 144 | 136 | <6 | <6 | 0 |
| Wicomico | 60 | 37 | 23 | 0 | 0 |
| Worcester | 73 | 61 | 12 | 0 | 0 |
| Unknown | 8 | <6 | <6 | <6 | 0 |

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

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

Source:  Maryland Cancer Registry

74

# Table 40.
# Prostate Cancer Age-Adjusted Incidence Rates*
# by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 162.5 | 146.5 | 209.0 | 143.3 |
| | | | | |
| Allegany | 132.3 | 131.0 | ** | 0.0 |
| Anne Arundel | 139.7 | 138.7 | 160.3 | ** |
| Baltimore City | 162.3 | 124.4 | 175.8 | 423.7 |
| Baltimore County | 140.4 | 121.0 | 219.0 | 283.5 |
| Calvert | 147.2 | 145.9 | ** | 0.0 |
| Caroline | 160.3 | 158.0 | ** | 0.0 |
| Carroll | 154.2 | 146.1 | ** | ** |
| Cecil | 138.9 | 130.6 | ** | ** |
| Charles | 205.4 | 185.3 | 249.1 | ** |
| Dorchester | 127.3 | 129.7 | ** | 0.0 |
| Frederick | 129.5 | 130.2 | ** | ** |
| Garrett | 144.7 | 145.7 | 0.0 | 0.0 |
| Harford | 164.5 | 156.2 | 262.5 | ** |
| Howard | 139.5 | 126.9 | 184.2 | ** |
| Kent | 252.1 | 250.4 | ** | 0.0 |
| Montgomery | 176.5 | 167.9 | 260.8 | 111.8 |
| Prince George's | 189.9 | 133.1 | 233.3 | 133.1 |
| Queen Anne's | 204.5 | 194.4 | ** | ** |
| Saint Mary's | 190.8 | 194.6 | ** | 0.0 |
| Somerset | ** | ** | ** | 0.0 |
| Talbot | 240.3 | 242.4 | ** | 0.0 |
| Washington | 206.2 | 203.7 | ** | ** |
| Wicomico | 133.6 | 104.1 | 275.6 | 0.0 |
| Worcester | 211.7 | 198.4 | ** | 0.0 |

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

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

Source:  Maryland Cancer Registry

**Table 41.**
**Number of Prostate Cancer Deaths**
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 550 | 367 | s | <6 |
| | | | | |
| Allegany | 9 | 8 | <6 | <6 |
| Anne Arundel | 38 | 30 | s | <6 |
| Baltimore City | 87 | s | 61 | <6 |
| Baltimore County | 90 | 75 | s | <6 |
| Calvert | 8 | 6 | <6 | <6 |
| Caroline | 7 | 6 | <6 | <6 |
| Carroll | 15 | s | <6 | <6 |
| Cecil | 10 | 6 | <6 | <6 |
| Charles | 10 | 7 | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 |
| Frederick | 16 | 12 | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 |
| Harford | 26 | 24 | <6 | <6 |
| Howard | 18 | 13 | <6 | <6 |
| Kent | 6 | s | <6 | <6 |
| Montgomery | 67 | 55 | s | <6 |
| Prince George's | 78 | s | 54 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 |
| Saint Mary's | 11 | 8 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 |
| Talbot | 6 | <6 | <6 | <6 |
| Washington | 16 | 15 | <6 | <6 |
| Wicomico | 13 | 10 | <6 | <6 |
| Worcester | 8 | 7 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source: NCHS Compressed Mortality File in CDC WONDER

# Table 42.
## Prostate Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 26.6 | 23.0 | 45.3 | ** |
| | | | | |
| Allegany | ** | ** | ** | ** |
| Anne Arundel | 23.1 | 21.2 | ** | ** |
| Baltimore City | 37.6 | 26.5 | 46.9 | ** |
| Baltimore County | 24.1 | 22.7 | ** | ** |
| Calvert | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** |
| Cecil | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** |
| Frederick | 25.3 | ** | ** | ** |
| Garrett | ** | ** | ** | ** |
| Harford | 34.0 | 35.1 | ** | ** |
| Howard | 28.5 | ** | ** | ** |
| Kent | ** | ** | ** | ** |
| Montgomery | 17.8 | 18.2 | ** | ** |
| Prince George's | 37.4 | 23.7 | 54.9 | ** |
| Queen Anne's | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** |
| Washington | 25.4 | ** | ** | ** |
| Wicomico | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 43.**
**Number of Prostate Cancer Cases**
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 19,600 | 12,843 | 5,572 | 751 | 434 |
| | | | | | |
| Allegany | 284 | 267 | s | <6 | 0 |
| Anne Arundel | 1,727 | 1,433 | 238 | 27 | 29 |
| Baltimore City | 2,165 | 691 | 1,360 | 74 | 40 |
| Baltimore County | 2,958 | 2,109 | 623 | 169 | 57 |
| Calvert | 216 | 166 | 38 | <6 | s |
| Caroline | 100 | 79 | s | 0 | <6 |
| Carroll | 534 | 491 | 24 | s | <6 |
| Cecil | 311 | 277 | 17 | 9 | 8 |
| Charles | 417 | 268 | 130 | 11 | 8 |
| Dorchester | 120 | 82 | 34 | <6 | <6 |
| Frederick | 700 | 641 | 42 | 11 | 6 |
| Garrett | 112 | s | <6 | 0 | 0 |
| Harford | 873 | 738 | 97 | 27 | 11 |
| Howard | 743 | 521 | 155 | 42 | 25 |
| Kent | 117 | 96 | 16 | <6 | <6 |
| Montgomery † | 3,320 | 2,435 | 565 | 247 | 73 |
| Prince George's † | 2,702 | 716 | 1,807 | 88 | 91 |
| Queen Anne's | 194 | 165 | 23 | <6 | <6 |
| Saint Mary's | 294 | 225 | 50 | <6 | s |
| Somerset | 73 | 44 | 29 | 0 | 0 |
| Talbot | 211 | 165 | s | 0 | <6 |
| Washington | 561 | 530 | 22 | s | <6 |
| Wicomico | 280 | 196 | 81 | <6 | <6 |
| Worcester | 262 | 213 | 43 | <6 | <6 |
| Unknown | 326 | s | 98 | <6 | 37 |

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

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

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

Source: Maryland Cancer Registry

# Table 44.
# Prostate Cancer Age-Adjusted Incidence Rates*
# by Jurisdiction and Race, Maryland, 2003-2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 157.6 | 139.6 | 206.0 | 145.3 |
| | | | | |
| Allegany | 133.5 | 129.3 | ** | ** |
| Anne Arundel | 148.2 | 140.7 | 197.5 | 92.9 |
| Baltimore City | 164.7 | 131.5 | 177.3 | 332.7 |
| Baltimore County | 150.8 | 129.1 | 236.9 | 304.9 |
| Calvert | 124.1 | 111.5 | 162.2 | ** |
| Caroline | 128.4 | 118.6 | 178.5 | 0.0 |
| Carroll | 139.5 | 133.4 | 211.8 | ** |
| Cecil | 139.7 | 129.9 | 201.9 | ** |
| Charles | 168.5 | 146.9 | 219.3 | ** |
| Dorchester | 126.4 | 110.3 | 167.8 | ** |
| Frederick | 166.1 | 166.2 | 157.8 | ** |
| Garrett | 127.0 | 124.6 | ** | 0.0 |
| Harford | 166.3 | 154.8 | 249.4 | 309.5 |
| Howard | 131.4 | 116.4 | 206.1 | 98.0 |
| Kent | 185.1 | 177.6 | 180.0 | ** |
| Montgomery † | 157.0 | 149.9 | 242.6 | 97.9 |
| Prince George's † | 173.0 | 121.5 | 204.4 | 128.3 |
| Queen Anne's | 155.0 | 144.4 | 245.8 | ** |
| Saint Mary's | 151.2 | 137.0 | 192.0 | ** |
| Somerset | 117.8 | 97.7 | 184.6 | 0.0 |
| Talbot | 171.5 | 151.9 | 297.8 | 0.0 |
| Washington | 165.7 | 163.2 | 185.4 | ** |
| Wicomico | 132.4 | 117.1 | 203.1 | ** |
| Worcester | 150.1 | 137.8 | 230.4 | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
  due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

**Table 45.**
**Number of Prostate Cancer Deaths**
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 2,697 | 1,765 | 898 | 34 |
| | | | | |
| Allegany | 52 | 50 | <6 | <6 |
| Anne Arundel | 200 | 163 | s | <6 |
| Baltimore City | 433 | s | 309 | <6 |
| Baltimore County | 451 | 356 | s | <6 |
| Calvert | 50 | 41 | s | <6 |
| Caroline | 23 | 18 | <6 | <6 |
| Carroll | 70 | 67 | <6 | <6 |
| Cecil | 44 | 37 | s | <6 |
| Charles | 52 | 33 | s | <6 |
| Dorchester | 15 | s | <6 | <6 |
| Frederick | 83 | 70 | s | <6 |
| Garrett | 19 | 18 | <6 | <6 |
| Harford | 92 | 83 | s | <6 |
| Howard | 78 | 60 | s | <6 |
| Kent | 22 | 18 | <6 | <6 |
| Montgomery | 346 | 273 | 61 | 12 |
| Prince George's | 370 | 117 | 242 | 11 |
| Queen Anne's | 19 | 18 | <6 | <6 |
| Saint Mary's | 54 | 38 | s | <6 |
| Somerset | 22 | 14 | s | <6 |
| Talbot | 35 | 27 | s | <6 |
| Washington | 73 | 66 | s | <6 |
| Wicomico | 47 | 28 | s | <6 |
| Worcester | 47 | 39 | s | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

# Table 46.
## Prostate Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction and Race, Maryland, 2003-2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 27.3 | 22.9 | 50.2 | 9.9 |
| | | | | |
| Allegany | 26.0 | 25.7 | ** | ** |
| Anne Arundel | 25.5 | 23.6 | 46.6 | ** |
| Baltimore City | 37.3 | 23.3 | 50.0 | ** |
| Baltimore County | 25.0 | 22.2 | 59.8 | ** |
| Calvert | 40.1 | 38.2 | ** | ** |
| Caroline | 33.7 | 30.8 | ** | ** |
| Carroll | 24.9 | 24.6 | ** | ** |
| Cecil | 29.1 | 26.2 | ** | ** |
| Charles | 32.4 | 26.9 | 52.1 | ** |
| Dorchester | ** | ** | ** | ** |
| Frederick | 25.7 | 23.4 | ** | ** |
| Garrett | 24.5 | 23.1 | ** | ** |
| Harford | 24.8 | 24.7 | ** | ** |
| Howard | 24.0 | 23.3 | 44.4 | ** |
| Kent | 34.1 | 31.3 | ** | ** |
| Montgomery | 19.8 | 18.9 | 41.2 | ** |
| Prince George's | 37.0 | 24.4 | 54.1 | ** |
| Queen Anne's | 18.5 | 19.8 | ** | ** |
| Saint Mary's | 38.9 | 34.4 | 69.3 | ** |
| Somerset | 43.6 | ** | ** | ** |
| Talbot | 26.4 | 23.1 | ** | ** |
| Washington | 24.1 | 22.6 | ** | ** |
| Wicomico | 25.7 | 19.7 | 52.7 | ** |
| Worcester | 27.9 | 26.3 | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data
   Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Prostate Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

## Legend

- **>25% above U.S. rate**
- **10-25% above U.S. rate**
- **Between 10% below and 10% above U.S. rate**
- **10-25% below U.S. rate**
- **>25% below U.S. rate**
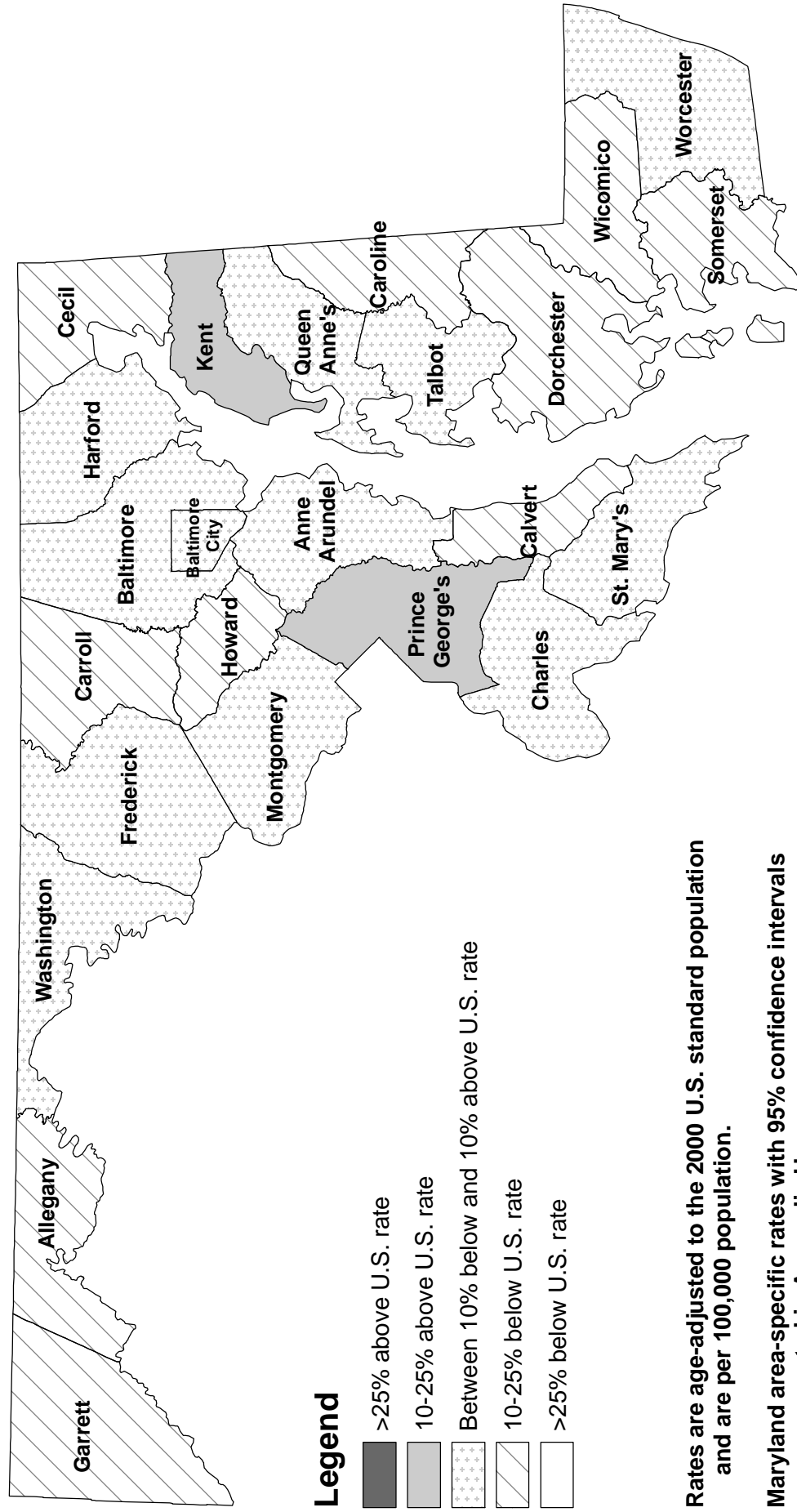
**Rates are age-adjusted to the 2000 U.S. standard population and are per 100,000 population.**

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

**U.S. prostate cancer incidence rate, 2003-2007:  156.9/100,000**

**Maryland prostate cancer incidence rate, 2003-2007:  157.6/100,000**

**Source:**  MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland Prostate Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

## Legend

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

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

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

U.S. prostate cancer mortality rate, 2003-2007: 24.6/100,000

Maryland prostate cancer mortality rate, 2003-2007: 27.3/100,000

Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER

# E. Oral Cancer

## Incidence (New Cases)

In 2007, a total of 572 cases of oral cavity and pharynx cancer (called oral cancer) were reported in Maryland.  The age-adjusted incidence rate for oral cancer in Maryland in 2007 was 9.6 per 100,000 population (8.8-10.4, 95% C.I.), which is similar to the 2007 U.S. SEER age-adjusted oral cancer incidence rate of 10.3 per 100,000 population (10.1-10.6, 95% C.I.).

## Mortality (Deaths)

In 2007, 148 persons in Maryland died of oral cancer.  The 2007 age-adjusted mortality rate of 2.5 per 100,000 population (2.1-2.9, 95% C.I.) in Maryland is similar to the 2007 U.S. oral cancer mortality rate of 2.5 per 100,000 (2.5-2.6, 95% C.I.).  Maryland ranked 23rd highest for oral cancer mortality among the states and the District of Columbia for the period 2003-2007.

**Table 47.**
**Oral Cancer Incidence and Mortality Rates***
**by Gender and Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Males | Females | Whites | Blacks | Other |
|---|---|---|---|---|---|---|
| New Cases (count) | 572 | 398 | 174 | 425 | 116 | s |
| MD Incidence Rate | 9.6 | 14.5 | 5.4 | 10.0 | 8.1 | 9.4 |
| U.S. SEER Rate | 10.3 | 15.5 | 5.9 | 10.6 | 9.6 | 7.0 |
| Mortality 2007 | Total | Males | Females | Whites | Blacks | Other |
| Deaths (count) | 148 | 101 | 47 | 105 | s | <6 |
| MD Mortality Rate | 2.5 | 3.9 | 1.5 | 2.5 | 2.8 | ** |
| U.S. Mortality Rate | 2.5 | 3.9 | 1.4 | 2.4 | 3.3 | 1.9 |

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

 s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Tables 48 and 50

<6 = MD death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

** MD mortality rates based on death counts of 0-15 are suppressed per DHMH/CCSC
    Mortality Data Suppression Policy

Sources:  MD incidence data from Maryland Cancer Registry
          U.S. SEER rates from SEER*Stat software
          MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Oral Cancer Incidence and Mortality Rates
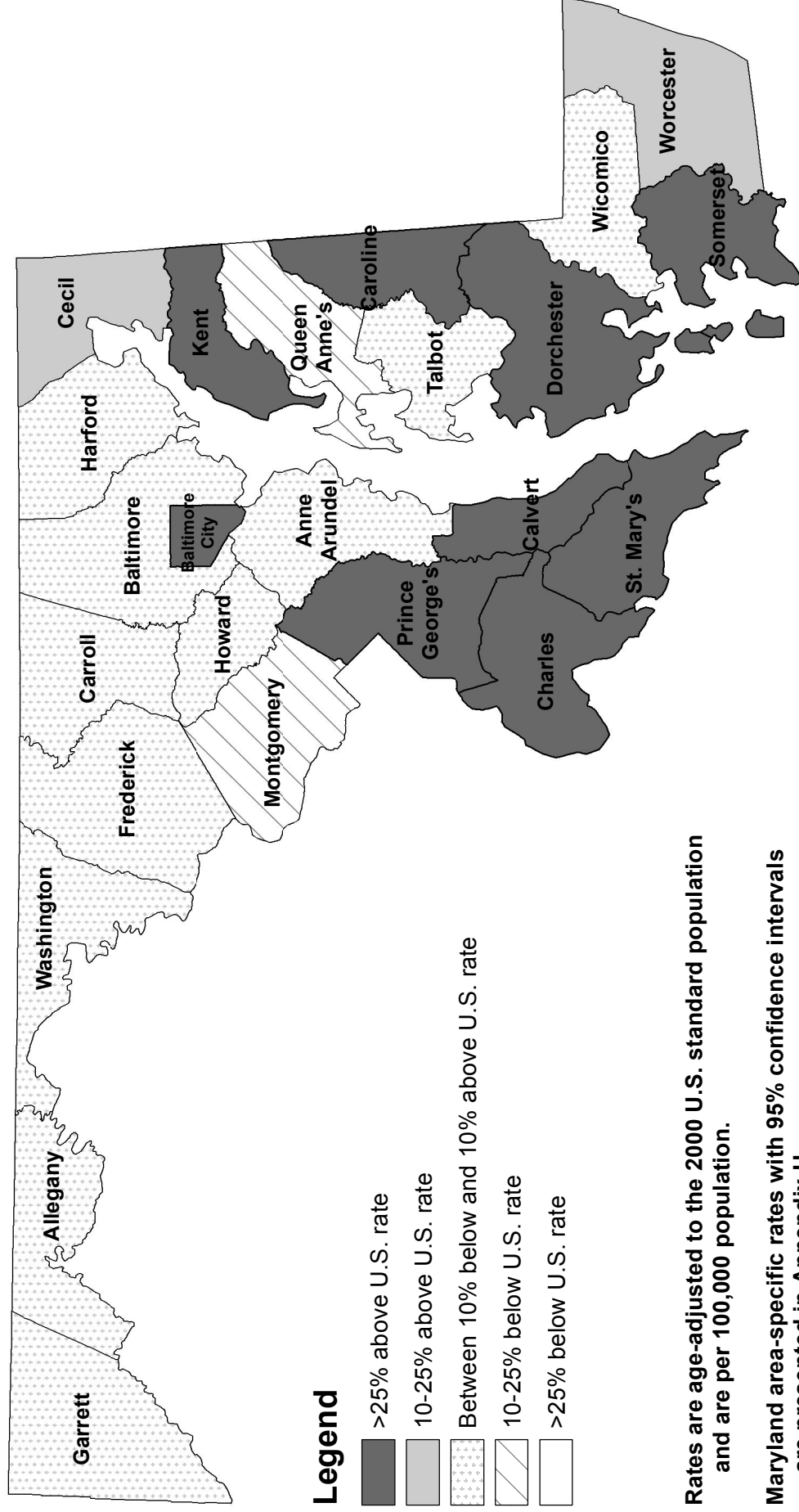by Year of Diagnosis or Death, Maryland, 2003-2007**
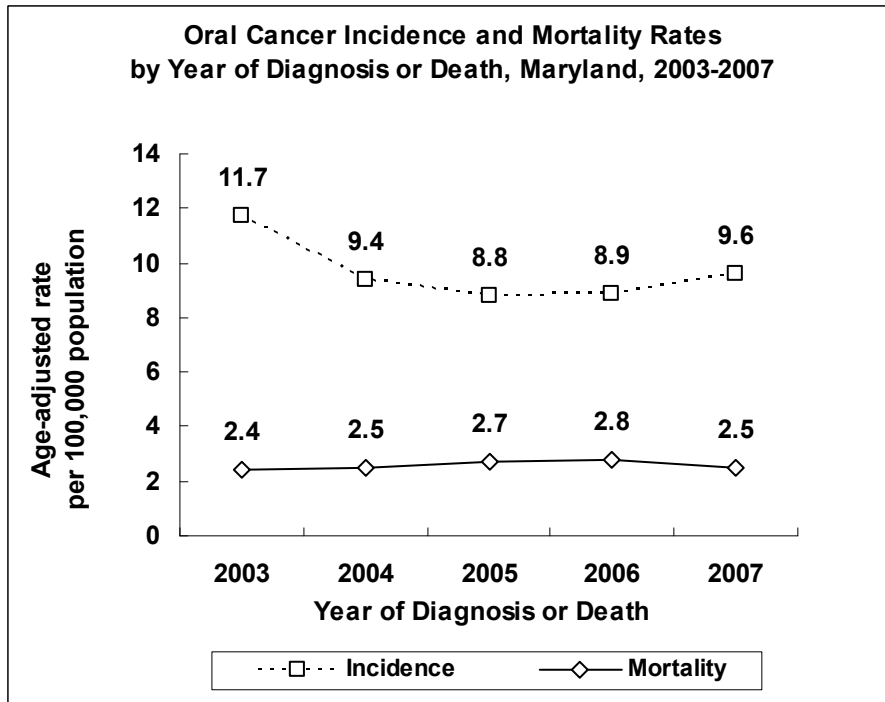


Rates are age-adjusted to 2000 U.S. standard population
Sources:  Maryland Cancer Registry (incidence rates)
          NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## Incidence and Mortality Trends

The incidence of oral cancer in Maryland decreased at a rate of 4.4% per year from 2003 to 2007.

Oral cancer mortality rates have increased from 2003 to 2007, with a rate increase of  2.0% annually.

See Appendix I, Tables 1 and 2.
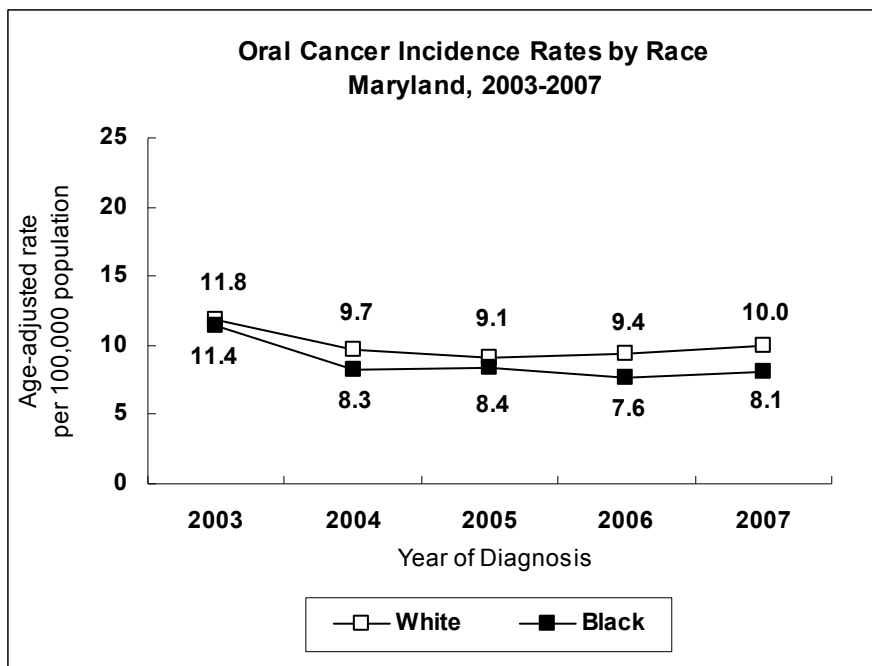
**Oral Cancer Incidence Rates by Race
Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry

## Incidence Trends by Race

Over the 5-year period from 2003 to 2007, oral cancer incidence rates in Maryland declined at a rate of 7.4% per year for blacks and 3.6% per year for whites.
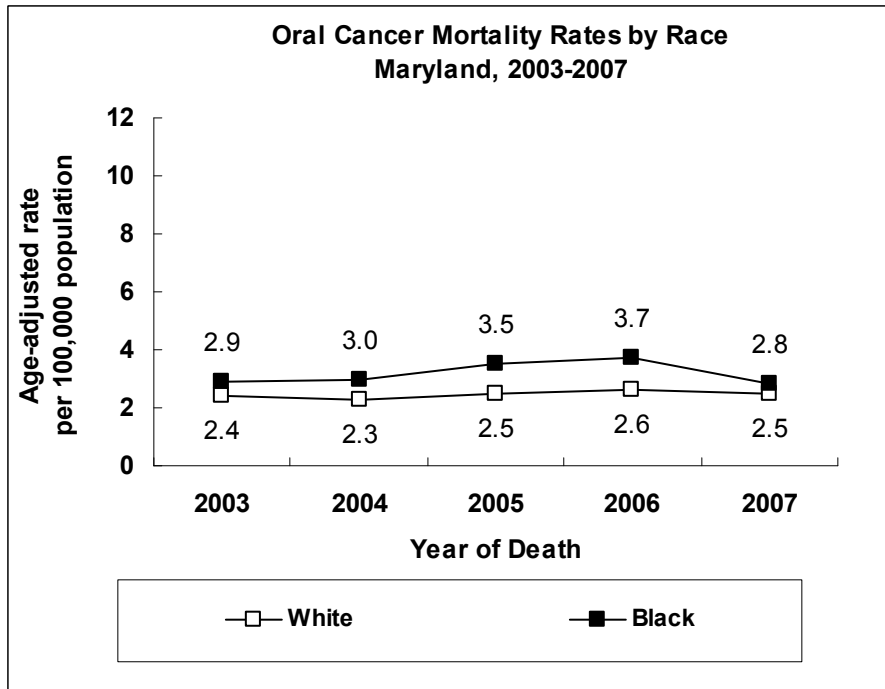
See Appendix I, Table 3.

86

**Oral Cancer Mortality Rates by Race**
**Maryland, 2003-2007**



*Mortality Trends by Race*

Oral cancer mortality rates are increasing for both blacks and whites. From 2003 to 2007, rates increased at a rate of 1.4% per year for blacks, and 2.1% per year for whites.

See Appendix I, Table 5.

Rates are age-adjusted to 2000 U.S. standard population
Source:  NCHS Compressed Mortality File in CDC WONDER
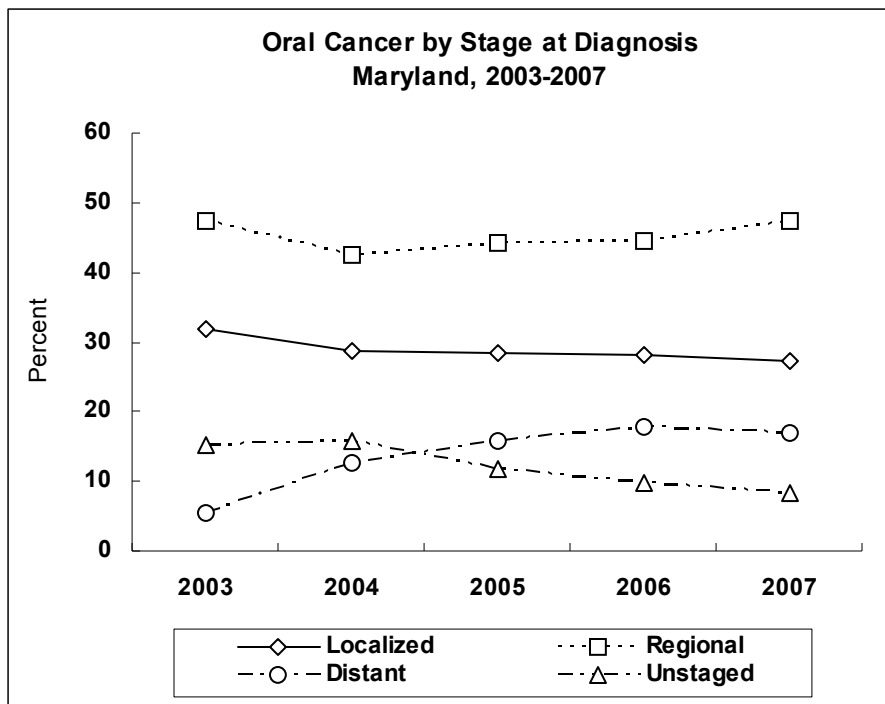

**Oral Cancer by Stage at Diagnosis**
**Maryland, 2003-2007**



*Stage at Diagnosis*

In 2007, 17.0% of oral cancers in Maryland were diagnosed at the distant stage, 47.4% were diag-nosed at the regional stage, and 27.3% were diagnosed at the localized stage.  The proportion of oral cancers reported as unstaged had decreased in recent years.

See Appendix J, Table 6.

Source:  Maryland Cancer Registry

87

## Percentage of Maryland Adults* Having an Oral Cancer Exam in Past 12 Months Compared to Healthy People 2010 Target 2002-2008

```
Percent
50
                                        40%
40          37%
    34%
33%
30
                                20%
20

10

 0
   2002   2004   2006   2008   HP 2010

    □ Maryland        ■ HP 2010
```
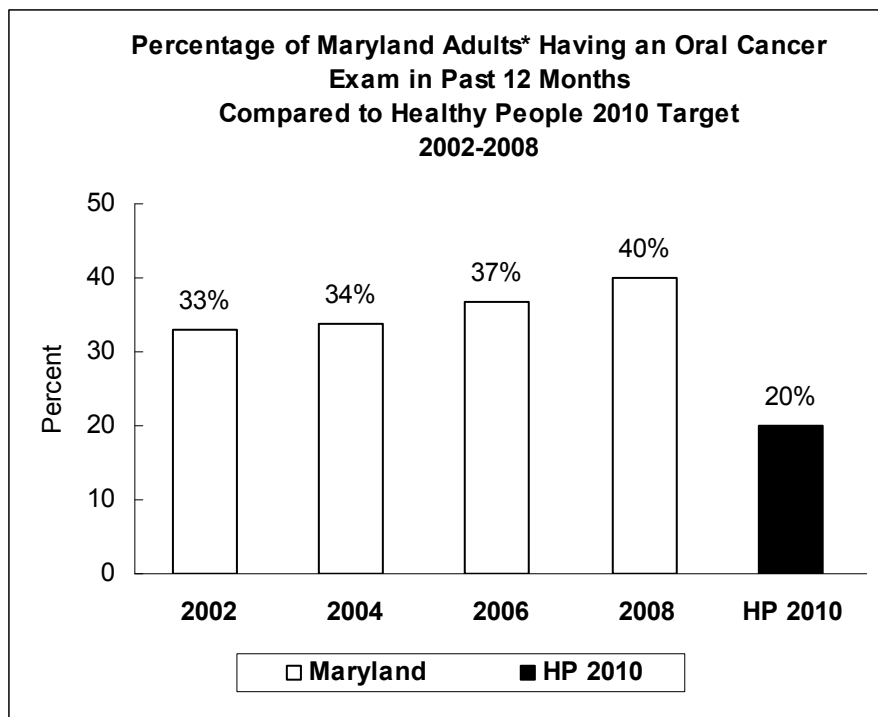
\* Adults age 40 years and older
Sources:  Maryland Cancer Survey
          Healthy People 2010, U.S. Department of Health and Human Services
          (2000)

## Oral Cancer Screening

The Healthy People 2010 target for oral cancer is to increase to 20% the proportion of adults age 40 years and older who report having had an oral cancer screening examination in the past 12 months to detect oral and pharynx cancer.

In the 2008 Maryland Cancer Survey, 40% of persons 40 years of age and older reported they had an oral cancer exam in the past year, again surpassing the Healthy People 2010 target.

## Public Health Evidence (quoted from NCI PDQ, 6/30/2009 and 6/30/2009, and USPSTF, 2/2004)

**Primary Prevention**

Tobacco use (including use of cigarettes, cigars, pipes, and smokeless or spit tobacco) causes oral cancer. Tobacco use is responsible for more than 90% of oral cancer among men and 60% among women, and is responsible for more than 90% of oral cancer-related deaths in males. Alcohol use is a second independent major risk factor for oral cancer. It is suggested that beer and hard liquor confer greater risk of oral cancer than wine. The combined use of tobacco and alcohol increases the risks for oral cancer more than either risk behavior alone. There appears to be an association between human papillomavirus (HPV) and oral cancer; however, the role of HPV remains unclear. Sun exposure represents an important risk factor for lip cancer along with chronic direct exposure to tobacco.

Avoidance or cessation of tobacco use (e.g., cigarettes, pipes, cigars, and smokeless tobacco) would lead to a decrease in oral cancer. A 50% reduction of oral cancer risk has been noted after 3 to 5 years of smoking cessation and a return to normal risk noted within 10 years of cessation. Although alcohol use is a risk factor for oral cancer, there is inadequate evidence that cessation of alcohol use decreases the risk of oral cancer. A diet high in fruits and fiber is associated with a decreased risk of oral and pharyngeal cancer, particularly among smokers; however, there is inadequate evidence to determine whether a *change* in diet decreases the risk of oral cancer. There is inadequate evidence to determine whether reducing sun exposure would prevent lip cancer. Sunscreen use has been associated with a lower incidence of skin cancers and thus may lower the incidence of lip cancer.

**Screening**

The routine examination of asymptomatic and symptomatic patients can lead to detection of earlier stage cancers and premalignant lesions; however, there is no definitive evidence to show this screening can reduce mortality. The United States Preventive Services Task Force (USPSTF) concluded that the evidence is insufficient to recommend for or against routinely screening adults for oral cancer. The USPSTF found no new good-quality evidence that screening for oral cancer leads to improved health outcomes for either high-risk adults (i.e., those over age 50 years who use tobacco) or for average-risk adults in the general population. It is unlikely that controlled trials of screening for oral cancer will ever be conducted in the general population because of the very low incidence of oral cancer in the U.S. There is also no new evidence for the harms of screening. As a result, the USPSTF could not determine the balance between benefits and harms of screening.

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

## Table 48.
## Number of Oral Cancer Cases
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 572 | 398 | 174 | 425 | 116 | s | <6 |
| | | | | | | | |
| Allegany | 10 | s | <6 | 10 | 0 | 0 | 0 |
| Anne Arundel | 72 | 54 | 18 | 64 | <6 | <6 | <6 |
| Baltimore City | 74 | 51 | 23 | s | 48 | <6 | 0 |
| Baltimore County | 83 | 50 | 33 | 69 | s | <6 | 0 |
| Calvert | 8 | s | <6 | 8 | 0 | 0 | 0 |
| Caroline | <6 | <6 | 0 | <6 | 0 | 0 | 0 |
| Carroll | 16 | s | <6 | s | 0 | 0 | <6 |
| Cecil | 10 | s | <6 | 10 | 0 | 0 | 0 |
| Charles | 11 | s | <6 | s | <6 | 0 | 0 |
| Dorchester | <6 | <6 | <6 | <6 | 0 | 0 | 0 |
| Frederick | 17 | s | <6 | s | <6 | 0 | 0 |
| Garrett | <6 | <6 | <6 | <6 | 0 | 0 | 0 |
| Harford | 29 | 20 | 9 | 26 | <6 | <6 | 0 |
| Howard | 28 | 15 | 13 | 19 | <6 | s | <6 |
| Kent | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Montgomery | 89 | 66 | 23 | 70 | 11 | 8 | 0 |
| Prince George's | 60 | 41 | 19 | 23 | 33 | <6 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 | 0 | 0 | 0 |
| Saint Mary's | 11 | s | <6 | 11 | 0 | 0 | 0 |
| Somerset | <6 | <6 | <6 | <6 | <6 | 0 | 0 |
| Talbot | 7 | <6 | <6 | 7 | 0 | 0 | 0 |
| Washington | 12 | s | <6 | s | 0 | <6 | 0 |
| Wicomico | <6 | <6 | 0 | <6 | 0 | 0 | 0 |
| Worcester | 9 | s | <6 | s | <6 | 0 | 0 |
| Unknown | <6 | <6 | <6 | <6 | 0 | 0 | 0 |

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

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

Source: Maryland Cancer Registry

## Table 49.
## Oral Cancer Age-Adjusted Incidence Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 9.6 | 14.5 | 5.4 | 10.0 | 8.1 | 9.4 |
| | | | | | | |
| Allegany | ** | ** | ** | ** | 0.0 | 0.0 |
| Anne Arundel | 12.9 | 20.1 | 6.5 | 13.3 | ** | ** |
| Baltimore City | 11.1 | 17.8 | 5.9 | 8.9 | 11.6 | ** |
| Baltimore County | 9.0 | 12.2 | 6.3 | 9.4 | ** | ** |
| Calvert | ** | ** | ** | ** | 0.0 | 0.0 |
| Caroline | ** | ** | 0.0 | ** | 0.0 | 0.0 |
| Carroll | 9.0 | ** | ** | ** | 0.0 | 0.0 |
| Cecil | ** | ** | ** | ** | 0.0 | 0.0 |
| Charles | ** | ** | ** | ** | ** | 0.0 |
| Dorchester | ** | ** | ** | ** | 0.0 | 0.0 |
| Frederick | 6.9 | ** | ** | 7.2 | ** | 0.0 |
| Garrett | ** | ** | ** | ** | 0.0 | 0.0 |
| Harford | 11.8 | 16.2 | ** | 11.6 | ** | ** |
| Howard | 10.5 | ** | ** | 10.1 | ** | ** |
| Kent | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Montgomery | 8.7 | 14.6 | 4.1 | 8.8 | ** | ** |
| Prince George's | 7.6 | 12.5 | 4.3 | 8.9 | 6.8 | ** |
| Queen Anne's | ** | ** | ** | ** | 0.0 | 0.0 |
| Saint Mary's | ** | ** | ** | ** | 0.0 | 0.0 |
| Somerset | ** | ** | ** | ** | ** | 0.0 |
| Talbot | ** | ** | ** | ** | 0.0 | 0.0 |
| Washington | ** | ** | ** | ** | 0.0 | ** |
| Wicomico | ** | ** | 0.0 | ** | 0.0 | 0.0 |
| Worcester | ** | ** | ** | ** | ** | 0.0 |

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

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

Source:  Maryland Cancer Registry

**Table 50.**
**Number of Oral Cancer Deaths**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 148 | 101 | 47 | 105 | s | <6 |
| | | | | | | |
| Allegany | <6 | <6 | <6 | <6 | <6 | <6 |
| Anne Arundel | 17 | s | <6 | s | <6 | <6 |
| Baltimore City | 27 | 19 | 8 | s | 21 | <6 |
| Baltimore County | 27 | 14 | 13 | 25 | <6 | <6 |
| Calvert | <6 | <6 | <6 | <6 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 | <6 | <6 |
| Carroll | <6 | <6 | <6 | <6 | <6 | <6 |
| Cecil | <6 | <6 | <6 | <6 | <6 | <6 |
| Charles | <6 | <6 | <6 | <6 | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 | <6 | <6 |
| Frederick | <6 | <6 | <6 | <6 | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 | <6 | <6 |
| Harford | 10 | s | <6 | s | <6 | <6 |
| Howard | <6 | <6 | <6 | <6 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 | <6 | <6 |
| Montgomery | 16 | s | <6 | 11 | <6 | <6 |
| Prince George's | 12 | s | <6 | <6 | 8 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 | <6 | <6 |
| Saint Mary's | <6 | <6 | <6 | <6 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 | <6 | <6 |
| Talbot | <6 | <6 | <6 | <6 | <6 | <6 |
| Washington | <6 | <6 | <6 | <6 | <6 | <6 |
| Wicomico | <6 | <6 | <6 | <6 | <6 | <6 |
| Worcester | <6 | <6 | <6 | <6 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

# Table 51.
# Oral Cancer Age-Adjusted Mortality Rates*
# by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 2.5 | 3.9 | 1.5 | 2.5 | 2.8 | ** |
| | | | | | | |
| Allegany | ** | ** | ** | ** | ** | ** |
| Anne Arundel | 3.5 | ** | ** | 4.0 | ** | ** |
| Baltimore City | 3.9 | 6.8 | ** | ** | 4.8 | ** |
| Baltimore County | 3.0 | ** | ** | 3.5 | ** | ** |
| Calvert | ** | ** | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** | ** | ** |
| Cecil | ** | ** | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** | ** | ** |
| Frederick | ** | ** | ** | ** | ** | ** |
| Garrett | ** | ** | ** | ** | ** | ** |
| Harford | ** | ** | ** | ** | ** | ** |
| Howard | ** | ** | ** | ** | ** | ** |
| Kent | ** | ** | ** | ** | ** | ** |
| Montgomery | 1.6 | ** | ** | ** | ** | ** |
| Prince George's | ** | ** | ** | ** | ** | ** |
| Queen Anne's | ** | ** | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** | ** | ** |
| Washington | ** | ** | ** | ** | ** | ** |
| Wicomico | ** | ** | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 52.**
**Number of Oral Cancer Cases**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 2,784 | 1,906 | 877 | 2,054 | 609 | 100 | 21 |
| | | | | | | | |
| Allegany | 48 | 33 | 15 | s | <6 | 0 | 0 |
| Anne Arundel | 290 | 216 | 74 | 259 | 21 | s | <6 |
| Baltimore City | 359 | 258 | 100 | s | 226 | <6 | 0 |
| Baltimore County | 432 | 283 | 149 | 351 | 68 | s | <6 |
| Calvert | 51 | 32 | 19 | s | <6 | 0 | 0 |
| Caroline | 13 | s | <6 | 13 | 0 | 0 | 0 |
| Carroll | 81 | 58 | 23 | 77 | <6 | <6 | <6 |
| Cecil | 56 | 42 | 14 | s | <6 | 0 | 0 |
| Charles | 64 | 43 | 21 | 48 | s | 0 | <6 |
| Dorchester | 14 | s | <6 | s | <6 | 0 | 0 |
| Frederick | 97 | 66 | 31 | 88 | <6 | <6 | <6 |
| Garrett | 14 | s | <6 | s | <6 | 0 | 0 |
| Harford | 132 | 89 | 43 | 119 | s | <6 | 0 |
| Howard | 103 | 66 | 37 | 81 | s | 14 | <6 |
| Kent | 20 | 12 | 8 | s | <6 | 0 | 0 |
| Montgomery † | 398 | 251 | 147 | 314 | s | 41 | <6 |
| Prince George's † | 310 | 209 | 101 | 128 | 170 | s | <6 |
| Queen Anne's | 27 | 16 | 11 | s | <6 | 0 | 0 |
| Saint Mary's | 59 | 40 | 19 | 48 | 7 | <6 | <6 |
| Somerset | 15 | s | <6 | 9 | <6 | <6 | 0 |
| Talbot | 27 | 14 | 13 | s | <6 | <6 | 0 |
| Washington | 72 | 57 | 15 | 69 | <6 | <6 | 0 |
| Wicomico | 44 | 36 | 8 | 34 | 10 | 0 | 0 |
| Worcester | 35 | 27 | 8 | 30 | <6 | <6 | 0 |
| Unknown | 23 | 15 | 8 | 17 | <6 | <6 | <6 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

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

Source: Maryland Cancer Registry

94

**Table 53.**
**Oral Cancer Age-Adjusted Incidence Rates***
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 9.6 | 14.5 | 5.6 | 10.0 | 8.7 | 7.6 |
| | | | | | | |
| Allegany | 10.6 | 15.9 | ** | 10.6 | ** | 0.0 |
| Anne Arundel | 11.0 | 17.5 | 5.4 | 11.4 | 7.5 | ** |
| Baltimore City | 10.9 | 18.4 | 5.1 | 10.4 | 11.1 | ** |
| Baltimore County | 9.7 | 14.2 | 6.1 | 9.7 | 10.4 | ** |
| Calvert | 11.9 | 16.1 | 8.5 | 13.7 | ** | 0.0 |
| Caroline | ** | ** | ** | ** | 0.0 | 0.0 |
| Carroll | 9.6 | 14.5 | 5.0 | 9.5 | ** | ** |
| Cecil | 11.5 | 17.6 | ** | 11.3 | ** | 0.0 |
| Charles | 10.5 | 13.8 | 7.2 | 10.8 | ** | 0.0 |
| Dorchester | ** | ** | ** | ** | ** | 0.0 |
| Frederick | 8.9 | 13.1 | 5.3 | 8.9 | ** | ** |
| Garrett | ** | ** | ** | ** | ** | 0.0 |
| Harford | 10.8 | 15.3 | 6.9 | 10.9 | ** | ** |
| Howard | 8.1 | 11.1 | 5.9 | 8.4 | ** | ** |
| Kent | 13.8 | ** | ** | 12.7 | ** | 0.0 |
| Montgomery † | 8.2 | 11.6 | 5.5 | 8.5 | 6.9 | 7.1 |
| Prince George's † | 8.3 | 12.5 | 5.0 | 10.0 | 7.4 | ** |
| Queen Anne's | 10.7 | 13.2 | ** | 11.5 | ** | 0.0 |
| Saint Mary's | 13.1 | 19.1 | 7.6 | 13.2 | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | 10.9 | ** | ** | 11.7 | ** | ** |
| Washington | 9.6 | 16.0 | ** | 9.7 | ** | ** |
| Wicomico | 9.3 | 16.6 | ** | 9.4 | ** | 0.0 |
| Worcester | 10.2 | 17.4 | ** | 10.0 | ** | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Table 54.
## Number of Oral Cancer Deaths
## by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 726 | 518 | 208 | 502 | 212 | 12 |
| | | | | | | |
| Allegany | 9 | <6 | <6 | s | <6 | <6 |
| Anne Arundel | 71 | 54 | 17 | 65 | s | <6 |
| Baltimore City | 146 | 112 | 34 | s | 102 | <6 |
| Baltimore County | 119 | 74 | 45 | 104 | s | <6 |
| Calvert | 10 | s | <6 | 9 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 | <6 | <6 |
| Carroll | 14 | s | <6 | s | <6 | <6 |
| Cecil | 18 | s | <6 | s | <6 | <6 |
| Charles | 17 | s | <6 | 10 | s | <6 |
| Dorchester | <6 | <6 | <6 | <6 | <6 | <6 |
| Frederick | 15 | 9 | 6 | 14 | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 | <6 | <6 |
| Harford | 32 | 21 | 11 | 31 | <6 | <6 |
| Howard | 20 | 10 | 10 | 13 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 | <6 | <6 |
| Montgomery | 76 | 53 | 23 | 58 | s | <6 |
| Prince George's | 83 | 62 | 21 | s | 49 | <6 |
| Queen Anne's | 10 | s | <6 | 8 | <6 | <6 |
| Saint Mary's | 9 | s | <6 | 7 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 | <6 | <6 |
| Talbot | <6 | <6 | <6 | <6 | <6 | <6 |
| Washington | 24 | 17 | 7 | 23 | <6 | <6 |
| Wicomico | 14 | s | <6 | 9 | <6 | <6 |
| Worcester | 11 | s | <6 | s | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

# Table 55.
# Oral Cancer Age-Adjusted Mortality Rates*
# by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 2.6 | 4.2 | 1.3 | 2.5 | 3.2 | ** |
| | | | | | | |
| Allegany | ** | ** | ** | ** | ** | ** |
| Anne Arundel | 3.0 | 5.3 | 1.3 | 3.1 | ** | ** |
| Baltimore City | 4.4 | 8.0 | 1.7 | 3.4 | 5.1 | ** |
| Baltimore County | 2.7 | 3.7 | 1.8 | 2.8 | ** | ** |
| Calvert | ** | ** | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** | ** | ** |
| Cecil | 4.0 | 7.8 | ** | 4.2 | ** | ** |
| Charles | 3.5 | ** | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** | ** | ** |
| Frederick | ** | ** | ** | ** | ** | ** |
| Garrett | ** | ** | ** | ** | ** | ** |
| Harford | 2.8 | 3.7 | ** | 3.0 | ** | ** |
| Howard | 1.9 | ** | ** | ** | ** | ** |
| Kent | ** | ** | ** | ** | ** | ** |
| Montgomery | 1.6 | 2.7 | 0.8 | 1.5 | ** | ** |
| Prince George's | 2.4 | 4.3 | 1.0 | 2.5 | 2.6 | ** |
| Queen Anne's | ** | ** | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** | ** | ** |
| Washington | 3.2 | 4.8 | ** | 3.2 | ** | ** |
| Wicomico | ** | ** | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Oral Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Northwest**

**Eastern Shore**

Harford

Carroll

Baltimore

Baltimore City

Anne Arundel

Howard

Montgomery

Prince George's

Calvert

St. Mary's

Charles

Frederick

98

**Legend**

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

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

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

U.S. oral cancer incidence rate, 2003-2007:  10.4/100,000

Maryland oral cancer incidence rate, 2003-2007:  9.6/100,000

Note:  Aggregated regional rates are used in comparisons when rates for one or more counties in that region are suppressed due to small numbers of cases or deaths.  (See Appendix C for methods.)

Source:  MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland Oral Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Eastern Shore**

**Baltimore Metro**

Baltimore City

**Prince George's**

**Southern**

**Montgomery**

**Northwest**

**Legend**

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

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

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

U.S. oral cancer mortality rate, 2003-2007: 2.5/100,000

Maryland oral cancer mortality rate, 2003-2007: 2.6/100,000

Note: Aggreated regional rates are used in comparisons when rates for one or more counties in that region are suppressed due to small numbers of cases or deaths. (See Appendix C for methods.)

Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER

# F. Melanoma of the Skin

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

## *Incidence (New Cases)*

In 2007, a total of 1,232 cases of melanoma of the skin were reported in Maryland. The age-adjusted incidence rate for melanoma for 2007 was 21.2 per 100,000 population (20.0-22.5, 95% C.I.). This Maryland incidence rate is similar to the 2007 U.S. SEER age-adjusted incidence rate for melanoma of 20.4 per 100,000 population (20.1-20.8, 95% C.I.).

## *Mortality (Deaths)*

In 2007, a total of 140 persons died of melanoma in Maryland. The 2007 age-adjusted mortality rate for melanoma in Maryland was 2.4 per 100,000 population (2.0-2.9, 95% C.I.). This rate is similar to the 2007 U.S. melanoma mortality rate of 2.7 per 100,000 population (2.6-2.7, 95% C.I.). Maryland ranked 32nd in the nation for melanoma mortality for the period 2003-2007.

**Table 56.**
**Melanoma Incidence and Mortality Rates***
**by Gender and Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Males | Females | Whites | Blacks | Other |
|---|---|---|---|---|---|---|
| New Cases (count) | 1,232 | 697 | 534 | 1,182 | 17 | 12 |
| MD Incidence Rate | 21.2 | 27.2 | 17.1 | 29.5 | 1.2 | ** |
| U.S. SEER Rate | 20.4 | 26.1 | 16.5 | 23.6 | 1.1 | 1.7 |
| Mortality 2007 | Total | Males | Females | Whites | Blacks | Other |
| Deaths (count) | 140 | 83 | 57 | 136 | <6 | <6 |
| MD Mortality Rate | 2.4 | 3.5 | 1.8 | 3.3 | ** | ** |
| U.S. Mortality Rate | 2.7 | 4.0 | 1.7 | 3.0 | 0.5 | 0.5 |

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

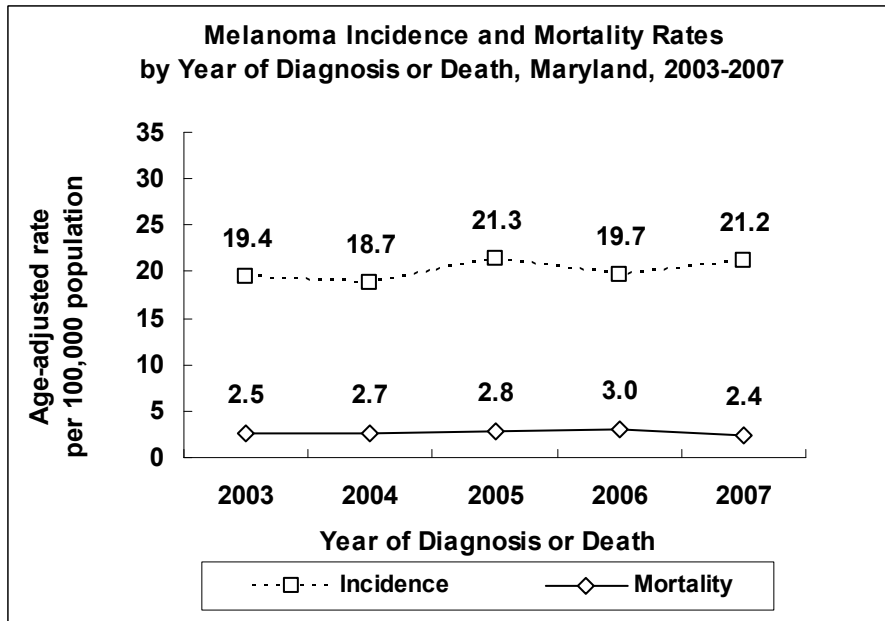Total includes cases reported as transsexual, hermaphrodite, or unknown gender

<6 = MD death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Sources: MD incidence data from Maryland Cancer Registry
U.S. SEER rates from SEER*Stat software
MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Melanoma Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
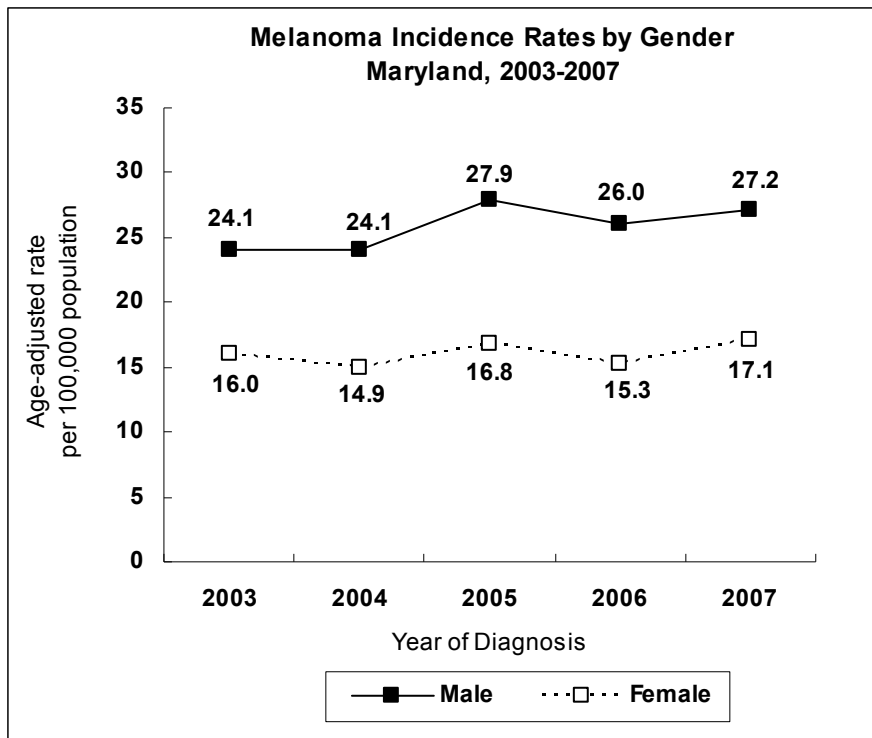Sources:  Maryland Cancer Registry (incidence rates)
　　　　　NCHS Compressed Mortality File in CDC WONDER (mortality rates)

*Incidence and Mortality Trends*

Melanoma incidence rates in Maryland increased at a rate of 2.3% yearly from 2003 to 2007.

Melanoma mortality rates increased at a rate of 0.2% per year from 2003 to 2007.

See Appendix I, Tables 1 and 2.

**Melanoma Incidence Rates by Gender
Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
Source:  Maryland Cancer Registry

*Incidence Trends by Gender*

Melanoma incidence rates are increasing for both males and females in Maryland. Over the period 2003 to 2007, incidence rates for males increased at a rate of 3.2% per year, and rates among females increased at a rate of  1.6% per year.  In 2007, melanoma incidence rates were almost 60% higher among males than females in Maryland.

See Appendix I, Table 4.
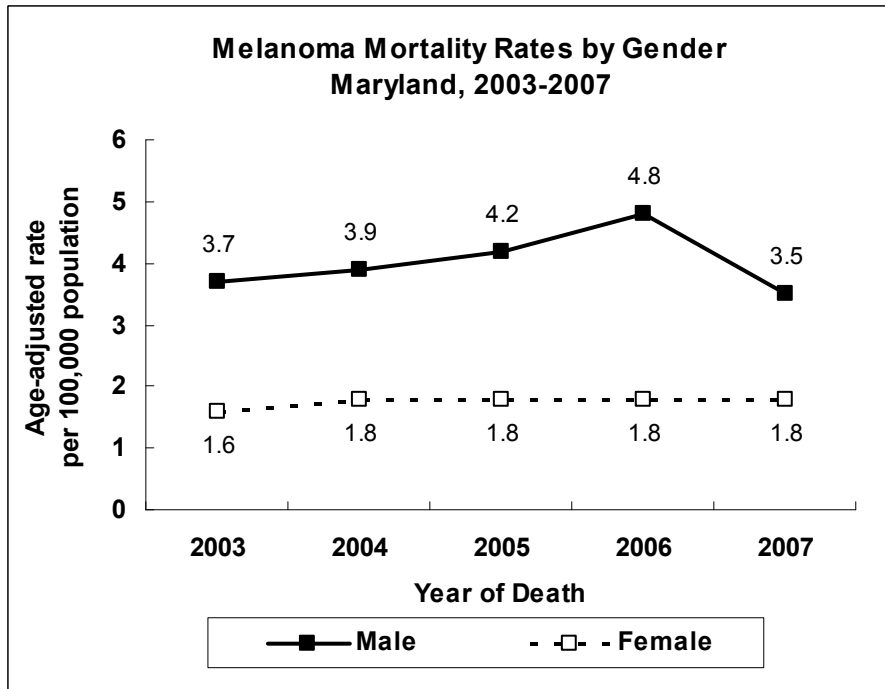
102

**Melanoma Mortality Rates by Gender
Maryland, 2003-2007**



Rates are age-adjusted to 2000 U.S. standard population
Source:  NCHS Compressed Mortality File in CDC WONDER

*Mortality Trends by Gender*

Melanoma mortality rates in males increased at a rate of 1.0% per year from 2003 to 2007.  Female melanoma mortality rates increased at a rate of 2.4% per year.

See Appendix I, Table 6.

**Melanoma by Stage at Diagnosis
Maryland, 2003-2007**
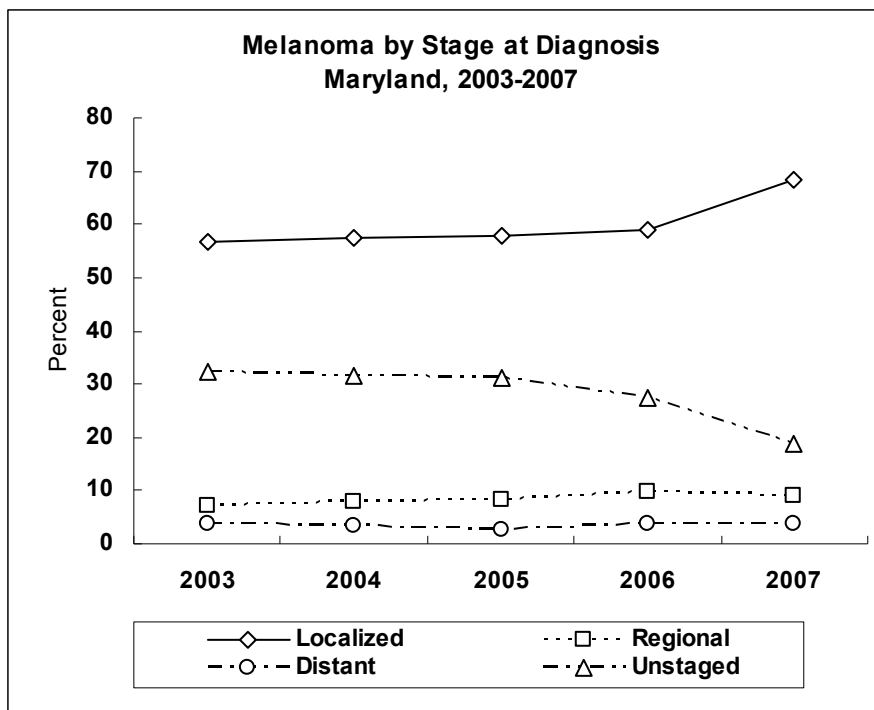


Source:  Maryland Cancer Registry

*Stage at Diagnosis*

In 2007, 68.4% of all melanoma was diagnosed at the localized stage, 9.2% was found at the regional stage, and 3.6% was found at the distant stage.  The proportion of melanoma reported as un-staged decreased in recent years, and the proportion found at the local stage increased.

See Appendix J, Table 7.

103

## Sun Exposure Protection

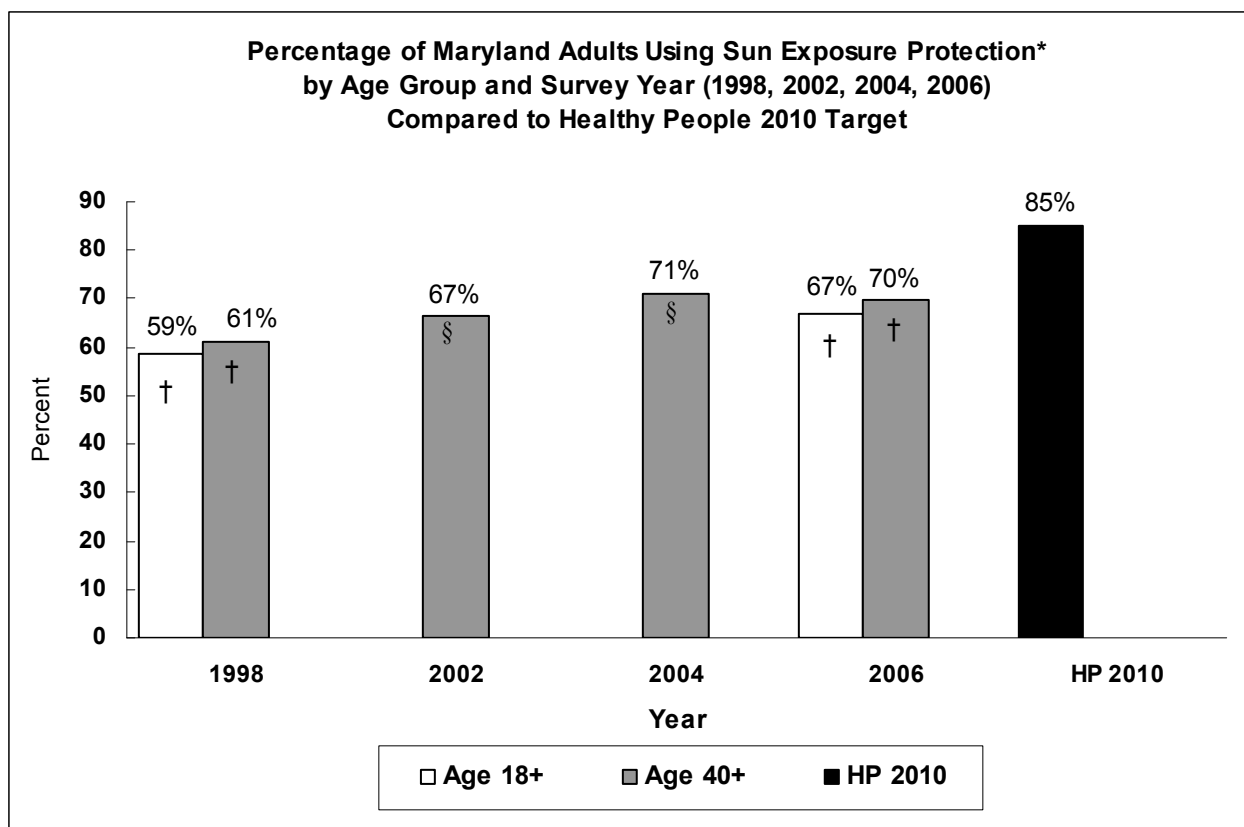The Healthy People 2010 target is to increase to 85% the percentage of persons age 18 years and older who use at least one of the following measures that may reduce the risk of skin cancer: avoid sun between 10 a.m. and 4 p.m.; wear sun-protective clothing when exposed to sunlight; use sunscreen with a sun protective factor of 15 or higher; and avoid artificial sources of ultraviolet light (e.g., tanning booths).

In 2006, the Maryland BRFSS found that 67% of adults age 18 years and older and 70% of those age 40 years and older used at least one method of protection against sun exposure.

**Percentage of Maryland Adults Using Sun Exposure Protection***
**by Age Group and Survey Year (1998, 2002, 2004, 2006)**
**Compared to Healthy People 2010 Target**

| Year | Age 18+ | Age 40+ | HP 2010 |
|------|---------|---------|---------|
| 1998 | 59% † | 61% † | |
| 2002 | | 67% § | |
| 2004 | | 71% § | |
| 2006 | 67% † | 70% † | |
| HP 2010 | | | 85% |

Note: Graphic includes results from both the Maryland BRFSS and Maryland Cancer Survey. See Appendix C for a cautionary note on comparing these data.
* Sun exposure protection means percentage of adults who report "always" or "nearly always" using one or more of the following measures: a) avoid sun between 10 a.m. and 4 p.m., b) wear sun-protective clothing when exposed to sunlight, c) use sunscreen with a sun protective factor of 15 or higher, and d) wear a hat when outdoors. The BRFSS and MCS do not include questions regarding frequency of exposure to ultraviolet light.
Sources: † Maryland BRFSS 1998 and 2006
§ Maryland Cancer Survey 2002 and 2004
Healthy People 2010 Midcourse Review, U.S. Department of Health and Human Services (2006)

104

# Public Health Evidence (quoted from NCI PDQ, 6/30/2009 and 6/30/2009, and USPSTF, 2/2009)

## Primary Prevention

Melanoma is less common but more aggressive than the other two types of skin cancer, basal cell carcinoma and squamous cell carcinoma. Epidemiologic evidence suggests that exposure to ultraviolet (UV) radiation from the sun or artificial sources, and the sensitivity of an individual's skin to UV radiation are risk factors for skin cancer, though the type of exposure (high-intensity and short-duration vs. chronic exposure) and pattern of exposure (continuous vs. intermittent) may differ among the three main types of skin cancer.

Intermittent acute sun exposure leading to sunburn, particularly in childhood or adolescence, appears to be an important risk factor for melanoma. Non-modifiable factors, such as the likelihood of getting a burn, a large number of benign melanocytic nevi (moles), and atypical nevi may also increase the risk of melanoma. Individuals with certain types of pigmented lesions (dysplastic or atypical nevi ), with several large nondysplastic nevi, with many small nevi, or with moderate freckling, have a twofold to threefold increased risk of developing melanoma of the skin. Individuals with familial dysplastic nevus syndrome or with several dysplastic or atypical nevi are at high risk (greater than fivefold risk) of developing melanoma. There is inadequate evidence to determine whether the avoidance of sunburns alters the incidence of melanoma.

Increased cumulative sun exposure is an important risk factor for basal and squamous cell skin cancers. Individuals whose skin tans poorly or burns easily after sun exposure are particularly susceptible. There is inadequate evidence to determine whether the use of sunscreen reduces the incidence of basal and squamous cell skin cancer.

The best defense against skin cancer is protection from the sun and UV light. As of October 2008, an owner, employee, or operator of a tanning facility in Maryland may not allow a minor under the age of 18 years to use a tanning device unless the minor's parent or legal guardian provides written consent on the premises and in the presence of an owner, employee, or operator of the facility.

## Screening

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

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

**Table 57.**
**Number of Melanoma Cases**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 1,232 | 697 | 534 | 1,182 | 17 | 12 | 21 |
| | | | | | | | |
| Allegany | 13 | 6 | 7 | 13 | 0 | 0 | 0 |
| Anne Arundel | 176 | 113 | 62 | 166 | <6 | <6 | <6 |
| Baltimore City | 50 | 22 | 28 | 47 | <6 | <6 | 0 |
| Baltimore County | 218 | 130 | 88 | 211 | <6 | <6 | <6 |
| Calvert | 40 | 30 | 10 | 40 | 0 | 0 | 0 |
| Caroline | 8 | <6 | <6 | 8 | 0 | 0 | 0 |
| Carroll | 50 | 22 | 28 | s | 0 | 0 | <6 |
| Cecil | 26 | 8 | 18 | 26 | 0 | 0 | 0 |
| Charles | 17 | 9 | 8 | s | 0 | 0 | <6 |
| Dorchester | 7 | <6 | <6 | 7 | 0 | 0 | 0 |
| Frederick | 49 | 24 | 25 | 46 | <6 | 0 | <6 |
| Garrett | 8 | <6 | <6 | 8 | 0 | 0 | 0 |
| Harford | 84 | 49 | 35 | s | 0 | 0 | <6 |
| Howard | 86 | 49 | 37 | 83 | 0 | <6 | <6 |
| Kent | <6 | 0 | <6 | <6 | 0 | 0 | 0 |
| Montgomery | 177 | 95 | 82 | 171 | <6 | <6 | <6 |
| Prince George's | 58 | 28 | 30 | 51 | <6 | <6 | <6 |
| Queen Anne's | 20 | 14 | 6 | s | 0 | 0 | <6 |
| Saint Mary's | 23 | 14 | 9 | 23 | 0 | 0 | 0 |
| Somerset | s | <6 | <6 | s | 0 | 0 | <6 |
| Talbot | 16 | 10 | 6 | 16 | 0 | 0 | 0 |
| Washington | 35 | 20 | 15 | 35 | 0 | 0 | 0 |
| Wicomico | 24 | 16 | 8 | 24 | 0 | 0 | 0 |
| Worcester | 27 | 18 | 9 | s | 0 | <6 | 0 |
| Unknown | 8 | <6 | s | <6 | 0 | 0 | <6 |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

Source:  Maryland Cancer Registry

## Table 58.
## Melanoma Age-Adjusted Incidence Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 21.2 | 27.2 | 17.1 | 29.5 | 1.2 | ** |
| | | | | | | |
| Allegany | ** | ** | ** | ** | 0.0 | 0.0 |
| Anne Arundel | 33.7 | 47.1 | 22.6 | 38.1 | ** | ** |
| Baltimore City | 7.8 | 8.2 | 7.7 | 20.0 | ** | ** |
| Baltimore County | 25.2 | 33.6 | 19.3 | 32.0 | ** | ** |
| Calvert | 47.3 | 76.3 | ** | 56.3 | 0.0 | 0.0 |
| Caroline | ** | ** | ** | ** | 0.0 | 0.0 |
| Carroll | 28.5 | 27.4 | 31.7 | 28.9 | 0.0 | 0.0 |
| Cecil | 25.8 | ** | 34.1 | 27.5 | 0.0 | 0.0 |
| Charles | 12.4 | ** | ** | 18.0 | 0.0 | 0.0 |
| Dorchester | ** | ** | ** | ** | 0.0 | 0.0 |
| Frederick | 22.4 | 24.5 | 21.2 | 23.6 | ** | 0.0 |
| Garrett | ** | ** | ** | ** | 0.0 | 0.0 |
| Harford | 34.9 | 47.1 | 27.8 | 39.0 | 0.0 | 0.0 |
| Howard | 31.1 | 41.9 | 23.9 | 40.8 | 0.0 | ** |
| Kent | ** | 0.0 | ** | ** | 0.0 | 0.0 |
| Montgomery | 17.1 | 21.0 | 14.2 | 22.6 | ** | ** |
| Prince George's | 7.9 | 10.6 | 6.6 | 20.4 | ** | ** |
| Queen Anne's | 40.1 | ** | ** | 41.9 | 0.0 | 0.0 |
| Saint Mary's | 24.9 | ** | ** | 30.1 | 0.0 | 0.0 |
| Somerset | ** | ** | ** | ** | 0.0 | 0.0 |
| Talbot | 35.8 | ** | ** | 42.2 | 0.0 | 0.0 |
| Washington | 23.0 | 28.4 | ** | 24.7 | 0.0 | 0.0 |
| Wicomico | 24.5 | 36.1 | ** | 32.0 | 0.0 | 0.0 |
| Worcester | 37.3 | 51.9 | ** | 39.6 | 0.0 | ** |

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

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

Source:  Maryland Cancer Registry

**Table 59.**
**Number of Melanoma Cancer Deaths**
**by Jurisdiction, Gender and Race, Maryland, 2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 140 | 83 | 57 | 136 | <6 | <6 |
| | | | | | | |
| Allegany | 7 | <6 | <6 | s | <6 | <6 |
| Anne Arundel | 11 | <6 | s | s | <6 | <6 |
| Baltimore City | 13 | 7 | 6 | 12 | <6 | <6 |
| Baltimore County | 19 | 13 | 6 | s | <6 | <6 |
| Calvert | <6 | <6 | <6 | <6 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 | <6 | <6 |
| Carroll | <6 | <6 | <6 | <6 | <6 | <6 |
| Cecil | <6 | <6 | <6 | <6 | <6 | <6 |
| Charles | <6 | <6 | <6 | <6 | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 | <6 | <6 |
| Frederick | 7 | <6 | <6 | s | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 | <6 | <6 |
| Harford | 6 | <6 | <6 | s | <6 | <6 |
| Howard | <6 | <6 | <6 | <6 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 | <6 | <6 |
| Montgomery | 22 | 14 | 8 | 21 | <6 | <6 |
| Prince George's | 14 | s | <6 | 12 | <6 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 | <6 | <6 |
| Saint Mary's | <6 | <6 | <6 | <6 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 | <6 | <6 |
| Talbot | <6 | <6 | <6 | <6 | <6 | <6 |
| Washington | <6 | <6 | <6 | <6 | <6 | <6 |
| Wicomico | <6 | <6 | <6 | <6 | <6 | <6 |
| Worcester | <6 | <6 | <6 | <6 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source: NCHS Compressed Mortality File in CDC WONDER

## Table 60.
## Melanoma Age-Adjusted Mortality Rates*
## by Jurisdiction, Gender and Race, Maryland, 2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 2.4 | 3.5 | 1.8 | 3.3 | ** | ** |
| | | | | | | |
| Allegany | ** | ** | ** | ** | ** | ** |
| Anne Arundel | ** | ** | ** | ** | ** | ** |
| Baltimore City | ** | ** | ** | ** | ** | ** |
| Baltimore County | 2.1 | ** | ** | 2.6 | ** | ** |
| Calvert | ** | ** | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** | ** | ** |
| Cecil | ** | ** | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** | ** | ** |
| Frederick | ** | ** | ** | ** | ** | ** |
| Garrett | ** | ** | ** | ** | ** | ** |
| Harford | ** | ** | ** | ** | ** | ** |
| Howard | ** | ** | ** | ** | ** | ** |
| Kent | ** | ** | ** | ** | ** | ** |
| Montgomery | 2.2 | ** | ** | 2.7 | ** | ** |
| Prince George's | ** | ** | ** | ** | ** | ** |
| Queen Anne's | ** | ** | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** | ** | ** |
| Washington | ** | ** | ** | ** | ** | ** |
| Wicomico | ** | ** | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 61.**
**Number of Melanoma Cases**
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | | |
|---|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other | Unknown |
| Maryland | 5,688 | 3,236 | 2,447 | 5,416 | 63 | 51 | 158 |
| | | | | | | | |
| Allegany | 61 | 30 | 31 | s | <6 | 0 | 0 |
| Anne Arundel | 741 | 435 | 304 | 715 | 8 | <6 | s |
| Baltimore City | 272 | 148 | 124 | 255 | 9 | <6 | <6 |
| Baltimore County | 969 | 573 | 396 | 933 | 10 | <6 | s |
| Calvert | 166 | 111 | 55 | 155 | <6 | 0 | s |
| Caroline | 37 | 23 | 14 | s | 0 | 0 | <6 |
| Carroll | 252 | 130 | 122 | 245 | 0 | 0 | 7 |
| Cecil | 110 | 61 | 49 | s | 0 | 0 | <6 |
| Charles | 83 | 48 | 35 | s | 0 | 0 | <6 |
| Dorchester | 29 | 18 | 11 | 29 | 0 | 0 | 0 |
| Frederick | 259 | 141 | 118 | 248 | <6 | 0 | s |
| Garrett | 22 | 15 | 7 | 22 | 0 | 0 | 0 |
| Harford | 347 | 200 | 147 | 340 | <6 | 0 | s |
| Howard | 349 | 187 | 160 | 332 | <6 | 7 | s |
| Kent | 42 | 28 | 14 | 39 | <6 | 0 | <6 |
| Montgomery † | 849 | 461 | 388 | 787 | 11 | 19 | 32 |
| Prince George's † | 283 | 169 | 114 | 253 | 16 | 7 | 7 |
| Queen Anne's | 90 | 57 | 33 | s | 0 | 0 | <6 |
| Saint Mary's | 114 | 61 | 53 | s | 0 | 0 | <6 |
| Somerset | 34 | 17 | 17 | s | 0 | <6 | <6 |
| Talbot | 84 | 46 | 38 | 81 | <6 | 0 | <6 |
| Washington | 188 | 93 | 95 | 183 | 0 | <6 | <6 |
| Wicomico | 114 | 69 | 45 | s | 0 | <6 | 0 |
| Worcester | 132 | 83 | 49 | 127 | 0 | <6 | <6 |
| Unknown | 61 | 32 | 28 | 49 | <6 | <6 | s |

Total includes cases reported as transsexual, hermaphrodite, or unknown gender

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

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

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

Source:  Maryland Cancer Registry

**Table 62.**
**Melanoma Age-Adjusted Incidence Rates***
**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 20.1 | 25.9 | 16.0 | 27.4 | 1.0 | 3.9 |
| | | | | | | |
| Allegany | 13.8 | 14.6 | 14.2 | 14.2 | ** | 0.0 |
| Anne Arundel | 29.3 | 38.4 | 22.6 | 33.3 | ** | ** |
| Baltimore City | 8.3 | 10.9 | 6.8 | 21.1 | ** | ** |
| Baltimore County | 22.6 | 29.7 | 17.6 | 28.2 | ** | ** |
| Calvert | 41.5 | 61.5 | 25.7 | 45.5 | ** | 0.0 |
| Caroline | 22.7 | 29.3 | ** | 25.1 | 0.0 | 0.0 |
| Carroll | 28.9 | 32.6 | 27.3 | 29.5 | 0.0 | 0.0 |
| Cecil | 23.5 | 29.8 | 18.9 | 23.9 | 0.0 | 0.0 |
| Charles | 12.7 | 16.0 | 10.2 | 18.1 | 0.0 | 0.0 |
| Dorchester | 15.4 | 20.9 | ** | 20.8 | 0.0 | 0.0 |
| Frederick | 24.1 | 29.6 | 20.4 | 25.5 | ** | 0.0 |
| Garrett | 13.4 | ** | ** | 13.5 | 0.0 | 0.0 |
| Harford | 29.4 | 37.5 | 23.7 | 32.5 | ** | 0.0 |
| Howard | 26.6 | 32.4 | 22.2 | 33.6 | ** | ** |
| Kent | 31.2 | 46.2 | ** | 33.6 | ** | 0.0 |
| Montgomery † | 17.6 | 21.5 | 14.7 | 22.1 | ** | 3.3 |
| Prince George's † | 8.0 | 12.1 | 5.4 | 19.7 | 0.7 | ** |
| Queen Anne's | 37.4 | 49.9 | 26.6 | 40.7 | 0.0 | 0.0 |
| Saint Mary's | 25.4 | 29.7 | 22.3 | 29.5 | 0.0 | 0.0 |
| Somerset | 25.6 | 25.8 | 28.1 | 36.3 | 0.0 | ** |
| Talbot | 34.9 | 41.0 | 30.0 | 38.8 | ** | 0.0 |
| Washington | 25.1 | 26.7 | 25.6 | 26.5 | 0.0 | ** |
| Wicomico | 24.3 | 33.2 | 18.5 | 31.2 | 0.0 | ** |
| Worcester | 39.9 | 53.2 | 28.1 | 44.6 | 0.0 | ** |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

# Table 63.
# Number of Melanoma Deaths
# by Jurisdiction, Gender and Race, Maryland, 2003-2007

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 747 | 468 | 279 | 725 | s | <6 |
| | | | | | | |
| Allegany | 18 | 8 | 10 | s | <6 | <6 |
| Anne Arundel | 90 | 55 | 35 | s | <6 | <6 |
| Baltimore City | 59 | 35 | 24 | 52 | s | <6 |
| Baltimore County | 137 | 87 | 50 | 136 | <6 | <6 |
| Calvert | 9 | s | <6 | 8 | <6 | <6 |
| Caroline | 6 | <6 | <6 | s | <6 | <6 |
| Carroll | 25 | 16 | 9 | s | <6 | <6 |
| Cecil | 11 | s | <6 | s | <6 | <6 |
| Charles | 14 | s | <6 | s | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 | <6 | <6 |
| Frederick | 36 | 24 | 12 | s | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 | <6 | <6 |
| Harford | 38 | 26 | 12 | s | <6 | <6 |
| Howard | 27 | 18 | 9 | 26 | <6 | <6 |
| Kent | 10 | <6 | <6 | s | <6 | <6 |
| Montgomery | 104 | 63 | 41 | 101 | <6 | <6 |
| Prince George's | 52 | 29 | 23 | 45 | <6 | <6 |
| Queen Anne's | 8 | <6 | <6 | s | <6 | <6 |
| Saint Mary's | 15 | s | <6 | s | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 | <6 | <6 |
| Talbot | 14 | s | <6 | 13 | <6 | <6 |
| Washington | 24 | 13 | 11 | s | <6 | <6 |
| Wicomico | 19 | 13 | 6 | s | <6 | <6 |
| Worcester | 18 | s | <6 | s | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

**Table 64.**
**Melanoma Age-Adjusted Mortality Rates***
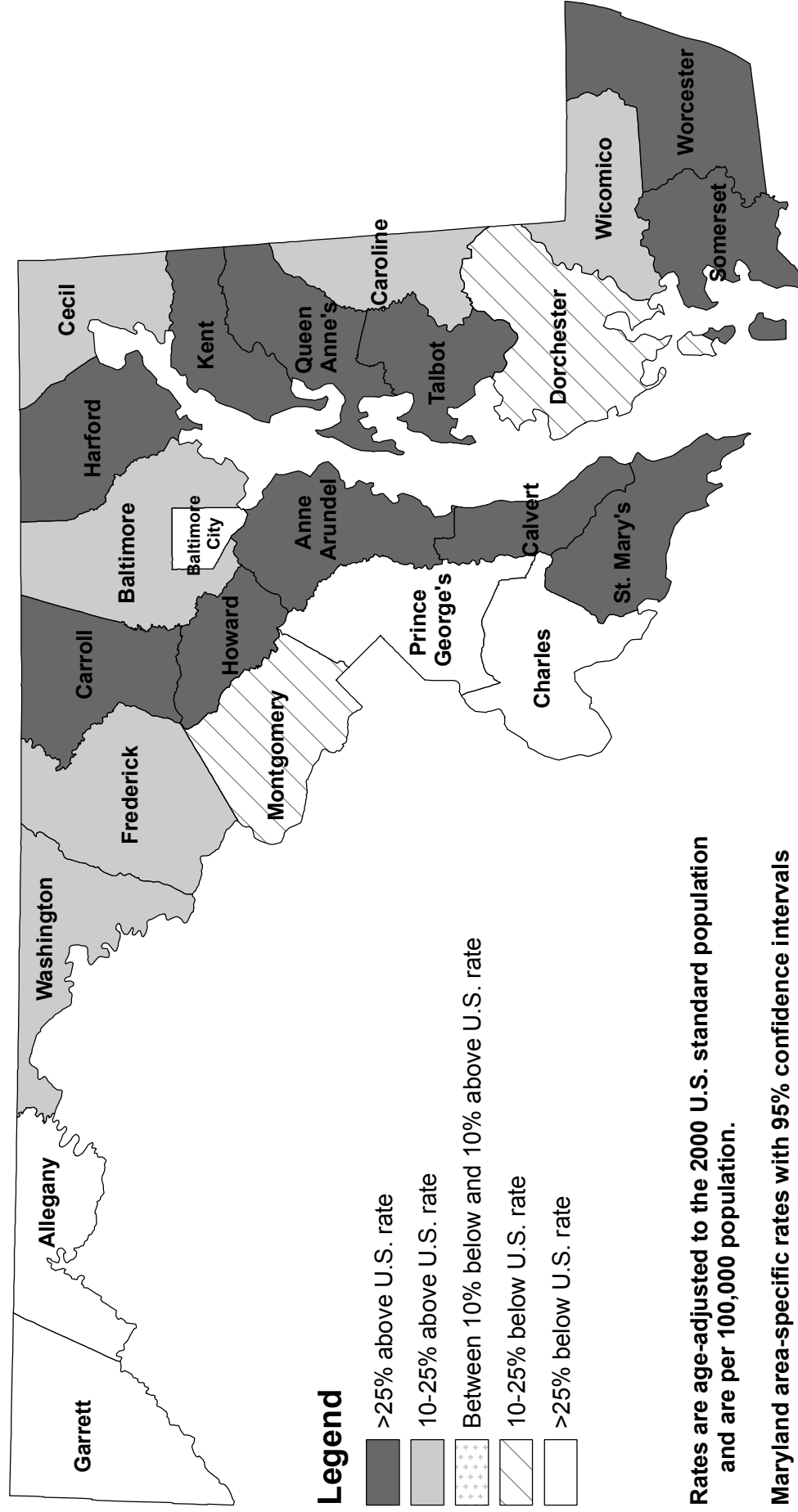**by Jurisdiction, Gender and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Gender | | Race | | |
|---|---|---|---|---|---|---|
| | | Males | Females | Whites | Blacks | Other |
| Maryland | 2.7 | 4.0 | 1.8 | 3.6 | 0.3 | ** |
| | | | | | | |
| Allegany | 3.9 | ** | ** | 4.1 | ** | ** |
| Anne Arundel | 3.9 | 5.6 | 2.7 | 4.5 | ** | ** |
| Baltimore City | 1.8 | 2.9 | 1.2 | 4.0 | ** | ** |
| Baltimore County | 3.0 | 4.5 | 1.9 | 3.6 | ** | ** |
| Calvert | ** | ** | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** | ** | ** |
| Carroll | 2.9 | 4.2 | ** | 3.0 | ** | ** |
| Cecil | ** | ** | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** | ** | ** |
| Frederick | 3.7 | 5.6 | ** | 4.0 | ** | ** |
| Garrett | ** | ** | ** | ** | ** | ** |
| Harford | 3.2 | 4.6 | ** | 3.6 | ** | ** |
| Howard | 2.2 | 3.6 | ** | 2.7 | ** | ** |
| Kent | ** | ** | ** | ** | ** | ** |
| Montgomery | 2.2 | 3.0 | 1.5 | 2.7 | ** | ** |
| Prince George's | 1.7 | 2.2 | 1.3 | 3.5 | ** | ** |
| Queen Anne's | ** | ** | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** | ** | ** |
| Washington | 3.1 | ** | ** | 3.3 | ** | ** |
| Wicomico | 4.0 | ** | ** | 5.1 | ** | ** |
| Worcester | 5.2 | ** | ** | 6.0 | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Melanoma Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

Garrett

Allegany

Washington

Frederick

Carroll

Montgomery

Howard

Baltimore

Baltimore City

Harford

Cecil

Kent

Queen Anne's

Caroline

Talbot

Dorchester

Wicomico

Somerset

Worcester

Anne Arundel

Prince George's

Calvert

St. Mary's

Charles

## Legend

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

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

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

U.S. melanoma incidence rate, 2003-2007: 20.1/100,000

Maryland melanoma incidence rate, 2003-2007: 20.1/100,000

Source: MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland Melanoma Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Northwest**

**Eastern Shore**

**Southern**

Harford

Baltimore

Baltimore City

Carroll

Howard

Montgomery

Anne Arundel

Prince George's

## Legend

■ >25% above U.S. rate

▨ 10-25% above U.S. rate

▦ Between 10% below and 10% above U.S. rate

▨ 10-25% below U.S. rate

□ >25% below U.S. rate

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

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

U.S. melanoma cancer mortality rate, 2003-2007: 2.7/100,000

Maryland melanoma cancer mortality rate, 2003-2007: 2.7/100,000

Note: Aggreated regional rates are used in comparisons when rates for one or more counties in that region are suppressed due to small numbers of cases or deaths. (See Appendix C for methods.)

Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER

# G. Cervical Cancer

## Incidence (New Cases)

A total of 194 cases of cervical cancer among women in Maryland were reported in 2007. The age-adjusted incidence rate for cervical cancer in Maryland in 2007 was 6.4 per 100,000 population of women (5.5-7.3, 95% C.I.). This rate is statistically significantly lower than the 2007 U.S. SEER age-adjusted cervical cancer incidence rate of 7.8 per 100,000 population of women (7.6-8.1, 95% C.I.).

## Mortality (Deaths)

In 2007, a total of 75 women died of cervical cancer in Maryland. The age-adjusted cervical cancer mortality rate in Maryland in 2007 was 2.4 per 100,000 women (1.9-3.0, 95% C.I.). This rate is similar to the 2007 U.S. cervical cancer mortality rate of 2.4 per 100,000 population of women (2.3-2.5, 95% C.I.). Maryland ranked 30th highest for cervical cancer mortality rate among the states and the District of Columbia for the period 2003-2007.

**Table 65.**
**Cervical Cancer Incidence and Mortality Rates\***
**by Race, Maryland and the United States, 2007**

| Incidence 2007 | Total | Whites | Blacks | Other |
|---|---|---|---|---|
| New Cases (count) | 194 | 120 | 61 | s |
| MD Incidence Rate | 6.4 | 6.2 | 7.2 | ** |
| U.S. SEER Rate | 7.8 | 7.7 | 9.3 | 7.2 |
| Mortality 2007 | Total | Whites | Blacks | Other |
| Deaths (count) | 75 | 38 | s | <6 |
| MD Mortality Rate | 2.4 | 1.7 | 4.3 | ** |
| U.S. Mortality Rate | 2.4 | 2.2 | 4.3 | 2.1 |

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

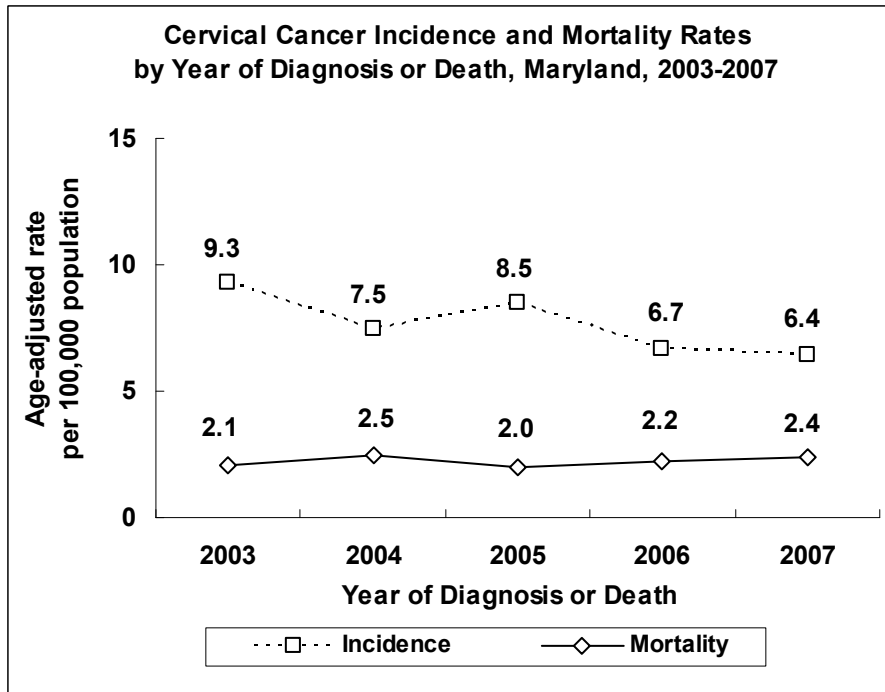s = Counts are suppressed to prevent disclosure of data in other cell(s) based on Tables 66 and 68

<6 = MD death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Sources: MD incidence data from Maryland Cancer Registry
        U.S. SEER rates from SEER*Stat software
        MD mortality data from NCHS Compressed Mortality File in CDC WONDER

**Cervical Cancer Incidence and Mortality Rates
by Year of Diagnosis or Death, Maryland, 2003-2007**

| | | | | |
|---|---|---|---|---|
| 9.3 | 7.5 | 8.5 | 6.7 | 6.4 |
| 2.1 | 2.5 | 2.0 | 2.2 | 2.4 |

Y-axis: Age-adjusted rate per 100,000 population (0, 5, 10, 15)
X-axis: Year of Diagnosis or Death (2003, 2004, 2005, 2006, 2007)

Legend: - - -□- - - Incidence    —◇— Mortality

Rates are age-adjusted to 2000 U.S. standard population
Sources: Maryland Cancer Registry (incidence rates)
NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## *Incidence and Mortality Trends*

Cervical cancer incidence rates among Maryland women decreased at a rate of 8.2% per year from 2003 to 2007.

Cervical cancer mortality rates increased at a rate of 1.4% per year from 2003 to 2007.
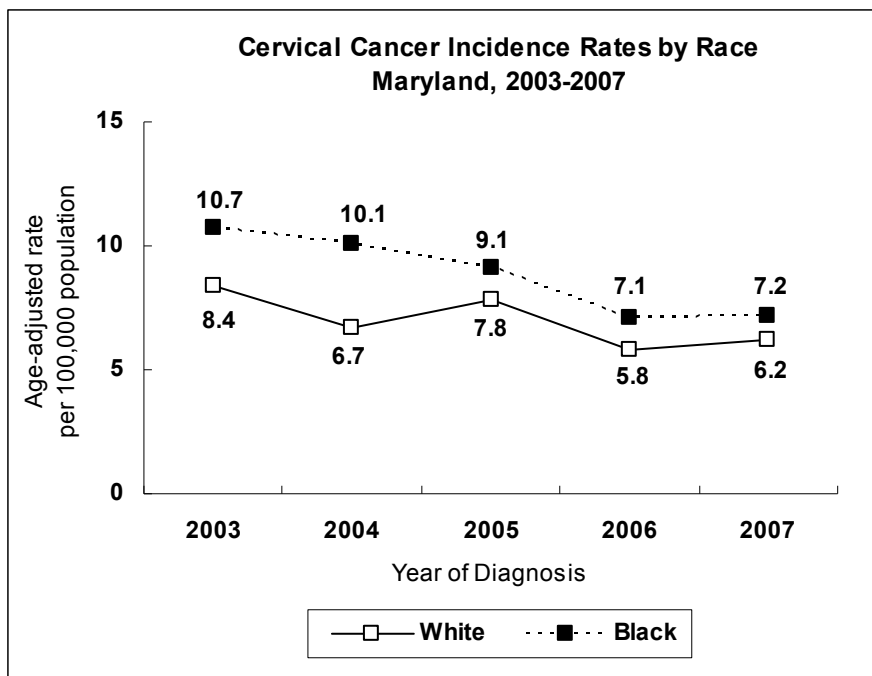
See Appendix I, Tables 1 and 2.

**Cervical Cancer Incidence Rates by Race
Maryland, 2003-2007**

| | | | | |
|---|---|---|---|---|
| 10.7 | 10.1 | 9.1 | 7.1 | 7.2 |
| 8.4 | 6.7 | 7.8 | 5.8 | 6.2 |

Y-axis: Age-adjusted rate per 100,000 population (0, 5, 10, 15)
X-axis: Year of Diagnosis (2003, 2004, 2005, 2006, 2007)

Legend: —□— White    - - -■- - - Black

Rates are age-adjusted to 2000 U.S. standard population
Source: Maryland Cancer Registry

## *Incidence Trends by Race*

Disparities in cervical cancer incidence rates between white and black women decreased in Maryland from 2003 to 2007. Cervical cancer incidence rates among black women decreased at a rate of 10.8% per year, compared to a decrease of 7.2% per year among white women.
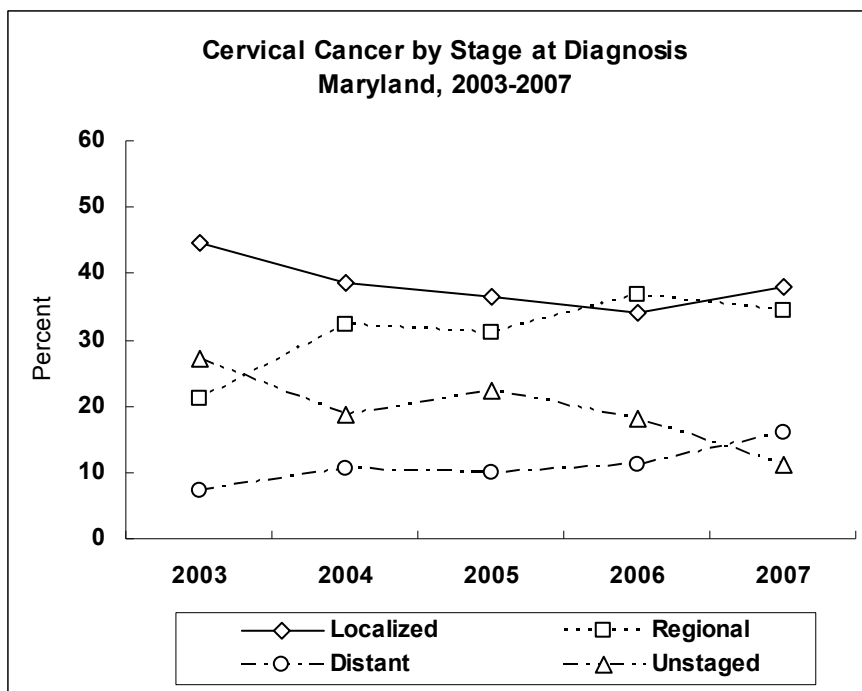
See Appendix I, Table 3.
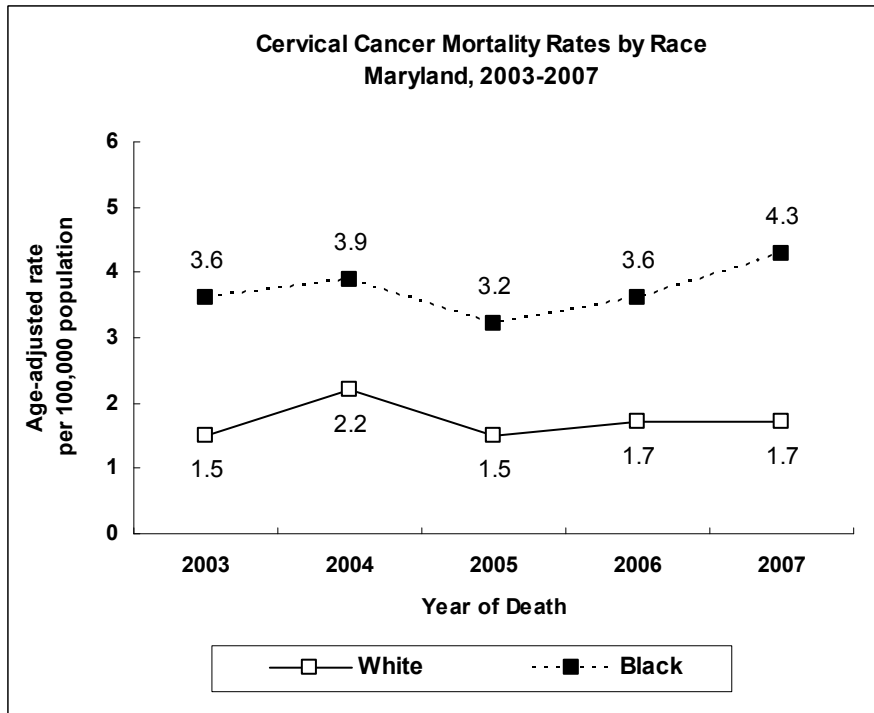
**Cervical Cancer Mortality Rates by Race**
**Maryland, 2003-2007**

Age-adjusted rate per 100,000 population / Year of Death

White: 2003: 1.5, 2004: 2.2, 2005: 1.5, 2006: 1.7, 2007: 1.7
Black: 2003: 3.6, 2004: 3.9, 2005: 3.2, 2006: 3.6, 2007: 4.3

Legend: White, Black

Rates are age-adjusted to 2000 U.S. standard population
Source:  NCHS Compressed Mortality File in CDC WONDER

## Mortality Trends by Race

Cervical cancer mortality rates increased from 2003 to 2007 for blacks and decreased for whites. Rates for blacks increased at a rate of 2.8% per year. Rates for whites decreased at a rate of 0.1% per year.

See Appendix I, Table 5.

**Cervical Cancer by Stage at Diagnosis**
**Maryland, 2003-2007**

Percent

Legend: Localized, Regional, Distant, Unstaged

Source:  Maryland Cancer Registry

## Stage at Diagnosis

In 2007, 38.1% of all cervical cancer cases in Maryland were diagnosed at the localized stage, 34.5% were diagnosed at the regional stage, and 16.0% were found at the distant stage.  The proportion of cervical cancer cases reported as unstaged has decreased in recent years.

See Appendix J, Table 8.
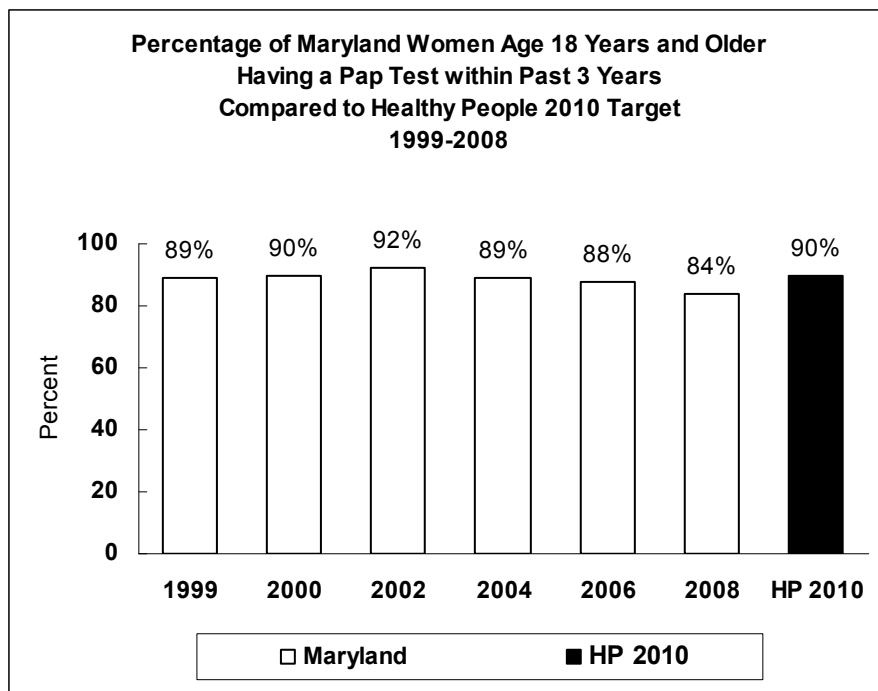
119

**Percentage of Maryland Women Age 18 Years and Older
Having a Pap Test within Past 3 Years
Compared to Healthy People 2010 Target
1999-2008**

| Year | Percent |
|------|---------|
| 1999 | 89% |
| 2000 | 90% |
| 2002 | 92% |
| 2004 | 89% |
| 2006 | 88% |
| 2008 | 84% |
| HP 2010 | 90% |

☐ Maryland   ■ HP 2010

Sources: Maryland BRFSS
Healthy People 2010, U.S. Department of Health and Human Services (2000)

### Cervical Cancer Screening

One Healthy People 2010 target for cervical cancer is to increase to 90% the percentage of women age 18 years and older who have had a Pap test within the preceding 3 years. In 2008, 84% of Maryland women age 18 years and older reported they had a Pap test within the preceding 3 years. This is below the Healthy People 2010 target, and represents a decrease in prevalence of up-to-date cervical cancer screening compared to previous years.

## Public Health Evidence (quoted from NCI PDQ, 7/30/2010 and 5/28/2010; Advisory Committee on Immunization Practices [ACIP] 3/23/2007, 5/28/2010; and USPSTF, 1/2003)

**Primary Prevention**

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

Based on solid evidence, the following measures are effective to minimize the risk of HPV infection and thus cervical cancer: abstinence from sexual activity; barrier protection and/or spermicidal gel during sexual intercourse; (based on fair evidence) vaccination against HPV-16/HPV-18; and screening via gynecologic exam and Papanicolaou (Pap) testing with treatment of precancerous abnormalities. Based on solid evidence, the following factors are associated with increased risk of cervical cancer: cigarette smoking (both active and passive); and high parity. The Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination (with three doses of bivalent or quadrivalent vaccine) of females age 11 or 12 years (vaccine can be administered as young as age 9 years). HPV vaccination is recommended for females age 13 through 26 years who previously have not been vaccinated. (The 3-dose series of quadrivalent HPV vaccine may be given to males age 9 through 26 years to reduce their likelihood of acquiring genital warts.)

**Screening**

Benefits: Based on solid evidence, screening of appropriate women via regular gynecologic examinations and cytology test (Pap test, either conventional or liquid-based cytology), with treatment of precancerous abnormalities, reduces the mortality from cervical cancer. Screening is effective when started within 3 years after first vaginal intercourse. The United States Preventive Services Task Force (USPSTF) concludes that the potential harms of screening are likely to exceed benefits among older women who have had normal results previously and who are not otherwise at high risk for cervical cancer. Harms: Based on solid evidence, regular screening with the Pap test leads to additional diagnostic procedures and treatment for low-grade squamous intraepithelial lesions with uncertain long-term consequences on fertility and pregnancy. Screening is not helpful in women who do not have a cervix as a result of a hysterectomy for a benign condition.

| Public Health Intervention for Cervical Cancer (USPSTF and ACIP) |
| --- |
| ➢ Screen using the Pap test for all women who have a cervix, within 3 years after onset of sexual activity or by age 21 years if not sexually active (whichever comes first). <br> ➢ Vaccinate girls and women according to ACIP recommendations. |

**Table 66.**
**Number of Cervical Cancer Cases**
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 194 | 120 | 61 | s | <6 |
| | | | | | |
| Allegany | <6 | <6 | 0 | 0 | 0 |
| Anne Arundel | 20 | 17 | <6 | <6 | 0 |
| Baltimore City | 27 | 10 | 17 | 0 | 0 |
| Baltimore County | 32 | 21 | s | <6 | 0 |
| Calvert | <6 | <6 | <6 | 0 | 0 |
| Caroline | 0 | 0 | 0 | 0 | 0 |
| Carroll | <6 | <6 | 0 | <6 | 0 |
| Cecil | <6 | <6 | <6 | 0 | 0 |
| Charles | 7 | <6 | s | 0 | 0 |
| Dorchester | <6 | <6 | 0 | 0 | 0 |
| Frederick | 7 | 7 | 0 | 0 | 0 |
| Garrett | 0 | 0 | 0 | 0 | 0 |
| Harford | 7 | s | <6 | 0 | 0 |
| Howard | 7 | s | 0 | <6 | 0 |
| Kent | 0 | 0 | 0 | 0 | 0 |
| Montgomery | 32 | 22 | <6 | <6 | <6 |
| Prince George's | 26 | s | 17 | <6 | 0 |
| Queen Anne's | <6 | <6 | 0 | 0 | 0 |
| Saint Mary's | <6 | 0 | <6 | 0 | 0 |
| Somerset | 0 | 0 | 0 | 0 | 0 |
| Talbot | <6 | <6 | 0 | 0 | 0 |
| Washington | <6 | <6 | 0 | 0 | 0 |
| Wicomico | <6 | <6 | 0 | <6 | 0 |
| Worcester | 0 | 0 | 0 | 0 | 0 |
| Unknown | <6 | 0 | 0 | 0 | <6 |

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

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

Source:  Maryland Cancer Registry

**Table 67.**
**Cervical Cancer Age-Adjusted Incidence Rates***
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 6.4 | 6.2 | 7.2 | ** |
| | | | | |
| Allegany | ** | ** | 0.0 | 0.0 |
| Anne Arundel | 7.1 | 7.5 | ** | ** |
| Baltimore City | 7.9 | ** | 7.9 | 0.0 |
| Baltimore County | 7.6 | 7.4 | ** | ** |
| Calvert | ** | ** | ** | 0.0 |
| Caroline | 0.0 | 0.0 | 0.0 | 0.0 |
| Carroll | ** | ** | 0.0 | ** |
| Cecil | ** | ** | ** | 0.0 |
| Charles | ** | ** | ** | 0.0 |
| Dorchester | ** | ** | 0.0 | 0.0 |
| Frederick | ** | ** | 0.0 | 0.0 |
| Garrett | 0.0 | 0.0 | 0.0 | 0.0 |
| Harford | ** | ** | ** | 0.0 |
| Howard | ** | ** | 0.0 | ** |
| Kent | 0.0 | 0.0 | 0.0 | 0.0 |
| Montgomery | 5.9 | 5.8 | ** | ** |
| Prince George's | 6.3 | ** | 7.2 | ** |
| Queen Anne's | ** | ** | 0.0 | 0.0 |
| Saint Mary's | ** | 0.0 | ** | 0.0 |
| Somerset | 0.0 | 0.0 | 0.0 | 0.0 |
| Talbot | ** | ** | 0.0 | 0.0 |
| Washington | ** | ** | 0.0 | 0.0 |
| Wicomico | ** | ** | 0.0 | ** |
| Worcester | 0.0 | 0.0 | 0.0 | 0.0 |

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

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

Source:  Maryland Cancer Registry

**Table 68.**
**Number of Cervical Cancer Deaths**
**by Jurisdiction and Race, Maryland, 2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 75 | 38 | s | <6 |
| | | | | |
| Allegany | <6 | <6 | <6 | <6 |
| Anne Arundel | <6 | <6 | <6 | <6 |
| Baltimore City | 21 | <6 | 16 | <6 |
| Baltimore County | 10 | <6 | <6 | <6 |
| Calvert | <6 | <6 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 |
| Carroll | <6 | <6 | <6 | <6 |
| Cecil | <6 | <6 | <6 | <6 |
| Charles | <6 | <6 | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 |
| Frederick | <6 | <6 | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 |
| Harford | <6 | <6 | <6 | <6 |
| Howard | <6 | <6 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 |
| Montgomery | 9 | 6 | <6 | <6 |
| Prince George's | 13 | <6 | 10 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 |
| Saint Mary's | <6 | <6 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 |
| Talbot | <6 | <6 | <6 | <6 |
| Washington | <6 | <6 | <6 | <6 |
| Wicomico | <6 | <6 | <6 | <6 |
| Worcester | <6 | <6 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

## Table 69.
## Cervical Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction and Race, Maryland, 2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 2.4 | 1.7 | 4.3 | ** |
| | | | | |
| Allegany | ** | ** | ** | ** |
| Anne Arundel | ** | ** | ** | ** |
| Baltimore City | 6.0 | ** | 7.2 | ** |
| Baltimore County | ** | ** | ** | ** |
| Calvert | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** |
| Cecil | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** |
| Frederick | ** | ** | ** | ** |
| Garrett | ** | ** | ** | ** |
| Harford | ** | ** | ** | ** |
| Howard | ** | ** | ** | ** |
| Kent | ** | ** | ** | ** |
| Montgomery | ** | ** | ** | ** |
| Prince George's | ** | ** | ** | ** |
| Queen Anne's | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** |
| Washington | ** | ** | ** | ** |
| Wicomico | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

Source: NCHS Compressed Mortality File in CDC WONDER

**Table 70.**
**Number of Cervical Cancer Cases**
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | | |
|---|---|---|---|---|---|
| | | Whites | Blacks | Other | Unknown |
| Maryland | 1,148 | 684 | 365 | 67 | 32 |
| | | | | | |
| Allegany | 22 | s | <6 | 0 | 0 |
| Anne Arundel | 89 | 70 | 11 | 8 | 0 |
| Baltimore City | 180 | s | 120 | 0 | <6 |
| Baltimore County | 172 | 120 | 48 | <6 | <6 |
| Calvert | 18 | s | <6 | 0 | 0 |
| Caroline | 7 | 7 | 0 | 0 | 0 |
| Carroll | 24 | s | 0 | <6 | <6 |
| Cecil | 24 | s | <6 | 0 | 0 |
| Charles | 22 | 10 | s | <6 | <6 |
| Dorchester | <6 | <6 | <6 | 0 | 0 |
| Frederick | 50 | 42 | s | <6 | <6 |
| Garrett | <6 | <6 | 0 | 0 | 0 |
| Harford | 36 | s | <6 | 0 | 0 |
| Howard | 41 | 26 | 9 | 6 | 0 |
| Kent | <6 | <6 | 0 | 0 | 0 |
| Montgomery † | 207 | 119 | 38 | 38 | 12 |
| Prince George's † | 147 | 48 | 86 | 6 | 7 |
| Queen Anne's | 9 | s | <6 | 0 | 0 |
| Saint Mary's | 20 | 14 | 6 | 0 | 0 |
| Somerset | 8 | <6 | <6 | 0 | 0 |
| Talbot | <6 | <6 | 0 | 0 | 0 |
| Washington | 23 | 19 | <6 | <6 | <6 |
| Wicomico | 16 | 9 | <6 | <6 | 0 |
| Worcester | 9 | s | <6 | 0 | 0 |
| Unknown | 8 | <6 | <6 | 0 | <6 |

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

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

† 2006 case counts for Montgomery and Prince George's counties are underreported.

   (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

**Table 71.**
**Cervical Cancer Age-Adjusted Incidence Rates***
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 7.6 | 7.0 | 8.8 | 8.4 |
| | | | | |
| Allegany | 11.1 | 11.0 | ** | 0.0 |
| Anne Arundel | 6.7 | 6.5 | ** | ** |
| Baltimore City | 10.3 | 10.2 | 10.7 | 0.0 |
| Baltimore County | 8.0 | 8.2 | 10.5 | ** |
| Calvert | 8.6 | ** | ** | 0.0 |
| Caroline | ** | ** | 0.0 | 0.0 |
| Carroll | 5.4 | 5.1 | 0.0 | ** |
| Cecil | 9.7 | 8.2 | ** | 0.0 |
| Charles | 6.8 | ** | ** | ** |
| Dorchester | ** | ** | ** | 0.0 |
| Frederick | 9.0 | 8.5 | ** | ** |
| Garrett | ** | ** | 0.0 | 0.0 |
| Harford | 5.7 | 5.7 | ** | 0.0 |
| Howard | 5.8 | 4.9 | ** | ** |
| Kent | ** | ** | 0.0 | 0.0 |
| Montgomery † | 8.1 | 6.5 | 9.4 | 10.1 |
| Prince George's † | 6.9 | 8.0 | 6.7 | ** |
| Queen Anne's | ** | ** | ** | 0.0 |
| Saint Mary's | 8.3 | ** | ** | 0.0 |
| Somerset | ** | ** | ** | 0.0 |
| Talbot | ** | ** | 0.0 | 0.0 |
| Washington | 6.0 | 5.2 | ** | ** |
| Wicomico | 6.7 | ** | ** | ** |
| Worcester | ** | ** | ** | 0.0 |

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

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

† 2003-2007 incidence rates for Montgomery and Prince George's counties are lower than actual
   due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

**Table 72.**
**Number of Cervical Cancer Deaths**
**by Jurisdiction and Race, Maryland, 2003-2007**

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 346 | 187 | 149 | 10 |
| | | | | |
| Allegany | 6 | s | <6 | <6 |
| Anne Arundel | 29 | 19 | s | <6 |
| Baltimore City | 81 | s | 59 | <6 |
| Baltimore County | 47 | 27 | s | <6 |
| Calvert | <6 | <6 | <6 | <6 |
| Caroline | <6 | <6 | <6 | <6 |
| Carroll | 8 | s | <6 | <6 |
| Cecil | <6 | <6 | <6 | <6 |
| Charles | 7 | <6 | <6 | <6 |
| Dorchester | <6 | <6 | <6 | <6 |
| Frederick | 11 | 9 | <6 | <6 |
| Garrett | <6 | <6 | <6 | <6 |
| Harford | 16 | s | <6 | <6 |
| Howard | <6 | <6 | <6 | <6 |
| Kent | <6 | <6 | <6 | <6 |
| Montgomery | 41 | 21 | s | <6 |
| Prince George's | 51 | s | 36 | <6 |
| Queen Anne's | <6 | <6 | <6 | <6 |
| Saint Mary's | 8 | <6 | <6 | <6 |
| Somerset | <6 | <6 | <6 | <6 |
| Talbot | <6 | <6 | <6 | <6 |
| Washington | 10 | 9 | <6 | <6 |
| Wicomico | <6 | <6 | <6 | <6 |
| Worcester | <6 | <6 | <6 | <6 |

<6 = Death counts of 0-5 are suppressed per DHMH/CCSC Mortality Data Suppression Policy

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

Source:  NCHS Compressed Mortality File in CDC WONDER

# Table 73.
## Cervical Cancer Age-Adjusted Mortality Rates*
## by Jurisdiction and Race, Maryland, 2003-2007

| Jurisdiction | Total | Race | | |
|---|---|---|---|---|
| | | Whites | Blacks | Other |
| Maryland | 2.2 | 1.7 | 3.7 | ** |
| | | | | |
| Allegany | ** | ** | ** | ** |
| Anne Arundel | 2.1 | 1.6 | ** | ** |
| Baltimore City | 4.5 | 3.5 | 5.1 | ** |
| Baltimore County | 2.0 | 1.6 | 4.9 | ** |
| Calvert | ** | ** | ** | ** |
| Caroline | ** | ** | ** | ** |
| Carroll | ** | ** | ** | ** |
| Cecil | ** | ** | ** | ** |
| Charles | ** | ** | ** | ** |
| Dorchester | ** | ** | ** | ** |
| Frederick | ** | ** | ** | ** |
| Garrett | ** | ** | ** | ** |
| Harford | 2.6 | 2.9 | ** | ** |
| Howard | ** | ** | ** | ** |
| Kent | ** | ** | ** | ** |
| Montgomery | 1.5 | 1.0 | ** | ** |
| Prince George's | 2.5 | ** | 3.1 | ** |
| Queen Anne's | ** | ** | ** | ** |
| Saint Mary's | ** | ** | ** | ** |
| Somerset | ** | ** | ** | ** |
| Talbot | ** | ** | ** | ** |
| Washington | ** | ** | ** | ** |
| Wicomico | ** | ** | ** | ** |
| Worcester | ** | ** | ** | ** |

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

** Rates based on death counts of 0-15 are suppressed per DHMH/CCSC Mortality Data
  Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER

# Maryland Cervical Cancer Incidence Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Northwest**

**Eastern Shore**

Harford

Baltimore

Baltimore City

Carroll

Howard

Anne Arundel

Montgomery

Prince George's

Charles

Calvert

St. Mary's

**Legend**

>25% above U.S. rate

10-25% above U.S. rate

Between 10% below and 10% above U.S. rate

10-25% below U.S. rate

>25% below U.S. rate

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

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

U.S. cervical cancer incidence rate, 2003-2007:  8.1/100,000

Maryland cervical cancer incidence rate, 2003-2007:  7.6/100,000
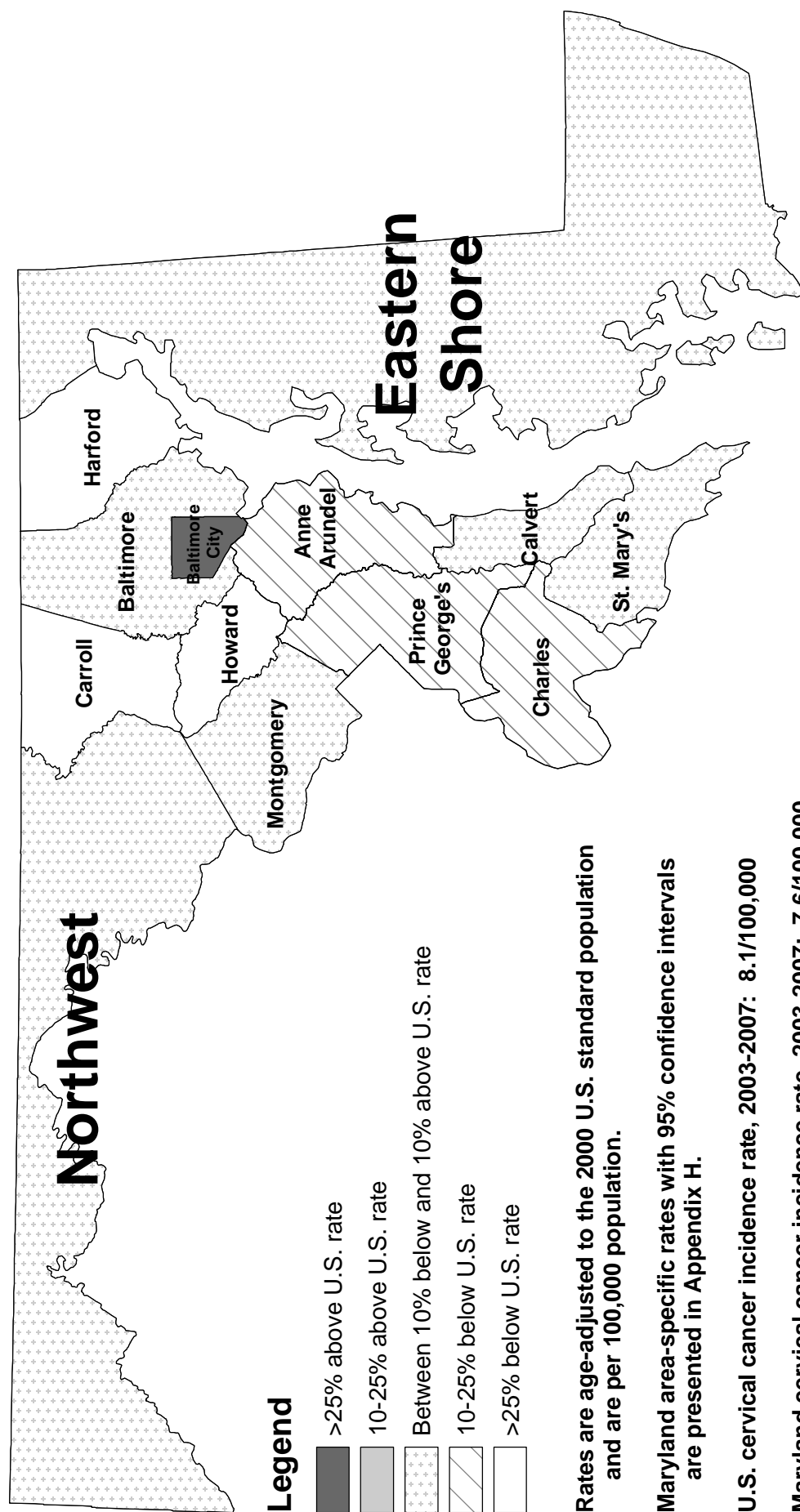
Note:  Aggregated regional rates are used in comparisons when rates for one or more counties in that region are suppressed due to small numbers of cases or deaths.  (See Appendix C for methods.)

Source:  MD incidence rates from Maryland Cancer Registry, 2003-2007
U.S. (SEER 17) rate from SEER*Stat Software

# Maryland Cervical Cancer Mortality Rates by Geographical Area: Comparison to U.S. Rate, 2003-2007

**Northwest**

**Baltimore Metro**

Baltimore City

**Eastern Shore**

Montgomery

Prince George's

**Southern**

**Legend**

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

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

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

U.S. cervical cancer mortality rate, 2003-2007: 2.4/100,000

Maryland cervical cancer mortality rate, 2003-2007: 2.2/100,000

Note: Aggreated regional rates are used in comparisons when rates for one or more counties in that region are suppressed due to small numbers of cases or deaths. (See Appendix C for methods.)

Source: MD and U.S. mortality rates from NCHS Compressed Mortality File in CDC WONDER

# Appendix A

# Cigarette Restitution Fund
# Cancer Report Requirements

# Cigarette Restitution Fund Cancer Report Requirements

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

The law requires that the survey include:

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

This information is provided in this Cancer Report as follows:

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

| | |
|---|---|
| 6. Other aspects of targeted and non-targeted cancers that DHMH seeks to measure. | For all cancer sites and for each targeted cancer, the report:<br>1. Compares Maryland incidence and mortality rates to that of the U.S. (mortality data are not yet available);<br>2. Delineates incidence and mortality trends by race;<br>3. Shows 5-year mortality trends and 5-year combined data;<br>4. Presents 5-year incidence trends and 5-year combined data;<br>5. Tracks stage of disease at diagnosis over a 5-year period;<br>6. Lists appropriate Healthy People 2010 objective(s) showing trend data for each targeted cancer and identifies Maryland's progress in meeting the respective objective(s);<br>7. Describes the evidence for screening, primary prevention and chemoprevention for each targeted cancer, based on current scientific literature; and<br>8. Describes the recommended public health intervention for each targeted cancer based on the evidence referenced above.<br><br>This information is located throughout the report. |
| 7. Other factors that DHMH determines to be important for measuring rates of cancer in the State or for evaluating whether the program meets its objectives. | Same as above. |

**Appendix B**

**Cancer Report Format**

# Cancer Report Format

*1. Selection of Targeted Cancers*

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

*2. Report Format*

Information provided in this report focuses on all cancer sites reported in Maryland and the seven specific cancer sites targeted by the CPEST Program. The main body of the 2010 CRF Cancer Report focuses on the most recent data (2007 and 5-year combined data for the period 2003 through 2007).

Section I of the 2010 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 (2009) 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 (1998-2007) in overall cancer incidence and mortality rates for Maryland and the U.S.; 5-year incidence and mortality trends (2003-2007) for all cancer sites (overall and by race); trends in stage for all cancers diagnosed in Maryland (2003-2007); and a comparison of Maryland mortality rates to the Healthy People 2010 target.

Section III presents cancer incidence and mortality data for the seven cancers targeted under the Cigarette Restitution Fund Program. Each chapter includes a comparison of the Maryland 2007 incidence and mortality rates (with 95% confidence intervals [95% C.I.]) and U.S. rates in the overview text and table. Maryland mortality rankings among the 50 states and the District of Columbia, based on 5-year mortality rates, are also described. Graphics are also included in each chapter to depict the following: Trends in cancer incidence and mortality rates for the 5-year period from 2003 to 2007; 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 2010 targets. Public health evidence and recommended areas for public health intervention are also described for each targeted cancer. The number of new cancer cases, number of cancer deaths, and age-adjusted cancer incidence and mortality rates for each cancer are tabulated by gender, race, and jurisdiction for 2007 and for the 5-year period, 2003-2007. 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 2003-2007, by geographical area (see Appendix H for map data).

Appendix A describes the legal basis for the Cancer Report and includes a crosswalk between each required component and its location in this report. Appendix C describes the sources of data used to prepare the 2010 Cancer Report and specific data considerations (e.g., data confidentiality and statistical methods). A glossary of terms used in the 2010 Cancer Report is included as Appendix D. Maryland population estimates for 2007, by race and gender, are presented in Appendix E. The population data in these tables can be used as denominators for calculating crude incidence and mortality rates. Appendix F depicts the 2000 U.S. standard population organized by age groupings. Appendix G contains a listing of International Classification of Diseases for Oncology (ICD-O-3) codes for incidence, along with corresponding ICD-10 codes for mortality for the cancer sites included in the report. Appendix H presents age-adjusted incidence and mortality rates with 95% confidence intervals, by Maryland geographical area (state, region, and county). Appendix I tables display trends in cancer incidence and mortality rates, by cancer site and race (gender used for melanoma), over the 5-year period (2003-2007). Appendix J tables show the distribution of cancer stage at diagnosis for all cancer sites and the targeted cancers, by year, from 2003 to 2007.

**Appendix C**

**Cancer Report Data Sources, References, and Data Considerations**

**2010 Cigarette Restitution Fund (CRF) Cancer Report**
**Data Sources, References, and Data Considerations**

## I.  DATA SOURCES

Data and information presented in the 2010 Cigarette Restitution Fund (CRF) Cancer Report were obtained from a variety of sources, including:
- Maryland Department of Health and Mental Hygiene (DHMH)
  - Center for Cancer Surveillance and Control
  - Office of Health Policy and Planning
  - Center for Health Promotion, Education and Tobacco Use Prevention
- National Cancer Institute (NCI, part of the National Institutes of Health)
- Centers for Disease Control and Prevention (CDC); and
- Office of Disease Prevention and Health Promotion at the U.S. Department of Health and Human Services

These sources and the types of information provided for the 2010 CRF Cancer Report are described in the following sections.

### A.  Cancer Incidence and Stage Data

*1.  Maryland Cancer Registry*

The Maryland Cancer Registry (MCR), Center for Cancer Surveillance and Control, DHMH, is the source for all Maryland-specific cancer incidence and cancer stage data used in this report.  The MCR is a computerized data system that registers (i.e., collects and consolidates reports) all new cases of reportable cancers (excluding non-genital squamous cell or basal cell skin cancer) that are diagnosed or treated in Maryland and reported to the MCR.  Incidence rates used in this report were calculated using cases reported to the MCR as of December 1, 2009 for diagnosis year 2007.

The Maryland cancer reporting law and regulations mandate the collection of cancer information from hospitals, radiation therapy centers, diagnostic pathology laboratories licensed in Maryland, freestanding ambulatory care facilities, surgical centers, and physicians whose non-hospitalized cancer patients are not otherwise reported.  MCR also participates in data exchange agreements with 13 other states/jurisdictions, including Delaware, Pennsylvania, Virginia, West Virginia, and the District of Columbia. Information on Maryland residents diagnosed or treated for cancer in these jurisdictions is included in this report.  **Note**:  **The 2006 case counts presented in this report for Montgomery and Prince George's counties are underreported due to delay in case reporting.  Cancers reported to the MCR after the annual cutoff date are not included in the MCR official Maryland case counts and rates.  The case undercounts resulted in lower than actual age-adjusted incidence rates for Montgomery and Prince George's counties, for the National Capital geographic region, and to a lesser degree, for Maryland, for 2006 and the 5-year period 2003-2007.**

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

The Surveillance, Epidemiology, and End Results (SEER) Program, managed by the National Cancer Institute (NCI), is an authoritative source of information on cancer incidence, stage, and survival in the U.S.  SEER incidence rates representative of the U.S. are used in the 2010 CRF Cancer Report for comparisons with Maryland incidence rates.

The SEER Program, which began in 1973, collects, analyzes, and publishes cancer incidence and survival data from population-based cancer registries participating in the program.  The SEER Program was expanded in 1992 (creating the SEER 13 registry database) and again in 2001 to increase representation of minority and rural low-income populations including Hispanics, American Indian populations, and rural African Americans.  Since 2000, SEER incidence data have been collected from 13 SEER registries and four expansion registries throughout the U.S. (SEER 17 registry database) and are estimated to represent approximately 26% of the U.S. population.  The SEER database adequately represents cancer incidence in the U.S. population with regard to race, ethnicity, age, gender, poverty, and education, and by collecting data on epidemiologically significant population subgroups.

SEER 17 incidence data are used in this report for comparisons with the most recent Maryland data (2003-2007) because they provide the broadest population coverage that is currently available.  For longer-term comparisons that include Maryland data prior to 2000, SEER 13 registry data are used.  All SEER 13 and 17 rates were obtained from SEER*Stat (version 6.5.1), a statistical software tool for the analysis of SEER and other cancer-related databases.  The SEER Program updates cancer statistics annually in a publication called the SEER Cancer Statistics Review (CSR).  SEER data for specific cancers can be seen on the Web at http://seer.cancer.gov/csr/1975_2007/index.html.  Additional information about SEER can also be found on the Web site at www.seer.cancer.gov.

The Maryland population estimates for 2007 presented in Appendix E were obtained from SEER*Stat.

**B.  Cancer Mortality Data**

The Maryland and U.S. mortality data presented in this report were obtained from the National Center for Health Statistics (NCHS) Compressed Mortality Files (CMF) in the Centers for Disease Control and Prevention (CDC) Wide-ranging Online Data for Epidemiologic Research (WONDER) system.  CDC WONDER is an easy-to-use Web-based system that makes information from CDC available to public health professionals and the public at large.  It provides access to a wide array of public health information, including Web resources for Healthy People (HP) 2010 targets (see Section C.4 of this appendix) and cancer mortality data.

The NCHS CMF is a county-level national mortality and population database spanning the years 1979-2007.  The number of deaths, crude death rates, and age-adjusted death

144

rates can be obtained by place of residence (total U.S., state, and county), age group, race, gender, year of death, and underlying cause of death (based on International Classification of Diseases [ICD] code or group of codes).  Mortality data presented in this report for the individual years 1999 to 2007 and 5-year combined data for the period 2003-2007 were obtained from the 1999-2007 CMF using ICD Tenth Revision (ICD-10) codes.  Mortality rates for 1998, which are used in 10-year trend graphics in this report, were obtained from the 1979-1998 CMF using Ninth Revision (ICD-9) codes.   Data was accessed in December 2010.

Beginning with 1999 mortality data, CDC WONDER reports race in four categories (American Indian or Alaska Native, Asian or Pacific Islander, Black or African American, and White), as well as Hispanic ethnicity; for years prior to 1999, race is reported in three categories (Black or African American, White, and Other).  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.

## C.  Behavioral and Risk Factor Data

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

### 1.  Maryland Behavioral Risk Factor Surveillance System (BRFSS)

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

### 2.  Maryland Youth Tobacco Survey

Data from the Maryland Youth Tobacco Survey (MYTS) are used in the CRF Cancer Report to monitor trends in tobacco use (as a risk factor for lung cancer) by Maryland youth.  The MYTS, managed by the DHMH Family Health Administration, Center for Health Promotion, Education and Tobacco Use Prevention, is administered to gather information regarding attitudes, usage, and exposure to tobacco products among public middle and high school students Statewide and within each of Maryland's 23 counties and Baltimore City.  Survey results are also used in apportioning Local Tobacco Use Prevention and Cessation grants among Maryland's 24 major political subdivisions.  To date, the MYTS has been conducted in 2000, 2002, 2006, and 2008.  Published survey reports are available on the DHMH Web site at http://www.crf.state.md.us/html/stats.cfm

and http://crf.maryland.gov/tobacco_behaviors.cfm.  Additional information can be obtained from the Center for Health Promotion, Education, and Tobacco Use Prevention at 410-767-1362.

### 3.  Maryland Cancer Survey

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

Some charts in this report include both MCS and Maryland BRFSS data, as a basis for comparison with HP 2010 targets.  Caution should be used when comparing results from the MCS and BRFSS.  Although they are similar, these surveys have certain design and methodological differences, including targeted age groups, scope and timing of the surveys, and weighting.  The MCS reports, including detailed information on the survey methods, are available on the Web at http://fha.maryland.gov/cancer/surv_data-reports.cfm.

### 4.  Healthy People 2010

HP 2010 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 2010 goal for cancer prevention is to "reduce the number of new cases as well as the illness, disability, and death caused by cancer."  To achieve this goal, measurable objectives related to cancer screening and cancer risk behaviors were established, each with a specific quantitative target.  Several of these targets are used in the CRF Cancer Report as benchmarks by which Maryland progress can be measured.

In 2006, a Midcourse Review of HP 2010 was completed by DHHS to assess progress toward the original HP 2010 objectives, and to revise those objectives for which new data had become available.  DHHS is currently updating all HP goals and objectives as part of HP 2020 initiative; the new HP 2020 objectives are scheduled for release in late 2010. Additional information can be found on the Web at http://www.healthypeople.gov and http://www.healthypeople.gov/data/midcourse.

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

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

Information provided in the chapters under the sections for "Public Health Evidence" and "Public Health Intervention" was taken primarily from the NCI PDQ® Web site. While the United State Preventive Services Task Force (USPSTF) reviews its recommendations every few years, the information presented in the PDQ on cancer prevention and screening is updated more frequently and the date of the most recent revision can be found on each Web page for that topic. Prevention and screening sections from this source provide information for health professionals and the public on various aspects of cancer control such as prevention, screening, treatment, genetics, and clinical trials. For some cancer types, the information is reviewed by a scientific editorial board and is updated as new research becomes available. The PDQ Editorial Board evaluates evidence in two steps: (1) study design, and (2) assessment of the evidence. The first step is to describe the evidence within five domains (see below); the second is an assessment of certainty--to judge the overall "level" of evidence as "solid," "fair," or "inadequate." The Board conducts the same process separately for potential benefits and potential harms of each intervention.

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

1. Study Design: study designs in order of strongest evidence to weakest evidence, are described as follows:
   a. Evidence obtained from at least one randomized controlled trial (this is considered the gold standard for scientific research);
   b. Evidence obtained from controlled trials without randomization;
   c. Evidence obtained from well-designed and conducted cohort or case-control studies, preferably from more than one center or research group;
   d. Evidence obtained from multiple time series with or without intervention; and
   e. Opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees.
2. Internal validity
3. Consistency (coherence)/volume of the evidence
4. Direction and magnitude of effects for health outcomes (both absolute and relative risks, as quantitative as possible, may vary for different populations)
5. External validity

### Step 2: Assessment of the evidence
Step 2 is a judgment of the level of certainty (solid, fair, inadequate) and is based on the Board's understanding of the direction and magnitude of the health effects of widespread implementation. The assessment may also include a statement of benefits and a second statement of harms of widespread implementation.

More information about NCI PDQ can be accessed at:

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

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

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

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

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

**C. Additional Medical Literature**

Lung and Bronchus Cancer
Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs – 2007* (October 2007). National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Atlanta, GA. http://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm. Last accessed April 7, 2011.

*Screening for Lung Cancer*, Topic Page. May 2004. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspslung.htm. Last accessed November 10, 2010.

Colorectal Cancer
*Screening for Colorectal Cancer*, Topic Page. November 2008. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm. Last accessed November 10, 2010.

Female Breast Cancer
*Chemoprevention for Breast Cancer*, Topic Page. July 2002. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrpv.htm. Last accessed November 10, 2010.

*Screening for Breast Cancer*, Topic Page. November 2009. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm. Last accessed November 10, 2010.

Prostate Cancer
Smith RA, Cokkinides V, and Brawley OW. Cancer Screening in the United States, 2008: A Review of Current American Cancer Society Guidelines and Cancer Screening Issues. *CA Cancer J Clin* 2008; 58: 161-179. http://caonline.amcancersoc.org/cgi/content/full/58/3/161. Last accessed November 10, 2010.

*Screening for Prostate Cancer*, Topic Page. August 2008. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspsprca.htm. Last accessed November 10, 2010.

Oral Cancer
*Screening for Oral Cancer*, Topic Page. February 2004. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspsoral.htm. Last accessed November 10, 2010.

Skin Cancer
*Screening for Skin Cancer*, Topic Page. February 2009. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspsskca.htm. Last accessed November 10, 2010.

Cervical Cancer
*Screening for Cervical Cancer*, Topic Page. January 2003. U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality, Rockville, MD. http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm. Last accessed November 10, 2010.

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

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

## III. DATA CONSIDERATIONS

### A. Data Confidentiality

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

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

Mortality data for the report were extracted from the NCHS CMF in CDC WONDER using its Web-based data query feature (see Section I.B above). ICD-10 codes listed in Appendix G of this report were used for identifying type of cancer for extraction. Data obtained from the NCHS CMF are subject to both CDC WONDER and NCHS data use restrictions, which differ slightly from those of the *MCR Data Use Policy* used for incidence data. To ensure that individual identity is protected in the use and re-release of mortality data from the CMF in CDC WONDER and that reliable mortality rates are presented in this and other CCSC publications, the DHMH Center for Cancer Surveillance and Control (CCSC) developed the *Mortality Data Suppression Policy When Using National Center for Health Statistics (NCHS) Mortality Data in CCSC Publications* (June 2008). In accordance with this policy, the following protocols are applied to mortality data in this report: Death counts of fewer than 6 (i.e., 0-5 deaths) are suppressed, and denoted by "<6." Complementary suppression of death counts in additional cell(s) is used, as denoted by the letter "s," to prevent back-calculation of numbers in cells with primary suppression. Age-adjusted mortality rates based on counts less than 16 (i.e., 0-15 deaths) are suppressed (denoted by ** symbol) because the rates are unstable and do not provide reliable information. Although CDC WONDER publishes and annotates as "unreliable" rates based on counts less than 20 deaths, CCSC suppresses death rates based on counts of less than 16 deaths. This threshold is consistent

with the criteria used in both the NCI U.S. Cancer Statistics Review and the *DHMH/MCR Data Use Policy* for incidence rate suppression.

## B.  Gender

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

## C.  Rate Analysis

Individual year incidence rates for 2007 presented in this report were calculated using Maryland resident cancer cases diagnosed from January 1 through December 31 of that year, and reported to the MCR as of December 1, 2009.  The individual year mortality data (2007) consist of deaths that occurred between January 1 and December 31 of that year.  Multiple year incidence rates presented were calculated for 5-year collapsed rates using MCR 2003-2007 data.  Corresponding mortality rates were extracted from the NCHS CMF in CDC WONDER as 5-year combined data from 2003-2007.

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

Incidence and mortality counts and rates are suppressed according to the *DHMH/MCR Data Use Policy* and the *DHMH/CCSC Mortality Data Suppression Policy*, as described in Section III.A above.

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

## D.  Confidence Intervals and Statistical Significance

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

different.  Confidence intervals are useful in defining a range within which the typical rate for a geographic area can be expected to lie.

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

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

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

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

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

When the confidence intervals around two rates (e.g., state and county rates) do not overlap, it can be stated with 95% confidence that the two rates are statistically significantly different.  For example, Maryland's 2007 colorectal cancer (CRC) incidence rate was 41.6 per 100,000, with a confidence interval of 40.0-43.4.  The 2007 U.S. SEER-reported CRC incidence rate was 45.5 per 100,000 population, with a 95% confidence interval of 45.0-46.0.  Since these confidence intervals do not overlap, the two rates are considered to be statistically significantly different (i.e., the difference between these rates is more than that expected by chance).

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

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

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

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

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

## E. National Comparison Data

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

Data used for Maryland cancer mortality ranking by site are based on NCHS mortality files extracted from CDC WONDER. 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 (2003-2007) of age-adjusted rates. Because mortality rates describe the cancer burden better than incidence rates, only Maryland rankings for mortality are presented for each targeted cancer.

Maps in this report display comparisons of Maryland incidence and mortality rates, by geographical area, to U.S. rates. For both incidence and mortality rate maps, the 5-year (2003-2007) U.S. rate was used as a basis for comparison with rates for Maryland jurisdictions (counties and regions). A ramp is used for grouping Maryland data into categories in reference to U.S. rates. The ramp groups data into five divisions: >25% above U.S. rate; 10-25% above U.S. rate; between 10% below and 10% above U.S. rate; 10-25% below U.S. rate; and >25% below U.S. rate. Note that 10-25% includes the 10% and 25%, but less than 10% and more than 25% do not include the endpoints of the range. Where 5-year incidence or mortality rates for any given jurisdiction are suppressed due to a small number of cases or deaths, aggregated regional rates for the affected area are used in lieu of county rates as a basis for comparison in maps.

## F. Race and Hispanic Ethnicity

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

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

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

Mortality data (death counts and rates) in this report were obtained from the NCHS CMF in CDC WONDER.  Race data in the CMF are based on information collected on death certificates.  As described in Section I.B above, CDC WONDER began reporting race in four categories (White, Black, Asian or Pacific Islander, and Native American or Alaska Native), as well as Hispanic ethnicity, starting with 2006 mortality data.  In years prior to 2006, race is reported in three categories (White, Black, and other).  The category of "other" races includes the American Indian or Alaska Native race category and the Asian or Pacific Islander race category.  NCHS, in collaboration with the Census Bureau, developed a race-bridging methodology for assigning multiple-race groups to single-race categories.

## G.  Healthy People 2010 Targets

In the CRF Cancer Report, quantitative HP 2010 targets are compared to Maryland data related to cancer risk behaviors and adherence to cancer screening recommendations (see Section I.C.4).  Specifically, HP 2010 targets are compared to data from the Maryland BRFSS and the MCS.  The data from these Maryland surveys are weighted to the age, race, and gender of Maryland population.  Unlike the national data that serve as the basis for HP 2010 targets, Maryland BRFSS and MCS data are not age-adjusted to the 2000 U.S. standard population. The HP 2010 targets in this report have been updated to reflect changes resulting from the HP 2010 Midcourse review completed in 2006.

## H. Appendices

Please refer to additional appendices for:
- Cigarette Restitution Fund Cancer Report Requirements (Appendix A)
- Cancer Report Format (Appendix B)
- Glossary (technical terms and definitions; Appendix D)
- Maryland Population Estimates, 2007 (Appendix E)
- U.S. Standard Population, 2000 (Appendix F)
- Definitions of International Classification of Diseases (ICD) Codes Used for Cancer Incidence and Mortality (Appendix G)
- Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2003-2007 (Appendix H)
- Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site and Year, 2003-2007 (Appendix I)

154

- Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site, Race, and Year, 2003-2007 (Appendix J)

# Appendix D

# Glossary

# Glossary

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

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

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

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

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

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

- **Incidence:** Incidence is the number of new cases of a given cancer or other event during a defined period, usually one year. For the purpose of this report, cancer incidence refers to the number of new cases diagnosed during individual calendar year 2007. Cancer incidence data are also presented in aggregated form as the average annual incidence for the 5-year period from 2003 through 2007.

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

- **Invasive cancer:** Invasive cancer is a stage of cancer in which cancer cells have spread to healthy tissue adjacent to the tumor. It may still be considered localized if it has not spread

to other parts of the body.  Stage data presented in this report involve a diagnosis of invasive cancer: localized, regional, or distant.  A diagnosis "in situ" is noninvasive and is not included in the staging data.

- **Mortality:**  Mortality refers to the number of deaths during a defined time, usually one year. For the purposes of this report, cancer mortality data are presented for individual calendar year 2007.  Data for cancer mortality are also presented in an aggregated form, as the average annual mortality for the 5-year period from 2003 through 2007.

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

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

- **Rate:**  A rate is an estimate of the burden of a given disease on a defined population 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, standardized to a population of 100,000.  A mortality rate is the number of deaths for a given period divided by the population at risk per 100,000 population.  All rates presented in this report are age-adjusted to the 2000 U.S. standard population.

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

Baltimore Metropolitan Area
Anne Arundel, Baltimore City, Baltimore County, Carroll, Harford, Howard

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

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

National Capital Area
Montgomery, Prince George's

Northwest Region
Allegany, Frederick, Garrett, Washington

Southern Region
Calvert, Charles, Saint Mary's

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

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

    1. **In situ:** the cancerous cells have not invaded the tissue basement membrane. In situ cancers are not considered malignant (with the exception of bladder cancers) and are not included in incidence rate calculations.
    2. **Localized:** the tumor is confined to the organ of origin.
    3. **Regional:** the tumor has spread to adjacent organs or tissue.  Regional lymph nodes may also be involved.
    4. **Distant:** the tumor has spread beyond the adjacent organs or tissues.  Distant lymph nodes, organs and/or tissues may also be involved.
    5. **Unstaged:** the stage of disease at diagnosis was unable to be classified (often due to insufficient information) or was not reported to the cancer registry.

**Appendix E**

**Maryland Population Estimates, 2007**

## Maryland Population Estimates by Jurisdiction, 2007

| | Total All Genders | Total Male | Total Female | Total White | White Male | White Female | Total Black | Black Male | Black Female |
|---|---|---|---|---|---|---|---|---|---|
| **Maryland** | **5,618,899** | **2,719,072** | **2,899,827** | **3,614,417** | **1,777,280** | **1,837,137** | **1,683,413** | **786,088** | **897,325** |
| **Baltimore Metropolitan Area** | **2,617,290** | **1,260,432** | **1,356,858** | **1,725,165** | **845,019** | **880,146** | **775,769** | **358,677** | **417,092** |
| Anne Arundel County | 510,507 | 253,222 | 257,285 | 411,247 | 204,645 | 206,602 | 79,795 | 39,192 | 40,603 |
| Baltimore City | 640,150 | 298,819 | 341,331 | 210,491 | 102,985 | 107,506 | 413,017 | 187,663 | 225,354 |
| Baltimore County | 785,830 | 373,628 | 412,202 | 550,732 | 264,323 | 286,409 | 197,761 | 90,851 | 106,910 |
| Carroll County | 168,786 | 83,428 | 85,358 | 158,733 | 78,389 | 80,344 | 6,799 | 3,480 | 3,319 |
| Harford County | 239,406 | 117,332 | 122,074 | 203,065 | 99,936 | 103,129 | 30,079 | 14,482 | 15,597 |
| Howard County | 272,611 | 134,003 | 138,608 | 190,897 | 94,741 | 96,156 | 48,318 | 23,009 | 25,309 |
| **Eastern Shore Region** | **435,171** | **212,494** | **222,677** | **355,986** | **174,271** | **181,715** | **72,840** | **35,062** | **37,778** |
| Caroline County | 32,797 | 16,053 | 16,744 | 27,553 | 13,589 | 13,964 | 4,790 | 2,220 | 2,570 |
| Cecil County | 99,368 | 49,014 | 50,354 | 92,038 | 45,496 | 46,542 | 5,902 | 2,851 | 3,051 |
| Dorchester County | 31,845 | 15,093 | 16,752 | 22,515 | 10,811 | 11,704 | 8,947 | 4,104 | 4,843 |
| Kent County | 19,879 | 9,508 | 10,371 | 16,458 | 7,951 | 8,507 | 3,221 | 1,442 | 1,779 |
| Queen Anne's County | 46,515 | 23,081 | 23,434 | 42,037 | 20,921 | 21,116 | 3,855 | 1,868 | 1,987 |
| Somerset County | 26,147 | 14,046 | 12,101 | 14,795 | 7,565 | 7,230 | 11,008 | 6,311 | 4,697 |
| Talbot County | 36,132 | 17,254 | 18,878 | 30,546 | 14,636 | 15,910 | 5,147 | 2,403 | 2,744 |
| Wicomico County | 93,218 | 44,521 | 48,697 | 68,640 | 33,006 | 35,634 | 22,672 | 10,535 | 12,137 |
| Worcester County | 49,270 | 23,924 | 25,346 | 41,404 | 20,296 | 21,108 | 7,298 | 3,328 | 3,970 |
| **National Capital Area** | **1,766,809** | **849,009** | **917,800** | **877,558** | **434,120** | **443,438** | **712,637** | **329,453** | **383,184** |
| Montgomery County | 941,491 | 453,327 | 488,164 | 641,965 | 312,206 | 329,759 | 163,108 | 75,463 | 87,645 |
| Prince George's County | 825,318 | 395,682 | 429,636 | 235,593 | 121,914 | 113,679 | 549,529 | 253,990 | 295,539 |
| **Northwest Region** | **471,053** | **235,695** | **235,358** | **418,701** | **205,972** | **212,729** | **40,078** | **23,690** | **16,388** |
| Allegany County | 72,603 | 36,708 | 35,895 | 67,126 | 32,645 | 34,481 | 4,830 | 3,736 | 1,094 |
| Frederick County | 224,147 | 110,734 | 113,413 | 194,276 | 95,995 | 98,281 | 20,716 | 10,268 | 10,448 |
| Garrett County | 29,641 | 14,617 | 15,024 | 29,275 | 14,408 | 14,867 | 271 | 165 | 106 |
| Washington County | 144,662 | 73,636 | 71,026 | 128,024 | 62,924 | 65,100 | 14,261 | 9,521 | 4,740 |
| **Southern Region** | **328,576** | **161,442** | **167,134** | **237,007** | **117,898** | **119,109** | **82,089** | **39,206** | **42,883** |
| Calvert County | 88,145 | 43,379 | 44,766 | 73,652 | 36,506 | 37,146 | 12,850 | 6,719 | 6,131 |
| Charles County | 140,169 | 68,133 | 72,036 | 81,134 | 40,125 | 41,009 | 53,965 | 25,666 | 28,299 |
| St Mary's County | 100,262 | 49,930 | 50,332 | 82,221 | 41,267 | 40,954 | 15,274 | 7,409 | 7,865 |

Source: SeerStat static data as of December 1, 2009 (www.seer.cancer.gov). Data are modified vintage 2008 population estimates produced by U.S. Census Bureau and National Center for Health Statistics. Estimates incorporate 2008 bridged single-race estimates for July 1, 2007 . (refer to http:/seer.cancer.gov/popdata)

**Appendix F**

**U.S. Standard Population, 2000**

## 2000 U.S. Standard Population
## (Census P25-1130)

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

Source:  National Cancer Institute, SEER, 2000

**Appendix G**

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

**International Classification of Diseases for Oncology, Third Edition (ICD-O-3) Codes**
**Used for Cancer Incidence and**
**International Classification of Diseases, 10<sup>th</sup> Revision (ICD-10) Codes**
**Used for Cancer Mortality**

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

Note: Most cancer mortality (ICD-10) codes are similar to cancer incidence (ICD-O-3) topography (site) codes.

**Appendix H**

**Maryland Cancer Incidence and Mortality Rates by Geographical Area, 2003-2007**

**Appendix H**

**All Cancer Sites Incidence**
**Age-Adjusted Incidence Rates**
**by Geographical Area, Maryland, 2003-2007**

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 458.9 | 456.4 | 461.4 |
| | | | |
| Northwest Region | 490.6 | 481.8 | 499.6 |
| Allegany | 485.9 | 465.8 | 506.7 |
| Frederick | 519.0 | 504.7 | 533.7 |
| Garrett | 406.8 | 377.8 | 437.5 |
| Washington | 483.8 | 468.3 | 499.7 |
| | | | |
| Baltimore Metropolitan Area ^ | 473.0 | 469.3 | 476.7 |
| Anne Arundel | 469.0 | 460.4 | 477.8 |
| Baltimore City | 461.4 | 454.0 | 468.9 |
| Baltimore County | 489.3 | 482.7 | 495.8 |
| Carroll | 497.4 | 482.2 | 513.0 |
| Harford | 488.7 | 475.8 | 501.8 |
| Howard | 431.3 | 419.0 | 443.9 |
| | | | |
| National Capital Area † | 410.7 | 406.3 | 415.2 |
| Montgomery † | 410.8 | 405.0 | 416.7 |
| Prince George's † | 408.7 | 401.8 | 415.7 |
| | | | |
| Southern Region | 460.2 | 448.6 | 472.0 |
| Calvert | 479.6 | 457.6 | 502.4 |
| Charles | 449.3 | 431.1 | 468.1 |
| Saint Mary's | 459.2 | 438.6 | 480.6 |
| | | | |
| Eastern Shore Region | 477.9 | 469.3 | 486.7 |
| Caroline | 490.4 | 457.4 | 525.3 |
| Cecil | 488.3 | 468.1 | 509.1 |
| Dorchester | 454.6 | 425.5 | 485.4 |
| Kent | 507.6 | 468.7 | 549.1 |
| Queen Anne's | 466.5 | 439.8 | 494.5 |
| Somerset | 487.3 | 450.8 | 526.1 |
| Talbot | 486.7 | 459.5 | 515.3 |
| Wicomico | 467.8 | 448.5 | 487.7 |
| Worcester | 488.0 | 464.6 | 512.3 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
  are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

## Lung and Bronchus Cancer Incidence
## Age-Adjusted Incidence Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
| --- | --- | --- | --- |
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 66.6 | 65.6 | 67.6 |
| | | | |
| Northwest Region | 72.6 | 69.3 | 76.2 |
| Allegany | 82.1 | 74.2 | 90.8 |
| Frederick | 74.8 | 69.3 | 80.6 |
| Garrett | 52.0 | 42.1 | 63.6 |
| Washington | 70.8 | 64.9 | 77.1 |
| | | | |
| Baltimore Metropolitan Area ^ | 73.4 | 72.0 | 74.9 |
| Anne Arundel | 72.0 | 68.6 | 75.6 |
| Baltimore City | 82.2 | 79.1 | 85.4 |
| Baltimore County | 74.5 | 72.0 | 77.1 |
| Carroll | 72.5 | 66.7 | 78.8 |
| Harford | 75.7 | 70.6 | 81.0 |
| Howard | 51.8 | 47.4 | 56.6 |
| | | | |
| National Capital Area † | 47.4 | 45.9 | 49.0 |
| Montgomery † | 42.4 | 40.6 | 44.4 |
| Prince George's † | 53.9 | 51.3 | 56.5 |
| | | | |
| Southern Region | 70.4 | 65.7 | 75.3 |
| Calvert | 76.1 | 67.2 | 85.8 |
| Charles | 64.5 | 57.4 | 72.1 |
| Saint Mary's | 73.1 | 64.8 | 82.0 |
| | | | |
| Eastern Shore Region | 82.3 | 78.8 | 85.9 |
| Caroline | 92.0 | 77.9 | 107.8 |
| Cecil | 86.5 | 78.0 | 95.6 |
| Dorchester | 84.1 | 72.1 | 97.8 |
| Kent | 80.9 | 66.1 | 98.3 |
| Queen Anne's | 79.1 | 68.3 | 91.2 |
| Somerset | 101.6 | 85.4 | 120.1 |
| Talbot | 70.0 | 60.4 | 81.0 |
| Wicomico | 86.9 | 78.7 | 95.7 |
| Worcester | 74.2 | 65.7 | 83.7 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
   are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

### Colorectal Cancer Incidence
### Age-Adjusted Incidence Rates
### by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 46.4 | 45.6 | 47.2 |
| | | | |
| Northwest Region | 51.1 | 48.3 | 54.1 |
| Allegany | 58.3 | 51.7 | 65.7 |
| Frederick | 53.1 | 48.5 | 58.0 |
| Garrett | 46.4 | 37.1 | 57.5 |
| Washington | 46.6 | 41.9 | 51.7 |
| | | | |
| Baltimore Metropolitan Area ^ | 46.8 | 45.6 | 48.0 |
| Anne Arundel | 44.2 | 41.5 | 47.0 |
| Baltimore City | 49.0 | 46.6 | 51.4 |
| Baltimore County | 47.9 | 45.9 | 50.0 |
| Carroll | 50.8 | 45.9 | 56.0 |
| Harford | 45.6 | 41.6 | 49.8 |
| Howard | 42.8 | 38.9 | 47.0 |
| | | | |
| National Capital Area † | 41.1 | 39.7 | 42.6 |
| Montgomery † | 37.9 | 36.2 | 39.8 |
| Prince George's † | 45.1 | 42.8 | 47.6 |
| | | | |
| Southern Region | 54.9 | 50.8 | 59.2 |
| Calvert | 54.3 | 46.9 | 62.5 |
| Charles | 60.3 | 53.4 | 67.8 |
| Saint Mary's | 50.0 | 43.3 | 57.4 |
| | | | |
| Eastern Shore Region | 49.8 | 47.1 | 52.7 |
| Caroline | 51.1 | 40.9 | 63.1 |
| Cecil | 53.1 | 46.5 | 60.4 |
| Dorchester | 58.2 | 48.2 | 69.9 |
| Kent | 43.9 | 33.4 | 57.1 |
| Queen Anne's | 50.2 | 41.6 | 60.1 |
| Somerset | 51.3 | 39.9 | 64.9 |
| Talbot | 48.6 | 40.4 | 58.1 |
| Wicomico | 49.2 | 43.1 | 55.9 |
| Worcester | 45.8 | 39.0 | 53.6 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
  are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

# Appendix H

## Female Breast Cancer Incidence
## Age-Adjusted Incidence Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 122.4 | 120.6 | 124.1 |
| | | | |
| Northwest Region | 126.3 | 120.2 | 132.6 |
| Allegany | 115.7 | 102.0 | 131.0 |
| Frederick | 139.5 | 129.8 | 149.8 |
| Garrett | 125.2 | 103.5 | 150.3 |
| Washington | 114.9 | 104.6 | 126.0 |
| | | | |
| Baltimore Metropolitan Area ^ | 120.4 | 117.9 | 122.9 |
| Anne Arundel | 120.2 | 114.4 | 126.2 |
| Baltimore City | 102.8 | 98.2 | 107.5 |
| Baltimore County | 130.4 | 125.8 | 135.1 |
| Carroll | 133.9 | 123.5 | 145.0 |
| Harford | 113.2 | 105.1 | 121.8 |
| Howard | 129.6 | 121.0 | 138.6 |
| | | | |
| National Capital Area † | 122.1 | 119.0 | 125.3 |
| Montgomery † | 128.1 | 123.8 | 132.4 |
| Prince George's † | 114.0 | 109.4 | 118.7 |
| | | | |
| Southern Region | 111.4 | 104.0 | 119.1 |
| Calvert | 119.8 | 105.7 | 135.4 |
| Charles | 109.3 | 98.2 | 121.4 |
| Saint Mary's | 105.9 | 92.8 | 120.2 |
| | | | |
| Eastern Shore Region | 125.7 | 119.6 | 132.1 |
| Caroline | 143.5 | 119.6 | 171.0 |
| Cecil | 118.9 | 105.7 | 133.3 |
| Dorchester | 108.1 | 88.9 | 130.5 |
| Kent | 159.0 | 128.7 | 194.8 |
| Queen Anne's | 101.9 | 85.3 | 120.9 |
| Somerset | 106.9 | 83.4 | 135.2 |
| Talbot | 141.3 | 121.1 | 164.3 |
| Wicomico | 127.3 | 113.8 | 142.0 |
| Worcester | 139.1 | 121.6 | 158.7 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
   are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

### Prostate Cancer Incidence
### Age-Adjusted Incidence Rates
### by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 157.6 | 155.4 | 159.9 |
| | | | |
| Northwest Region | 155.1 | 147.6 | 162.8 |
| Allegany | 133.5 | 118.4 | 150.1 |
| Frederick | 166.1 | 153.5 | 179.4 |
| Garrett | 127.0 | 104.4 | 153.4 |
| Washington | 165.7 | 152.2 | 180.0 |
| | | | |
| Baltimore Metropolitan Area ^ | 152.2 | 149.0 | 155.5 |
| Anne Arundel | 148.2 | 141.0 | 155.7 |
| Baltimore City | 164.7 | 157.8 | 171.9 |
| Baltimore County | 150.8 | 145.4 | 156.4 |
| Carroll | 139.5 | 127.5 | 152.4 |
| Harford | 166.3 | 154.9 | 178.2 |
| Howard | 131.4 | 121.3 | 142.1 |
| | | | |
| National Capital Area † | 164.1 | 159.9 | 168.5 |
| Montgomery † | 157.0 | 151.6 | 162.6 |
| Prince George's † | 173.0 | 166.1 | 180.1 |
| | | | |
| Southern Region | 149.9 | 139.8 | 160.5 |
| Calvert | 124.1 | 107.1 | 143.0 |
| Charles | 168.5 | 151.1 | 187.2 |
| Saint Mary's | 151.2 | 133.7 | 170.3 |
| | | | |
| Eastern Shore Region | 144.5 | 137.6 | 151.7 |
| Caroline | 128.4 | 104.3 | 156.5 |
| Cecil | 139.7 | 124.1 | 156.7 |
| Dorchester | 126.4 | 104.7 | 151.6 |
| Kent | 185.1 | 152.9 | 222.6 |
| Queen Anne's | 155.0 | 133.6 | 179.0 |
| Somerset | 117.8 | 92.1 | 148.5 |
| Talbot | 171.5 | 148.9 | 196.9 |
| Wicomico | 132.4 | 117.2 | 149.0 |
| Worcester | 150.1 | 132.3 | 170.0 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
   are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

## Oral Cancer Incidence
## Age-Adjusted Incidence Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 9.6 | 9.3 | 10.0 |
| | | | |
| Northwest Region | 9.4 | 8.2 | 10.7 |
| Allegany | 10.6 | 7.7 | 14.1 |
| Frederick | 8.9 | 7.2 | 10.9 |
| Garrett | ** | ** | ** |
| Washington | 9.6 | 7.5 | 12.1 |
| | | | |
| Baltimore Metropolitan Area ^ | 10.2 | 9.6 | 10.7 |
| Anne Arundel | 11.0 | 9.7 | 12.4 |
| Baltimore City | 10.9 | 9.8 | 12.0 |
| Baltimore County | 9.7 | 8.8 | 10.7 |
| Carroll | 9.6 | 7.6 | 11.9 |
| Harford | 10.8 | 9.0 | 12.9 |
| Howard | 8.1 | 6.5 | 9.9 |
| | | | |
| National Capital Area † | 8.3 | 7.7 | 8.9 |
| Montgomery † | 8.2 | 7.4 | 9.0 |
| Prince George's † | 8.3 | 7.3 | 9.3 |
| | | | |
| Southern Region | 11.7 | 10.0 | 13.7 |
| Calvert | 11.9 | 8.8 | 15.7 |
| Charles | 10.5 | 8.0 | 13.5 |
| Saint Mary's | 13.1 | 9.9 | 17.0 |
| | | | |
| Eastern Shore Region | 10.2 | 8.9 | 11.5 |
| Caroline | ** | ** | ** |
| Cecil | 11.5 | 8.7 | 15.0 |
| Dorchester | ** | ** | ** |
| Kent | 13.8 | 8.4 | 21.9 |
| Queen Anne's | 10.7 | 7.0 | 15.6 |
| Somerset | ** | ** | ** |
| Talbot | 10.9 | 7.1 | 16.2 |
| Wicomico | 9.3 | 6.8 | 12.6 |
| Worcester | 10.2 | 7.0 | 14.4 |

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

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
  are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

# Appendix H

## Melanoma Incidence
## Age-Adjusted Incidence Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 20.1 | 19.6 | 20.6 |
| | | | |
| Northwest Region | 21.9 | 20.1 | 23.9 |
| Allegany | 13.8 | 10.5 | 17.9 |
| Frederick | 24.1 | 21.2 | 27.3 |
| Garrett | 13.4 | 8.3 | 20.4 |
| Washington | 25.1 | 21.6 | 28.9 |
| | | | |
| Baltimore Metropolitan Area ^ | 21.8 | 21.0 | 22.6 |
| Anne Arundel | 29.3 | 27.2 | 31.5 |
| Baltimore City | 8.3 | 7.3 | 9.4 |
| Baltimore County | 22.6 | 21.2 | 24.1 |
| Carroll | 28.9 | 25.4 | 32.8 |
| Harford | 29.4 | 26.4 | 32.8 |
| Howard | 26.6 | 23.8 | 29.7 |
| | | | |
| National Capital Area † | 13.3 | 12.5 | 14.1 |
| Montgomery † | 17.6 | 16.4 | 18.8 |
| Prince George's † | 8.0 | 7.0 | 9.0 |
| | | | |
| Southern Region | 24.8 | 22.2 | 27.5 |
| Calvert | 41.5 | 35.2 | 48.5 |
| Charles | 12.7 | 10.0 | 15.9 |
| Saint Mary's | 25.4 | 20.9 | 30.6 |
| | | | |
| Eastern Shore Region | 28.3 | 26.2 | 30.5 |
| Caroline | 22.7 | 15.9 | 31.3 |
| Cecil | 23.5 | 19.3 | 28.4 |
| Dorchester | 15.4 | 10.2 | 22.4 |
| Kent | 31.2 | 22.0 | 43.1 |
| Queen Anne's | 37.4 | 30.0 | 46.1 |
| Somerset | 25.6 | 17.7 | 35.9 |
| Talbot | 34.9 | 27.5 | 43.8 |
| Wicomico | 24.3 | 20.0 | 29.2 |
| Worcester | 39.9 | 33.2 | 47.8 |

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
   are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

### Cervical Cancer Incidence
### Age-Adjusted Incidence Rates
### by Geographical Area, Maryland, 2003-2007

| Geographical Area | Incidence Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 7.6 | 7.2 | 8.1 |
| | | | |
| Northwest Region | 8.0 | 6.4 | 9.7 |
| Allegany | 11.1 | 6.8 | 17.1 |
| Frederick | 9.0 | 6.7 | 11.9 |
| Garrett | ** | ** | ** |
| Washington | 6.0 | 3.8 | 9.1 |
| | | | |
| Baltimore Metropolitan Area ^ | 7.7 | 7.0 | 8.4 |
| Anne Arundel | 6.7 | 5.4 | 8.2 |
| Baltimore City | 10.3 | 8.9 | 12.0 |
| Baltimore County | 8.0 | 6.9 | 9.3 |
| Carroll | 5.4 | 3.4 | 8.1 |
| Harford | 5.7 | 4.0 | 7.9 |
| Howard | 5.8 | 4.1 | 8.0 |
| | | | |
| National Capital Area † | 7.5 | 6.7 | 8.3 |
| Montgomery † | 8.1 | 7.0 | 9.3 |
| Prince George's † | 6.9 | 5.8 | 8.2 |
| | | | |
| Southern Region | 7.6 | 5.8 | 9.8 |
| Calvert | 8.6 | 5.1 | 13.7 |
| Charles | 6.8 | 4.2 | 10.3 |
| Saint Mary's | 8.3 | 5.0 | 12.8 |
| | | | |
| Eastern Shore Region | 7.6 | 6.1 | 9.4 |
| Caroline | ** | ** | ** |
| Cecil | 9.7 | 6.2 | 14.5 |
| Dorchester | ** | ** | ** |
| Kent | ** | ** | ** |
| Queen Anne's | ** | ** | ** |
| Somerset | ** | ** | ** |
| Talbot | ** | ** | ** |
| Wicomico | 6.7 | 3.8 | 10.9 |
| Worcester | ** | ** | ** |

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

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

^ Area rate does not include Baltimore City

† 2003-2007 incidence rates for Montgomery County, Prince George's County, and the National Capital Area
   are lower than actual due to case underreporting in 2006. (See Appendix C, Section I.A.1.)

Source:  Maryland Cancer Registry

## Appendix H

### All Cancer Sites Mortality
### Age-Adjusted Mortality Rates
### by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 188.5 | 186.8 | 190.1 |
| | | | |
| Northwest Region | 189.1 | 183.6 | 194.6 |
| Allegany | 196.0 | 183.5 | 208.6 |
| Frederick | 188.5 | 179.6 | 197.4 |
| Garrett | 172.1 | 153.1 | 191.1 |
| Washington | 194.8 | 185.0 | 204.7 |
| | | | |
| Baltimore Metropolitan Area ^ | 189.1 | 186.4 | 191.8 |
| Anne Arundel | 203.1 | 197.1 | 209.0 |
| Baltimore City | 233.2 | 227.9 | 238.5 |
| Baltimore County | 193.2 | 189.2 | 197.3 |
| Carroll | 188.5 | 178.9 | 198.2 |
| Harford | 193.9 | 185.4 | 202.3 |
| Howard | 143.4 | 135.8 | 151.0 |
| | | | |
| National Capital Area | 160.2 | 157.3 | 163.0 |
| Montgomery | 135.8 | 132.5 | 139.2 |
| Prince George's | 194.9 | 189.9 | 200.0 |
| | | | |
| Southern Region | 215.9 | 207.5 | 224.2 |
| Calvert | 215.0 | 199.4 | 230.5 |
| Charles | 220.0 | 206.4 | 233.6 |
| Saint Mary's | 213.0 | 198.4 | 227.7 |
| | | | |
| Eastern Shore Region | 209.4 | 203.7 | 215.1 |
| Caroline | 225.6 | 202.9 | 248.3 |
| Cecil | 216.4 | 202.6 | 230.3 |
| Dorchester | 202.4 | 183.0 | 221.7 |
| Kent | 208.2 | 184.1 | 232.3 |
| Queen Anne's | 206.9 | 188.7 | 225.2 |
| Somerset | 238.7 | 212.7 | 264.7 |
| Talbot | 177.3 | 161.7 | 193.0 |
| Wicomico | 223.3 | 209.8 | 236.7 |
| Worcester | 200.6 | 185.9 | 215.2 |

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

^ Area rate does not include Baltimore City

Source: NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## Appendix H

## Lung and Bronchus Cancer Mortality
## Age-Adjusted Mortality Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 53.5 | 52.7 | 54.4 |
| | | | |
| Northwest Region | 54.6 | 51.6 | 57.6 |
| Allegany | 61.6 | 54.6 | 68.5 |
| Frederick | 49.9 | 45.3 | 54.5 |
| Garrett | 45.2 | 36.1 | 55.9 |
| Washington | 59.9 | 54.4 | 65.4 |
| | | | |
| Baltimore Metropolitan Area ^ | 55.4 | 53.9 | 56.8 |
| Anne Arundel | 61.7 | 58.4 | 64.9 |
| Baltimore City | 72.4 | 69.4 | 75.3 |
| Baltimore County | 56.3 | 54.1 | 58.5 |
| Carroll | 55.4 | 50.2 | 60.6 |
| Harford | 59.8 | 55.2 | 64.4 |
| Howard | 34.9 | 31.1 | 38.6 |
| | | | |
| National Capital Area | 38.3 | 36.9 | 39.6 |
| Montgomery | 30.6 | 29.0 | 32.2 |
| Prince George's | 49.0 | 46.4 | 51.5 |
| | | | |
| Southern Region | 64.3 | 59.7 | 68.8 |
| Calvert | 60.6 | 52.3 | 68.9 |
| Charles | 67.0 | 59.5 | 74.5 |
| Saint Mary's | 64.7 | 56.6 | 72.8 |
| | | | |
| Eastern Shore Region | 66.2 | 63.0 | 69.4 |
| Caroline | 75.9 | 62.8 | 89.1 |
| Cecil | 69.1 | 61.3 | 76.9 |
| Dorchester | 66.0 | 55.0 | 77.0 |
| Kent | 57.7 | 45.5 | 72.1 |
| Queen Anne's | 65.1 | 55.0 | 75.3 |
| Somerset | 84.4 | 69.0 | 99.8 |
| Talbot | 52.6 | 44.0 | 61.1 |
| Wicomico | 75.1 | 67.3 | 82.9 |
| Worcester | 57.3 | 49.7 | 65.0 |

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

^ Area rate does not include Baltimore City

Source: NCHS Compressed Mortality File in CDC WONDER (mortality rates)

**Colorectal Cancer Mortality**
**Age-Adjusted Mortality Rates**
**by Geographical Area, Maryland, 2003-2007**

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
| --- | --- | --- | --- |
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 18.6 | 18.1 | 19.1 |
| | | | |
| Northwest Region | 18.1 | 16.4 | 19.8 |
| Allegany | 18.8 | 15.1 | 23.2 |
| Frederick | 20.0 | 17.1 | 22.9 |
| Garrett | 13.8 | 9.0 | 20.3 |
| Washington | 17.1 | 14.2 | 20.0 |
| | | | |
| Baltimore Metropolitan Area ^ | 18.5 | 17.7 | 19.4 |
| Anne Arundel | 19.6 | 17.7 | 21.4 |
| Baltimore City | 22.8 | 21.2 | 24.5 |
| Baltimore County | 19.0 | 17.8 | 20.3 |
| Carroll | 22.3 | 19.0 | 25.7 |
| Harford | 16.1 | 13.7 | 18.6 |
| Howard | 15.2 | 12.7 | 17.7 |
| | | | |
| National Capital Area | 15.7 | 14.8 | 16.6 |
| Montgomery | 12.3 | 11.3 | 13.3 |
| Prince George's | 20.9 | 19.3 | 22.6 |
| | | | |
| Southern Region | 25.8 | 22.9 | 28.8 |
| Calvert | 25.7 | 20.5 | 31.6 |
| Charles | 31.0 | 25.8 | 36.3 |
| Saint Mary's | 19.8 | 15.6 | 24.9 |
| | | | |
| Eastern Shore Region | 20.2 | 18.4 | 21.9 |
| Caroline | 19.2 | 13.1 | 27.1 |
| Cecil | 21.8 | 17.6 | 26.7 |
| Dorchester | 25.1 | 18.6 | 33.0 |
| Kent | 22.1 | 14.7 | 32.0 |
| Queen Anne's | 22.2 | 16.6 | 29.1 |
| Somerset | 13.9 | 8.4 | 21.7 |
| Talbot | 15.9 | 11.6 | 21.3 |
| Wicomico | 23.8 | 19.4 | 28.2 |
| Worcester | 16.1 | 12.3 | 20.7 |

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

^ Area rate does not include Baltimore City

Source: NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## Appendix H

## Female Breast Cancer Mortality
## Age-Adjusted Mortality Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 25.9 | 25.1 | 26.7 |
| | | | |
| Northwest Region | 25.8 | 23.1 | 28.5 |
| Allegany | 25.6 | 19.8 | 32.6 |
| Frederick | 25.0 | 20.8 | 29.2 |
| Garrett | 36.7 | 25.3 | 51.6 |
| Washington | 25.0 | 20.2 | 29.7 |
| | | | |
| Baltimore Metropolitan Area ^ | 24.8 | 23.5 | 26.1 |
| Anne Arundel | 26.1 | 23.4 | 28.9 |
| Baltimore City | 31.0 | 28.5 | 33.5 |
| Baltimore County | 25.4 | 23.4 | 27.4 |
| Carroll | 25.5 | 20.8 | 30.1 |
| Harford | 24.9 | 21.0 | 28.8 |
| Howard | 18.8 | 15.3 | 22.2 |
| | | | |
| National Capital Area | 24.6 | 23.2 | 26.1 |
| Montgomery | 20.3 | 18.6 | 22.0 |
| Prince George's | 30.4 | 27.9 | 32.8 |
| | | | |
| Southern Region | 29.5 | 25.5 | 33.4 |
| Calvert | 34.0 | 26.5 | 43.1 |
| Charles | 29.4 | 23.6 | 36.3 |
| Saint Mary's | 24.8 | 18.7 | 32.4 |
| | | | |
| Eastern Shore Region | 25.6 | 22.9 | 28.4 |
| Caroline | 24.1 | 15.3 | 36.1 |
| Cecil | 25.1 | 19.2 | 32.1 |
| Dorchester | 15.4 | 9.0 | 24.6 |
| Kent | 24.7 | 15.1 | 38.1 |
| Queen Anne's | 31.2 | 22.3 | 42.5 |
| Somerset | 34.1 | 21.6 | 51.1 |
| Talbot | 20.7 | 13.5 | 30.3 |
| Wicomico | 28.8 | 22.7 | 36 |
| Worcester | 26.7 | 19.7 | 35.4 |

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

^ Area rate does not include Baltimore City

Source: NCHS Compressed Mortality File in CDC WONDER (mortality rates)

# Appendix H

## Prostate Cancer Mortality
## Age-Adjusted Mortality Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
| --- | --- | --- | --- |
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 27.3 | 26.3 | 28.4 |
| | | | |
| Northwest Region | 25.1 | 21.8 | 28.4 |
| Allegany | 26.0 | 19.5 | 34.2 |
| Frederick | 25.7 | 20.4 | 32.0 |
| Garrett | 24.5 | 14.7 | 38.2 |
| Washington | 24.1 | 18.9 | 30.4 |
| | | | |
| Baltimore Metropolitan Area ^ | 24.9 | 23.2 | 26.5 |
| Anne Arundel | 25.5 | 21.8 | 29.2 |
| Baltimore City | 37.3 | 33.7 | 40.8 |
| Baltimore County | 25.0 | 22.7 | 27.3 |
| Carroll | 24.9 | 19.3 | 31.7 |
| Harford | 24.8 | 19.8 | 30.7 |
| Howard | 24.0 | 18.7 | 30.4 |
| | | | |
| National Capital Area | 25.9 | 23.9 | 27.8 |
| Montgomery | 19.8 | 17.7 | 21.9 |
| Prince George's | 37.0 | 32.9 | 41.0 |
| | | | |
| Southern Region | 37.1 | 31 | 43.2 |
| Calvert | 40.1 | 29.4 | 53.5 |
| Charles | 32.4 | 23.6 | 43.3 |
| Saint Mary's | 38.9 | 28.9 | 51.3 |
| | | | |
| Eastern Shore Region | 27.4 | 24.1 | 30.7 |
| Caroline | 33.7 | 21.1 | 51.1 |
| Cecil | 29.1 | 20.8 | 39.6 |
| Dorchester | ** | ** | ** |
| Kent | 34.1 | 21.4 | 51.7 |
| Queen Anne's | 18.5 | 11.0 | 29.2 |
| Somerset | 43.6 | 27 | 66.7 |
| Talbot | 26.4 | 18.4 | 36.7 |
| Wicomico | 25.7 | 18.8 | 34.3 |
| Worcester | 27.9 | 20.4 | 37.4 |

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

^ Area rate does not include Baltimore City

** Rates based on death counts of 0-15 deaths are suppressed per DHMH/CCSC Mortality
  Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER (mortality rates)

**Appendix H**

**Oral Cancer Mortality**
**Age-Adjusted Mortality Rates**
**by Geographical Area, Maryland, 2003-2007**

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 2.6 | 2.4 | 2.8 |
| | | | |
| Northwest Region | 2.2 | 1.6 | 2.8 |
| Allegany | ** | ** | ** |
| Frederick | ** | ** | ** |
| Garrett | ** | ** | ** |
| Washington | 3.2 | 2.0 | 4.7 |
| | | | |
| Baltimore Metropolitan Area ^ | 2.5 | 2.2 | 2.8 |
| Anne Arundel | 3.0 | 2.3 | 3.7 |
| Baltimore City | 4.4 | 3.7 | 5.1 |
| Baltimore County | 2.7 | 2.2 | 3.1 |
| Carroll | ** | ** | ** |
| Harford | 2.8 | 1.9 | 4.0 |
| Howard | 1.9 | 1.1 | 2.9 |
| | | | |
| National Capital Area | 1.9 | 1.6 | 2.2 |
| Montgomery | 1.6 | 1.2 | 2.0 |
| Prince George's | 2.4 | 1.9 | 3.0 |
| | | | |
| Southern Region | 2.8 | 1.9 | 3.9 |
| Calvert | ** | ** | ** |
| Charles | 3.5 | 2.0 | 5.7 |
| Saint Mary's | ** | ** | ** |
| | | | |
| Eastern Shore Region | 3.1 | 2.4 | 3.9 |
| Caroline | ** | ** | ** |
| Cecil | 4.0 | 2.4 | 6.3 |
| Dorchester | ** | ** | ** |
| Kent | ** | ** | ** |
| Queen Anne's | ** | ** | ** |
| Somerset | ** | ** | ** |
| Talbot | ** | ** | ** |
| Wicomico | ** | ** | ** |
| Worcester | ** | ** | ** |

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

^ Area rate does not include Baltimore City

** Rates based on death counts of 0-15 deaths are suppressed per DHMH/CCSC Mortality
   Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER (mortality rates)

# Appendix H

## Melanoma Mortality
## Age-Adjusted Mortality Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
|---|---|---|---|
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 2.7 | 2.5 | 2.9 |
| | | | |
| Northwest Region | 3.4 | 2.7 | 4.2 |
| Allegany | 3.9 | 2.3 | 6.3 |
| Frederick | 3.7 | 2.6 | 5.1 |
| Garrett | ** | ** | ** |
| Washington | 3.1 | 2.0 | 4.6 |
| | | | |
| Baltimore Metropolitan Area ^ | 3.1 | 2.8 | 3.5 |
| Anne Arundel | 3.9 | 3.1 | 4.8 |
| Baltimore City | 1.8 | 1.4 | 2.4 |
| Baltimore County | 3.0 | 2.5 | 3.5 |
| Carroll | 2.9 | 1.9 | 4.3 |
| Harford | 3.2 | 2.3 | 4.5 |
| Howard | 2.2 | 1.4 | 3.2 |
| | | | |
| National Capital Area | 1.9 | 1.6 | 2.3 |
| Montgomery | 2.2 | 1.7 | 2.6 |
| Prince George's | 1.7 | 1.2 | 2.2 |
| | | | |
| Southern Region | 2.8 | 2.0 | 3.9 |
| Calvert | ** | ** | ** |
| Charles | ** | ** | ** |
| Saint Mary's | ** | ** | ** |
| | | | |
| Eastern Shore Region | 3.9 | 3.1 | 4.8 |
| Caroline | ** | ** | ** |
| Cecil | ** | ** | ** |
| Dorchester | ** | ** | ** |
| Kent | ** | ** | ** |
| Queen Anne's | ** | ** | ** |
| Somerset | ** | ** | ** |
| Talbot | ** | ** | ** |
| Wicomico | 4.0 | 2.4 | 6.3 |
| Worcester | 5.2 | 3.0 | 8.3 |

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

^ Area rate does not include Baltimore City

** Rates based on death counts of 0-15 deaths are suppressed per DHMH/CCSC Mortality
   Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## Appendix H

## Cervical Cancer Mortality
## Age-Adjusted Mortality Rates
## by Geographical Area, Maryland, 2003-2007

| Geographical Area | Mortality Rates* | 95% Confidence Interval | |
| --- | --- | --- | --- |
| | | Lower CI | Upper CI |
| | | | |
| Maryland | 2.2 | 2.0 | 2.5 |
| | | | |
| Northwest Region | 2.3 | 1.5 | 3.3 |
| Allegany | ** | ** | ** |
| Frederick | ** | ** | ** |
| Garrett | ** | ** | ** |
| Washington | ** | ** | ** |
| | | | |
| Baltimore Metropolitan Area ^ | 1.9 | 1.5 | 2.3 |
| Anne Arundel | 2.1 | 1.4 | 3.1 |
| Baltimore City | 4.5 | 3.6 | 5.6 |
| Baltimore County | 2.0 | 1.5 | 2.7 |
| Carroll | ** | ** | ** |
| Harford | 2.6 | 1.5 | 4.2 |
| Howard | ** | ** | ** |
| | | | |
| National Capital Area | 1.9 | 1.5 | 2.4 |
| Montgomery | 1.5 | 1.1 | 2.1 |
| Prince George's | 2.5 | 1.9 | 3.3 |
| | | | |
| Southern Region | ** | ** | ** |
| Calvert | ** | ** | ** |
| Charles | ** | ** | ** |
| Saint Mary's | ** | ** | ** |
| | | | |
| Eastern Shore Region | 1.6 | 1.0 | 2.5 |
| Caroline | ** | ** | ** |
| Cecil | ** | ** | ** |
| Dorchester | ** | ** | ** |
| Kent | ** | ** | ** |
| Queen Anne's | ** | ** | ** |
| Somerset | ** | ** | ** |
| Talbot | ** | ** | ** |
| Wicomico | ** | ** | ** |
| Worcester | ** | ** | ** |

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

^ Area rate does not include Baltimore City

** Rates based on death counts of 0-15 deaths are suppressed per DHMH/CCSC Mortality
   Data Suppression Policy

Source:  NCHS Compressed Mortality File in CDC WONDER (mortality rates)

# Appendix I

# Trends in Cancer Incidence and Mortality Rates in Maryland by Cancer Site, Race, and Year, 2003-2007

## Appendix I

### Table 1:  Cancer Incidence Rates, by Cancer Site and Year
### Maryland, 2003-2007

| Cancer Site | 2003 | 2004 | 2005 | 2006 † | 2007 | APC 2003-2007 | MD Trend |
|---|---|---|---|---|---|---|---|
| All Cancer Sites | 494.4 | 462.6 | 457.4 | 426.3 | 455.3 | -2.4% | ↓ |
| Lung | 70.7 | 69.1 | 68.0 | 63.4 | 62.5 | -3.3% | ↓ |
| Colorectal | 54.6 | 48.7 | 46.3 | 41.3 | 41.6 | -6.8% | ↓ |
| Female Breast | 133.4 | 124.2 | 118.6 | 112.8 | 123.2 | -2.5% | ↓ |
| Prostate | 176.7 | 148.0 | 147.2 | 153.9 | 162.5 | -1.3% | ↓ |
| Oral | 11.7 | 9.4 | 8.8 | 8.9 | 9.6 | -4.4% | ↓ |
| Melanoma | 19.4 | 18.7 | 21.3 | 19.7 | 21.2 | 2.3% | ↑ |
| Cervical | 9.3 | 7.5 | 8.5 | 6.7 | 6.4 | -8.2% | ↓ |

† 2006 Maryland incidence rates are lower than actual due to case underreporting for Montgomery and
   Prince George's counties.  (See Appendix C, Section I.A.1.)
Rates are age-adjusted to 2000 U.S. standard population
APC = Annual Percent Change (%)
Source:  Maryland Cancer Registry (incidence rates)


### Table 2:  Cancer Mortality Rates, by Cancer Site and Year
### Maryland, 2003-2007

| Cancer Site | 2003 | 2004 | 2005 | 2006 | 2007 | APC 2003-2007 | MD Trend |
|---|---|---|---|---|---|---|---|
| All Cancer Sites | 195.7 | 189.9 | 190.2 | 186.7 | 180.4 | -1.8% | ↓ |
| Lung | 57.3 | 53.0 | 54.9 | 52.6 | 50.1 | -2.7% | ↓ |
| Colorectal | 19.5 | 19.1 | 18.7 | 18.4 | 17.5 | -2.5% | ↓ |
| Female Breast | 26.8 | 27.1 | 25.8 | 25.0 | 24.8 | -2.3% | ↓ |
| Prostate | 29.1 | 28.8 | 25.9 | 26.3 | 26.6 | -2.7% | ↓ |
| Oral | 2.4 | 2.5 | 2.7 | 2.8 | 2.5 | 2.0% | ↑ |
| Melanoma | 2.5 | 2.7 | 2.8 | 3.0 | 2.4 | 0.2% | ↑ |
| Cervical | 2.1 | 2.5 | 2.0 | 2.2 | 2.4 | 1.4% | ↑ |

Rates are age-adjusted to 2000 U.S. standard population
APC = Annual Percent Change (%)
Source:  NCHS Compressed Mortality File in CDC WONDER (mortality rates)

## Appendix I

### Table 3: Incidence Rates by Race and Year
#### Maryland, 2003-2007

| Cancer Site | Race | 2003 | 2004 | 2005 | 2006 † | 2007 | APC 2003-2007 |
|---|---|---|---|---|---|---|---|
| All cancer sites | White | 489.2 | 469.8 | 466.4 | 434.3 | 460.5 | -2.0% |
| | Black | 495.0 | 444.4 | 434.9 | 395.7 | 444.0 | -3.3% |
| Lung | White | 71.2 | 71.1 | 69.5 | 67.1 | 64.3 | -2.6% |
| | Black | 73.6 | 67.7 | 66.2 | 55.3 | 60.3 | -5.8% |
| Colorectal | White | 51.5 | 46.1 | 45.5 | 40.2 | 40.6 | -5.9% |
| | Black | 62.9 | 55.8 | 49.4 | 42.7 | 44.8 | -9.0% |
| Female breast | White | 136.3 | 127.4 | 121.1 | 115.0 | 125.4 | -2.7% |
| | Black | 118.6 | 114.0 | 108.7 | 109.7 | 117.2 | -0.6% |
| Prostate | White | 150.2 | 132.0 | 131.7 | 137.3 | 146.5 | -0.1% |
| | Black | 241.2 | 202.7 | 193.3 | 186.3 | 209.0 | -3.6% |
| Oral | White | 11.8 | 9.7 | 9.1 | 9.4 | 10.0 | -3.6% |
| | Black | 11.4 | 8.3 | 8.4 | 7.6 | 8.1 | -7.4% |
| Cervix | White | 8.4 | 6.7 | 7.8 | 5.8 | 6.2 | -7.2% |
| | Black | 10.7 | 10.1 | 9.1 | 7.1 | 7.2 | -10.8% |

### Table 4: Melanoma Incidence Rates by Gender and Year
#### Maryland, 2003-2007

| Cancer Site | Gender | 2003 | 2004 | 2005 | 2006 † | 2007 | APC 2003-2007 |
|---|---|---|---|---|---|---|---|
| Melanoma | Male | 24.1 | 24.1 | 27.9 | 26.0 | 27.2 | 3.2% |
| | Female | 16.0 | 14.9 | 16.8 | 15.3 | 17.1 | 1.6% |

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

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

APC = Annual Percent Change (%)

Source:  Maryland Cancer Registry (incidence rates)

# Appendix I

## Table 5: Mortality Rates by Race and Year
## Maryland, 2003-2007

| Cancer Site | Race | 2003 | 2004 | 2005 | 2006 | 2007 | APC 2003-2007 |
|---|---|---|---|---|---|---|---|
| All Cancer Sites | White | 189.8 | 185.5 | 187.6 | 183.6 | 176.6 | -1.5% |
| | Black | 228.4 | 218.9 | 210.4 | 211.1 | 207.7 | -2.2% |
| Lung | White | 56.5 | 53.3 | 55.9 | 53.7 | 51.4 | -1.8% |
| | Black | 64.3 | 57.6 | 55.5 | 53.2 | 51.2 | -5.2% |
| Colorectal | White | 17.9 | 17.9 | 17.5 | 17.6 | 15.7 | -2.8% |
| | Black | 26.7 | 25.0 | 24.9 | 22.7 | 24.1 | -3.0% |
| Female Breast | White | 24.4 | 25.6 | 24.9 | 23.7 | 22.8 | -2.1% |
| | Black | 34.9 | 32.9 | 28.8 | 30.2 | 32.4 | -2.3% |
| Prostate | White | 24.7 | 24.1 | 21.1 | 21.7 | 23.0 | -2.4% |
| | Black | 53.2 | 53.7 | 48.8 | 51.1 | 45.3 | -3.6% |
| Oral | White | 2.4 | 2.3 | 2.5 | 2.6 | 2.5 | 2.1% |
| | Black | 2.9 | 3.0 | 3.5 | 3.7 | 2.8 | 1.4% |
| Cervix | White | 1.5 | 2.2 | 1.5 | 1.7 | 1.7 | -0.1% |
| | Black | 3.6 | 3.9 | 3.2 | 3.6 | 4.3 | 2.8% |

## Table 6: Melanoma Mortality Rates by Gender and Year
## Maryland, 2003-2007

| Cancer Site | Gender | 2003 | 2004 | 2005 | 2006 | 2007 | APC 2003-2007 |
|---|---|---|---|---|---|---|---|
| Melanoma | Male | 3.7 | 3.9 | 4.2 | 4.8 | 3.5 | 1.0% |
| | Female | 1.6 | 1.8 | 1.8 | 1.8 | 1.8 | 2.4% |

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

APC = Annual Percent Change (%)

Source: NCHS Compressed Mortality File in CDC WONDER (mortality rates)

# Appendix J

# Trends in Cancer Stage of Disease at Diagnosis in Maryland by Cancer Site and Year, 2003-2007

## Appendix J

### Table 1:  All Cancer Sites
### Distribution of Cancer Stage at Diagnosis, by Year
### Maryland, 2003-2007

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Local | 43.2 | 42.0 | 42.5 | 42.9 | 45.9 |
| Regional | 20.7 | 19.5 | 20.1 | 20.8 | 21.1 |
| Distant | 18.3 | 19.9 | 20.2 | 20.5 | 20.9 |
| Unstaged | 17.8 | 18.5 | 17.3 | 15.8 | 12.1 |

Source:  Maryland Cancer Registry

### Table 2:  Lung Cancer
### Distribution of Cancer Stage at Diagnosis, by Year
### Maryland, 2003-2007

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Local | 19.4 | 16.8 | 18.5 | 17.1 | 18.7 |
| Regional | 26.4 | 23.1 | 23.9 | 23.8 | 23.7 |
| Distant | 39.8 | 43.1 | 44.1 | 45.6 | 47.8 |
| Unstaged | 14.3 | 17.1 | 13.5 | 13.5 | 9.8 |

Source:  Maryland Cancer Registry

### Table 3:  Colorectal Cancer
### Distribution of Cancer Stage at Diagnosis, by Year
### Maryland, 2003-2007

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Local | 31.6 | 35.0 | 37.0 | 35.7 | 39.3 |
| Regional | 37.9 | 29.2 | 31.6 | 33.1 | 32.8 |
| Distant | 17.3 | 19.0 | 17.9 | 17.7 | 18.1 |
| Unstaged | 13.2 | 16.8 | 13.5 | 13.5 | 9.8 |

Source:  Maryland Cancer Registry

### Table 4:  Breast Cancer
### Distribution of Cancer Stage at Diagnosis, by Year
### Maryland, 2003-2007

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| | % | % | % | % | % |
| Local | 55.6 | 54.0 | 54.9 | 57.1 | 58.4 |
| Regional | 29.3 | 31.9 | 31.2 | 31.9 | 31.6 |
| Distant | 4.5 | 4.8 | 4.7 | 5.0 | 5.8 |
| Unstaged | 10.7 | 9.3 | 9.2 | 6.0 | 4.2 |

Source:  Maryland Cancer Registry

**Appendix J**
**Table 5: Prostate Cancer**
**Distribution of Cancer Stage at Diagnosis, by Year**
**Maryland, 2003-2007**

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
|  | % | % | % | % | % |
| Local | 73.6 | 72.8 | 70.1 | 64.7 | 69.1 |
| Regional | 6.9 | 7.8 | 7.2 | 8.3 | 10.0 |
| Distant | 2.7 | 2.9 | 2.9 | 2.9 | 2.7 |
| Unstaged | 16.8 | 16.5 | 19.8 | 24.1 | 18.1 |

Source: Maryland Cancer Registry

**Table 6: Oral Cancer**
**Distribution of Cancer Stage at Diagnosis, by Year**
**Maryland, 2003-2007**

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
|  | % | % | % | % | % |
| Local | 31.9 | 28.8 | 28.3 | 28.1 | 27.3 |
| Regional | 47.4 | 42.5 | 44.2 | 44.4 | 47.4 |
| Distant | 5.4 | 12.7 | 15.7 | 17.9 | 17.0 |
| Unstaged | 15.3 | 15.9 | 11.8 | 9.6 | 8.4 |

Source: Maryland Cancer Registry

**Table 7: Melanoma**
**Distribution of Cancer Stage at Diagnosis, by Year**
**Maryland, 2003-2007**

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
|  | % | % | % | % | % |
| Local | 56.7 | 57.5 | 57.7 | 59.1 | 68.4 |
| Regional | 7.2 | 7.9 | 8.2 | 9.7 | 9.2 |
| Distant | 3.9 | 3.3 | 2.8 | 3.7 | 3.6 |
| Unstaged | 32.2 | 31.4 | 31.3 | 27.5 | 18.8 |

Source: Maryland Cancer Registry

**Table 8: Cervical Cancer**
**Distribution of Cancer Stage at Diagnosis, by Year**
**Maryland, 2003-2007**

| Stage | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
|  | % | % | % | % | % |
| Local | 44.6 | 38.5 | 36.6 | 34.2 | 38.1 |
| Regional | 21.0 | 32.3 | 31.1 | 36.7 | 34.5 |
| Distant | 7.3 | 10.6 | 9.8 | 11.1 | 16.0 |
| Unstaged | 27.2 | 18.6 | 22.4 | 18.1 | 11.3 |

Source: Maryland Cancer Registry

For comments or questions about this report contact:

Surveillance and Evaluation Unit
Center for Cancer Surveillance and Control
Maryland Department of Health and Mental Hygiene
Room 406-A
201 West Preston Street
Baltimore, Maryland  21201

410-767-0791
FAX:  410-333-5210