
**CANCER INCIDENCE AND
MORTALITY
IN MASSACHUSETTS
2008 – 2012:**

STATEWIDE REPORT

The Office of Data Management and Outcomes Assessment

Massachusetts Department of Public Health

November 2015



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CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS 2008 – 2012:

STATEWIDE REPORT

Charlie Baker, Governor
Karyn Polito, Lieutenant Governor
Marylou Sudders, Secretary of Health and Human Services
Monica Bharel, Commissioner of Public Health

Tom Land, Director, Office of Data Management and Outcomes Assessment
Susan T. Gershman, Director, Massachusetts Cancer Registry

Massachusetts Department of Public Health

November 2015

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ACKNOWLEDGMENTS

This report was prepared by Susan T. Gershman, Director, Massachusetts Cancer Registry, and Massachusetts Cancer Registry staff and consultants. Special thanks are given to Annie MacMillan and Richard Knowlton for their diligent work in preparing the data for this report. Thanks are also given to consultant Nancy Weiss for her editing efforts. Thanks are given to Malena Hood of the Division of Research and Epidemiology, for providing the mortality and population data. Thanks are also given to Jan Sullivan and Brenda Netreba of the Community Assessment Program, Bureau of Environmental Health, for their contributions to the Special Section "Using Statewide MCR Data for Community Investigations".

Massachusetts Cancer Registry Staff

Susan T. Gershman, MS, MPH, PhD, CTR, *Director*
Bruce Caldwell, *Research Analyst/Geocoder* Jeremiah Nesser, *Technical Assistant for Special Projects*
Nancy Donovan, MA, CTR, *Cancer Registrar*
Patricia J. Drew, CTR, *Cancer Registrar/Quality Assurance Coordinator* Jayne Nussdorfer, CTR, *Cancer Registrar*
Loi Huynh, *Software Developer* Barbara J. Rhodes, CMA, CTR, *Cancer Registrar/Death Clearance Coordinator*
Richard Knowlton, MS, *Epidemiologist* Pamela Shuttle, CTR, RHIT, *Cancer Registrar/Non-Hospital Reporting Coordinator*
Ann MacMillan, MPH, *Epidemiologist*
Mary Mroszczyk, CTR, *Geocoding/ Special Projects Coordinator* Hung Tran, *Software Developer*

Massachusetts Cancer Registry Advisory Committee

Lindsay Frazier, MD, ScM (*Chair*)

Anita Christie, RN, MHA, CPHQ J. David Naparstek, ScM., CHO
Jan Sullivan, MS Larissa Nekhlyudov, MD, MPH
Deborah Dillon, MD Al Ozonoff, MA, PhD
Joanna Haas, MD Carol Rowan West, MPH
Carol Lowenstein, CTR, MBA Paul C. Shroy, MD, MPH
Reggie Mead Ingrid Stendhal, CTR
Gail Merriam, MSW, MPH Susan Sturgeon, DrPH, MPH

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For further information, please contact the following:

Massachusetts Cancer Registry.....(617) 624-5642
Research and Epidemiology.....(617) 624-5642
Occupational Health Surveillance.....(617) 624-5626
Bureau of Environmental Health.....(617) 624-5757
Cancer Prevention and Control Initiative.....(617) 624-5484
Massachusetts Department of Public Health website.....www.mass.gov/dph

We acknowledge the Centers for Disease Control and Prevention for its support of the staff and the printing and distribution of this report under cooperative agreement 1 U58 DP003920-03 awarded to the Massachusetts Cancer Registry at the Massachusetts Department of Public Health. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

Cancer Incidence and Mortality in Massachusetts, 2008-2012: Statewide Report presents cancer incidence and mortality data for the Commonwealth from 2008 through 2012. The report includes numbers and rates for 24 types of cancer, information on age-specific patterns, an examination of patterns by race/ethnicity, and a comparison of Massachusetts and national cancer rates. Data are provided on invasive cancers only with the exceptions of urinary bladder (which includes *in situ* and invasive cancers combined) and *in situ* breast cancer.

All counts and average annual age-adjusted rates presented in this Executive Summary are for the period 2008-2012 and are for Massachusetts residents, unless otherwise stated.

OVERALL:

- Total number of new cases – 183,218, an average of 36,644 annually
- Total number of cancer deaths – 64,692, an average of 12,938 annually
- Incidence rate (age-adjusted) for all cancers combined for total population – 489.8 per 100,000 persons
- Mortality rate (age-adjusted) for all cancer deaths combined for total population – 166.5 per 100,000 persons.

MOST COMMONLY DIAGNOSED CANCERS & CANCER DEATH CAUSES BY SEX:

Incidence (newly diagnosed cases)

- Males – *prostate cancer* accounted for 26.5% of all newly diagnosed cancers among males
- Females – *invasive breast cancer* accounted for 29.3% of all newly diagnosed cancers among females.

Mortality (causes of cancer death)

- Males – *cancer of the bronchus and lung* accounted for 27.4% of all cancer deaths among males
- Females – *cancer of the bronchus and lung* accounted for 26.7% of all cancer deaths among females.

TRENDS 2008-2012:

Statistically Significant Incidence Trends – Males

- All cancers combined decreased 4.6% per year.
- Bronchus and lung cancer decreased 3.6% per year.
- Colon and rectum cancer decreased 5.5% per year.
- Prostate cancer decreased by 9.8% per year.
- Stomach cancer decreased 6.1% per year

Statistically Significant Mortality Trends – Males

- All cancers deaths combined decreased 2.7% per year.
- Bronchus and lung cancer decreased 1.6% per year.

- Stomach cancer decreased 5.2% per year.
- Esophageal cancer increased 2.7% per year.
- Leukemia increased by 3.3% per year.
- Liver and intrahepatic liver cancer increased 1.8% per year.

Statistically Significant Incidence Trends – Females

- Bronchus and lung cancer decreased 2.4% per year.
- Colon and rectum cancer decreased 4.9% per year.
- Esophageal cancer decreased 11.2% per year
- Hodgkin’s Lymphoma decreased 5.9% per year
- *In Situ* breast cancer decreased 4.3% per year.

Statistically Significant Mortality Trends – Females

- Melanoma of the skin decreased 1.6% per year.
- Bronchus and lung cancer decreased 2.0% per year.
- Colon and rectum cancer decreased 4.6% per year.
- Esophagus cancer decreased 5.5% per year.
- Kidney and renal pelvis cancer increased 2.2% per year.

RATES BY RACE/ETHNICITY: *(Unless otherwise noted, the term ‘racial/ethnic groups’ in this report refers to white non-Hispanic, black non-Hispanic, Asian non-Hispanic and Hispanic).*

Males Incidence

- Black, non-Hispanic males had the highest total age-adjusted incidence rates, significantly higher than those of all other racial/ethnic groups.
- Cancers of prostate, bronchus and lung, and colon/rectum were the leading cancer types in each racial/ethnic group.
- Black, non-Hispanic males had significantly higher rates of multiple myeloma and prostate cancer when compared to all other race/ethnic groups.
- Asian, non-Hispanic males had significantly higher rates of liver and intrahepatic bile duct cancer when compared to all other race/ethnic groups.

Males Mortality

- Black, non-Hispanic males had the highest total cancer mortality rate, significantly higher compared to all other racial/ethnic groups.
- Cancer of the bronchus and lung was the leading cause of cancer death for each racial/ethnic group. White and black, non-Hispanics had significantly elevated rates compared to the other two racial/ethnic groups.
- The mortality rate for prostate cancer was significantly elevated among black, non-Hispanic males compared to the other racial/ethnic groups.
- The mortality rate for liver and intrahepatic cancer was significantly elevated among Asian, non-Hispanics compared to the other racial/ethnic groups.

Females Incidence

- White, non-Hispanic females had the highest total age-adjusted incidence rates, significantly higher than those of all other racial/ethnic groups.
- Breast cancer was the most commonly diagnosed cancer for each racial/ethnic group.

- The second most common cancer diagnosed was bronchus and lung among white non-Hispanics and black non-Hispanics, and colon/rectum among Asian non-Hispanics and Hispanics.
- Black, non-Hispanic females had significantly higher rates of multiple myeloma and pancreatic cancer rates compared to all other racial/ethnic groups.
- Asian, non-Hispanic females had significantly higher liver and intrahepatic bile duct cancer rates compared to White non-Hispanics and Black non-Hispanics, but not compared to Hispanics.

Females Mortality

- Black, non-Hispanic females had the highest total cancer mortality rate, significantly higher than for Asian, non-Hispanic and Hispanic females but not compared to white, non-Hispanic females.
- Cancer of the bronchus and lung was the leading cause of cancer death among all racial/ethnic groups. White, non-Hispanic females had significantly elevated rates compared to the other racial/ethnic groups.
- Black, non-Hispanic females had significantly elevated breast, uterine, and cervical cancer mortality rates when compared to the other racial/ethnic groups. Their breast cancer mortality rate was nearly triple that of Asian, non-Hispanic and Hispanic females.

MASSACHUSETTS VS. NATIONAL RATES

Males and Females Incidence

Overall age-adjusted cancer incidence rates in Massachusetts were significantly higher than national rates for both males and females. Among the cancers significantly elevated for females were brain and other nervous system, invasive and in situ breast, bronchus and lung, uterine, esophageal, laryngeal, melanoma of skin, thyroid, and urinary bladder. Among those significantly elevated for males were bronchus and lung, esophagus, Hodgkin lymphoma, oral cavity and pharynx, testicular, thyroid and urinary bladder. Incidence rates that were significantly lower compared to the U.S. among females were cervix uteri, colon and rectum, liver and intrahepatic bile ducts, and stomach cancer, while among males the cancer types included colon and rectum, and melanoma of skin.

Males and Females Mortality

Overall age-adjusted cancer mortality rates in Massachusetts were significantly lower from national rates for both males and females. However, there were some individual cancers that had significantly elevated mortality rates compared to the U.S. These include female bronchus and lung, male and female liver and intrahepatic bile duct cancers, male and female urinary bladder, and male esophageal. Those that were significantly lower compared to the U.S. included breast, cervix uteri, kidney and renal pelvis, and non-Hodgkin lymphoma among females, and bronchus and lung, colon and rectum, kidney and renal pelvis, leukemia, non-Hodgkin lymphoma and prostate among males.

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INTRODUCTION

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INTRODUCTION

The Massachusetts Cancer Registry (MCR) collects reports of newly diagnosed cases of cancer and routinely compiles summaries of cancer incidence and mortality data. This report, *Cancer Incidence and Mortality in Massachusetts, 2008-2012: Statewide Report*, is produced annually with the most recently available statewide data. Another report, *Cancer Incidence in Massachusetts: City and Town Supplement*, is also produced annually and contains information for the 351 cities and towns in Massachusetts. Electronic versions of these reports may be found on the internet at www.mass.gov/dph/mcr.

Overall Content

This report:

- Provides statewide information on cancer incidence and mortality in Massachusetts for twenty-four types of cancer and for all cancers combined for 2008 through 2012;*
- Provides detailed information on the most commonly occurring types of cancer for 2008 through 2012;
- Examines cancer incidence patterns by age, sex, and race/ethnicity;
- Reviews Massachusetts cancer incidence and mortality trends for 2008 through 2012;
- Compares Massachusetts incidence and mortality data with respective national data; and
- Features a special section on using statewide MCR data for community investigations in Massachusetts.

The report is organized into the following sections:

- **SPECIAL OVERVIEW** which provides more detailed information on a specific topic of interest in Massachusetts. This report has a special overview of using statewide MCR data for community investigations.
- **FIGURES & TABLES** which present cancer incidence and mortality data for 24 types of cancer for 2008-2012. There are 6 figures and 24 tables in this section with breakdowns by sex, race/ethnicity, year, age group, state and national comparisons, and cancer type.
- **APPENDICES** which provide information supplemental to this report, including a listing of codes used to prepare the report, information on population and rate changes, and population estimates.
- **REFERENCES**

**The Massachusetts incidence data in this report include only invasive cancers for 22 of the 24 types of cancer. Cancer of the urinary bladder includes both in situ and invasive cases. Cancer of the breast in situ is presented as a separate category, but is not included in the "all sites combined" data.*

Note: For more detailed information on the methods of the Massachusetts Cancer Registry, please refer to Cancer Incidence and Mortality in Massachusetts 2006-2010: Statewide Report (1). For national trends, please refer to the Annual Report to the Nation on the Status of Cancer, 1975-2011 (2).

**SPECIAL OVERVIEW:
USING STATEWIDE MCR DATA FOR
COMMUNITY INVESTIGATIONS**

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Using Statewide MCR Data for Community Investigations

The Bureau of Environmental Health (BEH) within the Massachusetts Department of Public Health (MDPH) receives numerous calls each month from local health officials and the public concerned about the pattern of cancer in their community or neighborhood. Residents often suspect a link between these cancers and the environment. Staff in the Community Assessment Program (CAP) within BEH rely on statewide data from the MCR to address these concerns.

Through a data use agreement with the MCR that stipulates strict privacy and confidentiality restrictions, CAP staff access MCR data using a Geographic Information System (GIS)-based desktop tool. The tool calculates standardized incidence ratios (SIRs) at the community and census tract level. An SIR is a statistic appropriate for calculating a cancer incidence rate for relatively small populations — such as those in a city or town or a census tract within a city or town. An SIR is the ratio of the number of cancer diagnoses *observed* in a community (as reported to the MCR) to the number of diagnoses *expected* in the community. It reflects whether the pattern of a particular type of cancer in a community differs from what would be expected based on the experience of the state as a whole. The use of statewide MCR data provides a stable comparison population from which an expected number can be calculated based on the population distribution of the town or census tract of interest.

Using statewide MCR data to estimate the expected number of cancer diagnoses in a community or neighborhood is the first step in addressing community concerns. The next step is assessing whether the difference between the numbers of observed and expected diagnoses is statistically significant. The statistical significance of an SIR can be assessed by calculating a 95% confidence interval (CI) to determine if the observed number of diagnoses is “statistically significantly different” from the expected number or if the difference is more likely due to chance. In this case, “statistically significantly different” means there is less than a 5% percent chance that the observed difference (either an increase in what would be expected or fewer cases than might be expected) is the result of random fluctuation in the number of observed cancer diagnoses.

Understanding the pattern of cancer is more involved than the numbers alone. Statewide MCR data help CAP staff look more closely by evaluating some of the underlying risk factors associated

with a particular type of cancer. Comparing a community's or neighborhood's risk factor profile to that of the state as a whole is helpful in evaluating an SIR. Closer examination of various risk factors helps to better understand elevations in rates. For example, a community with higher smoking rates may have a higher than expected number of cases for smoking-related cancers.

The following are some of the variables reported to the MCR for each individual diagnosed with cancer in the Commonwealth:

- Primary site and histology (cell type)
- Age at diagnosis
- Stage of diagnosis
- Date of diagnosis
- Residence at diagnosis
- History of tobacco use
- Occupational information

These variables allow CAP staff to focus on a particular type of cancer, each with its own risk factors and epidemiological or disease patterns. The stage at which an individual was diagnosed with their cancer is reported, which allows CAP staff to determine whether the population residing in the area of interest is being screened for the particular type of cancer at a rate similar to the Massachusetts population. This is particularly useful for evaluating breast, prostate, and colon cancers.

The types of questions that can be answered using these data include:

- What types of cancer are involved? Is there a mix of cancer types or have individuals been diagnosed with the same type of cancer?
- Using histology information, does the pattern of cancer subtypes in a community appear similar to what is seen statewide?
- Have individuals been diagnosed with particular types of cancer at ages that would be expected for those cancer types?

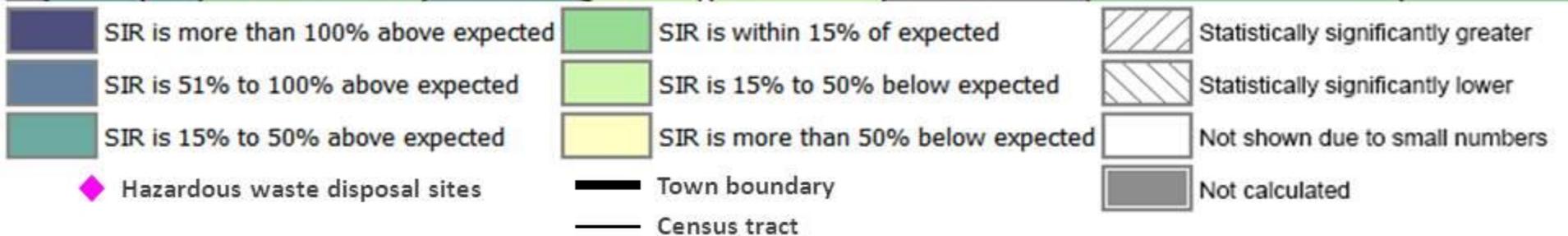
- For cancer types associated with tobacco use, is the percentage of individuals in a community or census tract with a history of tobacco use similar to the percentage statewide for that type of cancer?
- For cancer types associated with occupational exposures to chemicals or radiation, have any of the individuals diagnosed with these types of cancer reported working in any of these occupations and/or are there environmental concerns in the community related to particular chemicals associated with particular cancers?

Other key variables helpful in addressing a resident's concerns are residence at diagnosis and date of diagnosis. CAP staff use these variables to assess spatial as well as temporal patterns. Using the desktop tool previously mentioned, CAP staff develop confidential maps that identify the place of residence of those individuals diagnosed with a particular type of cancer, to assess whether individuals are concentrated in a particular neighborhood or if their residences are evenly distributed throughout a community following the pattern of population density. These maps are annotated to also identify when individuals were diagnosed, to look for temporal patterns.

In assessing cancer patterns, other factors often need consideration. Due to the long development or latency period for most cancers (on the order of years), CAP staff may research the residential histories of individuals diagnosed with cancer using historical voting lists or street listings, typically maintained by the city/town clerk. To address concerns related to the environment, the possibility of exposure to environmental contaminants in the area of concern is considered by reviewing files such as those of the Massachusetts Department of Environmental Protection, the U.S. Environmental Protection Agency, and/or local water and health departments. Members of the public and/or local health officials may also express interest in other environmental concerns that CAP staff follow up on through various methods.

The availability of statewide cancer incidence data is critical to evaluating concerns about cancer and the environment in the Commonwealth. Using MCR data, the CAP can calculate cancer rates, evaluate relevant risk factor information, and assess geographic and temporal patterns in a timely way to respond to resident inquiries.

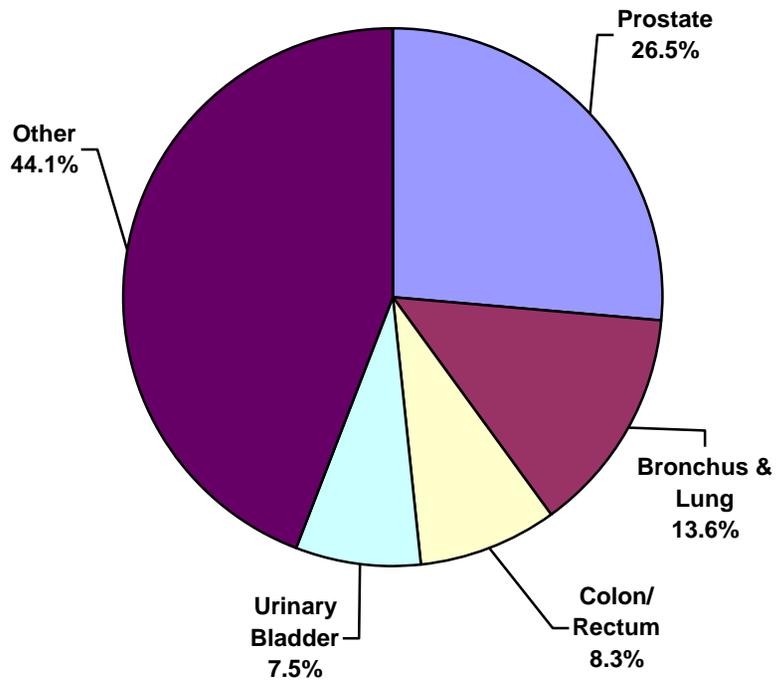
Lung and Bronchus Cancer Standardized Incidence Ratios (SIRs) by Census Tract Anytown, MA 2005 - 2009



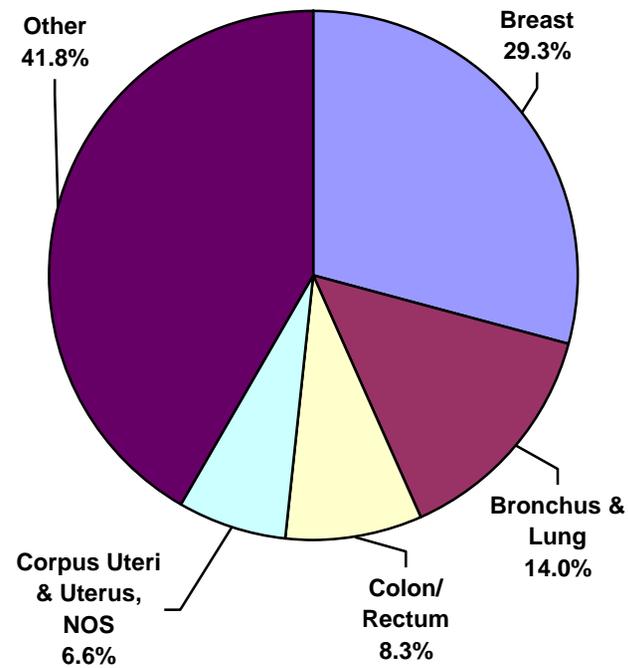
FIGURES & TABLES

Figure 1.
PERCENTAGE OF CANCER INCIDENT CASES BY CANCER TYPE AND SEX
Massachusetts, 2008-2012

MALES (N=89,757)

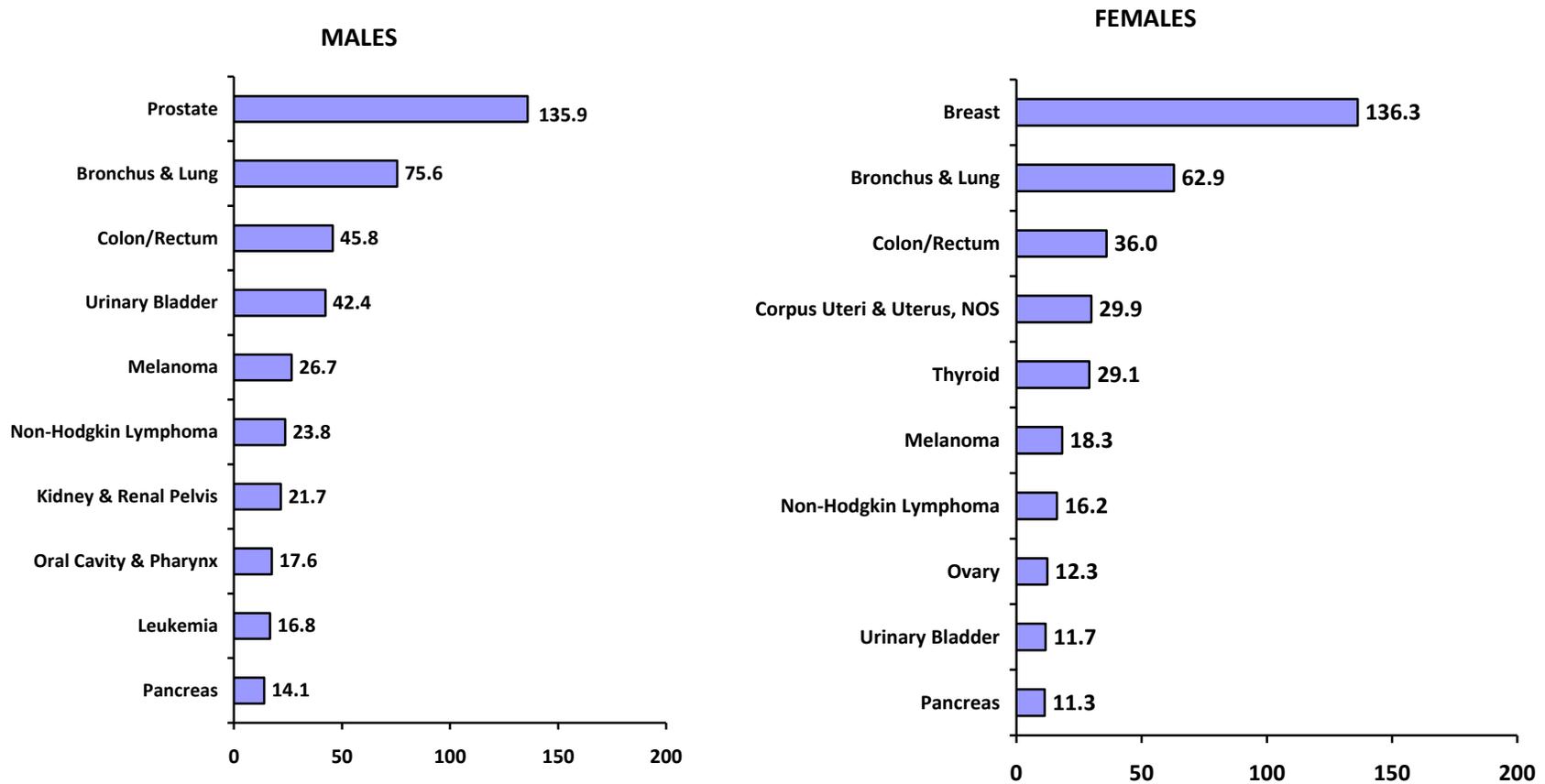


FEMALES (N=93,446)



Source: Massachusetts Cancer Registry

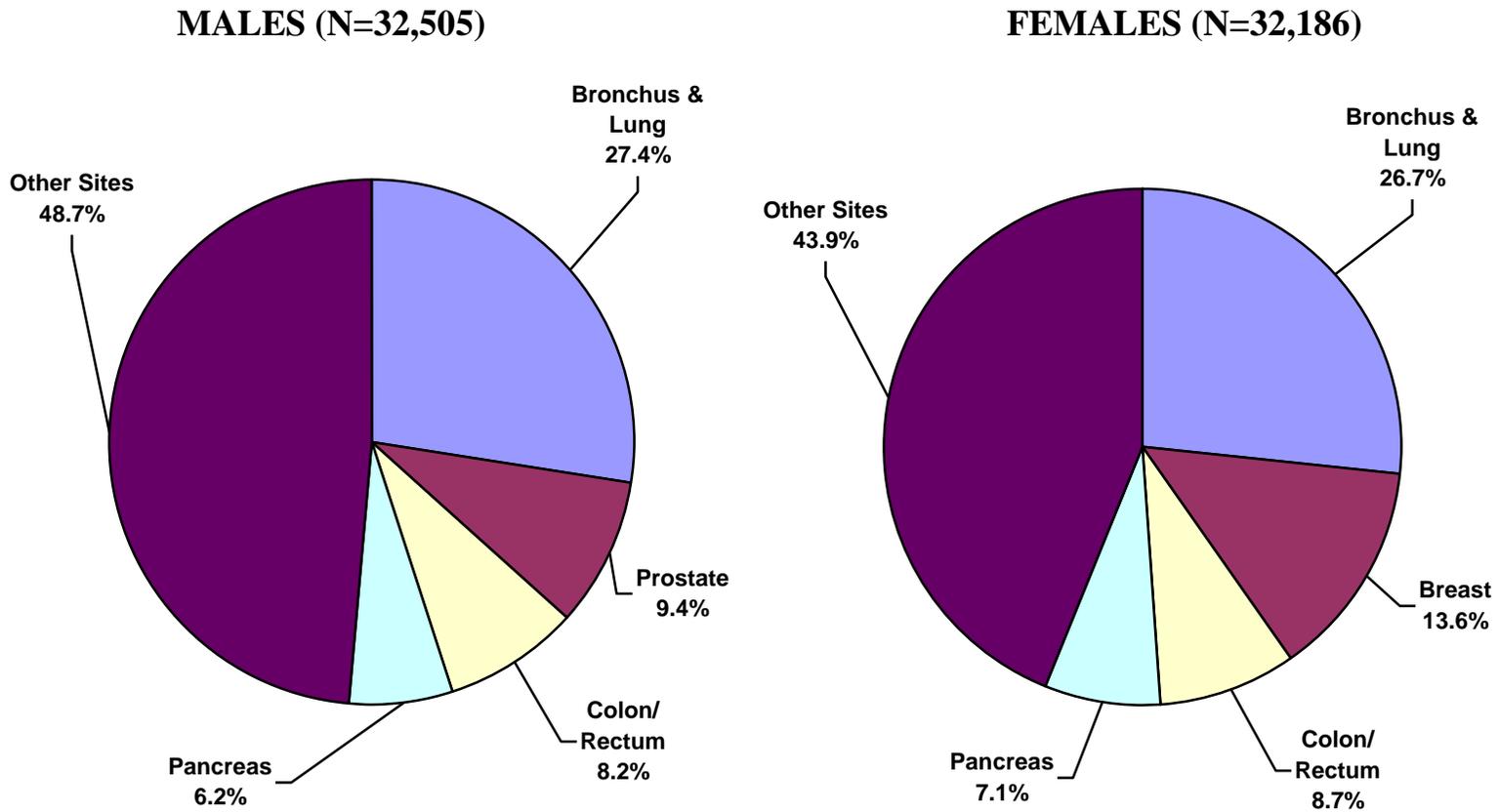
Figure 2.
INCIDENCE RATES¹ FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2008-2012



¹Rates are age-adjusted to the 2000 U.S. Standard Population. NOS – Not Otherwise Specified.

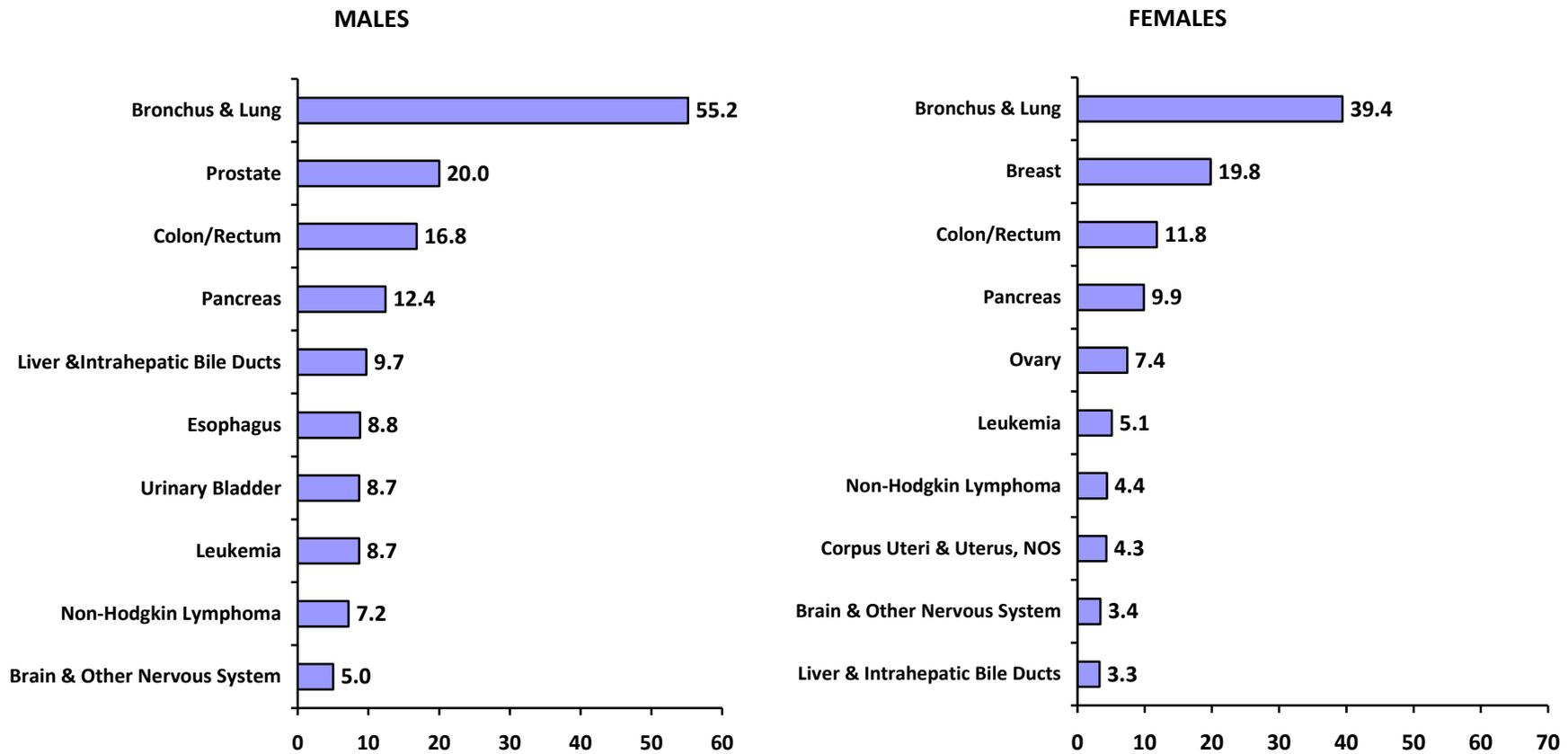
Source: Massachusetts Cancer Registry

Figure 3.
PERCENTAGE OF CANCER DEATHS BY CANCER TYPE AND SEX
Massachusetts, 2008-2012



Source: Massachusetts Vital Statistics

Figure 4.
MORTALITY RATES¹ FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2008-2012



¹Rates are age-adjusted to the 2000 U.S. Standard Population. *NOS – Not Otherwise Specified.
 Source: Massachusetts Vital Statistics

Table 1.
AGE-SPECIFIC INCIDENCE RATES¹ AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Median Age |
|------------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|------------|
| All Sites | 27.0 | 13.3 | 13.3 | 26.3 | 35.9 | 55.7 | 69.1 | 99.8 | 167.1 | 303.1 | 599.8 | 988.7 | 1491.1 | 2123.7 | 2644.2 | 2905.9 | 3042.9 | 3030.2 | 66 |
| Brain & Other Nervous System | 5.2 | 4.2 | 3.2 | 2.8 | 1.8 | 4.0 | 3.6 | 3.8 | 5.1 | 7.8 | 8.3 | 13.5 | 16.6 | 18.3 | 27.0 | 27.3 | 27.3 | 25.9 | 58 |
| Breast | -- | 0.1 | -- | -- | -- | -- | -- | 0.1 | 0.4 | 0.9 | 1.2 | 2.0 | 2.8 | 5.8 | 5.7 | 7.8 | 9.1 | 9.8 | 68 |
| Breast <i>in situ</i> ² | -- | -- | -- | -- | -- | -- | 0.1 | | 0.1 | 0.1 | 0.1 | 0.6 | 0.1 | 0.6 | 1.1 | 0.9 | -- | 0.9 | 65 |
| Bronchus & Lung | -- | -- | 0.1 | 0.2 | 0.6 | 0.2 | 1.2 | 2.8 | 8.7 | 23.0 | 59.5 | 110.3 | 179.9 | 298.1 | 442.6 | 552.1 | 585.0 | 463.2 | 70 |
| Colon / Rectum | -- | -- | 0.1 | 0.3 | 0.6 | 1.7 | 4.5 | 9.7 | 20.0 | 30.5 | 66.9 | 68.4 | 94.1 | 145.9 | 199.8 | 257.9 | 299.5 | 381.1 | 68 |
| Esophagus | -- | -- | -- | -- | 0.1 | 0.1 | 0.2 | 0.7 | 2.1 | 5.9 | 11.6 | 20.5 | 36.0 | 45.2 | 58.1 | 57.5 | 59.5 | 55.3 | 66 |
| Hodgkin Lymphoma | 0.1 | 0.4 | 1.3 | 3.1 | 5.1 | 5.8 | 4.1 | 3.8 | 4.8 | 4.2 | 3.6 | 3.3 | 4.2 | 4.2 | 5.3 | 5.8 | 4.9 | 4.5 | 42 |
| Kidney & Renal Pelvis | 2.6 | 0.8 | 0.1 | 0.1 | 0.5 | 1.3 | 4.1 | 8.5 | 13.8 | 21.9 | 31.6 | 43.7 | 62.5 | 87.0 | 91.3 | 94.4 | 92.9 | 66.5 | 63 |
| Larynx | -- | -- | -- | -- | -- | 0.1 | 0.1 | 0.6 | 1.0 | 3.4 | 7.6 | 13.5 | 19.2 | 24.8 | 30.7 | 31.1 | 33.4 | 21.4 | 66 |
| Leukemia | 9.1 | 3.8 | 3.0 | 3.9 | 2.9 | 3.6 | 3.6 | 4.1 | 6.3 | 10.1 | 12.2 | 21.1 | 34.0 | 45.7 | 67.1 | 89.5 | 107.3 | 129.9 | 67 |
| Liver & Intrahepatic Bile Ducts | 1.2 | -- | 0.1 | 0.1 | 0.3 | 0.4 | 0.8 | 1.0 | 2.7 | 8.9 | 22.2 | 39.7 | 45.1 | 41.7 | 56.8 | 61.6 | 62.9 | 47.3 | 63 |
| Melanoma of Skin | -- | -- | 0.3 | 0.9 | 1.9 | 4.1 | 7.6 | 9.8 | 15.0 | 18.8 | 29.5 | 45.7 | 59.4 | 84.1 | 116.0 | 149.6 | 166.8 | 150.8 | 66 |
| Multiple Myeloma | -- | -- | -- | -- | -- | 0.2 | 0.2 | 1.4 | 2.4 | 5.0 | 7.6 | 14.2 | 19.3 | 26.1 | 41.9 | 43.6 | 56.5 | 48.2 | 68 |
| Non-Hodgkin Lymphoma | 1.0 | 1.1 | 1.2 | 2.8 | 3.2 | 3.6 | 6.7 | 8.0 | 12.2 | 19.6 | 25.8 | 36.0 | 51.5 | 73.4 | 98.2 | 115.6 | 161.1 | 156.2 | 66 |
| Oral Cavity & Pharynx | 0.1 | 0.1 | 0.1 | 0.5 | 0.8 | 1.4 | 2.3 | 4.4 | 10.2 | 20.5 | 32.8 | 46.9 | 62.4 | 65.1 | 60.9 | 66.2 | 53.8 | 60.2 | 61 |
| Pancreas | -- | -- | -- | -- | 0.1 | 0.3 | 0.6 | 1.8 | 2.5 | 6.1 | 12.0 | 23.1 | 34.0 | 55.9 | 71.0 | 91.5 | 92.1 | 113.8 | 69 |
| Prostate | 0.1 | -- | -- | -- | -- | -- | 0.1 | 0.8 | 12.5 | 51.9 | 175.6 | 341.0 | 558.2 | 770.3 | 791.4 | 623.0 | 415.9 | 390.0 | 65 |
| Stomach | -- | -- | -- | -- | 0.1 | 0.4 | 0.9 | 1.4 | 3.1 | 5.9 | 10.0 | 14.6 | 21.6 | 35.6 | 44.2 | 57.5 | 71.3 | 76.8 | 69 |
| Testis | 0.6 | 0.5 | 0.1 | 4.5 | 9.3 | 15.9 | 13.0 | 14.3 | 10.0 | 7.8 | 4.8 | 4.5 | 1.8 | 1.3 | 1.1 | 0.6 | -- | 0.9 | 35 |
| Thyroid | 0.1 | -- | 0.4 | 1.6 | 3.3 | 6.2 | 6.7 | 9.8 | 12.7 | 16.0 | 17.3 | 21.8 | 25.3 | 26.6 | 25.6 | 22.9 | 15.5 | 9.8 | 55 |
| Urinary Bladder | 0.1 | 0.1 | -- | 0.1 | 0.7 | 0.8 | 1.8 | 3.0 | 6.6 | 11.2 | 27.2 | 49.0 | 85.7 | 146.8 | 228.0 | 295.1 | 377.2 | 399.4 | 72 |
| Other Sites | 6.7 | 2.2 | 3.3 | 5.4 | 4.7 | 5.5 | 6.9 | 10.0 | 14.8 | 23.8 | 32.7 | 55.8 | 77.5 | 121.8 | 181.5 | 255.3 | 350.7 | 419.1 | 70 |

¹ per 100,000 ² Breast *in situ* is excluded from 'All Sites'. ³ Dashes indicate age groups with no incident cases. Source: Massachusetts Cancer Registry

Table 2.
AGE-SPECIFIC INCIDENCE RATES¹ AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Median Age |
|------------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|------------|
| All Sites | 23.9 | 10.9 | 15.8 | 22.0 | 44.8 | 71.6 | 130.6 | 200.6 | 331.2 | 485.7 | 663.5 | 833.4 | 1120.8 | 1498.3 | 1797.5 | 2064.9 | 2181.0 | 1864.9 | 65 |
| Brain & Other Nervous System | 4.5 | 3.1 | 3.9 | 2.0 | 2.3 | 2.7 | 3.0 | 3.1 | 4.1 | 3.9 | 5.6 | 10.2 | 12.7 | 16.2 | 14.8 | 20.1 | 20.9 | 17.5 | 61 |
| Breast | -- | -- | 0.1 | 0.1 | 2.0 | 7.7 | 28.7 | 66.1 | 145.8 | 218.4 | 253.4 | 278.2 | 360.2 | 446.8 | 477.1 | 485.9 | 467.7 | 341.0 | 62 |
| Breast <i>in situ</i> ² | -- | -- | -- | 0.3 | 0.2 | 1.1 | 4.1 | 18.9 | 66.8 | 108.6 | 118.6 | 102.6 | 115.4 | 128.7 | 121.6 | 110.7 | 73.2 | 30.2 | 56 |
| Bronchus & Lung | -- | -- | -- | 0.3 | 0.6 | 0.5 | 1.2 | 3.6 | 14.0 | 30.5 | 62.5 | 92.9 | 160.5 | 280.2 | 383.1 | 434.1 | 399.0 | 245.9 | 71 |
| Cervix Uteri | -- | -- | -- | 0.1 | 0.6 | 3.1 | 7.1 | 8.9 | 8.9 | 10.0 | 7.8 | 9.3 | 9.5 | 10.9 | 8.3 | 7.5 | 7.1 | 6.7 | 51 |
| Colon / Rectum | -- | -- | 0.1 | -- | 1.4 | 1.8 | 4.4 | 10.0 | 16.6 | 28.5 | 50.1 | 49.6 | 69.4 | 98.8 | 139.4 | 206.3 | 283.3 | 294.6 | 73 |
| Corpus Uteri & Uterus, NOS | 0.1 | -- | -- | -- | 0.2 | 1.5 | 3.8 | 8.6 | 15.4 | 28.9 | 57.4 | 87.7 | 119.3 | 121.9 | 117.0 | 100.0 | 82.9 | 57.2 | 62 |
| Esophagus | -- | -- | -- | -- | -- | -- | 0.2 | 0.1 | 0.5 | 0.8 | 1.6 | 3.4 | 6.2 | 8.4 | 13.1 | 15.1 | 18.3 | 13.9 | 73 |
| Hodgkin Lymphoma | -- | 0.2 | 1.2 | 3.4 | 5.8 | 4.4 | 3.6 | 3.5 | 2.6 | 1.1 | 2.4 | 2.7 | 2.9 | 3.5 | 3.9 | 5.1 | 5.7 | 2.2 | 39 |
| Kidney & Renal Pelvis | 2.0 | 1.4 | 0.1 | -- | 0.4 | 0.9 | 1.6 | 4.7 | 6.4 | 10.0 | 15.9 | 18.5 | 28.6 | 36.4 | 48.5 | 53.1 | 50.9 | 36.3 | 66 |
| Larynx | -- | -- | -- | -- | -- | -- | 0.2 | 0.2 | 0.4 | 1.1 | 2.9 | 4.0 | 4.1 | 8.8 | 9.4 | 7.7 | 5.0 | 3.5 | 66 |
| Leukemia | 8.9 | 3.7 | 2.4 | 2.0 | 2.2 | 2.7 | 3.2 | 3.3 | 5.4 | 6.5 | 8.6 | 13.1 | 18.8 | 25.1 | 35.2 | 48.0 | 58.7 | 60.5 | 68 |
| Liver & Intrahepatic Bile Ducts | 0.8 | -- | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.3 | 1.1 | 1.7 | 4.0 | 8.3 | 11.0 | 13.7 | 16.3 | 20.3 | 22.8 | 16.9 | 69 |
| Melanoma of Skin | -- | -- | 0.5 | 1.8 | 6.8 | 11.0 | 15.0 | 14.3 | 16.6 | 22.5 | 27.6 | 32.0 | 39.8 | 45.1 | 56.7 | 56.7 | 64.4 | 60.5 | 60 |
| Multiple Myeloma | -- | -- | -- | -- | -- | 0.2 | 0.3 | 0.7 | 0.8 | 2.7 | 5.7 | 8.4 | 13.2 | 19.4 | 23.3 | 30.5 | 33.5 | 31.4 | 71 |
| Non-Hodgkin Lymphoma | -- | 0.6 | 0.9 | 1.8 | 0.9 | 2.5 | 4.2 | 6.4 | 7.7 | 11.1 | 18.7 | 28.7 | 38.0 | 60.1 | 67.4 | 84.7 | 94.1 | 85.4 | 68 |
| Oral Cavity & Pharynx | 0.1 | 0.1 | 0.3 | 0.6 | 0.3 | 0.5 | 1.6 | 2.5 | 3.6 | 5.4 | 10.5 | 15.6 | 17.9 | 24.1 | 23.7 | 31.1 | 33.7 | 28.9 | 66 |
| Ovary | -- | -- | 0.2 | 1.2 | 1.9 | 1.9 | 4.0 | 5.3 | 7.6 | 14.5 | 22.0 | 28.0 | 32.7 | 40.5 | 45.9 | 44.2 | 46.3 | 43.2 | 63 |
| Pancreas | -- | -- | -- | -- | 0.2 | 0.2 | 0.4 | 1.2 | 2.6 | 3.9 | 7.7 | 16.7 | 26.0 | 39.2 | 60.2 | 70.4 | 91.5 | 102.3 | 74 |
| Stomach | -- | -- | -- | 0.3 | 0.3 | 0.4 | 0.6 | 0.8 | 2.6 | 3.4 | 4.6 | 6.7 | 7.6 | 12.0 | 16.5 | 27.9 | 34.7 | 42.6 | 75 |
| Thyroid | 0.1 | 0.1 | 1.8 | 5.0 | 15.9 | 24.6 | 39.2 | 44.7 | 49.6 | 51.7 | 52.4 | 47.8 | 45.4 | 48.5 | 36.8 | 36.5 | 23.8 | 11.8 | 49 |
| Urinary Bladder | -- | -- | -- | 0.1 | 0.1 | 0.1 | 0.5 | 1.3 | 2.0 | 5.2 | 8.2 | 17.9 | 26.9 | 41.6 | 60.5 | 82.8 | 90.8 | 91.3 | 74 |
| Other Sites | 7.6 | 1.7 | 4.0 | 3.2 | 2.9 | 4.8 | 7.3 | 10.7 | 17.0 | 23.9 | 33.7 | 53.9 | 70.1 | 97.4 | 140.2 | 197.1 | 245.7 | 270.9 | 72 |

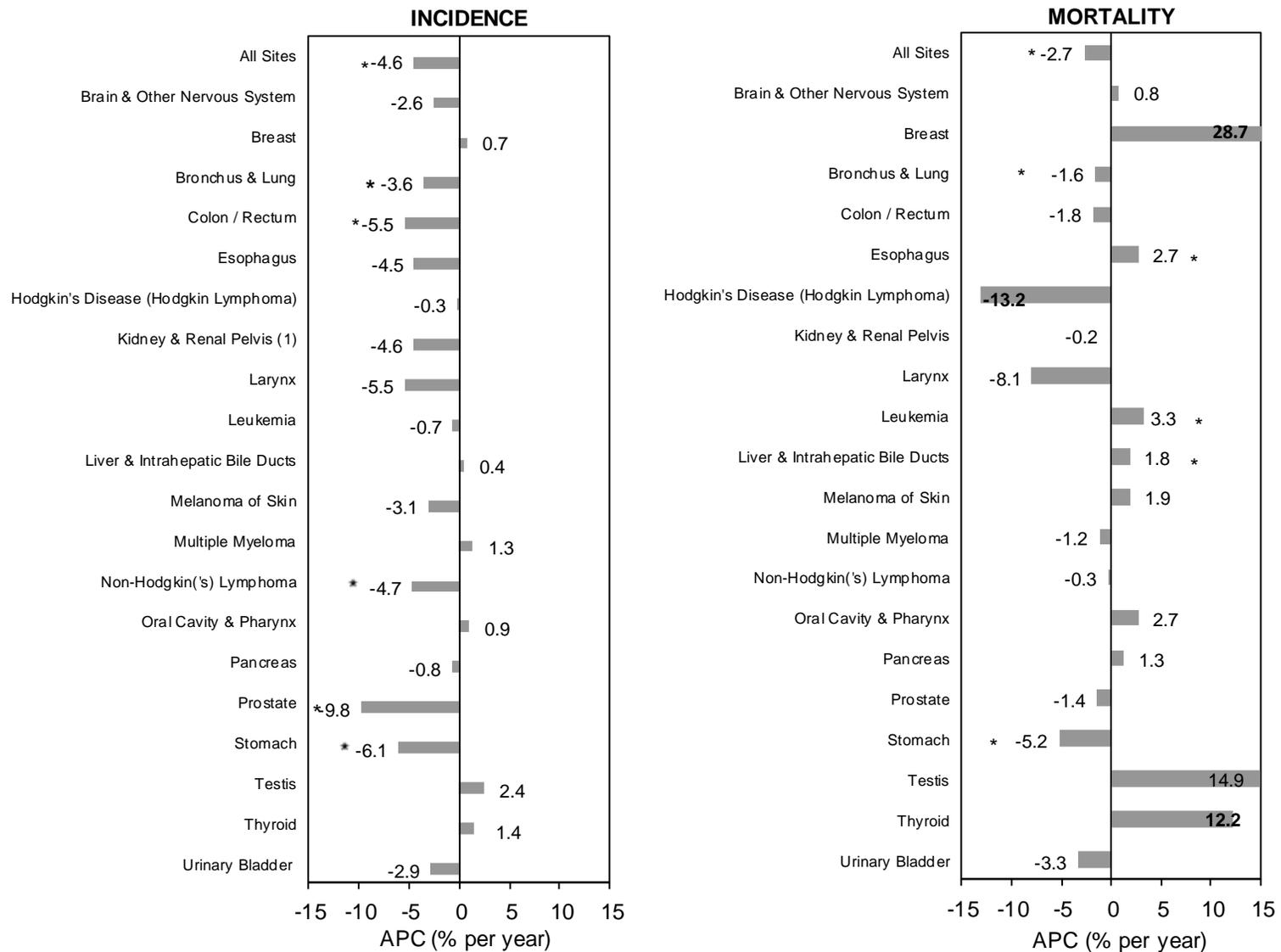
¹ per 100,000 ² Breast *in situ* is excluded from 'All Sites'. ³ Dashes indicate age groups with no incident cases. Source: Massachusetts Cancer Registry

Table 3.
AGE-SPECIFIC INCIDENCE RATES¹ AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
TOTAL

| Cancer Site / Type | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Median Age |
|------------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|------------|
| All Sites | 25.5 | 12.1 | 14.5 | 24.2 | 40.4 | 63.7 | 100.1 | 151.2 | 250.9 | 396.3 | 632.6 | 908.5 | 1297.2 | 1789.4 | 2176.1 | 2421.0 | 2513.1 | 2220.9 | 66 |
| Brain & Other Nervous System | 4.9 | 3.6 | 3.5 | 2.4 | 2.0 | 3.3 | 3.3 | 3.4 | 4.6 | 5.9 | 6.9 | 11.8 | 14.6 | 17.2 | 20.3 | 23.1 | 23.4 | 20.0 | 59 |
| Breast | -- | 0.1 | 0.0 | 0.0 | 1.0 | 3.9 | 14.5 | 33.7 | 74.6 | 111.8 | 130.5 | 144.9 | 190.1 | 241.6 | 266.3 | 283.5 | 291.0 | 239.8 | 62 |
| Breast <i>in situ</i> ² | -- | -- | -- | 0.1 | 0.1 | 0.5 | 2.1 | 9.6 | 34.1 | 55.4 | 60.9 | 53.4 | 60.5 | 69.1 | 67.8 | 64.2 | 45.0 | 21.3 | 56 |
| Bronchus & Lung | -- | -- | 0.0 | 0.2 | 0.6 | 0.4 | 1.2 | 3.2 | 11.4 | 26.8 | 61.1 | 101.3 | 169.8 | 288.6 | 409.7 | 484.1 | 470.7 | 312.3 | 71 |
| Cervix Uteri | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Colon / Rectum | -- | -- | 0.1 | 0.1 | 1.0 | 1.8 | 4.5 | 9.9 | 18.3 | 29.5 | 58.3 | 58.7 | 81.2 | 120.7 | 166.4 | 228.1 | 289.5 | 321.1 | 70 |
| Corpus Uteri & Uterus, NOS | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Esophagus | -- | -- | -- | -- | 0.0 | 0.0 | 0.2 | 0.4 | 1.3 | 3.3 | 6.5 | 11.6 | 20.4 | 25.5 | 33.3 | 33.1 | 34.2 | 26.6 | 68 |
| Hodgkin Lymphoma | 0.1 | 0.3 | 1.2 | 3.2 | 5.5 | 5.1 | 3.9 | 3.6 | 3.7 | 2.6 | 3.0 | 3.0 | 3.5 | 3.9 | 4.5 | 5.4 | 5.4 | 2.9 | 41 |
| Kidney & Renal Pelvis | 2.3 | 1.1 | 0.1 | 0.0 | 0.5 | 1.1 | 2.9 | 6.6 | 10.1 | 15.8 | 23.6 | 30.7 | 44.7 | 60.0 | 67.7 | 70.6 | 67.1 | 45.6 | 64 |
| Larynx | -- | -- | -- | -- | -- | 0.0 | 0.1 | 0.4 | 0.7 | 2.3 | 5.2 | 8.6 | 11.3 | 16.3 | 18.9 | 17.6 | 15.9 | 9.0 | 66 |
| Leukemia | 9.0 | 3.7 | 2.7 | 3.0 | 2.5 | 3.1 | 3.4 | 3.7 | 5.8 | 8.3 | 10.4 | 17.0 | 26.0 | 34.7 | 49.4 | 65.5 | 77.4 | 81.7 | 67 |
| Liver & Intrahepatic Bile Ducts | 1.0 | -- | 0.1 | 0.1 | 0.2 | 0.3 | 0.6 | 0.6 | 1.9 | 5.2 | 12.9 | 23.5 | 27.2 | 26.7 | 34.4 | 37.8 | 38.3 | 26.2 | 64 |
| Melanoma of Skin | -- | -- | 0.4 | 1.3 | 4.3 | 7.6 | 11.3 | 12.1 | 15.8 | 20.7 | 28.5 | 38.6 | 49.1 | 63.2 | 83.2 | 96.0 | 103.9 | 88.1 | 64 |
| Multiple Myeloma | -- | -- | -- | -- | -- | 0.2 | 0.2 | 1.1 | 1.6 | 3.8 | 6.6 | 11.2 | 16.1 | 22.5 | 31.6 | 36.0 | 42.4 | 36.6 | 69 |
| Non-Hodgkin Lymphoma | 0.5 | 0.9 | 1.0 | 2.3 | 2.0 | 3.1 | 5.5 | 7.2 | 9.9 | 15.3 | 22.2 | 32.2 | 44.5 | 66.3 | 81.2 | 97.8 | 119.9 | 107.1 | 67 |
| Oral Cavity & Pharynx | 0.1 | 0.1 | 0.2 | 0.6 | 0.6 | 1.0 | 2.0 | 3.5 | 6.9 | 12.8 | 21.4 | 30.7 | 39.0 | 43.2 | 40.3 | 46.0 | 41.5 | 38.5 | 62 |
| Ovary | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pancreas | -- | -- | -- | -- | 0.1 | 0.2 | 0.5 | 1.5 | 2.5 | 5.0 | 9.8 | 19.8 | 29.8 | 47.0 | 65.0 | 79.3 | 91.7 | 105.8 | 72 |
| Prostate | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Stomach | -- | -- | -- | 0.1 | 0.2 | 0.4 | 0.7 | 1.1 | 2.8 | 4.6 | 7.2 | 10.5 | 14.3 | 23.0 | 28.9 | 40.5 | 48.8 | 53.1 | 71 |
| Testis | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thyroid | 0.1 | 0.1 | 1.1 | 3.3 | 9.6 | 15.4 | 23.1 | 27.6 | 31.5 | 34.2 | 35.3 | 35.3 | 35.8 | 38.3 | 31.8 | 30.7 | 20.6 | 11.2 | 50 |
| Urinary Bladder | 0.1 | 0.1 | -- | 0.1 | 0.4 | 0.4 | 1.1 | 2.1 | 4.2 | 8.1 | 17.4 | 32.9 | 54.9 | 90.5 | 135.4 | 172.7 | 201.2 | 185.5 | 73 |
| Other Sites | 7.1 | 2.0 | 3.6 | 4.3 | 3.8 | 5.1 | 7.1 | 10.4 | 15.9 | 23.8 | 33.2 | 54.9 | 73.6 | 108.7 | 158.6 | 221.7 | 286.2 | 316.3 | 71 |

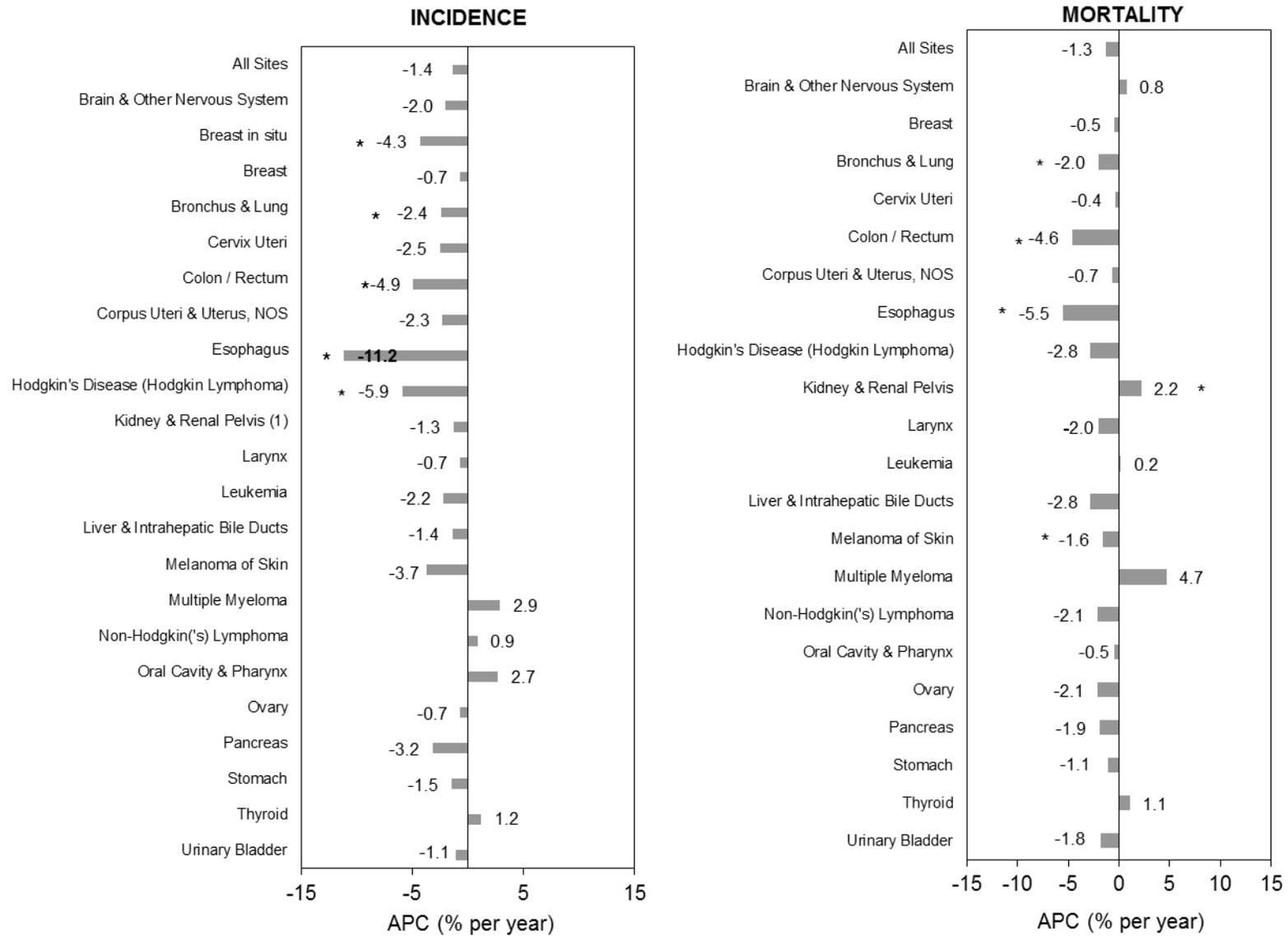
¹ per 100,000 ² Breast *in situ* is excluded from 'All Sites'. ³ Dashes indicate age groups with no incident cases or cancers found in only one sex. Source: Massachusetts Cancer Registry

Figure 5.
ANNUAL PERCENT CHANGE (APC) IN AGE-ADJUSTED CANCER RATES AMONG MALES
Massachusetts, 2008-2012



*APC is statistically significant ($p \leq 0.05$). Values appearing directly on a bar have been bolded for ease of reading only.
 Source: Massachusetts Cancer Registry.

Figure 6.
ANNUAL PERCENT CHANGE (APC) IN AGE-ADJUSTED CANCER RATES AMONG FEMALES
Massachusetts, 2008-2012



*APC is statistically significant ($p \leq 0.05$). Values appearing directly on a bar have been bolded for ease of reading only. Source: Massachusetts Cancer Registry.

Table 4.
ANNUAL AGE-ADJUSTED¹ INCIDENCE RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012

MALES

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 594.1 | 565.6 | 529.4 | 534.8 | 483.5 |
| Brain & Other Nervous System | 8.5 | 7.8 | 8.2 | 7.9 | 7.4 |
| Breast | 1.2 | 1.4 | 1.2 | 1.5 | 1.2 |
| Breast <i>in situ</i>³ | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 |
| Bronchus & Lung | 82.0 | 78.8 | 73.2 | 74.4 | 70.4 |
| Colon / Rectum | 51.9 | 48.7 | 44.6 | 43.3 | 41.5 |
| Esophagus | 11.7 | 11.4 | 9.9 | 10.9 | 9.5 |
| Hodgkin Lymphoma | 4.0 | 3.1 | 3.3 | 3.7 | 3.6 |
| Kidney & Renal Pelvis | 24.8 | 22.9 | 19.9 | 20.5 | 20.7 |
| Larynx | 6.0 | 6.9 | 6.1 | 5.2 | 5.2 |
| Leukemia | 17.0 | 17.8 | 15.7 | 17.0 | 16.8 |
| Liver & Intrahepatic Bile Ducts | 12.9 | 13.2 | 12.6 | 12.5 | 13.5 |
| Melanoma of Skin | 29.1 | 26.8 | 24.9 | 28.8 | 24.0 |
| Multiple Myeloma | 7.3 | 8.2 | 7.7 | 7.8 | 8.0 |
| Non-Hodgkin Lymphoma | 25.5 | 26.3 | 23.6 | 22.0 | 21.9 |
| Oral Cavity & Pharynx | 17.7 | 17.0 | 17.5 | 17.8 | 18.1 |
| Pancreas | 14.5 | 14.6 | 12.9 | 14.3 | 14.1 |
| Prostate | 161.3 | 145.6 | 139.8 | 136.8 | 99.5 |
| Stomach | 11.4 | 9.7 | 9.8 | 8.9 | 8.7 |
| Testis | 5.9 | 6.5 | 5.4 | 6.6 | 6.6 |
| Thyroid | 9.9 | 10.4 | 9.4 | 10.8 | 10.4 |
| Urinary Bladder | 45.9 | 43.9 | 40.2 | 41.4 | 40.9 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000 males

³ Breast *in situ* is excluded from "All Sites"

Source: Massachusetts Cancer Registry

Table 5.
ANNUAL AGE-ADJUSTED¹ INCIDENCE RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012

FEMALES

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 477.7 | 465.6 | 441.1 | 454.7 | 451.2 |
| Brain & Other Nervous System | 6.5 | 5.5 | 5.8 | 6.3 | 5.5 |
| Breast | 141.6 | 136.1 | 130.0 | 137.0 | 136.6 |
| Breast <i>in situ</i>³ | 49.2 | 47.9 | 44.9 | 41.6 | 42.4 |
| Bronchus & Lung | 66.5 | 64.6 | 62.4 | 60.3 | 61.0 |
| Cervix Uteri | 5.4 | 5.5 | 5.6 | 5.2 | 4.9 |
| Colon / Rectum | 39.5 | 38.3 | 35.7 | 34.0 | 32.6 |
| Corpus Uteri & Uterus, NOS | 32.1 | 30.2 | 27.9 | 31.1 | 28.2 |
| Esophagus | 2.7 | 2.6 | 2.4 | 2.0 | 1.7 |
| Hodgkin Lymphoma | 3.2 | 2.9 | 2.6 | 2.6 | 2.5 |
| Kidney & Renal Pelvis | 11.4 | 10.9 | 10.3 | 10.5 | 10.9 |
| Larynx | 1.6 | 1.9 | 1.5 | 1.4 | 1.8 |
| Leukemia | 10.7 | 9.8 | 10.5 | 10.0 | 9.5 |
| Liver & Intrahepatic Bile Ducts | 3.8 | 3.8 | 3.4 | 3.3 | 3.8 |
| Melanoma of Skin | 19.5 | 18.8 | 18.4 | 18.5 | 16.3 |
| Multiple Myeloma | 4.7 | 4.8 | 4.4 | 5.9 | 4.9 |
| Non-Hodgkin Lymphoma | 15.9 | 16.3 | 16.5 | 15.2 | 17.2 |
| Oral Cavity & Pharynx | 6.4 | 7.0 | 6.3 | 6.3 | 7.7 |
| Ovary | 12.8 | 13.2 | 10.4 | 12.1 | 12.9 |
| Pancreas | 12.1 | 12.1 | 10.7 | 10.8 | 10.9 |
| Stomach | 4.7 | 4.4 | 4.6 | 4.5 | 4.3 |
| Thyroid | 28.1 | 30.1 | 27.1 | 30.7 | 29.6 |
| Urinary Bladder | 12.6 | 11.5 | 10.9 | 12.1 | 11.6 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

²per 100,000 males

³Breast *in situ* is excluded from "All Sites"

Source: Massachusetts Cancer Registry

Table 6.
ANNUAL AGE-ADJUSTED¹ INCIDENCE RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
TOTAL

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 523.2 | 504.1 | 476.1 | 486.5 | 461.8 |
| Brain & Other Nervous System | 7.4 | 6.6 | 6.9 | 7.0 | 6.4 |
| Breast | -- | -- | -- | -- | -- |
| Breast <i>in situ</i>³ | -- | -- | -- | -- | -- |
| Bronchus & Lung | 72.5 | 70.0 | 66.5 | 66.1 | 64.5 |
| Cervix Uteri | -- | -- | -- | -- | -- |
| Colon / Rectum | 44.9 | 42.8 | 39.6 | 38.0 | 36.6 |
| Corpus Uteri & Uterus, NOS | -- | -- | -- | -- | -- |
| Esophagus | 6.7 | 6.4 | 5.7 | 5.9 | 5.2 |
| Hodgkin Lymphoma | 3.6 | 3.0 | 2.9 | 3.1 | 3.0 |
| Kidney & Renal Pelvis | 17.4 | 16.3 | 14.6 | 15.2 | 15.4 |
| Larynx | 3.5 | 4.1 | 3.5 | 3.1 | 3.3 |
| Leukemia | 13.3 | 13.1 | 12.6 | 13.0 | 12.8 |
| Liver & Intrahepatic Bile Ducts | 7.9 | 8.0 | 7.6 | 7.5 | 8.2 |
| Melanoma of Skin | 23.3 | 22.0 | 21.0 | 22.7 | 19.4 |
| Multiple Myeloma | 5.8 | 6.2 | 5.8 | 6.7 | 6.3 |
| Non-Hodgkin Lymphoma | 20.1 | 20.6 | 19.6 | 18.1 | 19.2 |
| Oral Cavity & Pharynx | 11.5 | 11.6 | 11.4 | 11.6 | 12.6 |
| Ovary | -- | -- | -- | -- | -- |
| Pancreas | 13.1 | 13.1 | 11.7 | 12.4 | 12.5 |
| Prostate | -- | -- | -- | -- | -- |
| Stomach | 7.6 | 6.8 | 6.8 | 6.4 | 6.2 |
| Testis | -- | -- | -- | -- | -- |
| Thyroid | 19.2 | 20.5 | 18.5 | 21.0 | 20.3 |
| Urinary Bladder | 26.4 | 25.0 | 23.1 | 24.5 | 24.1 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000 total population

³ Breast *in situ* is excluded from "All Sites"

⁴ Dashes indicate cancers found in only one sex or predominantly in one sex (breast cancer).

Source: Massachusetts Cancer Registry

Table 7.
ANNUAL AGE-ADJUSTED¹ MORTALITY RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 214.0 | 204.8 | 203.9 | 197.0 | 190.1 |
| Brain & Other Nervous System | 4.8 | 5.5 | 4.9 | 5.2 | 4.7 |
| Breast | 0.2 | 0.1 | 0.3 | 0.2 | 0.5 |
| Bronchus & Lung | 54.4 | 53.8 | 52.9 | 50.8 | 51.8 |
| Colon / Rectum | 16.1 | 17.1 | 16.3 | 15.5 | 15.4 |
| Esophagus | 8.2 | 8.0 | 8.0 | 8.9 | 8.9 |
| Hodgkin Lymphoma | 0.4 | 0.7 | 0.5 | 0.3 | 0.3 |
| Kidney & Renal Pelvis | 4.8 | 4.3 | 3.8 | 4.2 | 4.8 |
| Larynx | 2.1 | 1.6 | 1.8 | 1.8 | 1.3 |
| Leukemia | 7.9 | 7.6 | 8.6 | 8.9 | 8.6 |
| Liver & Intrahepatic Bile Ducts | 8.9 | 8.9 | 9.6 | 9.6 | 9.4 |
| Melanoma of Skin | 3.5 | 4.2 | 4.2 | 3.9 | 4.0 |
| Multiple Myeloma | 4.2 | 3.9 | 3.5 | 4.0 | 3.9 |
| Non-Hodgkin Lymphoma | 7.1 | 6.4 | 7.2 | 7.6 | 6.2 |
| Oral Cavity & Pharynx | 3.7 | 3.0 | 4.2 | 3.7 | 3.8 |
| Pancreas | 11.8 | 11.4 | 11.4 | 12.6 | 12.0 |
| Prostate | 19.5 | 19.1 | 19.5 | 18.4 | 18.5 |
| Stomach | 5.1 | 4.4 | 4.0 | 4.0 | 4.1 |
| Testis | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 |
| Thyroid | 0.4 | 0.5 | 0.4 | 0.7 | 0.6 |
| Urinary Bladder | 9.0 | 7.9 | 9.0 | 7.9 | 7.6 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000 males

Source: Massachusetts Vital Statistics

Table 8
ANNUAL AGE-ADJUSTED¹ MORTALITY RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 148.3 | 149.4 | 142.5 | 139.1 | 138.6 |
| Brain & Other Nervous System | 3.6 | 4.1 | 3.0 | 3.3 | 3.2 |
| Breast | 19.3 | 21.1 | 18.2 | 18.7 | 19.5 |
| Bronchus & Lung | 38.6 | 39.9 | 38.4 | 37.3 | 37.8 |
| Cervix Uteri | 1.2 | 1.6 | 1.2 | 1.5 | 1.2 |
| Colon / Rectum | 12.9 | 12.0 | 12.2 | 10.2 | 10.9 |
| Corpus Uteri & Uterus, NOS | 3.9 | 4.0 | 4.1 | 4.6 | 4.1 |
| Esophagus | 2.1 | 2.0 | 1.7 | 1.5 | 1.4 |
| Hodgkin Lymphoma | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 |
| Kidney & Renal Pelvis | 2.0 | 2.6 | 1.9 | 2.3 | 2.1 |
| Larynx | 0.3 | 0.3 | 0.5 | 0.5 | 0.3 |
| Leukemia | 5.0 | 5.1 | 4.8 | 4.9 | 5.2 |
| Liver & Intrahepatic Bile Ducts | 2.8 | 3.2 | 3.5 | 3.0 | 3.4 |
| Melanoma of Skin | 2.0 | 1.9 | 1.7 | 1.9 | 1.8 |
| Multiple Myeloma | 2.1 | 2.7 | 2.4 | 2.6 | 2.8 |
| Non-Hodgkin Lymphoma | 4.7 | 4.0 | 4.4 | 4.1 | 4.2 |
| Oral Cavity & Pharynx | 1.1 | 1.2 | 1.7 | 1.1 | 1.1 |
| Ovary | 7.0 | 7.2 | 6.7 | 8.1 | 7.0 |
| Pancreas | 9.9 | 9.4 | 9.6 | 9.8 | 9.7 |
| Stomach | 2.6 | 2.1 | 2.4 | 2.1 | 2.4 |
| Thyroid | 0.4 | 0.6 | 0.6 | 0.5 | 0.3 |
| Urinary Bladder | 2.8 | 2.8 | 2.6 | 2.4 | 2.6 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000 females

Source: Massachusetts Vital Statistics

Table 9.
ANNUAL AGE-ADJUSTED¹ MORTALITY RATES² FOR SELECTED CANCER SITES
Massachusetts, 2008-2012
TOTAL³

| Cancer Site / Type | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|-------------|-------------|-------------|-------------|-------------|
| All Sites | 173.8 | 170.2 | 166.8 | 162.3 | 159.6 |
| Brain & Other Nervous System | 4.1 | 4.7 | 3.8 | 4.3 | 4.0 |
| Breast | -- | -- | -- | -- | -- |
| Bronchus & Lung | 45.2 | 45.6 | 44.4 | 42.8 | 43.5 |
| Cervix Uteri | -- | -- | -- | -- | -- |
| Colon / Rectum | 14.3 | 14.1 | 14.0 | 12.5 | 12.8 |
| Corpus Uteri & Uterus, NOS | -- | -- | -- | -- | -- |
| Esophagus | 4.8 | 4.6 | 4.5 | 4.7 | 4.7 |
| Hodgkin Lymphoma | 0.3 | 0.5 | 0.4 | 0.2 | 0.2 |
| Kidney & Renal Pelvis | 3.2 | 3.3 | 2.7 | 3.2 | 3.2 |
| Larynx | 1.1 | 0.9 | 1.0 | 1.1 | 0.7 |
| Leukemia | 6.3 | 6.1 | 6.4 | 6.5 | 6.5 |
| Liver & Intrahepatic Bile Ducts | 5.5 | 5.7 | 6.2 | 6.0 | 6.1 |
| Melanoma of Skin | 2.6 | 2.9 | 2.8 | 2.7 | 2.7 |
| Multiple Myeloma | 3.0 | 3.2 | 2.8 | 3.2 | 3.3 |
| Non-Hodgkin Lymphoma | 5.7 | 5.0 | 5.6 | 5.6 | 5.0 |
| Oral Cavity & Pharynx | 2.3 | 2.1 | 2.9 | 2.3 | 2.3 |
| Ovary | -- | -- | -- | -- | -- |
| Pancreas | 10.8 | 10.3 | 10.4 | 11.1 | 10.8 |
| Prostate | -- | -- | -- | -- | -- |
| Stomach | 3.6 | 3.1 | 3.1 | 2.9 | 3.1 |
| Testis | -- | -- | -- | -- | -- |
| Thyroid | 0.4 | 0.5 | 0.5 | 0.6 | 0.4 |
| Urinary Bladder | 5.3 | 4.9 | 5.1 | 4.6 | 4.5 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000 total population

³Dashes indicate cancers found in only one sex or predominantly in one sex (breast cancer).

Table 10.
FIVE LEADING CANCER INCIDENCE RATES BY RACE/ETHNICITY AND SEX
Massachusetts, 2008-2012

MALES

| AGE-ADJUSTED¹ INCIDENCE RATE² | | | | |
|--|----------------------------|-------------------------------|--|---|
| RANK | White, non-Hispanic | Black, non-Hispanic | Asian, non-Hispanic | Hispanic |
| 1 | Prostate 125.8 | Prostate 228.8 | Prostate 69.4 | Prostate 152.7 |
| 2 | Bronchus & Lung 77.2 | Bronchus & Lung 76.4 | Bronchus & Lung 61.5 | Bronchus & Lung 46.4 |
| 3 | Colon / Rectum 45.7 | Colon / Rectum 51.8 | Colon / Rectum 37.4 | Colon / Rectum 37.8 |
| 4 | Urinary Bladder 44.5 | Kidney & Renal Pelvis 22.2 | Liver & Intrahepatic Bile Ducts 33.9 | Liver & Intrahepatic Bile Ducts 22.0 |
| 5 | Melanoma of Skin 28.2 | Urinary Bladder 21.3 | Urinary Bladder 15.1 | Non-Hodgkin Lymphoma 18.0 |

FEMALES

| AGE-ADJUSTED¹ INCIDENCE RATE² | | | | |
|--|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| RANK | White, non-Hispanic | Black, non-Hispanic | Asian, non-Hispanic | Hispanic |
| 1 | Breast ³ 141.6 | Breast 120.0 | Breast 86.3 | Breast 90.7 |
| 2 | Bronchus & Lung 66.6 | Bronchus & Lung 43.4 | Colon / Rectum 33.0 | Colon / Rectum 28.9 |
| 3 | Colon / Rectum 35.8 | Colon / Rectum 38.8 | Bronchus & Lung 31.5 | Thyroid 27.0 |
| 4 | Corpus Uteri & Uterus, NOS 30.8 | Thyroid 26.0 | Thyroid 30.2 | Bronchus & Lung 25.4 |
| 5 | Thyroid 29.2 | Corpus Uteri & Uterus, NOS 25.6 | Corpus Uteri & Uterus, NOS 16.7 | Corpus Uteri & Uterus, NOS 20.2 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³Breast cancer rates do not include *in situ* cases.

Source: Massachusetts Cancer Registry

Table 11.
NUMBER AND PERCENTAGE OF INCIDENT CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | All Races ² | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|---------------------------------|------------------------|------------|---------------------|------------|---------------------|------------|---------------------|------------|----------|------------|
| | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases |
| All Sites | 89757 | 100.0 | 78197 | 100.0 | 4383 | 100.0 | 1956 | 100.0 | 3068 | 100.0 |
| Brain & Other Nervous System | 1300 | 1.4 | 1158 | 1.5 | 43 | 1.0 | 28 | 1.4 | 67 | 2.2 |
| Breast ³ | 213 | 0.2 | 194 | 0.2 | 8 | 0.2 | 8 | 0.4 | 3 | 0.1 |
| Bronchus & Lung | 12180 | 13.6 | 11078 | 14.2 | 494 | 11.3 | 317 | 16.2 | 257 | 8.4 |
| Colon / Rectum | 7465 | 8.3 | 6547 | 8.4 | 369 | 8.4 | 213 | 10.9 | 241 | 7.9 |
| Esophagus | 1796 | 2.0 | 1684 | 2.2 | 56 | 1.3 | 27 | 1.4 | 24 | 0.8 |
| Hodgkin Lymphoma | 577 | 0.6 | 472 | 0.6 | 37 | 0.8 | 14 | 0.7 | 46 | 1.5 |
| Kidney & Renal Pelvis | 3675 | 4.1 | 3252 | 4.2 | 180 | 4.1 | 69 | 3.5 | 148 | 4.8 |
| Larynx | 998 | 1.1 | 887 | 1.1 | 46 | 1.0 | 12 | 0.6 | 40 | 1.3 |
| Leukemia | 2684 | 3.0 | 2380 | 3.0 | 80 | 1.8 | 54 | 2.8 | 98 | 3.2 |
| Liver & Intrahepatic Bile Ducts | 2258 | 2.5 | 1682 | 2.2 | 171 | 3.9 | 212 | 10.8 | 171 | 5.6 |
| Melanoma of Skin | 4357 | 4.9 | 4007 | 5.1 | 6 | 0.1 | 3 | 0.2 | 18 | 0.6 |
| Multiple Myeloma | 1274 | 1.4 | 1063 | 1.4 | 118 | 2.7 | 23 | 1.2 | 53 | 1.7 |
| Non-Hodgkin Lymphoma | 3888 | 4.3 | 3437 | 4.4 | 172 | 3.9 | 80 | 4.1 | 147 | 4.8 |
| Oral Cavity & Pharynx | 3095 | 3.4 | 2747 | 3.5 | 111 | 2.5 | 83 | 4.2 | 133 | 4.3 |
| Pancreas | 2293 | 2.6 | 2071 | 2.6 | 108 | 2.5 | 33 | 1.7 | 72 | 2.3 |
| Prostate | 23803 | 26.5 | 19470 | 24.9 | 1757 | 40.1 | 371 | 19.0 | 1007 | 32.8 |
| Stomach | 1576 | 1.8 | 1282 | 1.6 | 101 | 2.3 | 73 | 3.7 | 109 | 3.6 |
| Testis | 985 | 1.1 | 885 | 1.1 | 15 | 0.3 | 19 | 1.0 | 54 | 1.8 |
| Thyroid | 1734 | 1.9 | 1485 | 1.9 | 64 | 1.5 | 84 | 4.3 | 67 | 2.2 |
| Urinary Bladder | 6701 | 7.5 | 6284 | 8.0 | 132 | 3.0 | 77 | 3.9 | 100 | 3.3 |
| Other Sites | 6905 | 7.7 | 6132 | 7.8 | 315 | 7.2 | 156 | 8.0 | 213 | 6.9 |

¹ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category.

² The number of cases for all races is not the sum of cases by race/ethnicity. ³ Breast *in situ* cases are excluded from 'All Sites' and breast cancer counts.

Source: Massachusetts Cancer Registry

Table 12.
NUMBER AND PERCENTAGE OF INCIDENT CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | All Races ² | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|---------------------------------|------------------------|------------|---------------------|------------|---------------------|------------|---------------------|------------|----------|------------|
| | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases |
| All Sites | 93446 | 100.0 | 82922 | 100.0 | 3975 | 100.0 | 2260 | 100.0 | 3223 | 100.0 |
| Brain & Other Nervous System | 1130 | 1.2 | 997 | 1.2 | 45 | 1.1 | 26 | 1.2 | 56 | 1.7 |
| Breast ³ | 27364 | 29.3 | 24409 | 29.4 | 1208 | 30.4 | 691 | 30.6 | 933 | 28.9 |
| Bronchus & Lung | 13077 | 14.0 | 12226 | 14.7 | 408 | 10.3 | 199 | 8.8 | 206 | 6.4 |
| Cervix Uteri | 970 | 1.0 | 720 | 0.9 | 88 | 2.2 | 49 | 2.2 | 100 | 3.1 |
| Colon / Rectum | 7755 | 8.3 | 6843 | 8.3 | 374 | 9.4 | 220 | 9.7 | 250 | 7.8 |
| Corpus Uteri & Uterus, NOS | 6207 | 6.6 | 5552 | 6.7 | 254 | 6.4 | 130 | 5.8 | 216 | 6.7 |
| Esophagus | 489 | 0.5 | 429 | 0.5 | 27 | 0.7 | 9 | 0.4 | 24 | 0.7 |
| Hodgkin Lymphoma | 487 | 0.5 | 412 | 0.5 | 22 | 0.6 | 11 | 0.5 | 38 | 1.2 |
| Kidney & Renal Pelvis | 2183 | 2.3 | 1926 | 2.3 | 123 | 3.1 | 37 | 1.6 | 81 | 2.5 |
| Larynx | 335 | 0.4 | 306 | 0.4 | 14 | 0.4 | 4 | 0.2 | 9 | 0.3 |
| Leukemia | 2028 | 2.2 | 1749 | 2.1 | 73 | 1.8 | 60 | 2.7 | 100 | 3.1 |
| Liver & Intrahepatic Bile Ducts | 766 | 0.8 | 601 | 0.7 | 49 | 1.2 | 59 | 2.6 | 51 | 1.6 |
| Melanoma of Skin | 3606 | 3.9 | 3237 | 3.9 | 14 | 0.4 | 13 | 0.6 | 30 | 0.9 |
| Multiple Myeloma | 1063 | 1.1 | 849 | 1.0 | 124 | 3.1 | 14 | 0.6 | 57 | 1.8 |
| Non-Hodgkin Lymphoma | 3378 | 3.6 | 2965 | 3.6 | 149 | 3.7 | 73 | 3.2 | 137 | 4.3 |
| Oral Cavity & Pharynx | 1400 | 1.5 | 1244 | 1.5 | 48 | 1.2 | 45 | 2.0 | 55 | 1.7 |
| Ovary | 2513 | 2.7 | 2260 | 2.7 | 83 | 2.1 | 70 | 3.1 | 78 | 2.4 |
| Pancreas | 2483 | 2.7 | 2219 | 2.7 | 138 | 3.5 | 50 | 2.2 | 67 | 2.1 |
| Stomach | 978 | 1.0 | 771 | 0.9 | 81 | 2.0 | 59 | 2.6 | 64 | 2.0 |
| Thyroid | 5230 | 5.6 | 4206 | 5.1 | 278 | 7.0 | 272 | 12.0 | 351 | 10.9 |
| Urinary Bladder | 2540 | 2.7 | 2361 | 2.8 | 63 | 1.6 | 16 | 0.7 | 49 | 1.5 |
| Other Sites | 7464 | 8.0 | 6640 | 8.0 | 312 | 7.8 | 153 | 6.8 | 271 | 8.4 |

¹ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category.

² The number of cases for all races is not the sum of cases by race/ethnicity. ³Breast *in situ* cases are excluded from 'All Sites' and from breast cancer counts.

Source: Massachusetts Cancer Registry

Table 13.
NUMBER AND PERCENTAGE OF INCIDENT CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
TOTAL²

| Cancer Site / Type | All Races ³ | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|--|------------------------|------------|---------------------|------------|---------------------|------------|---------------------|------------|----------|------------|
| | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases | Cases | % of Cases |
| All Sites | 183218 | 100.0 | 161130 | 100.0 | 8359 | 100.0 | 4216 | 100.0 | 6293 | 100.0 |
| Brain & Other Nervous System | 2431 | 1.3 | 2156 | 1.3 | 88 | 1.1 | 54 | 1.3 | 123 | 2.0 |
| Breast⁴ | 27578 | 15.1 | 24604 | 15.3 | 1216 | 14.5 | 699 | 16.6 | 936 | 14.9 |
| Bronchus & Lung | 25258 | 13.8 | 23305 | 14.5 | 902 | 10.8 | 516 | 12.2 | 463 | 7.4 |
| Cervix Uteri | 970 | 0.5 | 720 | 0.4 | 88 | 1.1 | 49 | 1.2 | 100 | 1.6 |
| Colon / Rectum | 15222 | 8.3 | 13392 | 8.3 | 743 | 8.9 | 433 | 10.3 | 491 | 7.8 |
| Corpus Uteri & Uterus, NOS | 6207 | 3.4 | 5552 | 3.4 | 254 | 3.0 | 130 | 3.1 | 216 | 3.4 |
| Esophagus | 2285 | 1.2 | 2113 | 1.3 | 83 | 1.0 | 36 | 0.9 | 48 | 0.8 |
| Hodgkin Lymphoma | 1065 | 0.6 | 885 | 0.5 | 59 | 0.7 | 25 | 0.6 | 84 | 1.3 |
| Kidney & Renal Pelvis | 5858 | 3.2 | 5178 | 3.2 | 303 | 3.6 | 106 | 2.5 | 229 | 3.6 |
| Larynx | 1333 | 0.7 | 1193 | 0.7 | 60 | 0.7 | 16 | 0.4 | 49 | 0.8 |
| Leukemia | 4712 | 2.6 | 4129 | 2.6 | 153 | 1.8 | 114 | 2.7 | 198 | 3.1 |
| Liver & Intrahepatic Bile Ducts | 3026 | 1.7 | 2283 | 1.4 | 220 | 2.6 | 271 | 6.4 | 223 | 3.5 |
| Melanoma of Skin | 7963 | 4.3 | 7244 | 4.5 | 20 | 0.2 | 16 | 0.4 | 48 | 0.8 |
| Multiple Myeloma | 2337 | 1.3 | 1912 | 1.2 | 242 | 2.9 | 37 | 0.9 | 110 | 1.7 |
| Non-Hodgkin Lymphoma | 7269 | 4.0 | 6404 | 4.0 | 322 | 3.9 | 153 | 3.6 | 284 | 4.5 |
| Oral Cavity & Pharynx | 4495 | 2.5 | 3991 | 2.5 | 159 | 1.9 | 128 | 3.0 | 188 | 3.0 |
| Ovary | 2513 | 1.4 | 2260 | 1.4 | 83 | 1.0 | 70 | 1.7 | 78 | 1.2 |
| Pancreas | 4776 | 2.6 | 4290 | 2.7 | 246 | 2.9 | 83 | 2.0 | 139 | 2.2 |
| Prostate | 23803 | 13.0 | 19470 | 12.1 | 1757 | 21.0 | 371 | 8.8 | 1007 | 16.0 |
| Stomach | 2554 | 1.4 | 2053 | 1.3 | 182 | 2.2 | 132 | 3.1 | 173 | 2.7 |
| Testis | 985 | 0.5 | 885 | 0.5 | 15 | 0.2 | 19 | 0.5 | 54 | 0.9 |
| Thyroid | 6964 | 3.8 | 5691 | 3.5 | 342 | 4.1 | 356 | 8.4 | 418 | 6.6 |
| Urinary Bladder | 9242 | 5.0 | 8646 | 5.4 | 195 | 2.3 | 93 | 2.2 | 149 | 2.4 |
| Other Sites | 14372 | 7.8 | 12774 | 7.9 | 627 | 7.5 | 309 | 7.3 | 485 | 7.7 |

¹ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category.

² Total includes persons classified as a transsexual and persons of unknown sex. ³ The number of cases for all races is not the sum of cases by race/ethnicity.

⁴ Breast in situ cases are excluded from 'All Sites' and from breast cancer counts. Source: Massachusetts Cancer Registry

Table 14.
AGE-ADJUSTED¹ INCIDENCE RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|--|-----------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|-----------|-------------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 540.1 | 536.5-543.7 | 537.2 | 533.3-541.0 | 593.6 | 574.7-612.6 | 337.2 | 321.1-353.2 | 434.8 | 417.2-452.4 |
| Brain & Other Nervous System | 7.9 | 7.5-8.4 | 8.5 | 8.0-9.0 | 5.2 | 3.5-6.8 | 4.3 | 2.5-6.2 | 7.4 | 5.1-9.6 |
| Breast | 1.3 | 1.1-1.5 | 1.3 | 1.2-1.5 | * | * | * | * | * | * |
| Breast <i>in situ</i>⁴ | 0.2 | 0.1-0.2 | * | * | * | * | * | * | * | * |
| Bronchus & Lung | 75.6 | 74.2-77.0 | 77.2 | 75.7-78.6 | 76.4 | 69.2-83.7 | 61.5 | 54.3-68.7 | 46.4 | 40.1-52.7 |
| Colon / Rectum | 45.8 | 44.8-46.9 | 45.7 | 44.6-46.8 | 51.8 | 46.1-57.6 | 37.4 | 32.0-42.8 | 37.8 | 32.4-43.3 |
| Esophagus | 10.7 | 10.2-11.2 | 11.3 | 10.7-11.8 | 8.2 | 5.8-10.5 | 5.0 | 2.9-7.0 | 3.9 | 2.1-5.6 |
| Hodgkin Lymphoma | 3.5 | 3.2-3.8 | 3.7 | 3.3-4.0 | 3.4 | 2.3-4.5 | * | * | 4.0 | 2.6-5.5 |
| Kidney & Renal Pelvis | 21.7 | 21.0-22.4 | 22.2 | 21.4-22.9 | 22.2 | 18.7-25.6 | 10.6 | 7.9-13.3 | 17.2 | 14.0-20.4 |
| Larynx | 5.9 | 5.5-6.2 | 5.9 | 5.5-6.3 | 7.0 | 4.9-9.2 | 2.2 | 0.9-3.5 | 5.5 | 3.6-7.5 |
| Leukemia | 16.8 | 16.2-17.5 | 17.3 | 16.5-18.0 | 9.7 | 7.3-12.0 | * | * | 9.9 | 7.5-12.4 |
| Liver & Intrahepatic Bile Ducts | 13.0 | 12.4-13.5 | 11.0 | 10.5-11.5 | 20.7 | 17.3-24.0 | 33.9 | 29.0-38.8 | 22.0 | 18.3-25.8 |
| Melanoma of Skin | 26.7 | 25.9-27.5 | 28.2 | 27.3-29.1 | * | * | * | * | * | * |
| Multiple Myeloma | 7.8 | 7.3-8.2 | 7.4 | 6.9-7.8 | 17.6 | 14.1-21.0 | 4.1 | 2.3-5.8 | 8.3 | 5.8-10.8 |
| Non-Hodgkin Lymphoma | 23.8 | 23.1-24.6 | 24.3 | 23.4-25.1 | 21.1 | 17.6-24.5 | 12.6 | 9.6-15.6 | 18.0 | 14.6-21.5 |
| Oral Cavity & Pharynx | 17.6 | 17.0-18.3 | 18.0 | 17.3-18.7 | 13.9 | 11.1-16.7 | 12.1 | 9.3-14.9 | 17.7 | 14.3-21.1 |
| Pancreas | 14.1 | 13.5-14.7 | 14.3 | 13.7-14.9 | 17.0 | 13.5-20.4 | 6.3 | 4.0-8.5 | 12.0 | 8.8-15.2 |
| Prostate | 135.9 | 134.1-137.6 | 125.8 | 124.0-127.6 | 228.8 | 217.4-240.2 | 69.4 | 61.9-76.8 | 152.7 | 142.3-163.1 |
| Stomach | 9.7 | 9.2-10.2 | 8.9 | 8.4-9.4 | 15.4 | 12.1-18.6 | 13.1 | 9.8-16.3 | 16.1 | 12.7-19.6 |
| Testis | 6.2 | 5.8-6.6 | 7.4 | 6.9-7.9 | * | * | * | * | 3.3 | 2.4-4.2 |
| Thyroid | 10.1 | 9.7-10.6 | 10.5 | 9.9-11.0 | 7.3 | 5.4-9.2 | 10.5 | 8.1-12.8 | 6.5 | 4.7-8.2 |
| Urinary Bladder | 42.4 | 41.4-43.4 | 44.5 | 43.4-45.6 | 21.3 | 17.4-25.2 | 15.1 | 11.5-18.8 | 17.6 | 13.7-21.5 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category. ⁴ Breast *in situ* is excluded from 'All Sites'.

*An age-adjusted incidence rate was not calculated when there were fewer than 20 cases.

Source: Massachusetts Cancer Registry

Table 15.
AGE-ADJUSTED¹ INCIDENCE RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|--|-----------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|-----------|-------------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 457.9 | 454.9-460.9 | 469.8 | 466.5-473.1 | 404.0 | 391.2-416.8 | 302.9 | 289.9-316.0 | 324.7 | 312.5-336.9 |
| Brain & Other Nervous System | 5.9 | 5.6-6.3 | 6.2 | 5.8-6.7 | 4.3 | 3.0-5.6 | 3.1 | 1.8-4.3 | 4.5 | 3.2-5.8 |
| Breast | 136.3 | 134.6-137.9 | 141.6 | 139.7-143.4 | 120.0 | 113.2-126.9 | 86.3 | 79.7-92.9 | 90.7 | 84.4-96.9 |
| Breast <i>in situ</i>⁴ | 45.1 | 44.2-46.1 | 46.9 | 45.8-47.9 | 41.1 | 37.1-45.1 | 32.5 | 28.5-36.5 | 32.8 | 29.2-36.4 |
| Bronchus & Lung | 62.9 | 61.8-64.0 | 66.6 | 65.4-67.8 | 43.4 | 39.1-47.7 | 31.5 | 27.0-36.0 | 25.4 | 21.7-29.1 |
| Cervix Uteri | 5.3 | 5.0-5.6 | 4.9 | 4.5-5.2 | 8.6 | 6.8-10.4 | 5.9 | 4.2-7.7 | 8.8 | 6.9-10.7 |
| Colon / Rectum | 36.0 | 35.2-36.8 | 35.8 | 35.0-36.7 | 38.8 | 34.8-42.8 | 33.0 | 28.4-37.5 | 28.9 | 25.1-32.8 |
| Corpus Uteri & Uterus, NOS | 29.9 | 29.1-30.6 | 30.8 | 30.0-31.6 | 25.6 | 22.4-28.8 | 16.7 | 13.7-19.6 | 20.2 | 17.3-23.0 |
| Esophagus | 2.3 | 2.1-2.5 | 2.2 | 2.0-2.5 | 2.9 | 1.8-4.0 | * | * | 3.1 | 1.8-4.4 |
| Hodgkin Lymphoma | 2.8 | 2.5-3.0 | 3.0 | 2.7-3.3 | 2.0 | 1.2-2.9 | * | * | 2.9 | 1.9-3.9 |
| Kidney & Renal Pelvis | 10.8 | 10.3-11.2 | 11.0 | 10.5-11.5 | 12.7 | 10.4-14.9 | 5.4 | 3.6-7.2 | 8.2 | 6.3-10.1 |
| Larynx | 1.6 | 1.5-1.8 | 1.7 | 1.5-1.9 | 1.5 | 0.7-2.3 | * | * | * | * |
| Leukemia | 10.1 | 9.6-10.6 | 10.1 | 9.6-10.6 | 7.4 | 5.6-9.1 | 7.3 | 5.4-9.3 | 9.2 | 7.2-11.3 |
| Liver & Intrahepatic Bile Ducts | 3.6 | 3.4-3.9 | 3.2 | 2.9-3.5 | 4.8 | 3.4-6.1 | 9.1 | 6.7-11.5 | 6.5 | 4.6-8.5 |
| Melanoma of Skin | 18.3 | 17.7-18.9 | 19.7 | 19.0-20.4 | * | * | * | * | 2.6 | 1.5-3.6 |
| Multiple Myeloma | 4.9 | 4.6-5.3 | 4.4 | 4.1-4.7 | 13.3 | 11.0-15.7 | * | * | 6.4 | 4.6-8.2 |
| Non-Hodgkin Lymphoma | 16.2 | 15.7-16.8 | 16.4 | 15.7-17.0 | 15.2 | 12.7-17.7 | 10.6 | 8.1-13.2 | 14.8 | 12.1-17.5 |
| Oral Cavity & Pharynx | 6.7 | 6.4-7.1 | 6.8 | 6.4-7.2 | 4.7 | 3.4-6.1 | 6.4 | 4.4-8.3 | 6.4 | 4.6-8.3 |
| Ovary | 12.3 | 11.8-12.8 | 12.8 | 12.3-13.4 | 8.2 | 6.4-9.9 | 8.5 | 6.4-10.5 | 7.4 | 5.7-9.2 |
| Pancreas | 11.3 | 10.9-11.8 | 11.4 | 10.9-11.9 | 14.7 | 12.2-17.2 | 8.3 | 5.9-10.6 | 8.6 | 6.4-10.8 |
| Stomach | 4.5 | 4.2-4.8 | 3.9 | 3.7-4.2 | 8.8 | 6.8-10.7 | 9.0 | 6.6-11.4 | 7.1 | 5.2-8.9 |
| Thyroid | 29.1 | 28.3-29.9 | 29.2 | 28.3-30.1 | 26.0 | 22.9-29.1 | 30.2 | 26.5-33.9 | 27.0 | 24.0-30.0 |
| Urinary Bladder | 11.7 | 11.3-12.2 | 12.3 | 11.8-12.8 | 7.1 | 5.3-8.9 | * | * | 6.1 | 4.2-7.9 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category. ⁴ Breast *in situ* cases are excluded from 'All Sites'.

* An age-adjusted incidence rate was not calculated when there were fewer than 20 cases.

Source: Massachusetts Cancer Registry

Table 16.
AGE-ADJUSTED¹ INCIDENCE RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
TOTAL

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|------------------------------------|-----------------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|-----------|-------------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 489.8 | 487.5-492.1 | 494.9 | 492.5-497.4 | 480.4 | 469.7-491.1 | 316.5 | 306.4-326.6 | 368.2 | 358.1-378.3 |
| Brain & Other Nervous System | 6.8 | 6.6-7.1 | 7.3 | 7.0-7.6 | 4.6 | 3.6-5.6 | 3.6 | 2.6-4.6 | 5.7 | 4.5-6.8 |
| Breast | -- ⁵ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Breast <i>in situ</i> ⁴ | -- | -- | -- | -- | -- | -- | --1 | -- | -- | -- |
| Bronchus & Lung | 67.8 | 67.0-68.7 | 70.6 | 69.7-71.5 | 56.2 | 52.4-60.0 | 45.0 | 41.0-49.1 | 33.9 | 30.5-37.2 |
| Cervix Uteri | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Colon / Rectum | 40.3 | 39.7-41.0 | 40.2 | 39.5-40.9 | 44.1 | 40.8-47.4 | 35.0 | 31.6-38.5 | 32.6 | 29.4-35.7 |
| Corpus Uteri & Uterus, NOS | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Esophagus | 6.0 | 5.8-6.3 | 6.3 | 6.0-6.6 | 5.0 | 3.9-6.1 | 3.0 | 2.0-4.0 | 3.4 | 2.4-4.5 |
| Hodgkin Lymphoma | 3.1 | 2.9-3.3 | 3.3 | 3.1-3.6 | 2.7 | 2.0-3.4 | 1.2 | 0.7-1.7 | 3.4 | 2.5-4.2 |
| Kidney & Renal Pelvis | 15.8 | 15.4-16.2 | 16.1 | 15.6-16.5 | 16.9 | 14.9-18.9 | 7.8 | 6.3-9.4 | 12.2 | 10.4-13.9 |
| Larynx | 3.5 | 3.3-3.7 | 3.6 | 3.4-3.8 | 3.8 | 2.8-4.8 | * | * | 3.0 | 2.1-3.9 |
| Leukemia | 13.0 | 12.6-13.3 | 13.2 | 12.7-13.6 | 8.3 | 6.9-9.7 | 7.7 | 6.2-9.1 | 9.6 | 8.0-11.2 |
| Liver & Intrahepatic Bile Ducts | 7.9 | 7.6-8.1 | 6.7 | 6.4-7.0 | 11.7 | 10.1-13.3 | 20.7 | 18.1-23.3 | 13.5 | 11.5-15.4 |
| Melanoma of Skin | 21.7 | 21.2-22.1 | 23.1 | 22.5-23.6 | 1.2 | 0.7-1.7 | * | * | 2.4 | 1.6-3.1 |
| Multiple Myeloma | 6.2 | 5.9-6.4 | 5.7 | 5.5-6.0 | 15.1 | 13.1-17.0 | 3.0 | 2.0-4.0 | 7.2 | 5.7-8.7 |
| Non-Hodgkin Lymphoma | 19.5 | 19.1-20.0 | 19.8 | 19.3-20.3 | 17.9 | 15.8-19.9 | 11.6 | 9.6-13.5 | 16.3 | 14.1-18.4 |
| Oral Cavity & Pharynx | 11.8 | 11.4-12.1 | 12.0 | 11.6-12.4 | 8.6 | 7.3-10.0 | 9.1 | 7.4-10.7 | 11.4 | 9.6-13.2 |
| Ovary | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pancreas | 12.6 | 12.2-12.9 | 12.7 | 12.3-13.1 | 15.7 | 13.7-17.7 | 7.4 | 5.7-9.1 | 10.0 | 8.2-11.8 |
| Prostate | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Stomach | 6.8 | 6.5-7.0 | 6.1 | 5.8-6.4 | 11.4 | 9.7-13.2 | 10.8 | 8.9-12.8 | 10.9 | 9.1-12.7 |
| Testis | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thyroid | 19.9 | 19.4-20.4 | 20.1 | 19.5-20.6 | 17.2 | 15.3-19.1 | 20.8 | 18.6-23.1 | 17.3 | 15.5-19.1 |
| Urinary Bladder | 24.6 | 24.1-25.1 | 25.8 | 25.3-26.4 | 12.8 | 11.0-14.7 | 8.2 | 6.4-9.9 | 10.7 | 8.8-12.6 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category. ⁴ Breast *in situ* cases are excluded from 'All Sites'.

⁵ Dashes indicate cancers found in only one sex or predominantly in one sex (breast cancer). * An age-adjusted incidence rate was not calculated when there were fewer than 20 cases. Source: Massachusetts Cancer Registry

Table 17.
FIVE LEADING CANCER MORTALITY RATES BY RACE/ETHNICITY AND SEX
Massachusetts, 2008-2012

MALES

| AGE-ADJUSTED¹ MORTALITY RATE² | | | | |
|--|----------------------------|---|---|---|
| RANK | White, non-Hispanic | Black, non-Hispanic | Asian, non-Hispanic | Hispanic |
| 1 | Bronchus & Lung 56.9 | Bronchus & Lung 52.4 | Bronchus & Lung 39.6 | Bronchus & Lung 27.0 |
| 2 | Prostate 19.6 | Prostate 43.8 | Liver & Intrahepatic Bile Duct 22.2 | Prostate 14.0 |
| 3 | Colon/Rectum 17.0 | Colon/Rectum 20.5 | Colon/Rectum 11.3 | Liver & Intrahepatic Bile Duct 12.1 |
| 4 | Pancreas 12.8 | Liver & Intrahepatic Bile Duct 14.9 | Prostate 8.4 | Colon/Rectum 11.6 |
| 5 | Esophagus 9.3 | Pancreas 14.7 | Leukemia 5.3 | Pancreas 9.7 |

FEMALES

| AGE-ADJUSTED¹ MORTALITY RATE² | | | | |
|--|----------------------------|--------------------------------------|--|-------------------------|
| RANK | White, non-Hispanic | Black, non-Hispanic | Asian, non-Hispanic | Hispanic |
| 1 | Bronchus & Lung 42.0 | Bronchus & Lung 27.2 | Bronchus & Lung 16.6 | Bronchus & Lung 12.4 |
| 2 | Breast 20.3 | Breast 24.1 | Colon/Rectum 10.4 | Colon/Rectum 10.0 |
| 3 | Colon/Rectum 11.8 | Colon/Rectum 14.4 | Breast 8.7 | Breast 9.6 |
| 4 | Pancreas 10.0 | Pancreas 12.5 | Pancreas 7.4 | Pancreas 7.1 |
| 5 | Ovary 7.8 | Corpus Uteri & Uterus, NOS 7.2 | Liver & Intrahepatic Bile Duct 6.8 | Leukemia 4.2 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

Source: Massachusetts Vital Statistics

Table 18.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | All Races ² | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|---------------------------------|------------------------|-------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|----------|-------------|
| | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths |
| All Sites | 32505 | 100.0 | 29548 | 100.0 | 1432 | 100.0 | 657 | 100.0 | 818 | 100.0 |
| Brain & Other Nervous System | 846 | 2.6 | 788 | 2.7 | 19 | 1.3 | 10 | 1.5 | 27 | 3.3 |
| Breast | 47 | 0.1 | 43 | 0.2 | 4 | 0.3 | 0 | 0.0 | 0 | 0.0 |
| Bronchus & Lung | 8914 | 27.4 | 8222 | 27.8 | 330 | 23.0 | 195 | 29.7 | 157 | 19.2 |
| Colon / Rectum | 2704 | 8.3 | 2438 | 8.2 | 137 | 9.6 | 59 | 9.0 | 67 | 8.2 |
| Esophagus | 1482 | 4.6 | 1390 | 4.7 | 50 | 3.5 | 19 | 2.9 | 21 | 2.6 |
| Hodgkin Lymphoma | 74 | 0.2 | 66 | 0.2 | 4 | 0.3 | 1 | 0.1 | 3 | 0.4 |
| Kidney & Renal Pelvis | 762 | 2.3 | 704 | 2.4 | 26 | 1.8 | 12 | 1.8 | 20 | 2.4 |
| Larynx | 302 | 0.9 | 267 | 0.9 | 17 | 1.2 | 3 | 0.5 | 13 | 1.6 |
| Leukemia | 1362 | 4.2 | 1260 | 4.3 | 38 | 2.6 | 26 | 4.0 | 37 | 4.5 |
| Liver & Intrahepatic Bile Ducts | 1662 | 5.1 | 1326 | 4.5 | 108 | 7.5 | 130 | 19.8 | 95 | 11.6 |
| Melanoma of Skin | 670 | 2.1 | 656 | 2.2 | 3 | 0.2 | 3 | 0.5 | 6 | 0.7 |
| Multiple Myeloma | 654 | 2.0 | 576 | 2.0 | 46 | 3.2 | 8 | 1.2 | 23 | 2.8 |
| Non-Hodgkin Lymphoma | 1138 | 3.5 | 1038 | 3.5 | 47 | 3.3 | 15 | 2.3 | 31 | 3.8 |
| Oral Cavity & Pharynx | 657 | 2.0 | 579 | 2.0 | 39 | 2.7 | 21 | 3.2 | 17 | 2.1 |
| Pancreas | 2022 | 6.2 | 1860 | 6.3 | 87 | 6.1 | 18 | 2.7 | 56 | 6.8 |
| Prostate | 3055 | 9.4 | 2734 | 9.2 | 218 | 15.2 | 31 | 4.7 | 64 | 7.8 |
| Stomach | 728 | 2.2 | 598 | 2.0 | 47 | 3.3 | 29 | 4.4 | 53 | 6.5 |
| Testis | 22 | 0.1 | 22 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Thyroid | 93 | 0.3 | 87 | 0.3 | 2 | 0.1 | 1 | 0.1 | 3 | 0.4 |
| Urinary Bladder | 1349 | 4.2 | 1292 | 4.4 | 29 | 2.0 | 10 | 1.5 | 18 | 2.2 |
| Other Sites | 3962 | 12.2 | 3602 | 12.2 | 181 | 12.6 | 66 | 10.1 | 107 | 13.1 |

¹ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

² The number of deaths for all races is not the sum of deaths by race/ethnicity.

Source: Massachusetts Vital Statistics

Table 19.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | All Races ² | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|---------------------------------|------------------------|-------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|----------|-------------|
| | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths |
| All Sites | 32186 | 100.0 | 29471 | 100.0 | 1415 | 100.0 | 536 | 100.0 | 714 | 100.0 |
| Brain & Other Nervous System | 716 | 2.2 | 661 | 2.2 | 20 | 1.4 | 12 | 2.2 | 22 | 3.1 |
| Breast | 4366 | 13.6 | 3960 | 13.4 | 239 | 16.9 | 63 | 11.8 | 98 | 13.7 |
| Bronchus & Lung | 8596 | 26.7 | 8135 | 27.6 | 254 | 18.0 | 100 | 18.7 | 97 | 13.6 |
| Cervix Uteri | 282 | 0.9 | 231 | 0.8 | 27 | 1.9 | 9 | 1.7 | 15 | 2.1 |
| Colon / Rectum | 2810 | 8.7 | 2530 | 8.6 | 136 | 9.6 | 64 | 11.9 | 77 | 10.8 |
| Corpus Uteri & Uterus, NOS | 950 | 3.0 | 837 | 2.8 | 66 | 4.7 | 18 | 3.4 | 26 | 3.6 |
| Esophagus | 401 | 1.2 | 364 | 1.2 | 18 | 1.3 | 5 | 0.9 | 11 | 1.5 |
| Hodgkin Lymphoma | 55 | 0.2 | 50 | 0.2 | 1 | 0.1 | 1 | 0.2 | 2 | 0.3 |
| Kidney & Renal Pelvis | 507 | 1.6 | 475 | 1.6 | 17 | 1.2 | 5 | 0.9 | 9 | 1.3 |
| Larynx | 87 | 0.3 | 84 | 0.3 | 1 | 0.1 | 0 | 0.0 | 2 | 0.3 |
| Leukemia | 1143 | 3.6 | 1031 | 3.5 | 58 | 4.1 | 17 | 3.2 | 36 | 5.0 |
| Liver & Intrahepatic Bile Ducts | 720 | 2.2 | 604 | 2.0 | 42 | 3.0 | 43 | 8.0 | 28 | 3.9 |
| Melanoma of Skin | 418 | 1.3 | 407 | 1.4 | 6 | 0.4 | 2 | 0.4 | 2 | 0.3 |
| Multiple Myeloma | 603 | 1.9 | 518 | 1.8 | 61 | 4.3 | 5 | 0.9 | 17 | 2.4 |
| Non-Hodgkin Lymphoma | 1032 | 3.2 | 937 | 3.2 | 44 | 3.1 | 22 | 4.1 | 29 | 4.1 |
| Oral Cavity & Pharynx | 295 | 0.9 | 270 | 0.9 | 8 | .06 | 8 | 1.5 | 9 | 1.3 |
| Ovary | 1645 | 5.1 | 1531 | 5.2 | 64 | 4.5 | 22 | 4.1 | 27 | 3.8 |
| Pancreas | 2272 | 7.1 | 2053 | 7.0 | 116 | 8.2 | 43 | 8.0 | 55 | 7.7 |
| Stomach | 556 | 1.7 | 459 | 1.6 | 40 | 2.8 | 25 | 4.7 | 30 | 4.2 |
| Thyroid | 108 | 0.3 | 97 | 0.3 | 3 | 0.2 | 3 | 0.6 | 4 | 0.6 |
| Urinary Bladder | 655 | 2.0 | 618 | 2.1 | 24 | 1.7 | 4 | 0.8 | 9 | 1.3 |
| Other Sites | 3969 | 12.3 | 3619 | 12.3 | 170 | 12.0 | 65 | 12.1 | 109 | 15.3 |

¹ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

² The number of deaths for all races is not the sum of deaths by race/ethnicity.

Source: Massachusetts Vital Statistics

Table 20.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY¹
Massachusetts, 2008-2012
TOTAL

| Cancer Site / Type | All Races ² | | White, non-Hispanic | | Black, non-Hispanic | | Asian, non-Hispanic | | Hispanic | |
|---------------------------------|------------------------|-------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|----------|-------------|
| | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths | Deaths | % of Deaths |
| All Sites | 64692 | 100.0 | 59020 | 100.0 | 2847 | 100.0 | 1193 | 100.0 | 1532 | 100.0 |
| Brain & Other Nervous System | 1562 | 2.4 | 1449 | 2.5 | 39 | 1.4 | 22 | 1.8 | 49 | 3.2 |
| Breast | 4413 | 6.8 | 4003 | 6.8 | 243 | 8.5 | 63 | 5.3 | 98 | 6.4 |
| Bronchus & Lung | 17510 | 27.1 | 16357 | 27.7 | 584 | 20.5 | 295 | 24.7 | 254 | 16.6 |
| Cervix Uteri | 282 | 0.4 | 231 | 0.4 | 27 | 1.0 | 9 | 0.8 | 15 | 1.0 |
| Colon / Rectum | 5515 | 8.5 | 4969 | 8.4 | 273 | 9.6 | 123 | 10.3 | 144 | 9.4 |
| Corpus Uteri & Uterus, NOS | 950 | 1.5 | 837 | 1.4 | 66 | 2.3 | 18 | 1.5 | 26 | 1.7 |
| Esophagus | 1883 | 2.9 | 1754 | 3.0 | 68 | 2.4 | 24 | 2.0 | 32 | 2.1 |
| Hodgkin Lymphoma | 129 | 0.2 | 116 | 0.2 | 5 | 0.2 | 2 | 0.2 | 5 | 0.3 |
| Kidney & Renal Pelvis | 1269 | 2.0 | 1179 | 2.0 | 43 | 1.5 | 17 | 1.4 | 29 | 1.9 |
| Larynx | 389 | 0.6 | 351 | 0.6 | 18 | 0.6 | 3 | 0.2 | 15 | 1.0 |
| Leukemia | 2505 | 3.9 | 2291 | 3.9 | 96 | 3.4 | 43 | 3.6 | 73 | 4.8 |
| Liver & Intrahepatic Bile Ducts | 2382 | 3.7 | 1930 | 3.3 | 150 | 5.3 | 173 | 14.5 | 123 | 8.0 |
| Melanoma of Skin | 1088 | 1.7 | 1063 | 1.8 | 9 | 0.3 | 5 | 0.4 | 8 | 0.5 |
| Multiple Myeloma | 1257 | 1.9 | 1094 | 1.9 | 107 | 3.8 | 13 | 1.1 | 40 | 2.6 |
| Non-Hodgkin Lymphoma | 2170 | 3.4 | 1975 | 3.4 | 91 | 3.2 | 37 | 3.1 | 60 | 3.9 |
| Oral Cavity & Pharynx | 952 | 1.5 | 849 | 1.4 | 47 | 1.6 | 29 | 2.4 | 26 | 1.7 |
| Ovary | 1645 | 2.5 | 1531 | 2.6 | 64 | 2.2 | 22 | 1.8 | 27 | 1.8 |
| Pancreas | 4294 | 6.6 | 3913 | 6.6 | 203 | 7.1 | 61 | 5.1 | 111 | 7.2 |
| Prostate | 3055 | 4.7 | 2734 | 4.6 | 218 | 7.7 | 31 | 2.6 | 64 | 4.2 |
| Stomach | 1284 | 2.0 | 1057 | 1.8 | 87 | 3.1 | 54 | 4.5 | 83 | 5.4 |
| Testis | 22 | 0.03 | 22 | 0.04 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Thyroid | 201 | 0.3 | 184 | 0.3 | 5 | 0.2 | 4 | 0.3 | 7 | 0.5 |
| Urinary Bladder | 2004 | 3.1 | 1910 | 3.2 | 53 | 1.9 | 14 | 1.2 | 27 | 1.8 |
| Other Sites | 7931 | 12.3 | 7221 | 12.2 | 351 | 12.3 | 131 | 11.0 | 216 | 14.1 |

¹ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

² The number of deaths for all races is not the sum of deaths by race/ethnicity.

Source: Massachusetts Vital Statistics

Table 21.
AGE-ADJUSTED¹ MORTALITY RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
MALES

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|--|-----------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-------------|-----------|-------------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 201.6 | 199.4-203.8 | 205.0 | 202.7-207.3 | 230.2 | 218.3-242.1 | 126.2 | 116.6-135.9 | 132.6 | 123.6-141.7 |
| Brain & Other Nervous System | 5.0 | 4.7-5.4 | 5.5 | 5.1-5.8 | * | * | * | * | 3.6 | 2.2-4.9 |
| Breast | 0.3 | 0.2-0.4 | 0.3 | 0.2-0.4 | * | * | * | * | * | * |
| Bronchus & Lung | 55.2 | 54.1-56.4 | 56.9 | 55.6-58.1 | 52.4 | 46.8-58.1 | 39.6 | 34.0-45.1 | 27.0 | 22.8-31.2 |
| Colon / Rectum | 16.8 | 16.2-17.4 | 17.0 | 16.3-17.6 | 20.5 | 17.1-24.0 | 11.3 | 8.4-14.2 | 11.6 | 8.8-14.4 |
| Esophagus | 8.8 | 8.3-9.2 | 9.3 | 8.8-9.8 | 7.1 | 5.1-9.1 | * | * | 3.3 | 1.9-4.7 |
| Hodgkin Lymphoma | 0.4 | 0.4-0.6 | 0.5 | 0.4-0.6 | * | * | * | * | * | * |
| Kidney & Renal Pelvis | 4.6 | 4.3-4.9 | 4.7 | 4.4-5.1 | 4.2 | 2.6-5.9 | * | * | 2.7 | 1.5-3.8 |
| Larynx | 1.8 | 1.6-2.0 | 1.8 | 1.6-2.0 | * | * | * | * | * | * |
| Leukemia | 8.7 | 8.2-9.2 | 9.0 | 8.5-9.5 | 6.0 | 4.1-7.9 | 5.3 | 3.3-7.4 | 5.1 | 3.5-6.8 |
| Liver & Intrahepatic Bile Ducts | 9.7 | 9.2-10.1 | 8.7 | 8.2-9.2 | 15.0 | 12.2-17.8 | 22.2 | 18.4-26.0 | 12.1 | 9.6-14.5 |
| Melanoma of Skin | 4.1 | 3.8-4.4 | 4.5 | 4.2-4.9 | * | * | * | * | * | * |
| Multiple Myeloma | 4.1 | 3.8-4.4 | 4.0 | 3.7-4.3 | 7.0 | 5.0-9.0 | * | * | 4.8 | 2.8-6.7 |
| Non-Hodgkin Lymphoma | 7.2 | 6.8-7.6 | 7.3 | 6.9-7.8 | 6.6 | 4.7-8.5 | * | * | 4.4 | 2.8-5.9 |
| Oral Cavity & Pharynx | 3.8 | 3.6-4.1 | 3.8 | 3.5-4.2 | 5.4 | 3.7-7.1 | 3.1 | 1.8-4.4 | * | * |
| Pancreas | 12.4 | 11.9-12.9 | 12.8 | 12.2-13.3 | 14.7 | 11.6-17.7 | * | * | 9.7 | 7.2-12.2 |
| Prostate | 20.0 | 19.3-20.7 | 19.6 | 18.8-20.3 | 43.8 | 38.0-49.6 | 8.4 | 5.4-11.4 | 14.0 | 10.5-17.4 |
| Stomach | 4.5 | 4.2-4.8 | 4.2 | 3.8-4.5 | 7.8 | 5.6-10.0 | 5.2 | 3.3-7.1 | 7.7 | 5.6-9.7 |
| Testis | 0.1 | 0.1-0.2 | 0.2 | 0.1-0.2 | * | * | * | * | * | * |
| Thyroid | 0.6 | 0.4-0.7 | 0.6 | 0.5-0.7 | * | * | * | * | * | * |
| Urinary Bladder | 8.7 | 8.2-9.2 | 9.2 | 8.7-9.7 | 5.2 | 3.3-7.1 | * | * | * | * |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

*An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Source: Massachusetts Vital Statistics

Table 22.
AGE-ADJUSTED¹ MORTALITY RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
FEMALES

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|--|-----------|-------------|----------------------|-------------|----------------------|-------------|----------------------|-----------|-----------|-----------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 143.6 | 142.0-145.1 | 147.4 | 145.7-149.1 | 149.8 | 142.0-157.6 | 83.5 | 76.5-90.6 | 87.0 | 80.6-93.4 |
| Brain & Other Nervous System | 3.4 | 3.2-3.7 | 3.6 | 3.4-3.9 | 2.1 | 1.2-3.0 | * | * | 2.0 | 1.1-2.8 |
| Breast | 19.8 | 19.2-20.4 | 20.3 | 19.7-20.9 | 24.1 | 21.1-27.2 | 8.7 | 6.6-10.9 | 9.6 | 7.7-11.4 |
| Bronchus & Lung | 39.4 | 38.6-40.3 | 42.0 | 41.1-42.9 | 27.2 | 23.9-30.6 | 16.6 | 13.4-19.9 | 12.4 | 10.0-14.9 |
| Cervix Uteri | 1.4 | 1.2-1.5 | 1.3 | 1.2-1.5 | 2.6 | 1.6-3.6 | * | * | * | * |
| Colon / Rectum | 11.8 | 11.4-12.3 | 11.8 | 11.3-12.3 | 14.4 | 12.0-16.9 | 10.4 | 7.8-12.9 | 10.0 | 7.8-12.2 |
| Corpus Uteri & Uterus, NOS | 4.3 | 4.0-4.6 | 4.2 | 4.0-4.5 | 7.2 | 5.5-9.0 | * | * | 3.3 | 2.0-4.6 |
| Esophagus | 1.8 | 1.6-2.0 | 1.8 | 1.6-2.0 | * | * | * | * | * | * |
| Hodgkin Lymphoma | 0.3 | 0.2-0.3 | 0.3 | 0.2-0.4 | * | * | * | * | * | * |
| Kidney & Renal Pelvis | 2.2 | 2.0-2.4 | 2.3 | 2.1-2.5 | * | * | * | * | * | * |
| Larynx | 0.4 | 0.3-0.5 | 0.4 | 0.3-0.5 | * | * | * | * | * | * |
| Leukemia | 5.1 | 4.8-5.4 | 5.1 | 4.8-5.4 | 6.2 | 4.6-7.9 | * | * | 4.2 | 2.9-5.6 |
| Liver & Intrahepatic Bile Ducts | 3.2 | 3.0-3.5 | 3.0 | 2.8-3.3 | 4.3 | 3.0-5.6 | 6.8 | 4.8-8.8 | 4.0 | 2.5-5.5 |
| Melanoma of Skin | 1.9 | 1.7-2.1 | 2.1 | 1.9-2.3 | * | * | * | * | * | * |
| Multiple Myeloma | 2.6 | 2.4-2.8 | 2.4 | 2.2-2.7 | 6.6 | 5.0-8.3 | * | * | * | * |
| Non-Hodgkin Lymphoma | 4.4 | 4.1-4.6 | 4.4 | 4.1-4.6 | 4.8 | 3.4-6.3 | 3.4 | 2.0-4.9 | 3.9 | 2.5-5.3 |
| Oral Cavity & Pharynx | 1.3 | 1.1-1.4 | 1.3 | 1.2-1.5 | * | * | * | * | * | * |
| Ovary | 7.4 | 7.1-7.8 | 7.8 | 7.4-8.2 | 6.6 | 5.0-8.2 | 3.1 | 1.8-4.4 | 3.1 | 1.9-4.3 |
| Pancreas | 9.9 | 9.5-10.3 | 10.0 | 9.6-10.4 | 12.5 | 10.2-14.8 | 7.4 | 5.2-9.6 | 7.1 | 5.2-9.0 |
| Stomach | 2.4 | 2.2-2.6 | 2.1 | 1.9-2.3 | 4.3 | 3.0-5.7 | 3.9 | 2.3-5.4 | 3.1 | 2.0-4.2 |
| Thyroid | 0.5 | 0.4-0.6 | 0.5 | 0.4-0.6 | * | * | * | * | * | * |
| Urinary Bladder | 2.7 | 2.5-2.9 | 2.8 | 2.6-3.0 | 2.8 | 1.6-3.8 | * | * | * | * |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

* An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Source: Massachusetts Vital Statistics

Table 23.
AGE-ADJUSTED¹ MORTALITY RATES² AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY³
Massachusetts, 2008-2012
TOTAL

| Cancer Site / Type | All Races | | White, non-Hispanics | | Black, non-Hispanics | | Asian, non-Hispanics | | Hispanics | |
|---------------------------------|----------------|-------------|----------------------|-------------|----------------------|-------------|----------------------|------------|-----------|-------------|
| | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL | Rates | 95% CL |
| All Sites | 166.5 | 165.2-167.7 | 170.0 | 168.6-171.4 | 179.3 | 172.7-185.9 | 102.6 | 96.7-108.4 | 105.8 | 100.5-111.1 |
| Brain & Other Nervous System | 4.2 | 4.0-4.4 | 4.5 | 4.2-4.7 | 2.2 | 1.5-2.9 | 1.5 | 0.9-2.1 | 2.6 | 1.9-3.3 |
| Breast | - ⁴ | - | - | - | - | - | - | - | - | - |
| Bronchus & Lung | 45.8 | 45.2-46.5 | 48.0 | 47.2-48.7 | 37.1 | 34.1-40.1 | 26.8 | 23.8-29.9 | 18.4 | 16.2-20.8 |
| Cervix Uteri | - | - | - | - | - | - | - | - | - | - |
| Colon / Rectum | 13.9 | 13.6-14.3 | 14.0 | 13.6-14.4 | 16.9 | 14.9-18.9 | 10.9 | 9.0-12.9 | 10.7 | 8.9-12.4 |
| Corpus Uteri & Uterus, NOS | - | - | - | - | - | - | - | - | - | - |
| Esophagus | 4.8 | 4.6-5.0 | 5.1 | 4.8-5.3 | 4.0 | 3.1-5.0 | 2.2 | 1.3-3.1 | 2.3 | 1.5-3.1 |
| Hodgkin Lymphoma | 0.3 | 0.3-0.4 | 0.4 | 0.3-0.4 | * | * | * | * | * | * |
| Kidney & Renal Pelvis | 3.2 | 3.0-3.4 | 3.3 | 3.1-3.5 | 2.8 | 1.9-3.6 | * | * | 1.7 | 1.1-2.3 |
| Larynx | 1.0 | 0.9-1.1 | 1.0 | 0.9-1.1 | * | * | * | * | * | * |
| Leukemia | 6.5 | 6.3-6.8 | 6.7 | 6.4-6.9 | 6.0 | 4.8-7.2 | 3.4 | 2.4-4.5 | 4.7 | 3.6-5.7 |
| Liver & Intrahepatic Bile Ducts | 6.1 | 5.8-6.3 | 5.6 | 5.3-5.8 | 8.8 | 7.4-10.2 | 13.9 | 11.8-16.0 | 7.6 | 6.3-9.0 |
| Melanoma of Skin | 2.8 | 2.7-3.0 | 3.2 | 3.0-3.3 | * | * | * | * | * | * |
| Multiple Myeloma | 3.2 | 3.0-3.4 | 3.1 | 2.9-3.3 | 6.8 | 5.5-8.1 | * | * | 3.2 | 2.2-4.3 |
| Non-Hodgkin Lymphoma | 5.5 | 5.3-5.8 | 5.6 | 5.3-5.8 | 5.7 | 4.5-6.8 | 3.1 | 2.1-4.1 | 4.2 | 3.1-5.2 |
| Oral Cavity & Pharynx | 2.4 | 2.3-2.6 | 2.5 | 2.3-2.6 | 2.7 | 2.0-3.5 | 2.1 | 1.3-2.8 | 1.9 | 1.2-2.6 |
| Ovary | - | - | - | - | - | - | - | - | - | - |
| Pancreas | 11.0 | 10.7-11.3 | 11.2 | 10.9-11.6 | 13.4 | 11.5-15.2 | 5.8 | 4.4-7.3 | 8.2 | 6.7-9.7 |
| Prostate | - | - | - | - | - | - | - | - | - | - |
| Stomach | 3.3 | 3.1-3.4 | 3.0 | 2.8-3.2 | 5.7 | 4.5-6.9 | 4.5 | 3.3-5.7 | 5.0 | 3.9-6.0 |
| Testis | - | - | - | - | - | - | - | - | - | - |
| Thyroid | 0.5 | 0.4-0.6 | 0.5 | 0.5-0.6 | * | * | * | * | * | * |
| Urinary Bladder | 5.0 | 4.8-5.2 | 5.3 | 5.0-5.5 | 3.7 | 2.7-4.7 | * | * | 2.4 | 1.5-3.3 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² per 100,000

³ Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.

⁴ Dashes indicate cancers found in only one sex or predominantly in one sex (breast cancer).

* An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Table 24.
INCIDENCE RATES¹ FOR SELECTED CANCER SITES BY SEX
Massachusetts and U.S. (2008-2012)

| Cancer Site / Type | MALES | | | | FEMALES | | | |
|------------------------------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|
| | Massachusetts | | United States | | Massachusetts | | United States | |
| | Rate | 95% CL |
| All Sites | 540.18* | 536.5-543.7 | 516.6 | 515.6-517.7 | 457.9* | 454.9-460.9 | 411.2 | 410.4-412.0 |
| Brain & Other Nervous System | 7.9 | 7.5-8.4 | 7.7 | 7.5-7.8 | 5.9* | 5.6-6.3 | 5.4 | 5.3-5.5 |
| Breast | 1.3 | 1.1-1.5 | 1.2 | 1.2-1.3 | 136.3* | 134.6-137.9 | 124.8 | 124.4-125.3 |
| Breast <i>in situ</i> ² | 0.2 | 0.1-0.2 | 0.1 | 0.1-0.2 | 45.1* | 44.2-46.1 | 31.7 | 31.4-31.9 |
| Bronchus & Lung | 75.6* | 74.2-77.0 | 70.1 | 69.7-70.5 | 62.9* | 61.8-64.0 | 50.2 | 49.9-50.5 |
| Cervix Uteri | -- | -- | -- | -- | 5.3* | 5.0-5.6 | 7.7 | 7.6-7.8 |
| Colon / Rectum | 45.8* | 44.8-46.9 | 48.9 | 48.6-49.2 | 36.0* | 35.2-36.8 | 37.1 | 36.9-37.4 |
| Corpus Uteri & Uterus, NOS | -- | -- | -- | -- | 29.9* | 29.1-30.6 | 25.1 | 24.9-25.3 |
| Esophagus | 10.7* | 10.2-11.2 | 7.6 | 7.4-7.7 | 2.3* | 2.1-2.5 | 1.7 | 1.7-1.8 |
| Hodgkin Lymphoma | 3.5* | 3.2-3.8 | 3.0 | 2.9-3.1 | 2.8 | 2.5-3.0 | 2.4 | 2.3-2.5 |
| Kidney & Renal Pelvis | 21.7 | 21.0-22.4 | 21.3 | 21.1-21.5 | 10.8 | 10.3-11.2 | 10.8 | 10.7-10.9 |
| Larynx | 5.9 | 5.5-6.2 | 5.8 | 5.6-5.9 | 1.6* | 1.5-1.8 | 1.2 | 1.1-1.2 |
| Leukemia | 16.8 | 16.2-17.5 | 17.0 | 16.8-17.2 | 10.1 | 9.6-10.6 | 10.4 | 10.2-10.5 |
| Liver & Intrahepatic Bile Ducts | 13.0 | 12.4-13.5 | 12.7 | 12.5-12.8 | 3.6* | 3.4-3.9 | 4.3 | 4.2-4.4 |
| Melanoma of Skin | 26.7* | 25.9-27.5 | 28.2 | 27.9-28.4 | 18.3* | 17.7-18.9 | 16.8 | 16.6-16.9 |
| Multiple Myeloma | 7.8 | 7.3-8.2 | 7.9 | 7.8-8.1 | 4.9 | 4.6-5.3 | 5.1 | 5.0-5.2 |
| Non-Hodgkin Lymphoma | 23.8 | 23.1-24.6 | 23.9 | 23.7-24.1 | 16.2 | 15.7-16.8 | 16.3 | 16.1-16.4 |
| Oral Cavity & Pharynx | 17.6* | 17.0-18.3 | 16.5 | 16.3-16.7 | 6.7 | 6.4-7.1 | 6.3 | 6.2-6.4 |
| Ovary | -- | -- | -- | -- | 12.3 | 11.8-12.8 | 12.1 | 12.0-12.3 |
| Pancreas | 14.1 | 13.5-14.7 | 14.0 | 13.9-14.2 | 11.3 | 10.9-11.8 | 11.0 | 10.9-11.1 |
| Prostate | 135.9 | 134.1-137.6 | 137.9 | 137.4-138.4 | -- | -- | -- | -- |
| Stomach | 9.7 | 9.2-10.2 | 10.1 | 10.0-10.3 | 4.5* | 4.2-4.8 | 5.3 | 5.2-5.4 |
| Testis | 6.2* | 5.8-6.6 | 5.6 | 5.5-5.7 | -- | -- | -- | -- |
| Thyroid | 10.1* | 9.7-10.6 | 6.7 | 6.6-6.8 | 29.1* | 28.3-29.9 | 20.0 | 19.8-20.2 |
| Urinary Bladder | 42.4* | 41.4-43.4 | 35.8 | 35.5-36.1 | 11.7* | 11.3-12.2 | 8.7 | 8.6-8.9 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

²Breast *in situ* cases are excluded from "All Sites" and from breast cancer counts.

N/A – not applicable

* indicates that the Massachusetts incidence rate differed significantly from the national rate (p < 0.05).

Data Sources: Massachusetts: Massachusetts Cancer Registry and United States: Surveillance, Epidemiology and End Results, SEER*Stat Database: Incidence - SEER 18 Regs Research Data Nov 2014 Sub (2000-2012) released April 2015, based on the November 2014 submission.

Table 25.
MORTALITY RATES¹ FOR SELECTED CANCER SITES BY SEX
Massachusetts and U.S. (2008-2012)

| Cancer Site / Type | MALES | | | | FEMALES | | | |
|--|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|
| | Massachusetts | | United States | | Massachusetts | | United States | |
| | Rate | 95% CL |
| All Sites | 201.6* | 199.4-203.8 | 207.9 | 207.5-208.2 | 143.6* | 142.0-145.1 | 145.4 | 145.2-145.7 |
| Brain & Other Nervous System | 5.0 | 4.7-5.4 | 5.3 | 5.2-5.3 | 3.4 | 3.2-3.7 | 3.5 | 3.4-3.5 |
| Breast | 0.3 | 0.2-0.4 | 0.3 | 0.3-0.3 | 19.8* | 19.2-20.4 | 21.9 | 21.8-22.0 |
| Bronchus & Lung | 55.2* | 54.1-56.4 | 59.8 | 59.6-60.0 | 39.4* | 38.6-40.3 | 37.8 | 37.7-37.9 |
| Cervix Uteri | - | - | - | - | 1.4* | 1.2-1.5 | 2.3 | 2.3-2.3 |
| Colon / Rectum | 16.8* | 16.2-17.4 | 18.6 | 18.5-18.7 | 11.8 | 11.4-12.3 | 13.1 | 13.0-13.1 |
| Corpus Uteri & Uterus, NOS | - | - | - | - | 4.3 | 4.0-4.6 | 4.4 | 4.3-4.4 |
| Esophagus | 8.8* | 8.3-9.2 | 7.5 | 7.4-7.5 | 1.8 | 1.6-2.0 | 1.5 | 1.5-1.6 |
| Hodgkin Lymphoma | 0.4 | 0.4-0.6 | 0.5 | 0.4-0.5 | 0.3 | 0.2-0.3 | 0.3 | 0.3-0.3 |
| Kidney & Renal Pelvis | 4.6* | 4.3-4.9 | 5.7 | 5.7-5.8 | 2.2* | 2.0-2.4 | 2.5 | 2.5-2.5 |
| Larynx | 1.8 | 1.6-2.0 | 1.9 | 1.9-2.0 | 0.4 | 0.3-0.5 | 0.4 | 0.4-0.4 |
| Leukemia | 8.7* | 8.2-9.2 | 9.4 | 9.3-9.4 | 5.1 | 4.8-5.4 | 5.2 | 5.2-5.3 |
| Liver & Intrahepatic Bile Ducts | 9.7* | 9.2-10.1 | 8.8 | 8.8-8.9 | 3.3* | 3.0-3.5 | 2.3 | 2.3-2.3 |
| Melanoma of Skin | 4.1 | 3.8-4.4 | 4.1 | 4.0-4.1 | 1.9 | 1.7-2.1 | 1.7 | 1.7-1.7 |
| Multiple Myeloma | 4.1 | 3.8-4.4 | 4.2 | 4.2-4.3 | 2.6 | 2.4-2.8 | 2.7 | 2.7-2.7 |
| Non-Hodgkin Lymphoma | 7.2* | 6.8-7.6 | 7.9 | 7.9-8.0 | 4.4* | 4.1-4.6 | 4.8 | 4.8-4.9 |
| Oral Cavity & Pharynx | 3.8 | 3.5-4.1 | 3.8 | 3.7-3.8 | 1.3 | 1.1-1.4 | 1.4 | 1.3-1.4 |
| Ovary | - | - | - | - | 7.4 | 7.1-7.8 | 7.7 | 7.6-7.8 |
| Pancreas | 12.4 | 11.9-12.9 | 12.6 | 12.5-12.6 | 9.9 | 9.5-10.3 | 9.6 | 9.5-9.7 |
| Prostate | 20.0* | 19.3-20.7 | 21.4 | 21.3-21.5 | - | - | - | - |
| Stomach | 4.5 | 4.2-4.8 | 4.6 | 4.5-4.6 | 2.4 | 2.2-2.6 | 2.4 | 2.4-2.5 |
| Testis | 0.1 | 0.1-0.2 | 0.3 | 0.2-0.3 | - | - | - | - |
| Thyroid | 0.6 | 0.4-0.7 | 0.5 | 0.5-0.5 | 0.5 | 0.4-0.6 | 0.5 | 0.5-0.5 |
| Urinary Bladder | 8.7* | 8.2-9.2 | 7.7 | 7.6-7.7 | 2.7* | 2.5-2.9 | 2.2 | 2.2-2.2 |

¹ Rates are age-adjusted to the 2000 U.S. Standard Population.

² Breast *in situ* cases are excluded from "All Sites" and from breast cancer counts.

N/A – not applicable

* indicates that the Massachusetts mortality rate differed significantly from the national rate (p < 0.05).

Data Sources: Massachusetts: Massachusetts Vital Statistics and United States: Surveillance, Epidemiology, and End Results (SEER) Program; SEER*Stat Database: Mortality All COD, Aggregated with State, Total U.S. (1969-2012).

APPENDICES

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APPENDIX I

ICD CODES USED FOR THIS REPORT

| Cancer Site/Type | <i>.....C o d e s.....</i> | |
|--|---|------------------|
| | ICD-O-3* | ICD-10** |
| Brain & Other Nervous System | C70.0-C72.9 except 9590-9989 | C70-C72 |
| Breast (includes <i>in situ</i>) | C50.0 – C50.9 except 9590 -9989 | C50 |
| Bronchus & Lung | C34.0 – C34.9 except 9590-9989 | C34 |
| Cervix Uteri | C53.0 – C53.9 except 9590-9989 | C53 |
| Colon/ Rectum | C18.0-C18.9, C19.9, C20.9, C26.0 except 9590-9989 | C18 – C20, C26.0 |
| Corpus Uteri & Uterus, NOS | C54.0 – C54.9, C55.9 except 9590 – 9989 | C54 – C55 |
| Esophagus | C15.0-C15.9 except 9590 – 9989 | C15 |
| Hodgkin Lymphoma | C00.00 – C80.9 (includes 9650-9667) | C81 |
| Kidney & Renal Pelvis | C64.9, C65.9 except 9590-9989 | C64- C65 |
| Larynx | C32.0 – C32.9 except 9590- 9989 | C32 |
| Leukemia | C00.0 – C80.9 (includes 9733, 9742, 9800 – 9820, 9826, 9831 – 9948, 9963 – 9964) C42.0, C42.1, C42.4 (includes 9823, 9827) | C90.1, C91 – C95 |
| Liver and Intrahepatic Bile Ducts | C22.0, C22.1 except 9590 – 9989 | C22 |

| Cancer Site/ Type |C o d e s..... | |
|--|---|------------------|
| | ICD-O-3* | ICD-10** |
| Melanoma of Skin | C44.0 – C44.9 (includes 8720-8790) | C43 |
| Multiple Myeloma | C00.0-C80.9 (includes 9731, 9732, 9734) | C90.0, C90.2 |
| Non – Hodgkin Lymphoma | C00.0 – C80.9 (includes 9590 – 9596, 9670 – 9729) All sites except C42.0, C42.1, C42.4 (includes 9823, 9827) | C82 – C85, C96.3 |
| Oral Cavity & Pharynx | C00.0 – C14.8 except 9590 – 9989 | C00 – C14 |
| Ovary | C56.9 except 9590- 9989 | C56 |
| Pancreas | C25.0 – C25.9 except 9590 – 9989 | |
| Prostate | C61.9 except 9590 – 9989 | C61 |
| Stomach | C16.0 – C16.9 except 9590- 9989 | C16 |
| Testis | C62.0 – C62.9 except 9590 – 9989 | C62 |
| Thyroid | C73.9 except 9590 – 9989 | C73 |
| Urinary Bladder (includes <i>in situ</i>) | C67.0 – C67.9 except 9590 – 9989 | C67 |

* *International Classification of Diseases for Oncology, 3d Ed.* (1) (includes codes added since publication) for incidence data

** *International Classification of Diseases, Tenth Revision* (3) (includes codes added since publication) for mortality data

APPENDIX II:

Population and Rate Changes

The population estimates for 2008-2012 used in this report were produced by the National Center for Health Statistics (NCHS) in collaboration with the U.S. Census Bureau's Population Estimation Program. The NCHS takes the Census Bureau population estimates file and reallocates the multiple race categories required by the 1997 Office of Management and Budget (OMB) specifications back into the four race categories specified in the 1977 OMB specifications so that the estimates will be compatible with previous years' populations. (4) The estimates are divided into mutually exclusive racial/ethnic categories similar to those of the MCR.

Please note that the statewide age-adjusted rates published in this report cannot be compared with those published in reports prior to July 2007, because the overall population count and the age distribution of the population, which were based on the Census 2000 count, differ.

The difference in the new population estimates is pronounced for Hispanics and black, non-Hispanics. The Hispanic and black, non-Hispanic populations have increased 15% since 2000, while the overall state population has increased by 1%. It is important to remember that both age-adjusted cancer incidence and cancer death rates are not a measure of the actual risk of cancer or of death from it. Rather, age-adjusted rates are summary measures used to compare cancer incidence and mortality trends over time or among different populations whose age distributions differ. For specific examples of the effect of new population estimates on age-adjusted rates, see Appendix II in the report *Cancer Incidence and Mortality in Massachusetts 2000-2004: Statewide Report*, available at www.mass.gov/dph/mcr.

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Appendix III

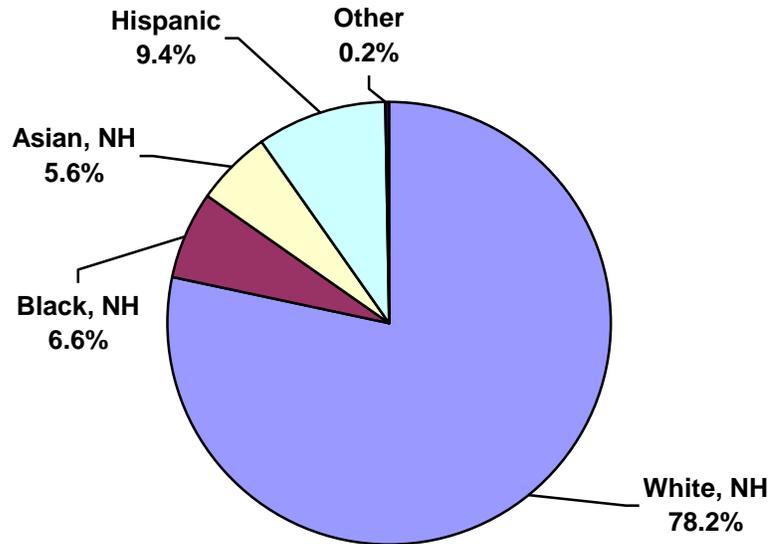
POPULATION ESTIMATES BY AGE, RACE/ETHNICITY, AND SEX Massachusetts, 2008-2012

| Age Group | White, non-Hispanic | | | Black, non-Hispanic | | | Asian, non-Hispanic | | | Males | Hispanic Females | Total |
|--------------|---------------------|---------|---------|---------------------|---------|--------|---------------------|---------|--------|--------|------------------|--------|
| | Males | Females | Total | Males | Females | Total | Males | Females | Total | | | |
| 00-04 | 639822 | 610631 | 1250453 | 86477 | 82992 | 169469 | 66985 | 65469 | 132454 | 158380 | 152022 | 310402 |
| 05-09 | 689897 | 660068 | 1349965 | 83559 | 79835 | 163394 | 62617 | 63544 | 126161 | 143604 | 138316 | 281920 |
| 10-14 | 748571 | 711916 | 1460487 | 83518 | 80241 | 163759 | 54392 | 56015 | 110407 | 135974 | 130084 | 266058 |
| 15-19 | 852890 | 830371 | 1683261 | 98950 | 96086 | 195036 | 62287 | 67603 | 129890 | 150855 | 143650 | 294505 |
| 20-24 | 846655 | 853720 | 1700375 | 98018 | 97036 | 195054 | 76057 | 84255 | 160312 | 149723 | 141560 | 291283 |
| 25-29 | 795325 | 799357 | 1594682 | 85109 | 84757 | 169866 | 85318 | 94007 | 179325 | 144074 | 133372 | 277446 |
| 30-34 | 724688 | 735129 | 1459817 | 76216 | 79909 | 156125 | 85182 | 93171 | 178353 | 135192 | 130876 | 266068 |
| 35-39 | 762161 | 787218 | 1549379 | 71938 | 78609 | 150547 | 85278 | 87971 | 173249 | 114688 | 118961 | 233649 |
| 40-44 | 912275 | 945407 | 1857682 | 74696 | 81166 | 155862 | 70659 | 74644 | 145303 | 103819 | 109623 | 213442 |
| 45-49 | 1032618 | 1066125 | 2098743 | 76261 | 79898 | 156159 | 60488 | 63269 | 123757 | 88908 | 97810 | 186718 |
| 50-54 | 1024077 | 1070509 | 2094586 | 67410 | 71899 | 139309 | 48688 | 52508 | 101196 | 68440 | 76789 | 145229 |
| 55-59 | 907376 | 963630 | 1871006 | 51519 | 58005 | 109524 | 39274 | 43479 | 82753 | 49221 | 58319 | 107540 |
| 60-64 | 774873 | 843345 | 1618218 | 37845 | 46219 | 84064 | 29159 | 32745 | 61904 | 35123 | 43634 | 78757 |
| 65-69 | 555023 | 630715 | 1185738 | 24832 | 33231 | 58063 | 20265 | 22440 | 42705 | 22552 | 29312 | 51864 |
| 70-74 | 388946 | 475987 | 864933 | 17246 | 24963 | 42209 | 15554 | 17486 | 33040 | 14338 | 20795 | 35133 |
| 75-79 | 311902 | 422016 | 733918 | 11862 | 19220 | 31082 | 10599 | 12594 | 23193 | 9328 | 14291 | 23619 |
| 80-84 | 244133 | 388498 | 632631 | 7384 | 14107 | 21491 | 6183 | 8447 | 14630 | 5665 | 9225 | 14890 |
| 85+ | 208925 | 479046 | 687971 | 5598 | 13280 | 18878 | 4535 | 7267 | 11802 | 4692 | 8911 | 13603 |

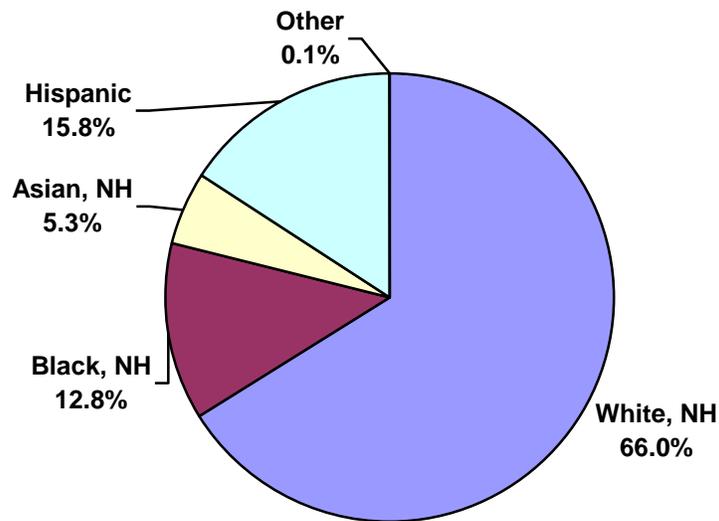
Population Data Source: United States Census Data (2008-2012)

Appendix IV
Racial/Ethnic Breakdown of the Massachusetts and NAACCR Populations

Massachusetts (2008-2012)



NAACCR (2007-2011)



Data Source: United States Census Data, 2008-2012

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