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

## **STATEWIDE REPORT**

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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**

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Massachusetts Department of Public Health

*November 2015*

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## ACKNOWLEDGMENTS

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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](http://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?



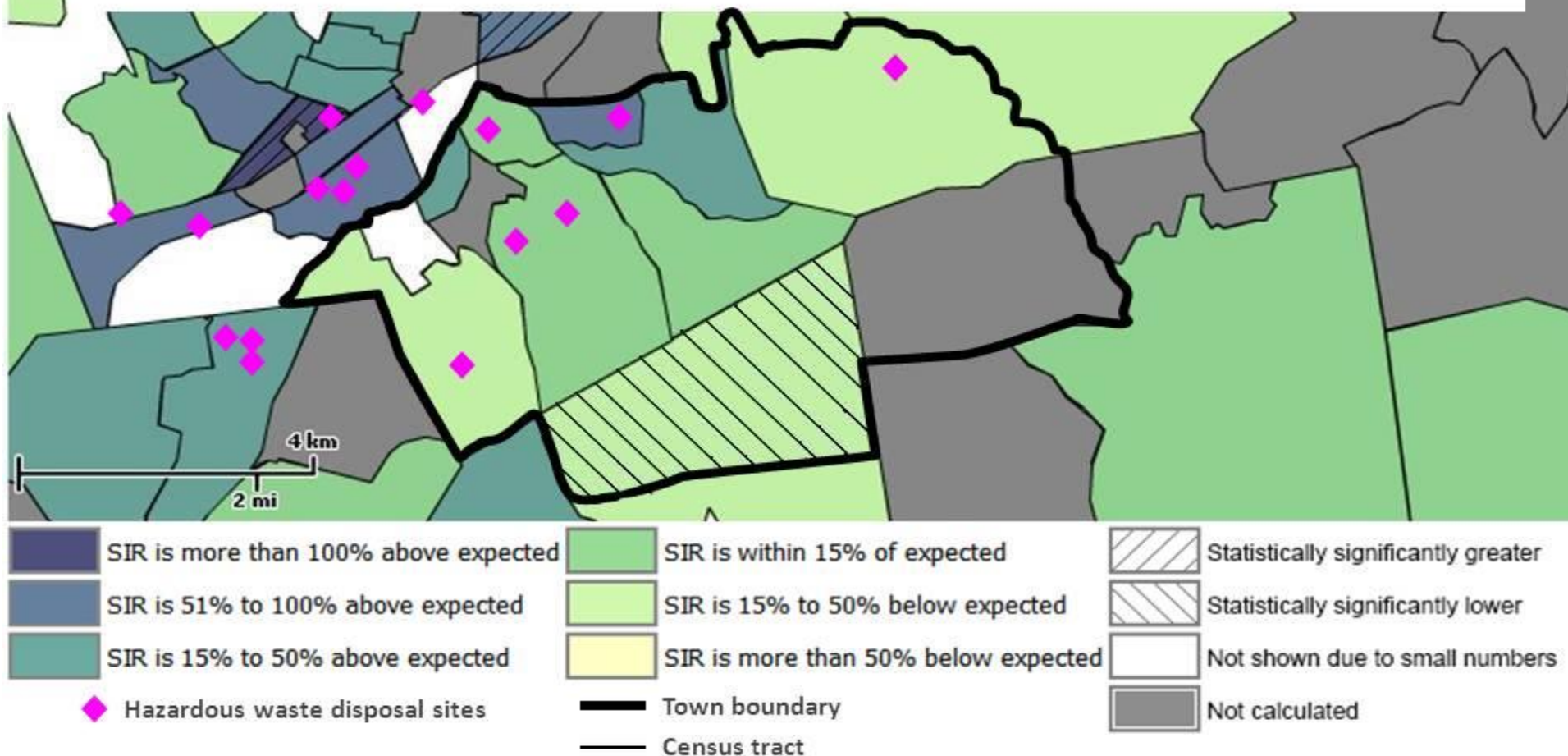
- For cancer types associated with tobacco use, is the percentage of individuals in a community or census tract with a history of tobacco use similar to the percentage statewide for that type of cancer?
- For cancer types associated with occupational exposures to chemicals or radiation, have any of the 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.

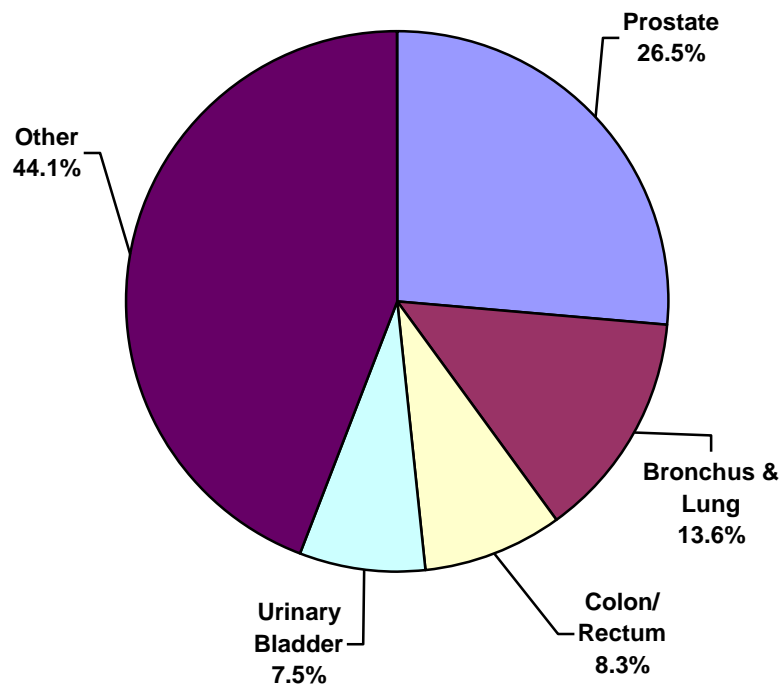
# **Lung and Bronchus Cancer Standardized Incidence Ratios (SIRs) by Census Tract Anytown, MA 2005 - 2009**



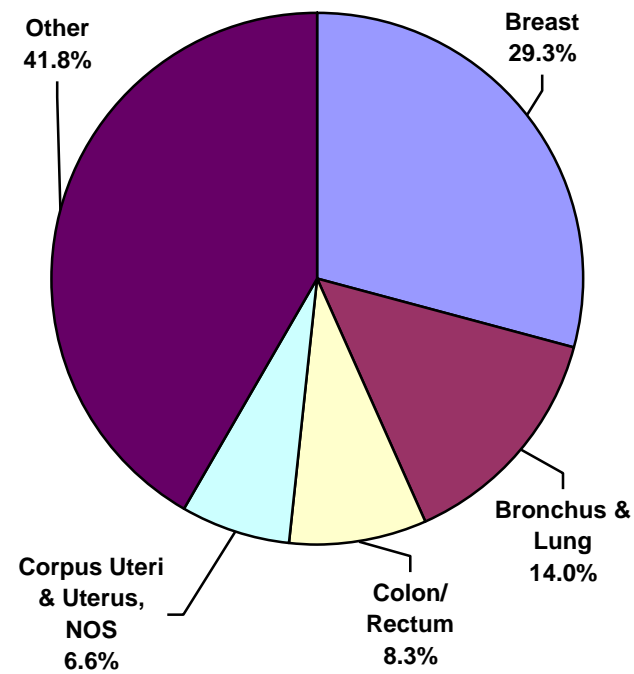
## **FIGURES & TABLES**

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

**MALES (N=89,757)**

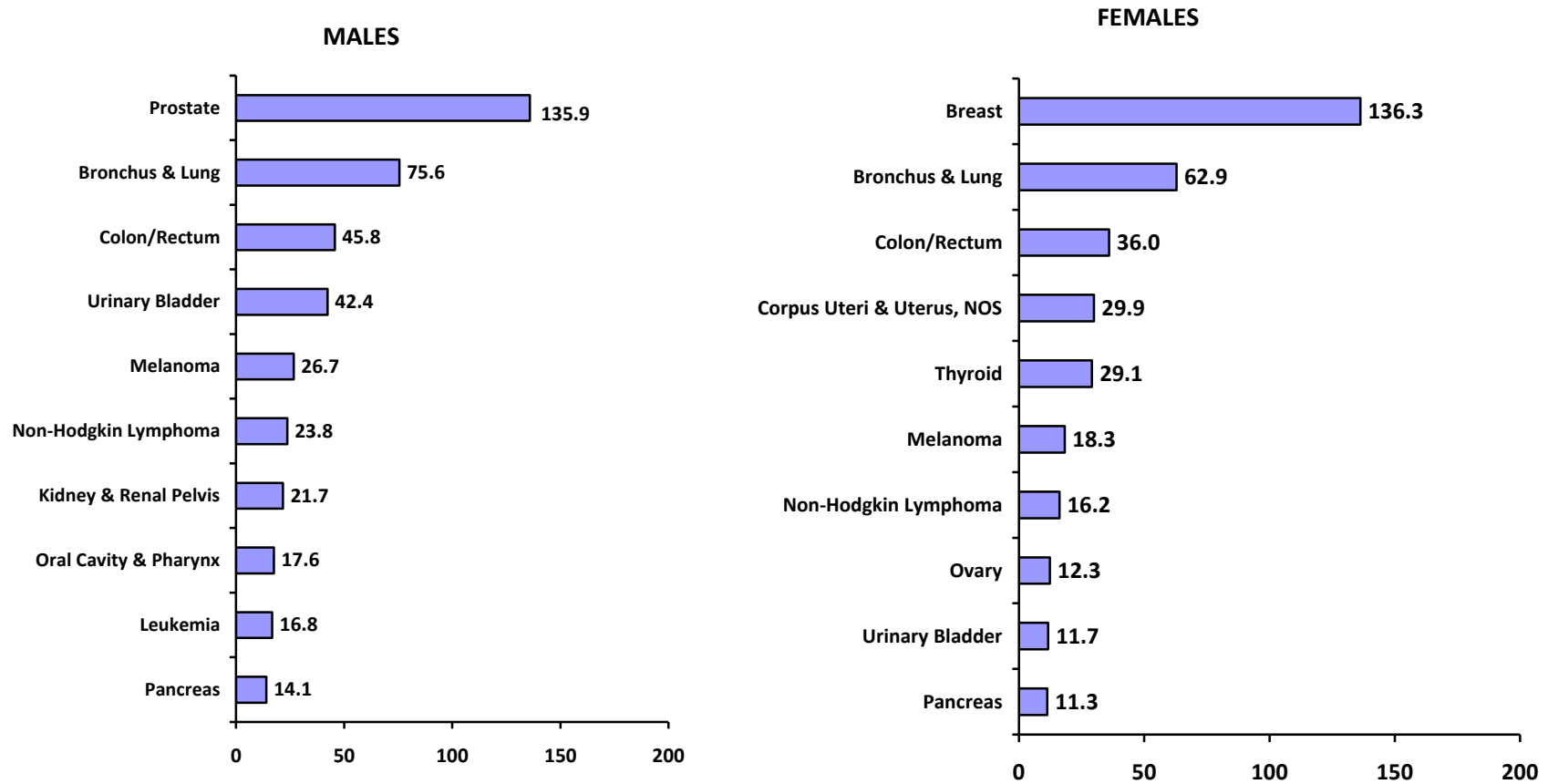


**FEMALES (N=93,446)**



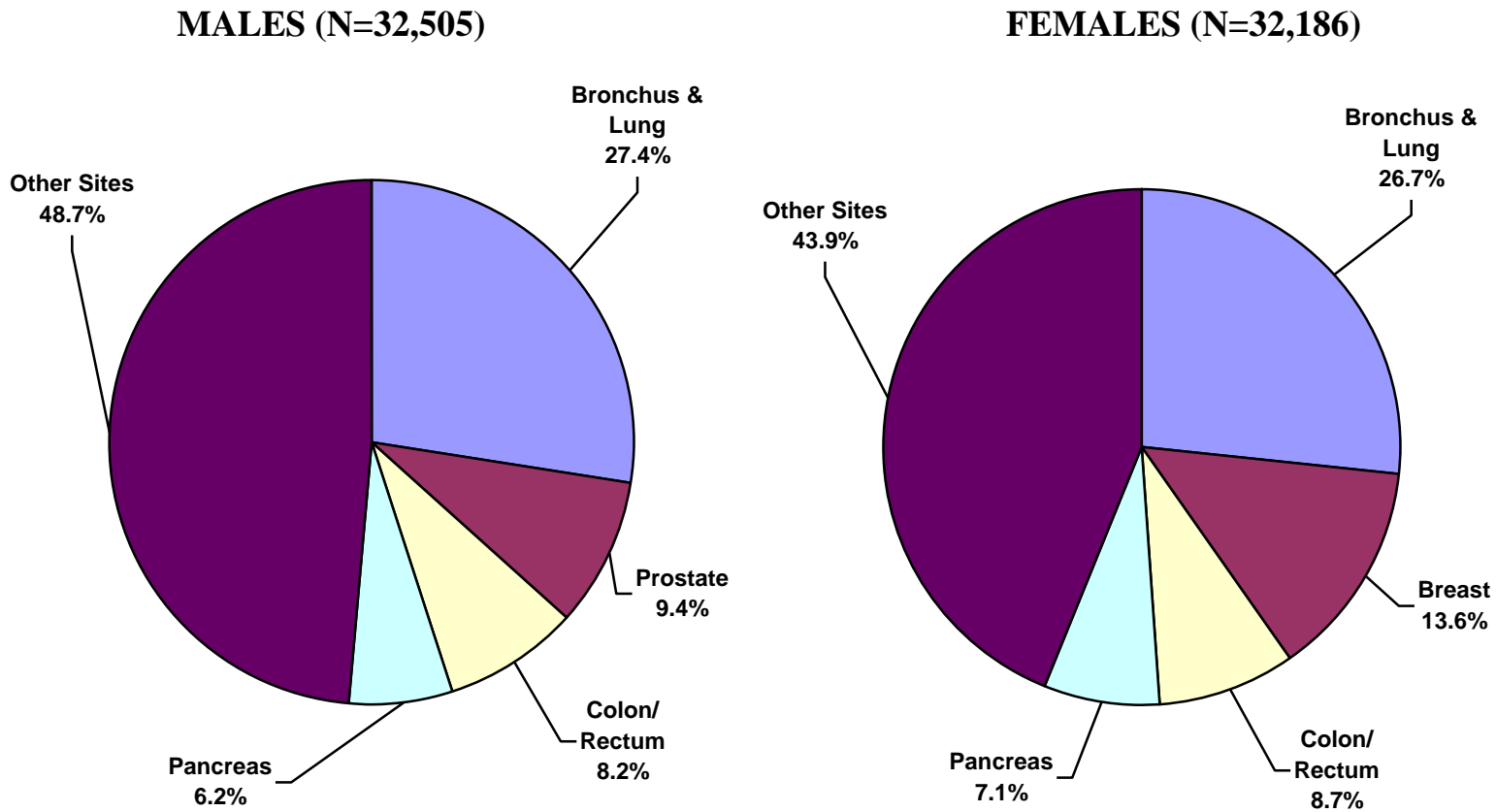
Source: Massachusetts Cancer Registry

**Figure 2.**  
**INCIDENCE RATES<sup>1</sup> FOR TEN LEADING CANCER TYPES BY SEX**  
**Massachusetts, 2008-2012**



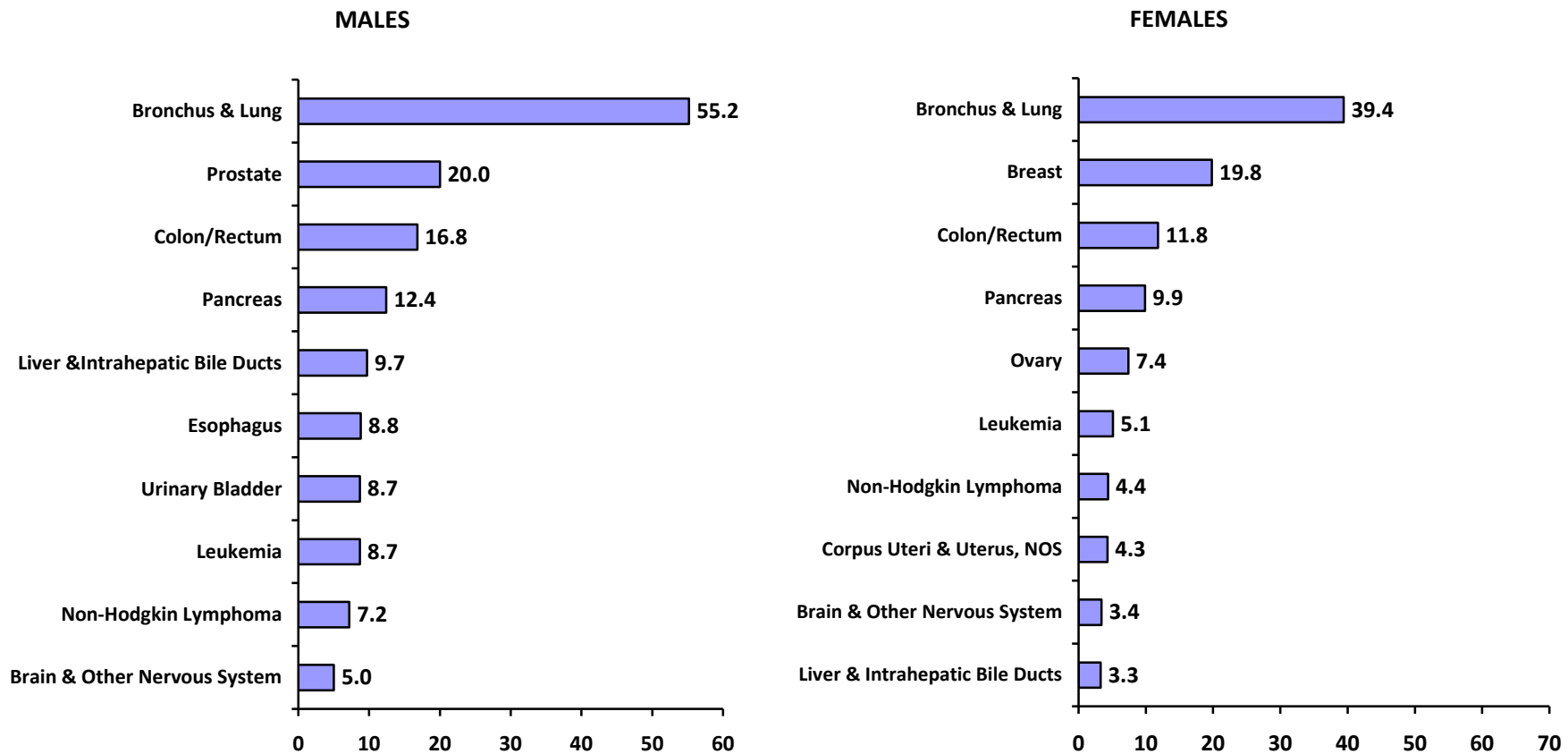
<sup>1</sup>Rates are age-adjusted to the 2000 U.S. Standard Population. NOS – Not Otherwise Specified.  
Source: Massachusetts Cancer Registry

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



Source: Massachusetts Vital Statistics

**Figure 4.**  
**MORTALITY RATES<sup>1</sup> FOR TEN LEADING CANCER TYPES BY SEX**  
**Massachusetts, 2008-2012**



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

**Table 1.**  
**AGE-SPECIFIC INCIDENCE RATES<sup>1</sup> 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
<b>All Sites</b>	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
<b>Brain &amp; Other Nervous System</b>	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
<b>Breast</b>	--	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
<b>Breast <i>in situ</i><sup>2</sup></b>	--	--	--	--	--	--	0.1		0.1	0.1	0.1	0.6	0.1	0.6	1.1	0.9	--	0.9	65
<b>Bronchus &amp; Lung</b>	--	--	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
<b>Colon / Rectum</b>	--	--	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
<b>Esophagus</b>	--	--	--	--	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
<b>Hodgkin Lymphoma</b>	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
<b>Kidney &amp; Renal Pelvis</b>	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
<b>Larynx</b>	--	--	--	--	--	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
<b>Leukemia</b>	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
<b>Liver &amp; Intrahepatic Bile Ducts</b>	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
<b>Melanoma of Skin</b>	--	--	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
<b>Multiple Myeloma</b>	--	--	--	--	--	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
<b>Non-Hodgkin Lymphoma</b>	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
<b>Oral Cavity &amp; Pharynx</b>	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
<b>Pancreas</b>	--	--	--	--	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
<b>Prostate</b>	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
<b>Stomach</b>	--	--	--	--	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
<b>Testis</b>	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
<b>Thyroid</b>	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
<b>Urinary Bladder</b>	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
<b>Other Sites</b>	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

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



**Table 2.**  
**AGE-SPECIFIC INCIDENCE RATES<sup>1</sup> 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> <sup>2</sup>	--	--	--	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

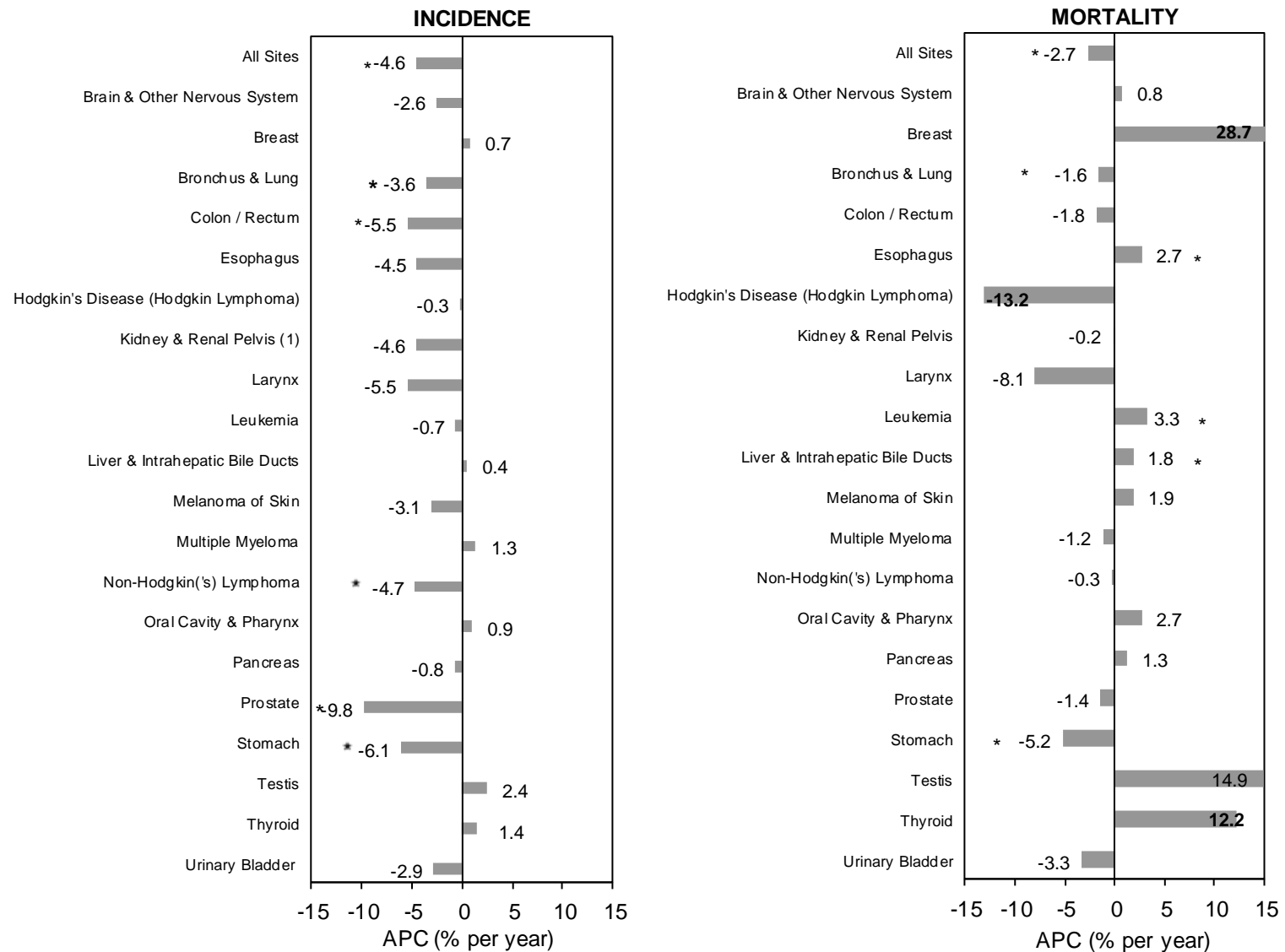
<sup>1</sup> per 100,000    <sup>2</sup> Breast *in situ* is excluded from 'All Sites'.    <sup>3</sup> Dashes indicate age groups with no incident cases. Source: Massachusetts Cancer Registry

**Table 3.**  
**AGE-SPECIFIC INCIDENCE RATES<sup>1</sup> 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> <sup>2</sup>	--	--	--	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

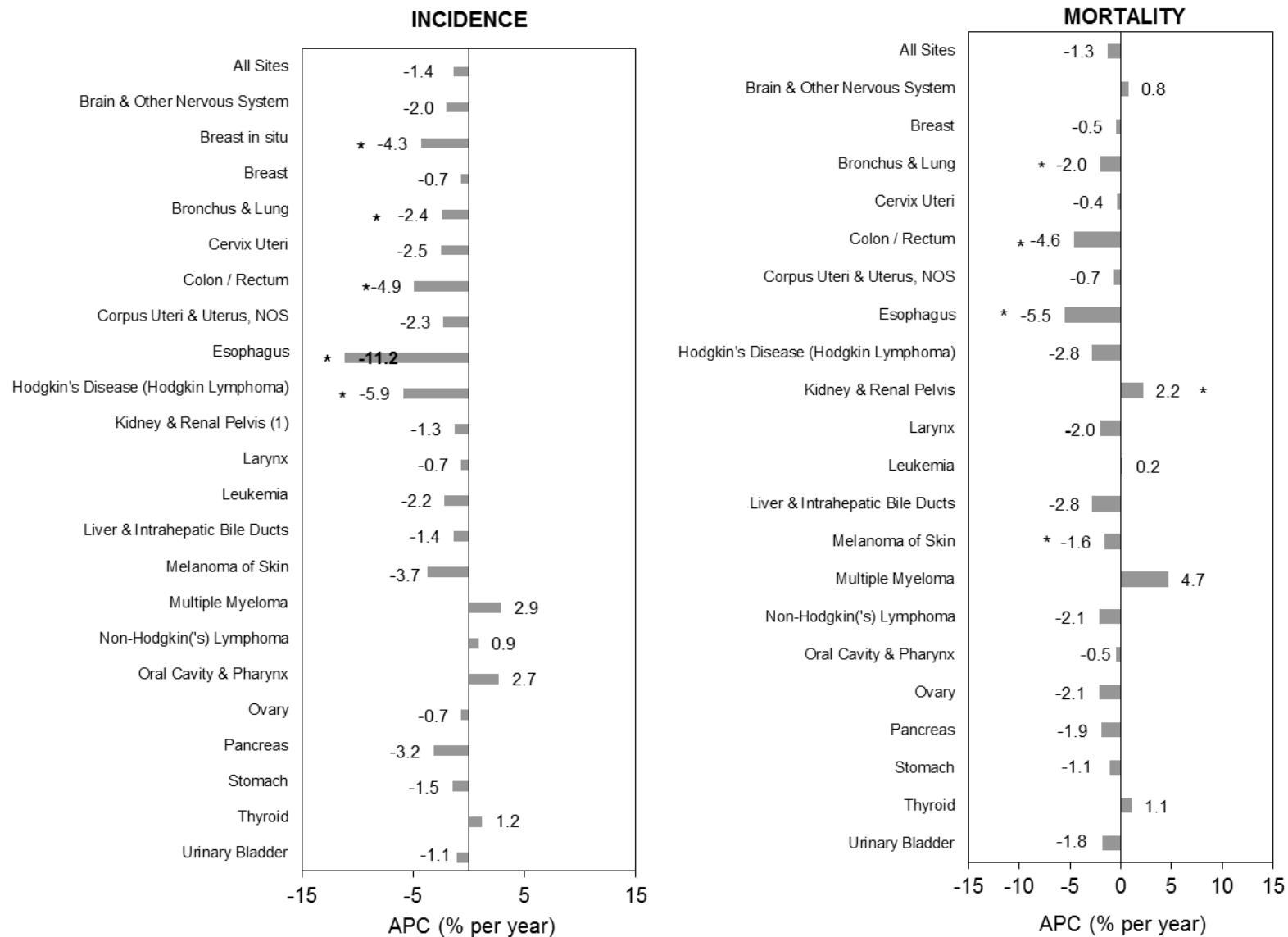
<sup>1</sup> per 100,000    <sup>2</sup> Breast *in situ* is excluded from 'All Sites'.    <sup>3</sup> Dashes indicate age groups with no incident cases or cancers found in only one sex. Source: Massachusetts Cancer Registry

**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-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> FOR SELECTED CANCER SITES**  
**Massachusetts, 2008-2012**  
**MALES**

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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 males

<sup>3</sup> Breast *in situ* is excluded from “All Sites”

Source: Massachusetts Cancer Registry

**Table 5.**  
**ANNUAL AGE-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> 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> <sup>3</sup>	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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 males

<sup>3</sup> Breast *in situ* is excluded from "All Sites"

Source: Massachusetts Cancer Registry

**Table 6.**  
**ANNUAL AGE-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> FOR SELECTED CANCER SITES**  
**Massachusetts, 2008-2012**

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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 total population

<sup>3</sup> Breast *in situ* is excluded from "All Sites"

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

Source: Massachusetts Cancer Registry

**Table 7.**  
**ANNUAL AGE-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> FOR SELECTED CANCER SITES**  
**Massachusetts, 2008-2012**  
**MALES**

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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 males

Source: Massachusetts Vital Statistics



**Table 8**  
**ANNUAL AGE-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> FOR SELECTED CANCER SITES**  
**Massachusetts, 2008-2012**  
**FEMALES**

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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 females

Source: Massachusetts Vital Statistics

**Table 9.**  
**ANNUAL AGE-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> FOR SELECTED CANCER SITES**  
**Massachusetts, 2008-2012**  
**TOTAL<sup>3</sup>**

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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000 total population

<sup>3</sup>Dashes 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**

<b>AGE-ADJUSTED<sup>1</sup> INCIDENCE RATE<sup>2</sup></b>				
<b>RANK</b>	<b>White, non-Hispanic</b>	<b>Black, non-Hispanic</b>	<b>Asian, non-Hispanic</b>	<b>Hispanic</b>
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**

<b>AGE-ADJUSTED<sup>1</sup> INCIDENCE RATE<sup>2</sup></b>				
<b>RANK</b>	<b>White, non-Hispanic</b>	<b>Black, non-Hispanic</b>	<b>Asian, non-Hispanic</b>	<b>Hispanic</b>
1	Breast <sup>3</sup> 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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

<sup>3</sup> Breast 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/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**MALES**

Cancer Site / Type	All Races <sup>2</sup>		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 <sup>3</sup>	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

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

<sup>2</sup> The number of cases for all races is not the sum of cases by race/ethnicity. <sup>3</sup> 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/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**FEMALES**

Cancer Site / Type	All Races <sup>2</sup>		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 <sup>3</sup>	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

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

<sup>2</sup> The number of cases for all races is not the sum of cases by race/ethnicity. <sup>3</sup>Breast *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/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**TOTAL<sup>2</sup>**

Cancer Site / Type	All Races <sup>3</sup>		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
<b>All Sites</b>	183218	100.0	161130	100.0	8359	100.0	4216	100.0	6293	100.0
<b>Brain &amp; Other Nervous System</b>	2431	1.3	2156	1.3	88	1.1	54	1.3	123	2.0
<b>Breast<sup>4</sup></b>	27578	15.1	24604	15.3	1216	14.5	699	16.6	936	14.9
<b>Bronchus &amp; Lung</b>	25258	13.8	23305	14.5	902	10.8	516	12.2	463	7.4
<b>Cervix Uteri</b>	970	0.5	720	0.4	88	1.1	49	1.2	100	1.6
<b>Colon / Rectum</b>	15222	8.3	13392	8.3	743	8.9	433	10.3	491	7.8
<b>Corpus Uteri &amp; Uterus, NOS</b>	6207	3.4	5552	3.4	254	3.0	130	3.1	216	3.4
<b>Esophagus</b>	2285	1.2	2113	1.3	83	1.0	36	0.9	48	0.8
<b>Hodgkin Lymphoma</b>	1065	0.6	885	0.5	59	0.7	25	0.6	84	1.3
<b>Kidney &amp; Renal Pelvis</b>	5858	3.2	5178	3.2	303	3.6	106	2.5	229	3.6
<b>Larynx</b>	1333	0.7	1193	0.7	60	0.7	16	0.4	49	0.8
<b>Leukemia</b>	4712	2.6	4129	2.6	153	1.8	114	2.7	198	3.1
<b>Liver &amp; Intrahepatic Bile Ducts</b>	3026	1.7	2283	1.4	220	2.6	271	6.4	223	3.5
<b>Melanoma of Skin</b>	7963	4.3	7244	4.5	20	0.2	16	0.4	48	0.8
<b>Multiple Myeloma</b>	2337	1.3	1912	1.2	242	2.9	37	0.9	110	1.7
<b>Non-Hodgkin Lymphoma</b>	7269	4.0	6404	4.0	322	3.9	153	3.6	284	4.5
<b>Oral Cavity &amp; Pharynx</b>	4495	2.5	3991	2.5	159	1.9	128	3.0	188	3.0
<b>Ovary</b>	2513	1.4	2260	1.4	83	1.0	70	1.7	78	1.2
<b>Pancreas</b>	4776	2.6	4290	2.7	246	2.9	83	2.0	139	2.2
<b>Prostate</b>	23803	13.0	19470	12.1	1757	21.0	371	8.8	1007	16.0
<b>Stomach</b>	2554	1.4	2053	1.3	182	2.2	132	3.1	173	2.7
<b>Testis</b>	985	0.5	885	0.5	15	0.2	19	0.5	54	0.9
<b>Thyroid</b>	6964	3.8	5691	3.5	342	4.1	356	8.4	418	6.6
<b>Urinary Bladder</b>	9242	5.0	8646	5.4	195	2.3	93	2.2	149	2.4
<b>Other Sites</b>	14372	7.8	12774	7.9	627	7.5	309	7.3	485	7.7

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

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

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

**Table 14.**  
**AGE-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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
<b>All Sites</b>	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
<b>Brain &amp; Other Nervous System</b>	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
<b>Breast</b>	1.3	1.1-1.5	1.3	1.2-1.5	*	*	*	*	*	*
<b>Breast <i>in situ</i><sup>4</sup></b>	0.2	0.1-0.2	*	*	*	*	*	*	*	*
<b>Bronchus &amp; Lung</b>	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
<b>Colon / Rectum</b>	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
<b>Esophagus</b>	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
<b>Hodgkin Lymphoma</b>	3.5	3.2-3.8	3.7	3.3-4.0	3.4	2.3-4.5	*	*	4.0	2.6-5.5
<b>Kidney &amp; Renal Pelvis</b>	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
<b>Larynx</b>	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
<b>Leukemia</b>	16.8	16.2-17.5	17.3	16.5-18.0	9.7	7.3-12.0	*	*	9.9	7.5-12.4
<b>Liver &amp; Intrahepatic Bile Ducts</b>	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
<b>Melanoma of Skin</b>	26.7	25.9-27.5	28.2	27.3-29.1	*	*	*	*	*	*
<b>Multiple Myeloma</b>	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
<b>Non-Hodgkin Lymphoma</b>	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
<b>Oral Cavity &amp; Pharynx</b>	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
<b>Pancreas</b>	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
<b>Prostate</b>	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
<b>Stomach</b>	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
<b>Testis</b>	6.2	5.8-6.6	7.4	6.9-7.9	*	*	*	*	3.3	2.4-4.2
<b>Thyroid</b>	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
<b>Urinary Bladder</b>	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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

<sup>3</sup> Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category. <sup>4</sup> 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-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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
<b>All Sites</b>	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
<b>Brain &amp; Other Nervous System</b>	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
<b>Breast</b>	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
<b>Breast <i>in situ</i><sup>4</sup></b>	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
<b>Bronchus &amp; Lung</b>	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
<b>Cervix Uteri</b>	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
<b>Colon / Rectum</b>	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
<b>Corpus Uteri &amp; Uterus, NOS</b>	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
<b>Esophagus</b>	2.3	2.1-2.5	2.2	2.0-2.5	2.9	1.8-4.0	*	*	3.1	1.8-4.4
<b>Hodgkin Lymphoma</b>	2.8	2.5-3.0	3.0	2.7-3.3	2.0	1.2-2.9	*	*	2.9	1.9-3.9
<b>Kidney &amp; Renal Pelvis</b>	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
<b>Larynx</b>	1.6	1.5-1.8	1.7	1.5-1.9	1.5	0.7-2.3	*	*	*	*
<b>Leukemia</b>	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
<b>Liver &amp; Intrahepatic Bile Ducts</b>	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
<b>Melanoma of Skin</b>	18.3	17.7-18.9	19.7	19.0-20.4	*	*	*	*	2.6	1.5-3.6
<b>Multiple Myeloma</b>	4.9	4.6-5.3	4.4	4.1-4.7	13.3	11.0-15.7	*	*	6.4	4.6-8.2
<b>Non-Hodgkin Lymphoma</b>	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
<b>Oral Cavity &amp; Pharynx</b>	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
<b>Ovary</b>	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
<b>Pancreas</b>	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
<b>Stomach</b>	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
<b>Thyroid</b>	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
<b>Urinary Bladder</b>	11.7	11.3-12.2	12.3	11.8-12.8	7.1	5.3-8.9	*	*	6.1	4.2-7.9

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

<sup>3</sup> Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category. <sup>4</sup> 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-ADJUSTED<sup>1</sup> INCIDENCE RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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	-- <sup>5</sup>	--	--	--	--	--	--	--	--	--
Breast <i>in situ</i> <sup>4</sup>	--	--	--	--	--	--	-- <sup>1</sup>	--	--	--
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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

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

<sup>5</sup> 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**

<b>AGE-ADJUSTED<sup>1</sup> MORTALITY RATE<sup>2</sup></b>				
<b>RANK</b>	<b>White, non-Hispanic</b>	<b>Black, non-Hispanic</b>	<b>Asian, non-Hispanic</b>	<b>Hispanic</b>
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**

<b>AGE-ADJUSTED<sup>1</sup> MORTALITY RATE<sup>2</sup></b>				
<b>RANK</b>	<b>White, non-Hispanic</b>	<b>Black, non-Hispanic</b>	<b>Asian, non-Hispanic</b>	<b>Hispanic</b>
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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

Source: Massachusetts Vital Statistics

**Table 18.**  
**NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**MALES**

Cancer Site / Type	All Races <sup>2</sup>		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

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

<sup>2</sup> 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/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**FEMALES**

Cancer Site / Type	All Races <sup>2</sup>		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

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

<sup>2</sup> 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/ETHNICITY<sup>1</sup>**  
**Massachusetts, 2008-2012**  
**TOTAL**

Cancer Site / Type	All Races <sup>2</sup>		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

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

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

Source: Massachusetts Vital Statistics

**Table 21.**  
**AGE-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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
<b>All Sites</b>	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
<b>Brain &amp; Other Nervous System</b>	5.0	4.7-5.4	5.5	5.1-5.8	*	*	*	*	3.6	2.2-4.9
<b>Breast</b>	0.3	0.2-0.4	0.3	0.2-0.4	*	*	*	*	*	*
<b>Bronchus &amp; Lung</b>	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
<b>Colon / Rectum</b>	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
<b>Esophagus</b>	8.8	8.3-9.2	9.3	8.8-9.8	7.1	5.1-9.1	*	*	3.3	1.9-4.7
<b>Hodgkin Lymphoma</b>	0.4	0.4-0.6	0.5	0.4-0.6	*	*	*	*	*	*
<b>Kidney &amp; Renal Pelvis</b>	4.6	4.3-4.9	4.7	4.4-5.1	4.2	2.6-5.9	*	*	2.7	1.5-3.8
<b>Larynx</b>	1.8	1.6-2.0	1.8	1.6-2.0	*	*	*	*	*	*
<b>Leukemia</b>	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
<b>Liver &amp; Intrahepatic Bile Ducts</b>	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
<b>Melanoma of Skin</b>	4.1	3.8-4.4	4.5	4.2-4.9	*	*	*	*	*	*
<b>Multiple Myeloma</b>	4.1	3.8-4.4	4.0	3.7-4.3	7.0	5.0-9.0	*	*	4.8	2.8-6.7
<b>Non-Hodgkin Lymphoma</b>	7.2	6.8-7.6	7.3	6.9-7.8	6.6	4.7-8.5	*	*	4.4	2.8-5.9
<b>Oral Cavity &amp; Pharynx</b>	3.8	3.6-4.1	3.8	3.5-4.2	5.4	3.7-7.1	3.1	1.8-4.4	*	*
<b>Pancreas</b>	12.4	11.9-12.9	12.8	12.2-13.3	14.7	11.6-17.7	*	*	9.7	7.2-12.2
<b>Prostate</b>	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
<b>Stomach</b>	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
<b>Testis</b>	0.1	0.1-0.2	0.2	0.1-0.2	*	*	*	*	*	*
<b>Thyroid</b>	0.6	0.4-0.7	0.6	0.5-0.7	*	*	*	*	*	*
<b>Urinary Bladder</b>	8.7	8.2-9.2	9.2	8.7-9.7	5.2	3.3-7.1	*	*	*	*

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

<sup>3</sup> 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-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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
<b>All Sites</b>	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
<b>Brain &amp; Other Nervous System</b>	3.4	3.2-3.7	3.6	3.4-3.9	2.1	1.2-3.0	*	*	2.0	1.1-2.8
<b>Breast</b>	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
<b>Bronchus &amp; Lung</b>	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
<b>Cervix Uteri</b>	1.4	1.2-1.5	1.3	1.2-1.5	2.6	1.6-3.6	*	*	*	*
<b>Colon / Rectum</b>	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
<b>Corpus Uteri &amp; Uterus, NOS</b>	4.3	4.0-4.6	4.2	4.0-4.5	7.2	5.5-9.0	*	*	3.3	2.0-4.6
<b>Esophagus</b>	1.8	1.6-2.0	1.8	1.6-2.0	*	*	*	*	*	*
<b>Hodgkin Lymphoma</b>	0.3	0.2-0.3	0.3	0.2-0.4	*	*	*	*	*	*
<b>Kidney &amp; Renal Pelvis</b>	2.2	2.0-2.4	2.3	2.1-2.5	*	*	*	*	*	*
<b>Larynx</b>	0.4	0.3-0.5	0.4	0.3-0.5	*	*	*	*	*	*
<b>Leukemia</b>	5.1	4.8-5.4	5.1	4.8-5.4	6.2	4.6-7.9	*	*	4.2	2.9-5.6
<b>Liver &amp; Intrahepatic Bile Ducts</b>	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
<b>Melanoma of Skin</b>	1.9	1.7-2.1	2.1	1.9-2.3	*	*	*	*	*	*
<b>Multiple Myeloma</b>	2.6	2.4-2.8	2.4	2.2-2.7	6.6	5.0-8.3	*	*	*	*
<b>Non-Hodgkin Lymphoma</b>	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
<b>Oral Cavity &amp; Pharynx</b>	1.3	1.1-1.4	1.3	1.2-1.5	*	*	*	*	*	*
<b>Ovary</b>	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
<b>Pancreas</b>	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
<b>Stomach</b>	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
<b>Thyroid</b>	0.5	0.4-0.6	0.5	0.4-0.6	*	*	*	*	*	*
<b>Urinary Bladder</b>	2.7	2.5-2.9	2.8	2.6-3.0	2.8	1.6-3.8	*	*	*	*

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

<sup>3</sup> 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.

**Table 23.**  
**AGE-ADJUSTED<sup>1</sup> MORTALITY RATES<sup>2</sup> AND 95% CONFIDENCE LIMITS (95% CL)**  
**FOR SELECTED CANCER SITES BY RACE/ETHNICITY<sup>3</sup>**  
**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	- <sup>4</sup>	-	-	-	-	-	-	-	-	-
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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> per 100,000

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

<sup>4</sup> 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 RATES<sup>1</sup> 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	Rate	95% CL	Rate	95% CL	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> <sup>2</sup>	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

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> Breast *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 RATES<sup>1</sup> 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	Rate	95% CL	Rate	95% CL	Rate	95% CL
<b>All Sites</b>	201.6*	199.4-203.8	207.9	207.5-208.2	143.6*	142.0-145.1	145.4	145.2-145.7
<b>Brain &amp; Other Nervous System</b>	5.0	4.7-5.4	5.3	5.2-5.3	3.4	3.2-3.7	3.5	3.4-3.5
<b>Breast</b>	0.3	0.2-0.4	0.3	0.3-0.3	19.8*	19.2-20.4	21.9	21.8-22.0
<b>Bronchus &amp; Lung</b>	55.2*	54.1-56.4	59.8	59.6-60.0	39.4*	38.6-40.3	37.8	37.7-37.9
<b>Cervix Uteri</b>	-	-	-	-	1.4*	1.2-1.5	2.3	2.3-2.3
<b>Colon / Rectum</b>	16.8*	16.2-17.4	18.6	18.5-18.7	11.8	11.4-12.3	13.1	13.0-13.1
<b>Corpus Uteri &amp; Uterus, NOS</b>	-	-	-	-	4.3	4.0-4.6	4.4	4.3-4.4
<b>Esophagus</b>	8.8*	8.3-9.2	7.5	7.4-7.5	1.8	1.6-2.0	1.5	1.5-1.6
<b>Hodgkin Lymphoma</b>	0.4	0.4-0.6	0.5	0.4-0.5	0.3	0.2-0.3	0.3	0.3-0.3
<b>Kidney &amp; Renal Pelvis</b>	4.6*	4.3-4.9	5.7	5.7-5.8	2.2*	2.0-2.4	2.5	2.5-2.5
<b>Larynx</b>	1.8	1.6-2.0	1.9	1.9-2.0	0.4	0.3-0.5	0.4	0.4-0.4
<b>Leukemia</b>	8.7*	8.2-9.2	9.4	9.3-9.4	5.1	4.8-5.4	5.2	5.2-5.3
<b>Liver &amp; Intrahepatic Bile Ducts</b>	9.7*	9.2-10.1	8.8	8.8-8.9	3.3*	3.0-3.5	2.3	2.3-2.3
<b>Melanoma of Skin</b>	4.1	3.8-4.4	4.1	4.0-4.1	1.9	1.7-2.1	1.7	1.7-1.7
<b>Multiple Myeloma</b>	4.1	3.8-4.4	4.2	4.2-4.3	2.6	2.4-2.8	2.7	2.7-2.7
<b>Non-Hodgkin Lymphoma</b>	7.2*	6.8-7.6	7.9	7.9-8.0	4.4*	4.1-4.6	4.8	4.8-4.9
<b>Oral Cavity &amp; Pharynx</b>	3.8	3.5-4.1	3.8	3.7-3.8	1.3	1.1-1.4	1.4	1.3-1.4
<b>Ovary</b>	-	-	-	-	7.4	7.1-7.8	7.7	7.6-7.8
<b>Pancreas</b>	12.4	11.9-12.9	12.6	12.5-12.6	9.9	9.5-10.3	9.6	9.5-9.7
<b>Prostate</b>	20.0*	19.3-20.7	21.4	21.3-21.5	-	-	-	-
<b>Stomach</b>	4.5	4.2-4.8	4.6	4.5-4.6	2.4	2.2-2.6	2.4	2.4-2.5
<b>Testis</b>	0.1	0.1-0.2	0.3	0.2-0.3	-	-	-	-
<b>Thyroid</b>	0.6	0.4-0.7	0.5	0.5-0.5	0.5	0.4-0.6	0.5	0.5-0.5
<b>Urinary Bladder</b>	8.7*	8.2-9.2	7.7	7.6-7.7	2.7*	2.5-2.9	2.2	2.2-2.2

<sup>1</sup> Rates are age-adjusted to the 2000 U.S. Standard Population.

<sup>2</sup> 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> .....	
	<b>ICD-O-3*</b>	<b>ICD-10**</b>
<b>Brain &amp; Other Nervous System</b>	C70.0-C72.9 except 9590-9989	C70-C72
<b>Breast (includes <i>in situ</i>)</b>	C50.0 – C50.9 except 9590 -9989	C50
<b>Bronchus &amp; Lung</b>	C34.0 – C34.9 except 9590-9989	C34
<b>Cervix Uteri</b>	C53.0 – C53.9 except 9590-9989	C53
<b>Colon/ Rectum</b>	C18.0-C18.9, C19.9, C20.9, C26.0 except 9590-9989	C18 – C20, C26.0
<b>Corpus Uteri &amp; Uterus, NOS</b>	C54.0 – C54.9, C55.9 except 9590 – 9989	C54 – C55
<b>Esophagus</b>	C15.0-C15.9 except 9590 – 9989	C15
<b>Hodgkin Lymphoma</b>	C00.00 – C80.9 (includes 9650-9667)	C81
<b>Kidney &amp; Renal Pelvis</b>	C64.9, C65.9 except 9590-9989	C64- C65
<b>Larynx</b>	C32.0 – C32.9 except 9590- 9989	C32
<b>Leukemia</b>	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
<b>Liver and Intrahepatic Bile Ducts</b>	C22.0, C22.1 except 9590 – 9989	C22

Cancer Site/ Type	.....C o d e s.....	
	ICD-O-3*	ICD-10**
<b>Melanoma of Skin</b>	C44.0 – C44.9 (includes 8720-8790)	C43
<b>Multiple Myeloma</b>	C00.0-C80.9 (includes 9731, 9732, 9734)	C90.0, C90.2
<b>Non – Hodgkin Lymphoma</b>	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
<b>Oral Cavity &amp; Pharynx</b>	C00.0 – C14.8 except 9590 – 9989	C00 – C14
<b>Ovary</b>	C56.9 except 9590- 9989	C56
<b>Pancreas</b>	C25.0 – C25.9 except 9590 – 9989	
<b>Prostate</b>	C61.9 except 9590 – 9989	C61
<b>Stomach</b>	C16.0 – C16.9 except 9590- 9989	C16
<b>Testis</b>	C62.0 – C62.9 except 9590 – 9989	C62
<b>Thyroid</b>	C73.9 except 9590 – 9989	C73
<b>Urinary Bladder (includes <i>in situ</i>)</b>	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](http://www.mass.gov/dph/mcr).

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### Appendix III

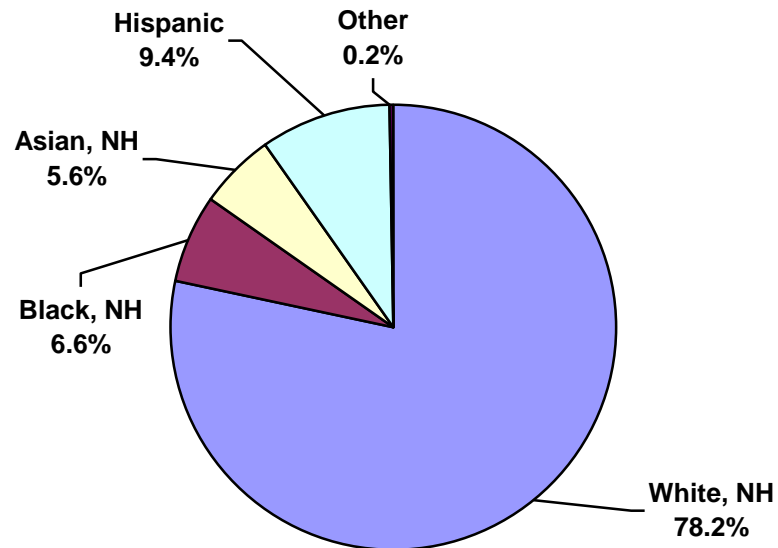
#### POPULATION ESTIMATES BY AGE, RACE/ETHNICITY, AND SEX Massachusetts, 2008-2012

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

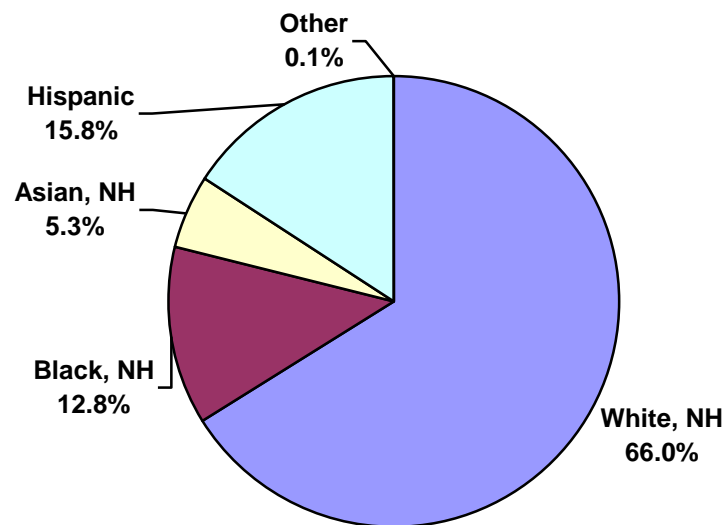
Population Data Source: United States Census Data (2008-2012)

**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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## **REFERENCES**

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## REFERENCES

1. Massachusetts Cancer Registry, Cancer Incidence and Mortality in Massachusetts, 2006-2010: Statewide Report, Available at: [www.mass.gov/dph/mcr](http://www.mass.gov/dph/mcr)
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3. National Center for Health Statistics, U.S. Department of Health and Human Services. Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Bridged-Race Population Estimates, United States July 1<sup>st</sup> resident population by state, county, age, sex, bridged-race, and Hispanic origin, compiled from 1990-19999 bridged-race intercensal population estimates and 2000-2009 (Vintage 2009) bridged-race postcensal population estimates. Available at: [http://www.cdc.gov/nchs/nvss/bridged\\_race.htm](http://www.cdc.gov/nchs/nvss/bridged_race.htm) Accessed August 28, 2012.