CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS 2009 – 2013:

STATEWIDE REPORT

The Office of Data Management and Outcomes Assessment

Massachusetts Department of Public Health

June 2016 (update: August 2017)

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STATEWIDE REPORT

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

Cancer Incidence and Mortality in Massachusetts, 2009-2013: Statewide Report presents cancer incidence and mortality data for the Commonwealth from 2009 through 2013. 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. A special section on obesity-related cancers is also included. 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 2009-2013 and are for Massachusetts residents, unless otherwise stated.

OVERALL:

- Total number of new cases – 183,009, an average of 36,602 annually
- Total number of cancer deaths – 64,543, an average of 12,909 annually
- Incidence rate (age-adjusted) for all cancers combined for total population – 480.4 per 100,000 persons
- Mortality rate (age-adjusted) for all cancer deaths combined for total population – 162.9 per 100,000 persons.

MOST COMMONLY DIAGNOSED CANCERS & CANCER DEATH CAUSES BY SEX:

Incidence (newly diagnosed cases)

- Males – *prostate cancer* accounted for 25.4% of all newly diagnosed cancers among males
- Females – *invasive breast cancer* accounted for 29.4% of all newly diagnosed cancers among females.

Mortality (causes of cancer death)

- Males – *cancer of the bronchus and lung* accounted for 27.0% of all cancer deaths among males
- Females – *cancer of the bronchus and lung* accounted for 26.5% of all cancer deaths among females.

TRENDS 2009-2013:

Statistically Significant Incidence Trends – Males

- All cancers combined decreased 4.0% per year.
- Bronchus and lung cancer decreased 3.9% per year.
- Colon and rectum cancer decreased 4.3% per year.
- Prostate cancer decreased by 10.3% per year.

Statistically Significant Mortality Trends – Males

- All cancers deaths combined decreased 2.6% per year.
- Bronchus and lung cancer decreased 1.9% per year.

- Colon and rectum cancer decreased 3.6% per year.
- Breast cancer increased 45.2% per year. (Note: While this is a statistically significant increase, there were 53 deaths from 2009-2013 and the mortality rate increased from 0.1 to 0.5/100,000. With such small numbers even an increase of a few cases can result in a significant trend. The rates were comparable to national rates as well.)
- Leukemia increased 4.7% per year.
- Liver cancer increased 4.0% per year.

Statistically Significant Incidence Trends – Females

- Bronchus and lung cancer decreased 1.5% per year.
- Cervical cancer decreased 3.4% per year.
- Colon and rectum cancer decreased 3.6% per year.

Statistically Significant Mortality Trends – Females

- All cancers deaths combined decreased 2.1% per year.
- Bronchus and lung cancer decreased 2.1% per year.
- Esophagus cancer decreased 10.0% 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.
- White, non-Hispanic males had significantly higher rates of leukemia and urinary bladder cancer when compared to all other race/ethnic groups.
- 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 white, non-Hispanic and black, non-Hispanic males.

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 and for multiple myeloma 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 white, non-Hispanics and Hispanics and non-significantly elevated compared to black, non-Hispanics.

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, black non-Hispanics, and Asian non-Hispanics and thyroid among Hispanics.
- Compared to all other racial/ethnic groups, white, non-Hispanic females had significantly higher rates of the following cancer types: invasive and *in situ* breast, bronchus and lung, uterus, ovary, and urinary bladder.
- Black, non-Hispanic females had significantly higher rates of multiple myeloma 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 and white, non-Hispanic females had the highest total cancer mortality rates, significantly higher than for Asian, non-Hispanic and 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 and uterine cancer mortality rates when compared to the other racial/ethnic groups. Their breast cancer mortality rate was over double 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 similar to national rates for males, and were significantly higher than national rates for females. Among the cancers significantly elevated for females were invasive and *in situ* breast, bronchus and lung, uterine, esophageal, melanoma of skin, oral cavity and pharynx, thyroid, and urinary bladder. Among those cancers significantly elevated for males were esophagus, liver and intrahepatic bile ducts, testicular, thyroid and urinary bladder. Incidence rates that were significantly lower compared to the U.S. among females were cervix uteri and colon and rectum, while among males the cancer types included bronchus and lung, colon and rectum, and prostate.

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 liver and intrahepatic bile duct and esophagus; and male and female urinary bladder. Those that were significantly lower compared to the U.S. included breast, cervix uteri, kidney and renal pelvis, colon/rectum and non-Hodgkin lymphoma among females, and bronchus and lung,

colon/rectum, kidney and renal pelvis, larynx, multiple myeloma, non-Hodgkin lymphoma and prostate among males.

Obesity-related Cancers

Overweight, obesity and physical inactivity together are associated with an approximately 20-30% increased risk of several cancers including breast, colon/rectum, endometrium, kidney, esophagus, pancreas, gallbladder and thyroid.

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, 2009-2013: 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 2009 through 2013;*
- Provides detailed information on the most commonly occurring types of cancer for 2009 through 2013;
- Examines cancer incidence patterns by age, sex, and race/ethnicity;
- Reviews Massachusetts cancer incidence and mortality trends for 2009 through 2013;
- Compares Massachusetts incidence and mortality data with respective national data; and
- Features a special section on the epidemiology of obesity-related cancers.

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 the epidemiology of obesity-related cancers.
- **FIGURES & TABLES** which present cancer incidence and mortality data for 24 types of cancer for 2009-2013. 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).

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SPECIAL OVERVIEW:

Obesity-related Cancers

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OBESITY-RELATED CANCERS

BACKGROUND

Obesity is a condition in which a person has an abnormally high and unhealthy proportion of body fat. A commonly used scale to measure obesity is known as the body mass index (BMI). BMI is calculated by dividing a person's weight (in kilograms) by their height (in meters) squared. BMI is classified into the following categories: below 18.5 – underweight, 18.5-24.9 - normal, 25.0-29.9 - overweight, and 30.0 and above – obese.[1]

In Massachusetts, nearly six in ten (60%) of adults,[2] 22% of middle and high school youth[3] and nearly a third of children ages two to five years participating in the Massachusetts Women Infants and Children (WIC) program are either overweight or obese.[4] In the United States, the proportion of overweight and obesity among both children and adults has increased in the last 20 years.[5] People who are overweight or obese are more likely to have type 2 diabetes, heart disease, stroke, high blood pressure, gallbladder disease, osteoarthritis, respiratory problems, musculoskeletal disorders, and certain types of cancer.[6] In addition to its association with cancer and other chronic diseases, obesity has high economic costs. In 2008, medical care costs associated with obesity in the United States were estimated to be $147 billion.[7]

Overweight, obesity, and physical inactivity together are associated with an approximately 20 to 30% increased risk of several cancers including, breast, colon/rectum, endometrium, kidney, esophagus,[8] pancreas, gallbladder and thyroid.[9] The proportion of cancer cases attributable to obesity varies by type of cancer.[10]

A number of mechanisms have been proposed to explain the association of obesity with increased risk of certain cancers. These include high levels of estrogen produced by fat tissue, increased levels of insulin and insulin-like growth factor-1, and adipokines (hormones produced by fat cells that may stimulate or inhibit cell growth). Fat cells may also have direct and indirect effects on other tumor growth regulators. Additionally, obese people often have chronic low-level or "subacute" inflammation, which has been associated with increased cancer risk. Other possible mechanisms include altered immune responses, effects on the nuclear factor kappa beta system (a protein that acts as a switch to turn inflammation on and off in the body) and oxidative stress.[11]

CURRENT EVIDENCE

In 2002, the International Agency for Research on Cancer (IARC)[12] concluded that there is adequate evidence of an association between obesity and several cancers including colorectal, post-menopausal breast, endometrial, kidney, and esophageal. The IARC also estimated that the percentages of cancer attributed to obesity were as follows: endometrial (39%), esophageal (37%), kidney (25%), colorectal (11%) and postmenopausal breast (9%).[13] Cancers of the pancreas, thyroid and gallbladder have also been associated with obesity.[14] More detailed information on the association of obesity with each of these types of cancer is provided below. A complete list of risk factors for these and other types of cancer can be found at www.cancer.org/cancer/index (American Cancer Society), and http://www.cancer.gov/types (National Cancer Institute).

COLORECTAL CANCER

According to the IARC report, overweight and obesity, and lack of physical activity are the most

important established diet-related risk factors for colorectal cancer.[15] Case control and prospective studies show that a higher body mass index (BMI) is associated with an increased risk of colon cancer. An approximately two-fold higher risk in colorectal cancer is observed in individuals who are overweight or obese. However, a stronger association between obesity and colorectal cancer is observed in colon cancer and not with rectal cancer. This association between BMI and colon cancer is stronger for men than for women.[16] The association between obesity and colon cancer varies with body fat distribution, with the strongest association observed among people with abdominal obesity.[17]

- ***Strongest association between obesity and colorectal cancer is among people with abdominal obesity (also called central obesity).***
- ***The association between a higher body mass index (BMI) and colon cancer is stronger for men than for women.***

BREAST CANCER

Studies have shown an increased association between obesity and post-menopausal breast cancer but these studies have also found an opposite effect of obesity among pre-menopausal women who have shown a consistent reduction in breast cancer.[18] The possible explanation of the increased risk of post-menopausal breast cancer among obese women is that there is an increased level of estrogen among this group even after menopause when the ovaries stop producing hormones; obese women continue to produce estrogen from their fat tissue.[19] Moreover, adult weight gain has been associated with an increased risk of post-menopausal breast cancer than just obesity or overweight. In addition, regardless of menopausal status, being overweight or obese has been shown to be strongly associated with poorer survival and increased likelihood of recurrence among women with breast cancer.[20] For example, the death rate among obese women with BMI greater than 40 is higher than that among women with BMI less than 20.[21] Similar results were found among taller women. Possible explanations for the increase in mortality among heavier women include the higher presence of estrogen receptor (ER) positive tumors. These tumors are exposed to more continuous stimulation in heavier women than in lean or normal weight women.[22] In addition, heavier women may be less likely to receive mammography screening.[23] An increased association between BMI and cancer was also observed among women who have never used hormone replacement therapy.[24]

- ***Increased risk of breast cancer among post-menopausal women may be due to continued production of estrogen from fat tissue.***
- ***Regardless of menopausal status, women who are overweight or obese have poorer survival and increased likelihood of recurrence.***

ENDOMETRIAL CANCER

Most previous studies have shown a linear increase in the risk of endometrial cancer with increasing BMI. The risk of endometrial cancer ranges from two to four-fold higher among overweight and/or obese women than among normal weight women.[25] Previous studies also have found that endometrial cancer increases with increasing weight among adults, especially those who have never used menopause hormone therapy (MHT).[26] As in breast cancer, this elevated endometrial cancer risk among overweight or obese women may be due to circulating estrogens.

Endometrial cancer rates are higher among post-menopausal women who take estrogens that are administered without a counter balance of progesterone. Women with higher circulating levels of total and bioavailable estrogens have elevated endometrial cancer risks.[27] Diabetes along with inadequate physical activity may also explain some of the increased endometrial cancer risk.[28]

- ***Elevated endometrial risk among overweight or obese women may be due to circulating estrogens.***
- ***Diabetes along with inadequate physical activity may also explain some of the increased endometrial cancer risk.***

KIDNEY CANCER

Overweight and obese people are 1.5 to 2.5 times more likely to have renal cancer than normal weight people[29] and obesity accounts for almost a third (30%) of kidney cancers in both men and women.[30] Previous studies have found a dose-response relationship between overweight/obesity and kidney cancer, particularly among women. However, it is not clear why overweight and obese women are more likely to have kidney cancer than overweight and obese men. Furthermore, the mechanism by which obesity is associated with kidney cancer is not clearly understood. Some studies have found that people with diabetes have an increased risk of kidney cancer, supporting the hypothesis that the association between BMI and kidney cancer may be through chronic hyperinsulinemia[31] (a higher than normal amount of insulin in the blood). While some previous studies have found that high blood pressure is a known risk factor for kidney cancer,[32] other studies have found that the association between obesity and cancer is independent of blood pressure, suggesting that both obesity and hypertension may be independently associated with kidney cancer.[33]

- ***Overweight and obese women are more likely to have kidney cancer than overweight and obese men.***
- ***The mechanism by which obesity is associated with kidney cancer is not clearly understood.***

ESOPHAGEAL CANCER

The two most common types of esophageal cancer are adenocarcinoma and squamous cell.[34] There has been a rapid increase in the incidence of adenocarcinoma of the esophagus, while the incidence of squamous cell carcinoma has been relatively stable or even declining. In epidemiologic studies of adenocarcinoma of the esophagus, elevated BMI has been consistently shown to be a risk factor.[35] Obesity is associated with a two to threefold increase in cancer of the esophagus. It is not well understood how obesity increases risk of esophageal cancer. However, there is increasing evidence that the mechanism through which obesity is related to cancer is through gastroesophageal reflux and its transition to Barrett esophagus.[36]

- ***Obesity is associated with a two to threefold increase in cancer of the esophagus.***
- ***Elevated BMI and frequent gastroesophageal reflux are associated with esophageal adenocarcinoma.***

OTHER CANCERS ASSOCIATED WITH OBESITY

Although there is strong evidence regarding the association between obesity and cancers of the breast, colon/rectum, kidney, esophagus and endometrium, recently obesity has also been associated with an increased risk of cancers of the pancreas, thyroid and gallbladder.

PANCREATIC CANCER

Many studies have reported a slight increase in risk of pancreatic cancer among overweight and obese individuals. Waist circumference may be an important factor in the association of overweight and obesity with pancreatic cancer.[37]

THYROID CANCER

Increasing weight has been found to be associated with an increase in the risk of thyroid cancer. It is unclear what the mechanism might be.[38]

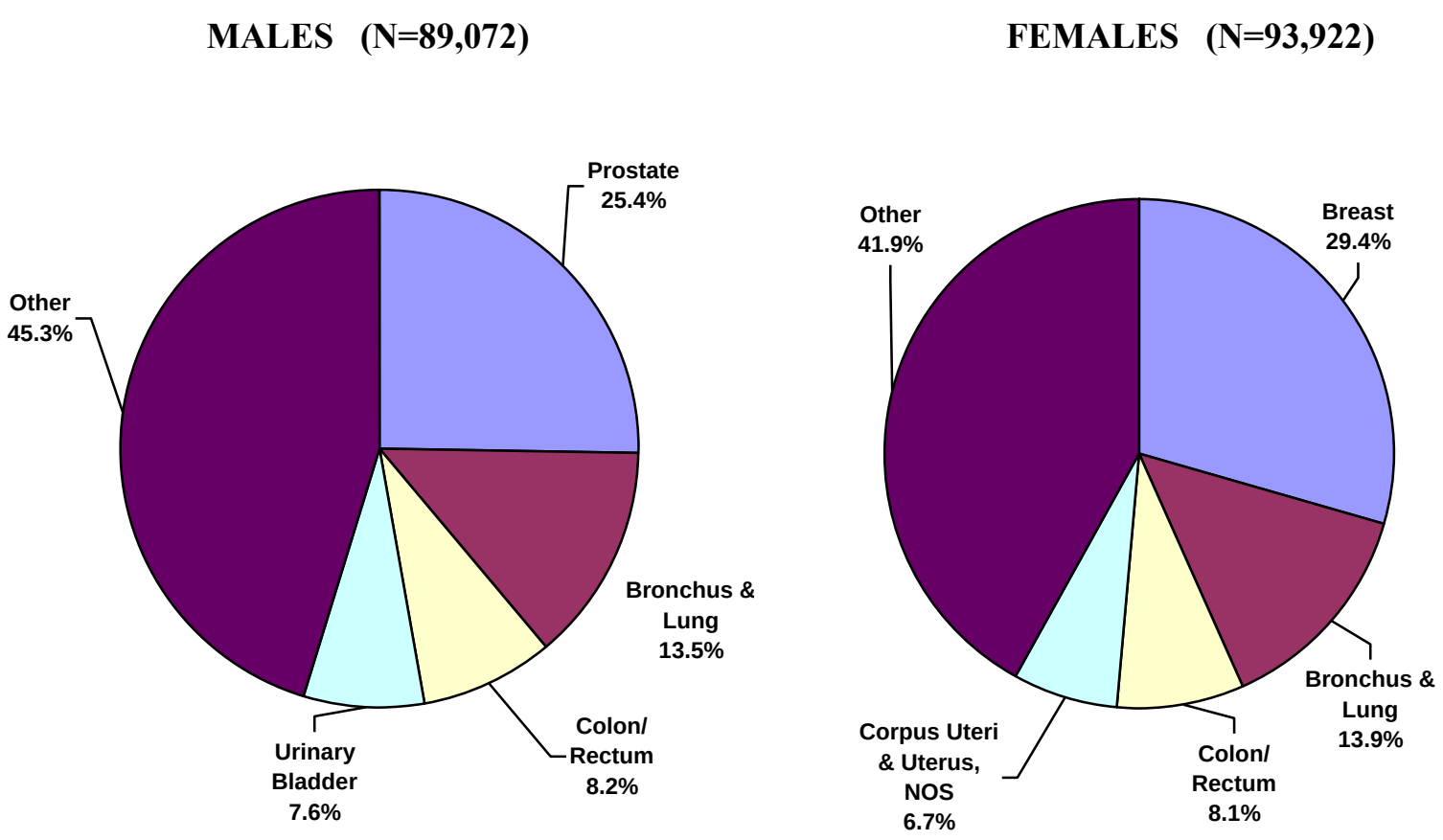
GALLBLADDER CANCER

The risk of gallbladder cancer increases with increasing BMI. The increase in risk may be due to the higher frequency of gallstones, a strong risk factor for gallbladder cancer in obese individuals.[39]

Note: References for the Special Overview: Obesity-related Cancers are on page 57.

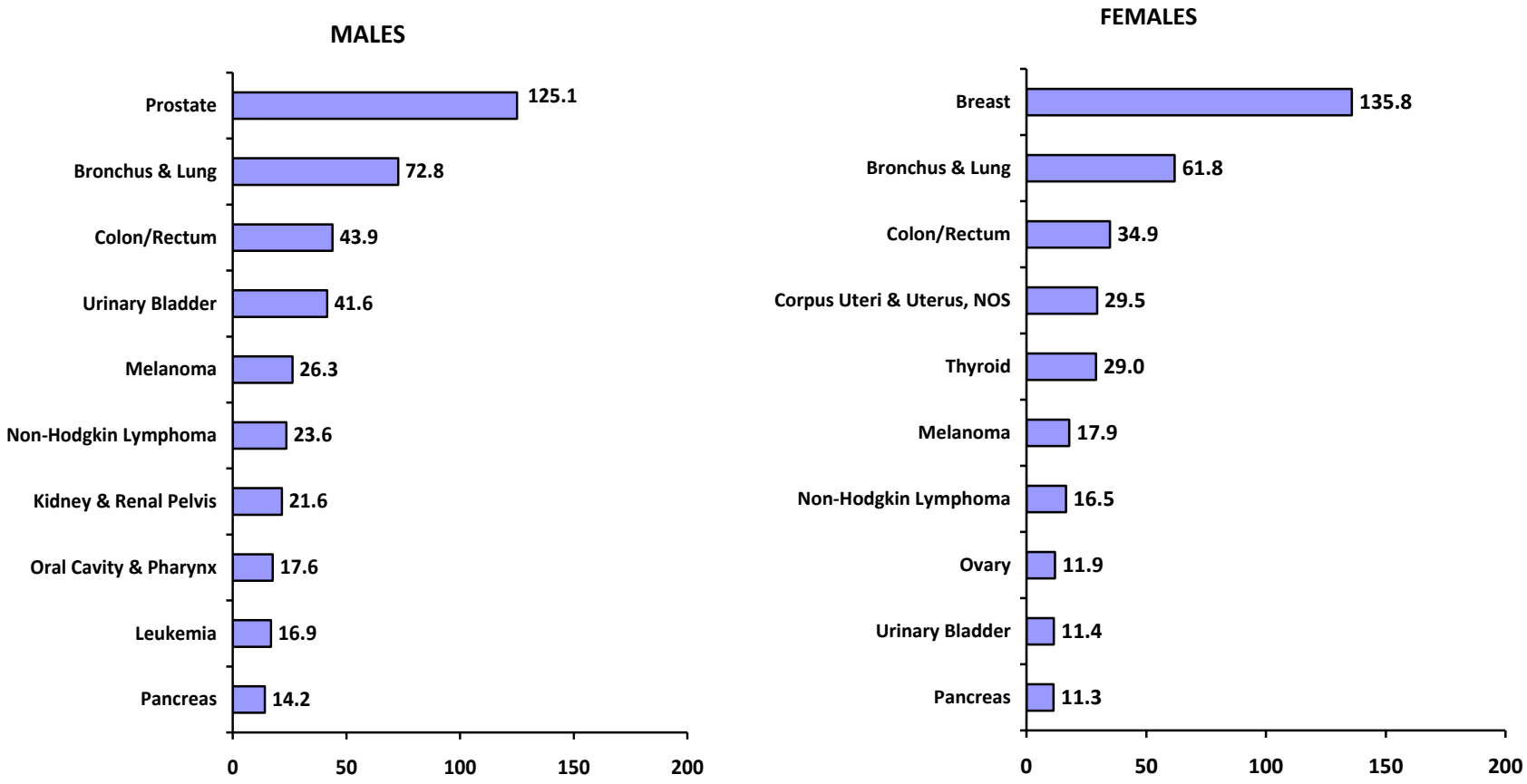
FIGURES & TABLES

Figure 1.
PERCENTAGE OF CANCER INCIDENT CASES BY CANCER TYPE AND SEX
Massachusetts, 2009-2013



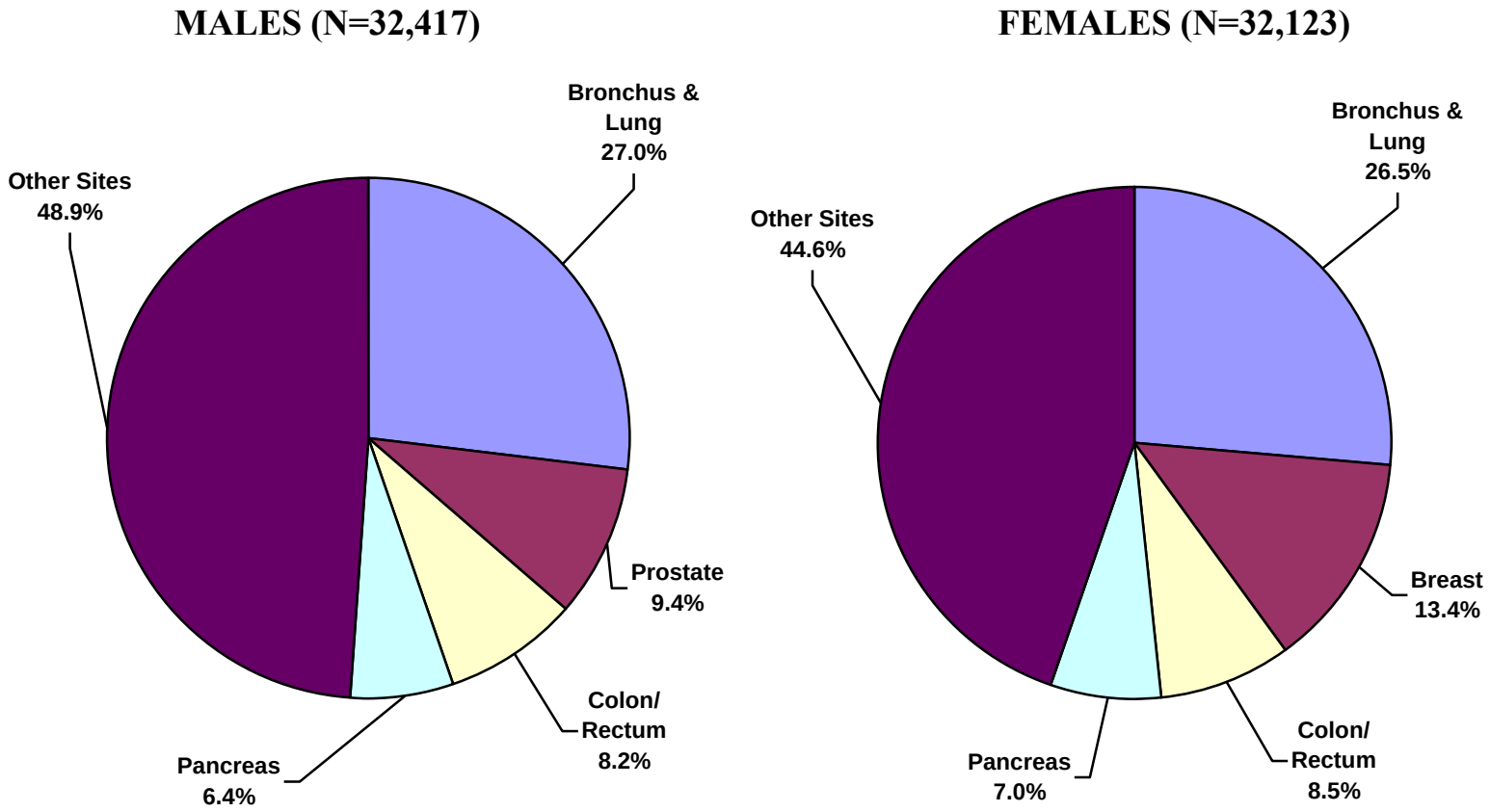
Source: Massachusetts Cancer Registry

Figure 2.
INCIDENCE RATES[1] FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2009-2013



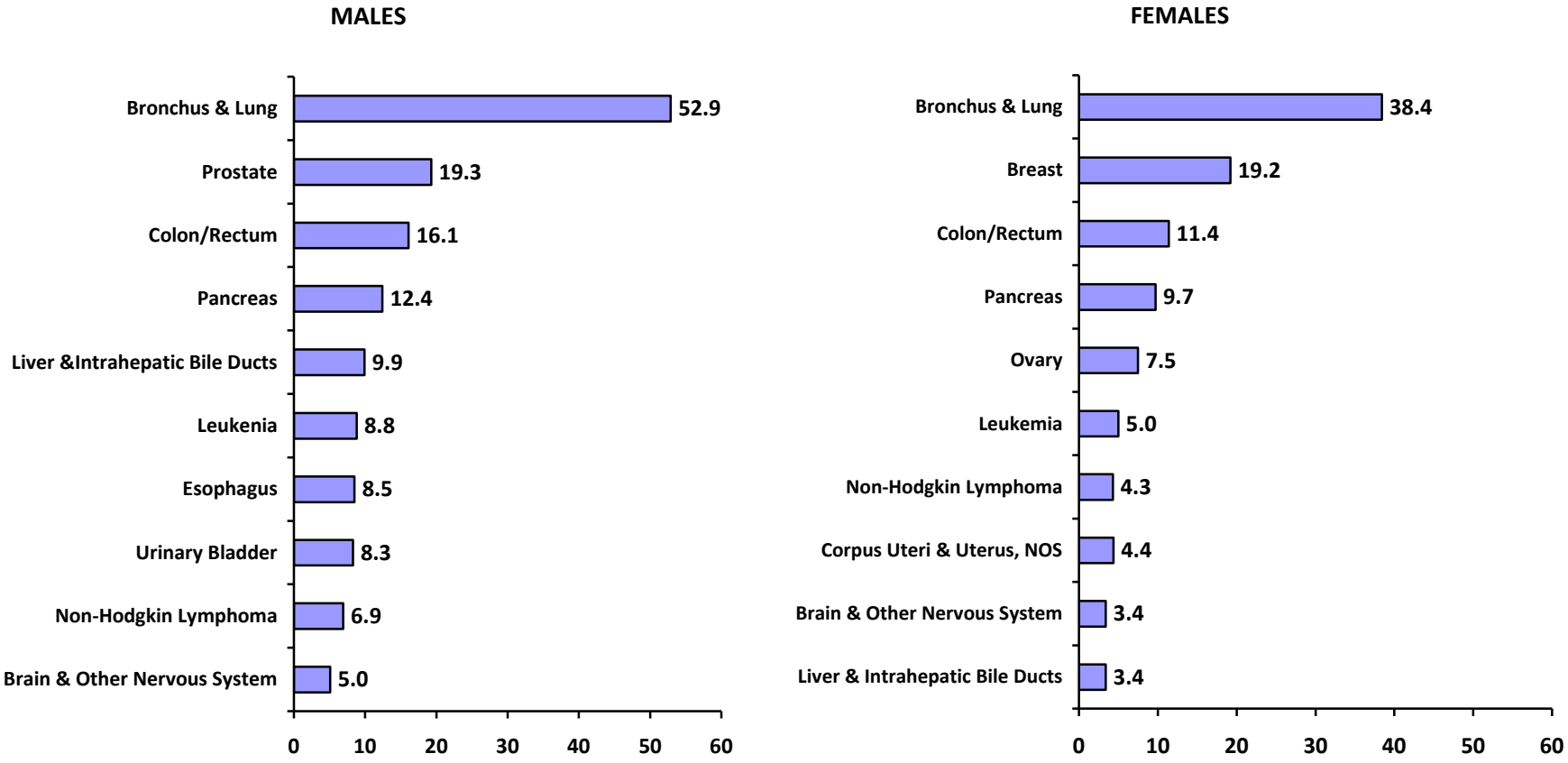
[1]Rates are age-adjusted to the 2000 U.S. Standard Population. NOS – Not Otherwise Specified.
Source: Massachusetts Cancer Registry

Figure 3.
PERCENTAGE OF CANCER DEATHS BY CANCER TYPE AND SEX
Massachusetts, 2009-2013



Source: Massachusetts Vital Statistics

Figure 4.
MORTALITY RATES[1] FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2009-2013



[1]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[1] AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
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	29.6	14.0	13.1	24.2	38.6	54.7	72.0	99.3	165.5	296.4	586.0	959.7	1438.3	2037.6	2555.6	2810.7	2880.2	2948.8	66
Brain & Other Nervous System	6.2	4.4	2.9	3.0	2.2	4.6	4.0	3.9	5.0	7.6	8.4	12.4	17.0	19.7	25.3	30.9	25.6	23.3	58
Breast	--	0.1	--	--	--	--	0.1	0.1	0.4	0.7	1.4	2.1	3.2	6.2	6.2	7.8	10.2	10.8	68
Breast *in situ*[2]	--	--	--	--	--	--	0.1		0.1	0.2	0.1	0.6	0.2	0.2	0.7	0.9	0.4	0.9	60.5
Bronchus & Lung	--	--	0.1	0.2	0.6	0.3	1.4	2.8	8.7	20.7	57.0	106.1	170.5	286.5	429.4	533.7	559.7	452.8	70
Colon / Rectum	--	--	0.1	0.2	0.8	1.9	5.2	10.0	20.2	30.1	67.4	67.2	91.5	134.9	187.1	236.7	278.7	368.6	67
Esophagus	--	--	--	--	0.1	0.2	0.1	0.5	1.9	6.3	10.5	20.5	34.2	41.9	56.6	56.6	59.1	57.4	67
Hodgkin Lymphoma	0.1	0.4	1.4	2.8	5.5	5.2	4.8	3.7	4.2	3.5	3.2	2.9	4.3	3.5	5.3	5.2	4.5	4.7	41
Kidney & Renal Pelvis	2.6	0.9	--	0.3	0.6	1.4	4.1	8.4	13.7	22.5	32.3	42.6	61.4	83.7	92.4	92.4	89.5	69.5	63
Larynx	--	--	--	--	--	0.2	0.2	0.4	0.9	3.5	7.6	13.9	18.6	27.5	30.2	32.0	35.4	18.1	66
Leukemia	9.3	3.5	2.9	3.6	3.5	3.0	4.0	4.6	6.9	11.1	12.2	20.1	33.3	47.8	68.3	93.8	100.1	122.6	67
Liver & Intrahepatic Bile Ducts	1.2	--	0.1	0.1	0.4	0.3	0.6	1.1	2.8	8.4	21.8	40.8	48.0	43.3	56.9	62.9	62.1	44.0	63
Melanoma of Skin	--	--	0.3	0.8	1.8	4.1	8.7	8.4	14.3	18.3	27.4	44.4	58.2	82.8	116.2	150.1	163.6	154.1	66
Multiple Myeloma	--	--	--	--	--	0.3	0.2	1.6	2.5	6.0	8.6	14.1	19.7	26.3	45.2	45.9	60.6	48.8	68
Non-Hodgkin Lymphoma	1.3	1.2	0.9	2.4	3.5	3.3	6.0	8.3	11.8	19.6	26.2	36.7	50.4	73.9	98.5	119.8	144.1	154.5	66
Oral Cavity & Pharynx	0.1	0.1	0.1	0.5	0.8	1.6	2.1	4.5	9.8	20.8	32.5	46.7	61.7	64.3	62.6	70.4	53.4	55.2	61
Pancreas	--	--	--	--	0.1	0.2	0.6	1.4	2.7	6.4	12.6	24.6	34.8	54.8	71.0	90.6	91.8	115.7	69
Prostate	0.1	--	--	--	--	--	0.1	0.5	10.8	45.7	163.6	317.6	521.9	720.4	728.7	570.9	354.0	349.2	65
Stomach	--	--	0.1	--	--	0.4	1.1	1.8	2.9	5.1	10.0	15.1	20.7	33.8	44.3	57.7	70.3	76.0	69
Testis	0.8	0.4	0.1	3.7	10.4	16.9	13.5	13.7	10.4	7.8	6.0	4.6	1.9	1.2	1.1	0.6	0.4	0.9	35
Thyroid	0.2	--	0.4	1.1	3.1	5.6	6.8	10.5	13.7	16.2	17.2	22.3	24.6	25.4	24.0	20.8	15.8	8.6	55
Urinary Bladder	0.1	--	--	0.1	0.7	0.8	1.5	2.8	6.5	11.9	27.3	48.2	82.2	144.9	227.7	286.9	355.1	403.6	72
Other Sites	7.5	3.0	3.7	5.5	4.6	4.6	6.8	10.5	15.3	24.3	32.8	56.8	80.3	114.7	178.5	245.1	346.4	410.5	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 RATES[1] AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
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	23.2	11.8	15.3	21.0	45.8	72.1	131.0	198.1	328.7	476.0	661.5	819.7	1119.1	1475.0	1801.9	2048.8	2139.7	1844.0	65
Brain & Other Nervous System	4.2	3.1	4.1	2.3	2.6	2.6	2.5	3.3	4.7	4.3	5.8	9.5	11.5	15.1	15.1	18.9	19.2	17.1	60
Breast	--	--	0.1	0.1	2.1	9.5	29.9	66.7	142.1	214.1	250.4	273.8	368.8	446.7	485.7	486.5	455.2	333.7	62
Breast *in situ*[2]	--	--	--	0.3	0.2	1.1	4.0	17.6	68.8	108.2	109.9	99.4	108.0	128.5	115.9	108.4	71.1	28.6	56
Bronchus & Lung	--	--	--	0.4	0.6	0.3	1.1	3.1	12.5	28.0	61.9	93.2	156.4	266.2	377.8	435.2	399.5	249.5	71
Cervix Uteri	--	--	--	0.1	0.4	2.9	7.3	9.2	9.6	8.5	8.1	8.4	10.0	10.1	7.7	7.7	7.4	6.2	51
Colon / Rectum	--	0.1	0.1	0.1	1.4	1.9	4.3	10.6	18.7	27.7	50.6	47.7	66.4	94.7	134.7	197.9	263.7	280.2	73
Corpus Uteri & Uterus, NOS	--	--	0.1	--	0.1	1.2	2.9	8.4	14.4	29.0	55.8	86.5	115.8	125.0	119.6	98.7	82.4	56.6	63
Esophagus	--	--	--	--	--	--	0.3	--	0.6	1.0	1.6	3.9	6.2	8.2	13.1	12.4	15.1	15.0	71
Hodgkin Lymphoma	--	0.2	1.2	3.2	6.5	3.5	3.9	3.1	2.4	1.2	2.0	2.6	2.5	2.9	3.6	4.3	5.8	1.6	38
Kidney & Renal Pelvis	1.8	1.1	0.1	0.1	0.5	1.1	2.5	3.7	7.0	10.4	16.5	17.9	28.6	36.1	45.8	54.9	46.8	35.4	66
Larynx	--	--	--	--	--	--	0.1	0.1	0.3	1.2	2.9	3.9	3.2	8.3	9.0	7.3	5.5	4.3	67
Leukemia	8.0	4.0	2.3	1.8	2.9	2.8	3.1	3.4	5.7	5.7	9.0	13.6	19.3	24.2	36.8	49.6	55.7	60.5	68
Liver & Intrahepatic Bile Ducts	0.7	--	0.1	0.2	0.2	0.1	0.5	0.5	0.9	1.8	3.7	8.7	11.3	13.9	17.1	19.7	23.1	16.9	69
Melanoma of Skin	--	--	0.2	1.6	5.8	10.8	13.7	13.5	16.9	21.2	28.3	32.3	39.0	43.7	54.4	57.5	63.9	59.7	61
Multiple Myeloma	--	--	--	--	--	0.3	0.4	0.8	1.2	2.5	6.1	9.1	14.4	19.7	23.9	31.3	33.9	32.5	70
Non-Hodgkin Lymphoma	--	0.7	0.9	1.3	1.4	2.7	4.4	6.7	7.9	11.7	19.1	28.8	41.0	56.5	69.2	81.8	101.8	88.1	68
Oral Cavity & Pharynx	0.1	0.1	0.2	0.6	0.4	0.3	1.6	3.0	4.0	5.3	10.4	15.7	17.8	25.9	27.3	30.5	35.3	31.5	66
Ovary	0.1	0.1	0.1	1.1	1.8	2.2	3.6	4.8	7.3	14.1	22.3	26.2	30.2	40.8	42.0	45.1	44.4	43.6	63
Pancreas	--	--	--	--	0.1	0.2	0.5	1.3	2.8	3.8	7.8	16.6	26.4	39.1	60.9	68.5	90.6	100.9	74
Stomach	--	--	--	0.4	0.3	0.4	0.5	0.9	2.8	3.9	4.4	6.0	7.9	12.0	18.1	25.1	34.3	40.8	74
Thyroid	0.1	0.1	1.6	4.6	15.9	24.5	39.8	43.8	48.7	52.0	52.8	45.7	46.4	47.4	38.3	36.3	24.3	12.6	49
Urinary Bladder	--	--	0.1	0.2	0.1	0.1	0.7	1.0	1.9	4.7	8.4	16.6	26.6	40.8	60.4	80.3	86.7	87.1	74
Other Sites	8.3	2.2	4.0	3.1	2.8	4.9	7.3	10.3	16.2	23.9	33.5	53.0	69.3	97.7	141.4	199.2	245.0	270.5	72

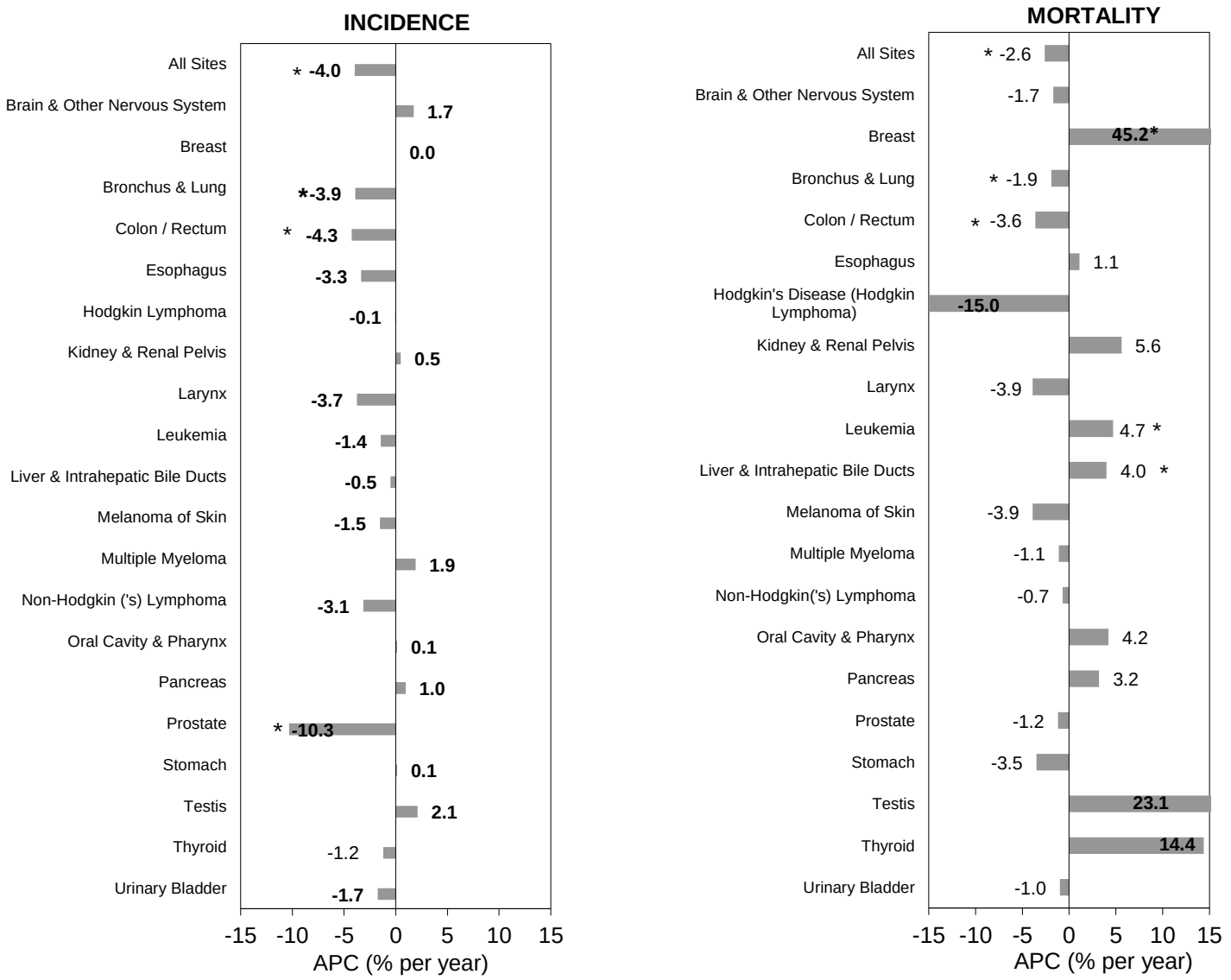
[1] per 100,000 [2] Breast *in situ* is excluded from 'All Sites'. [3] Dashes indicate age groups with no incident cases. Source: Massachusetts Cancer Registry

Table 3.
AGE-SPECIFIC INCIDENCE RATES[1] AND MEDIAN AGE AT DIAGNOSIS FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
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	26.5	12.9	14.2	22.6	42.2	63.5	101.9	149.7	249.0	388.2	624.8	887.3	1271.1	1737.5	2140.3	2373.7	2428.3	2187.3	66
Brain & Other Nervous System	5.2	3.7	3.5	2.6	2.4	3.6	3.2	3.6	4.9	6.0	7.1	10.9	14.1	17.2	19.7	24.0	21.7	19.0	59
Breast	--	0.1	0.0	0.0	1.1	4.8	15.2	34.1	72.8	109.7	129.1	142.8	194.8	241.2	270.4	282.4	281.7	233.4	62
Breast *in situ*[2]	--	--	--	0.1	0.1	0.5	2.1	9.0	35.2	55.4	56.4	51.7	56.7	68.6	64.1	62.5	43.5	20.0	57
Bronchus & Lung	--	--	0.0	0.3	0.6	0.3	1.3	3.0	10.7	24.4	59.5	99.4	163.2	275.7	400.9	477.2	461.9	312.6	71
Cervix Uteri	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Colon / Rectum	--	0.1	0.1	0.1	1.1	1.9	4.8	10.3	19.5	28.9	58.8	57.2	78.3	113.4	158.3	214.4	269.6	307.6	70
Corpus Uteri & Uterus, NOS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Esophagus	--	--	--	--	0.0	0.1	0.2	0.2	1.2	3.6	6.0	11.9	19.5	23.9	32.7	31.3	32.3	28.2	68
Hodgkin Lymphoma	0.1	0.3	1.3	3.0	6.0	4.4	4.3	3.4	3.3	2.3	2.6	2.7	3.4	3.2	4.4	4.7	5.3	2.5	40
Kidney & Renal Pelvis	2.2	1.0	0.0	0.2	0.5	1.3	3.3	6.0	10.3	16.4	24.2	29.8	44.2	58.3	66.7	70.9	63.5	46.0	64
Larynx	--	--	--	--	--	0.1	0.1	0.2	0.6	2.3	5.2	8.7	10.5	17.3	18.5	17.8	17.2	8.6	66
Leukemia	8.7	3.7	2.6	2.7	3.2	2.9	3.6	4.0	6.3	8.4	10.6	16.7	26.0	35.2	51.0	68.4	73.0	79.8	67
Liver & Intrahepatic Bile Ducts	0.9	--	0.1	0.1	0.3	0.2	0.5	0.8	1.9	5.0	12.5	24.2	28.8	27.6	34.9	38.2	38.3	25.3	64
Melanoma of Skin	--	--	0.2	1.2	3.8	7.5	11.2	11.0	15.6	19.8	27.9	38.1	48.1	61.9	82.1	97.0	102.8	89.0	64
Multiple Myeloma	--	--	--	--	--	0.3	0.3	1.2	1.8	4.2	7.3	11.5	16.9	22.8	33.5	37.5	44.3	37.5	69
Non-Hodgkin Lymphoma	0.6	1.0	0.9	1.9	2.5	3.0	5.2	7.5	9.8	15.6	22.6	32.6	45.5	64.6	82.3	98.0	118.3	108.7	67
Oral Cavity & Pharynx	0.1	0.1	0.1	0.6	0.6	0.9	1.9	3.7	6.8	12.9	21.2	30.7	38.7	43.9	43.2	47.5	42.4	38.9	62
Ovary	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pancreas	--	--	--	--	0.1	0.2	0.5	1.4	2.8	5.0	10.1	20.5	30.4	46.4	65.4	77.9	91.0	105.5	72
Prostate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Stomach	--	--	0.0	0.2	0.1	0.4	0.8	1.3	2.8	4.5	7.2	10.4	14.0	22.2	29.9	39.0	48.4	51.7	71
Testis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thyroid	0.2	0.1	1.0	2.8	9.5	15.1	23.6	27.5	31.6	34.5	35.5	34.4	36.0	37.1	31.9	29.7	21.0	11.4	50
Urinary Bladder	0.1	--	0.0	0.1	0.4	0.4	1.1	1.8	4.2	8.2	17.6	31.8	53.1	89.3	135.5	168.4	191.3	185.4	72
Other Sites	7.9	2.6	3.8	4.3	3.7	4.8	7.1	10.4	15.8	24.1	33.2	54.9	74.6	105.6	158.1	218.7	284.5	314.1	71

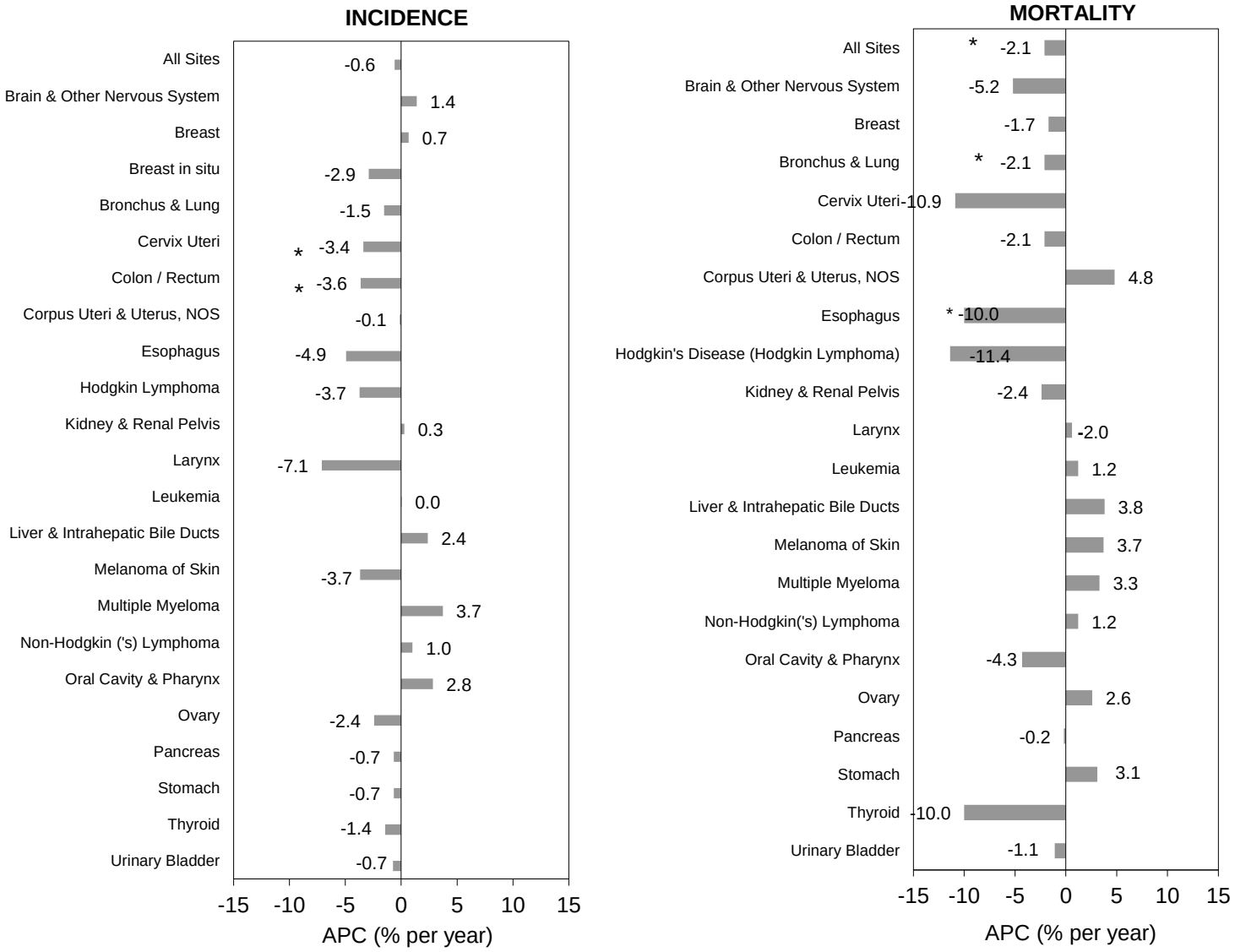
[1] per 100,000 [2] Breast *in situ* is excluded from 'All Sites'. [3] Dashes indicate age groups with no incident cases or cancers found in only one sex. Source: Massachusetts Cancer Registry

Figure 5.
ANNUAL PERCENT CHANGE (APC) IN AGE-ADJUSTED CANCER RATES AMONG MALES
Massachusetts, 2009-2013



*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, 2009-2013



*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[1] INCIDENCE RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
MALES

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	569.9	532.9	538.4	499.3	481.0
Brain & Other Nervous System	7.8	8.3	7.9	7.4	9.0
Breast	1.5	1.2	1.5	1.2	1.5
Breast *in situ*[3]	0.1	0.2	0.2	0.2	0.1
Bronchus & Lung	79.7	73.3	74.5	71.0	66.3
Colon / Rectum	49.0	44.8	43.4	42.2	40.6
Esophagus	11.5	9.9	11.0	9.7	9.8
Hodgkin Lymphoma	3.2	3.4	3.6	3.6	3.1
Kidney & Renal Pelvis	23.1	20.0	20.6	20.8	23.2
Larynx	7.1	6.0	5.3	5.2	6.3
Leukemia	18.0	15.8	17.3	17.5	15.9
Liver & Intrahepatic Bile Ducts	13.4	12.9	12.5	14.1	12.5
Melanoma of Skin	27.0	25.0	29.0	25.8	24.6
Multiple Myeloma	8.2	7.8	7.9	8.2	8.8
Non-Hodgkin Lymphoma	26.4	23.7	22.1	22.5	23.1
Oral Cavity & Pharynx	17.1	17.7	17.9	18.6	16.8
Pancreas	14.7	13.0	14.3	14.3	14.7
Prostate	146.4	140.7	138.2	106.8	97.5
Stomach	9.7	9.9	9.0	8.9	10.3
Testis	6.5	5.6	6.7	6.7	6.6
Thyroid	10.4	9.4	10.8	10.4	9.3
Urinary Bladder	44.3	40.3	41.6	42.3	39.6

[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-ADJUSTED[1] INCIDENCE RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
FEMALES

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	465.4	444.1	457.4	456.5	445.8
Brain & Other Nervous System	5.5	5.8	6.3	5.6	6.0
Breast	136.1	130.7	137.3	137.1	137.4
Breast *in situ*[3]	47.9	44.9	41.6	42.5	42.5
Bronchus & Lung	64.5	62.6	60.7	61.0	60.5
Cervix Uteri	5.5	5.6	5.1	5.0	4.9
Colon / Rectum	38.3	35.9	34.3	33.2	33.1
Corpus Uteri & Uterus, NOS	30.2	28.0	31.2	28.4	29.8
Esophagus	2.6	2.4	2.0	1.7	2.4
Hodgkin Lymphoma	2.9	2.6	2.7	2.6	2.4
Kidney & Renal Pelvis	10.8	10.4	10.6	10.9	10.7
Larynx	1.9	1.5	1.4	1.8	1.2
Leukemia	9.7	10.7	10.3	9.9	10.1
Liver & Intrahepatic Bile Ducts	3.8	3.5	3.3	3.8	4.1
Melanoma of Skin	18.8	18.4	18.6	17.7	15.9
Multiple Myeloma	4.8	4.4	6.0	5.2	5.3
Non-Hodgkin Lymphoma	16.3	16.6	15.5	17.7	16.6
Oral Cavity & Pharynx	7.0	6.5	6.2	7.9	7.3
Ovary	13.1	10.6	12.2	12.9	10.5
Pancreas	12.1	10.7	11.0	10.9	11.6
Stomach	4.4	4.6	4.5	4.3	4.4
Thyroid	30.1	27.4	30.7	29.7	26.9
Urinary Bladder	11.5	10.9	12.1	11.7	10.7

[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 6.
ANNUAL AGE-ADJUSTED[1] INCIDENCE RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
TOTAL

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	505.9	479.3	489.6	471.7	457.9
Brain & Other Nervous System	6.6	7.0	7.0	6.4	7.4
Breast	--	--	--	--	--
Breast *in situ*[3]	--	--	--	--	--
Bronchus & Lung	70.4	66.7	66.3	64.8	62.7
Cervix Uteri	--	--	--	--	--
Colon / Rectum	43.0	39.8	38.2	37.2	36.4
Corpus Uteri & Uterus, NOS	--	--	--	--	--
Esophagus	6.5	5.8	5.9	5.3	5.7
Hodgkin Lymphoma	3.0	3.0	3.1	3.1	2.7
Kidney & Renal Pelvis	16.4	14.7	15.3	15.5	16.4
Larynx	4.1	3.5	3.2	3.3	3.5
Leukemia	13.2	12.8	13.3	13.3	12.7
Liver & Intrahepatic Bile Ducts	8.1	7.8	7.5	8.5	8.0
Melanoma of Skin	22.0	21.1	22.9	20.9	19.4
Multiple Myeloma	6.3	5.9	6.9	6.5	6.9
Non-Hodgkin Lymphoma	20.7	19.8	18.3	19.7	19.6
Oral Cavity & Pharynx	11.6	11.7	11.6	12.9	11.7
Ovary	--	--	--	--	--
Pancreas	13.2	11.8	12.5	12.6	13.0
Prostate	--	--	--	--	--
Stomach	6.8	6.9	6.5	6.3	7.0
Testis	--	--	--	--	--
Thyroid	20.5	18.7	21.0	20.3	18.4
Urinary Bladder	25.1	23.2	24.6	24.8	23.0

[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-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
MALES

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	204.8	203.9	197.0	190.1	185.8
Brain & Other Nervous System	5.5	5.0	5.1	4.9	5.1
Breast	0.1	0.3	0.3	0.5	0.5
Bronchus & Lung	52.5	51.4	49.5	50.4	48.2
Colon / Rectum	16.7	16.0	15.1	15.1	14.3
Esophagus	7.8	7.8	8.7	8.7	7.8
Hodgkin Lymphoma	0.7	0.5	0.2	0.3	0.4
Kidney & Renal Pelvis	4.2	3.7	4.1	4.7	4.9
Larynx	1.6	1.7	1.7	1.3	1.5
Leukemia	7.4	8.4	8.7	8.4	9.3
Liver & Intrahepatic Bile Ducts	8.7	9.4	9.3	9.2	10.7
Melanoma of Skin	4.1	4.2	3.8	3.9	4.2
Multiple Myeloma	3.8	3.4	3.9	3.8	3.4
Non-Hodgkin Lymphoma	6.3	7.0	7.4	6.1	6.5
Oral Cavity & Pharynx	2.9	4.1	3.6	3.8	3.7
Pancreas	11.2	11.1	12.3	11.7	12.8
Prostate	18.7	19.1	18.0	18.0	18.1
Stomach	4.3	3.9	3.9	4.1	3.5
Testis	0.1	0.1	0.1	0.2	0.2
Thyroid	0.5	0.4	0.7	0.6	0.8
Urinary Bladder	7.7	8.8	7.7	7.4	8.0

[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-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
FEMALES

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	149.4	142.5	139.1	138.6	136.2
Brain & Other Nervous System	4.1	3.1	3.4	3.6	2.9
Breast	20.5	18.0	18.4	18.7	18.4
Bronchus & Lung	39.3	37.7	36.7	37.1	35.6
Cervix Uteri	1.6	1.2	1.5	1.2	0.9
Colon / Rectum	11.8	12.1	10.1	10.8	11.2
Corpus Uteri & Uterus, NOS	4.0	4.0	4.5	4.1	5.0
Esophagus	2.0	1.7	1.5	1.4	1.3
Hodgkin Lymphoma	0.3	0.3	0.3	0.2	0.2
Kidney & Renal Pelvis	2.5	1.8	2.3	2.0	2.1
Larynx	0.3	0.5	0.5	0.3	0.4
Leukemia	5.1	4.7	4.7	4.9	5.3
Liver & Intrahepatic Bile Ducts	3.1	3.4	3.0	3.3	3.8
Melanoma of Skin	1.8	1.7	1.8	1.8	2.1
Multiple Myeloma	2.3	2.6	2.8	2.6	2.7
Non-Hodgkin Lymphoma	4.0	4.4	4.1	4.1	4.4
Oral Cavity & Pharynx	1.2	1.7	1.1	1.1	1.2
Ovary	7.1	6.6	8.0	6.9	7.9
Pancreas	9.2	9.5	9.7	9.5	9.1
Stomach	2.1	2.4	2.1	2.3	2.5
Thyroid	0.6	0.6	0.5	0.3	0.5
Urinary Bladder	2.8	2.6	2.4	2.5	2.7

[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-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2009-2013
TOTAL[3]

Cancer Site / Type	2009	2010	2011	2012	2013
All Sites	170.2	166.8	162.3	159.6	156.3
Brain & Other Nervous System	4.6	3.8	4.3	4.1	4.1
Breast	-	-	-	-	-
Bronchus & Lung	44.7	43.4	42.0	42.6	40.8
Cervix Uteri	-	-	-	-	-
Colon / Rectum	13.9	13.8	12.3	12.6	12.5
Corpus Uteri & Uterus, NOS	-	-	-	-	-
Esophagus	4.5	4.4	4.6	4.7	4.1
Hodgkin Lymphoma	0.5	0.4	0.2	0.2	0.3
Kidney & Renal Pelvis	3.2	2.6	3.1	3.2	3.3
Larynx	0.8	1.0	1.1	0.7	0.8
Leukemia	6.0	6.3	6.4	6.4	6.9
Liver & Intrahepatic Bile Ducts	5.6	6.1	5.9	5.9	6.9
Melanoma of Skin	2.8	2.8	2.7	2.7	2.9
Multiple Myeloma	3.2	2.8	3.2	3.3	3.0
Non-Hodgkin Lymphoma	4.9	5.5	5.5	4.9	5.3
Oral Cavity & Pharynx	2.0	2.8	2.2	2.3	2.4
Ovary	-	-	-	-	-
Pancreas	10.1	10.3	10.8	10.6	10.8
Prostate	-	-	-	-	-
Stomach	3.1	3.1	2.8	3.1	2.9
Testis	-	-	-	-	-
Thyroid	0.5	0.5	0.6	0.4	0.6
Urinary Bladder	4.8	5.1	4.5	4.4	4.8

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000 total population
[3]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, 2009-2013

MALES

AGE-ADJUSTED[1] INCIDENCE RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Prostate 115.2	Prostate 215.5	Prostate 65.1	Prostate 138.9
2	Bronchus & Lung 74.3	Bronchus & Lung 74.3	Bronchus & Lung 60.0	Bronchus & Lung 43.8
3	Colon / Rectum 43.8	Colon / Rectum 51.8	Colon / Rectum 34.2	Colon / Rectum 36.0
4	Urinary Bladder 43.8	Liver & Intrahepatic Bile Ducts 22.4	Liver & Intrahepatic Bile Ducts 31.2	Liver & Intrahepatic Bile Ducts 23.8
5	Melanoma of Skin 28.2	Kidney & Renal Pelvis 20.8	Urinary Bladder 14.6	Non-Hodgkin Lymphoma 20.0

FEMALES

AGE-ADJUSTED[1] INCIDENCE RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Breast[3] 141.4	Breast 119.3	Breast 87.4	Breast 89.9
2	Bronchus & Lung 65.4	Bronchus & Lung 44.8	Bronchus & Lung 32.1	Thyroid 27.5
3	Colon / Rectum 34.9	Colon / Rectum 38.0	Colon / Rectum 29.3	Bronchus & Lung 26.9
4	Corpus Uteri & Uterus, NOS 30.6	Corpus Uteri & Uterus, NOS 25.0	Thyroid 28.0	Colon / Rectum 26.9
5	Thyroid 29.1	Thyroid 24.3	Corpus Uteri & Uterus, NOS 15.1	Corpus Uteri & Uterus, NOS 21.2

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000
[3] 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[1]
Massachusetts, 2009-2013
MALES

	All Races[2]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**
All Sites	89072	100.0	77100	100.0	4527	100.0	2058	100.0	3244	100.0
Brain & Other Nervous System	1341	1.5	1187	1.5	45	1.0	27	1.3	73	2.3
Breast[3]	233	0.3	210	0.3	10	0.2	8	0.4	4	0.1
Bronchus & Lung	12027	13.5	10874	14.1	515	11.4	327	15.9	268	8.3
Colon / Rectum	7327	8.2	6383	8.3	388	8.6	214	10.4	250	7.7
Esophagus	1789	2.0	1664	2.2	60	1.3	31	1.5	26	0.8
Hodgkin Lymphoma	551	0.6	437	0.6	42	0.9	17	0.8	48	1.5
Kidney & Renal Pelvis	3727	4.2	3278	4.3	172	3.8	74	3.6	164	5.1
Larynx	1040	1.2	917	1.2	44	1.0	12	0.6	52	1.6
Leukemia	2743	3.1	2415	3.1	90	2.0	59	2.9	105	3.2
Liver & Intrahepatic Bile Ducts	2345	2.6	1726	2.2	196	4.3	205	10.0	195	6.0
Melanoma of Skin	4372	4.9	4063	5.3	7	0.2	8	0.4	18	0.6
Multiple Myeloma	1371	1.5	1125	1.5	132	2.9	29	1.4	64	2.0
Non-Hodgkin Lymphoma	3927	4.4	3447	4.5	169	3.7	90	4.4	172	5.3
Oral Cavity & Pharynx	3157	3.5	2791	3.6	122	2.7	87	4.2	139	4.3
Pancreas	2378	2.7	2130	2.8	116	2.6	41	2.0	78	2.4
Prostate	22652	25.4	18315	23.8	1771	39.1	380	18.5	1003	30.9
Stomach	1591	1.8	1278	1.7	121	2.7	76	3.7	105	3.2
Testis	1022	1.1	906	1.2	16	0.4	22	1.1	62	1.9
Thyroid	1739	2.0	1476	1.9	60	1.3	93	4.5	70	2.2
Urinary Bladder	6747	7.6	6320	8.2	127	2.8	78	3.8	109	3.4
Other Sites	6993	7.9	6158	8.0	324	7.2	180	8.7	239	7.4

[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. [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/ETHNICITY[1]
Massachusetts, 2009-2013
FEMALES

	All Races[2]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**
All Sites	93922	100.0	82856	100.0	4165	100.0	2389	100.0	3423	100.0
Brain & Other Nervous System	1122	1.2	975	1.2	47	1.1	32	1.3	60	1.8
Breast[3]	27651	29.4	24522	29.6	1261	30.3	744	31.1	982	28.7
Bronchus & Lung	13100	13.9	12168	14.7	443	10.6	219	9.2	232	6.8
Cervix Uteri	956	1.0	691	0.8	93	2.2	61	2.6	99	2.9
Colon / Rectum	7574	8.1	6655	8.0	389	9.3	210	8.8	249	7.3
Corpus Uteri & Uterus, NOS	6263	6.7	5581	6.7	263	6.3	123	5.1	233	6.8
Esophagus	484	0.5	432	0.5	22	0.5	10	0.4	19	0.6
Hodgkin Lymphoma	461	0.5	387	0.5	21	0.5	12	0.5	38	1.1
Kidney & Renal Pelvis	2198	2.3	1920	2.3	126	3.0	40	1.7	93	2.7
Larynx	328	0.3	299	0.4	14	0.3	5	0.2	8	0.2
Leukemia	2058	2.2	1761	2.1	83	2.0	62	2.6	97	2.8
Liver & Intrahepatic Bile Ducts	793	0.8	619	0.7	52	1.2	63	2.6	54	1.6
Melanoma of Skin	3578	3.8	3256	3.9	11	0.3	10	0.4	29	0.8
Multiple Myeloma	1126	1.2	875	1.1	145	3.5	17	0.7	72	2.1
Non-Hodgkin Lymphoma	3500	3.7	3050	3.7	148	3.6	76	3.2	159	4.6
Oral Cavity & Pharynx	1476	1.6	1303	1.6	50	1.2	51	2.1	61	1.8
Ovary	2471	2.6	2209	2.7	92	2.2	66	2.8	81	2.4
Pancreas	2509	2.7	2237	2.7	135	3.2	54	2.3	71	2.1
Stomach	975	1.0	757	0.9	75	1.8	65	2.7	73	2.1
Thyroid	5251	5.6	4203	5.1	269	6.5	270	11.3	375	11.0
Urinary Bladder	2499	2.7	2310	2.8	65	1.6	18	0.8	51	1.5
Other Sites	7549	8.0	6646	8.0	361	8.7	181	7.6	287	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. [3]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[1]
Massachusetts, 2009-2013
TOTAL[2]

	All Races[3]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**	**Cases**	**% of Cases**
All Sites	183009	100.0	159966	100.0	8694	100.0	4448	100.0	6668	100.0
Brain & Other Nervous System	2464	1.3	2163	1.4	92	1.1	59	1.3	133	2.0
Breast[4]	27885	15.2	24733	15.5	1271	14.6	752	16.9	986	14.8
Bronchus & Lung	25128	13.7	23043	14.4	958	11.0	546	12.3	500	7.5
Cervix Uteri	956	0.5	691	0.4	93	1.1	61	1.4	99	1.5
Colon / Rectum	14903	8.1	13040	8.2	777	8.9	424	9.5	499	7.5
Corpus Uteri & Uterus, NOS	6263	3.4	5581	3.5	263	3.0	123	2.8	233	3.5
Esophagus	2273	1.2	2096	1.3	82	0.9	41	0.9	45	0.7
Hodgkin Lymphoma	1013	0.6	825	0.5	63	0.7	29	0.7	86	1.3
Kidney & Renal Pelvis	5925	3.2	5198	3.2	298	3.4	114	2.6	257	3.9
Larynx	1368	0.7	1216	0.8	58	0.7	17	0.4	60	0.9
Leukemia	4801	2.6	4176	2.6	173	2.0	121	2.7	202	3.0
Liver & Intrahepatic Bile Ducts	3140	1.7	2345	1.5	248	2.9	269	6.0	249	3.7
Melanoma of Skin	7950	4.3	7319	4.6	18	0.2	18	0.4	47	0.7
Multiple Myeloma	2497	1.4	2000	1.3	277	3.2	46	1.0	136	2.0
Non-Hodgkin Lymphoma	7429	4.1	6498	4.1	318	3.7	166	3.7	331	5.0
Oral Cavity & Pharynx	4633	2.5	4094	2.6	172	2.0	138	3.1	200	3.0
Ovary	2471	1.4	2209	1.4	92	1.1	66	1.5	81	1.2
Pancreas	4887	2.7	4367	2.7	251	2.9	95	2.1	149	2.2
Prostate	22652	12.4	18315	11.4	1771	20.4	380	8.5	1003	15.0
Stomach	2566	1.4	2035	1.3	196	2.3	141	3.2	178	2.7
Testis	1022	0.6	906	0.6	16	0.2	22	0.5	62	0.9
Thyroid	6991	3.8	5679	3.6	330	3.8	363	8.2	445	6.7
Urinary Bladder	9247	5.1	8631	5.4	192	2.2	96	2.2	160	2.4
Other Sites	14545	7.9	12806	8.0	685	7.9	361	8.1	527	7.9

[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-ADJUSTED[1] INCIDENCE RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
MALES

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	523.0	519.5-526.5	520.4	516.6-524.1	575.6	557.5-593.7	331.7	316.3-347.0	424.2	407.5-441.0
Brain & Other Nervous System	8.1	7.6-8.5	8.6	8.1-9.2	5.0	3.4-6.5	3.5	2.0-4.9	7.2	5.1-9.3
Breast	1.4	1.2-1.6	1.4	1.2-1.6	*	*	*	*	*	*
Breast *in situ*[4]	0.1	0.1-0.2	*	*	*	*	*	*	*	*
Bronchus & Lung	72.8	71.5-74.1	74.3	72.9-75.7	74.3	67.4-81.2	60.0	53.1-66.9	43.8	38.0-49.7
Colon / Rectum	43.9	42.9-44.9	43.8	42.7-44.9	51.8	46.2-57.4	34.2	29.3-39.0	36.0	30.8-41.1
Esophagus	10.4	9.9-10.9	10.9	10.4-11.5	8.4	6.1-10.7	5.4	3.4-7.5	4.5	2.6-6.4
Hodgkin Lymphoma	3.4	3.1-3.6	3.4	3.1-3.7	3.7	2.6-4.9	1.6	0.8-2.3	4.2	2.7-5.7
Kidney & Renal Pelvis	21.6	20.9-22.3	22.0	21.3-22.8	20.8	17.4-24.1	10.7	8.1-13.4	18.5	15.2-21.7
Larynx	5.9	5.6-6.3	6.0	5.6-6.4	5.9	4.0-7.7	*	*	7.2	5.0-9.4
Leukemia	16.9	16.2-17.5	17.3	16.6-18.0	10.0	7.7-12.2	9.0	6.5-11.5	10.6	8.1-13.1
Liver & Intrahepatic Bile Ducts	13.1	12.5-13.6	11.0	10.5-11.6	22.4	19.0-25.7	31.2	26.7-35.8	23.8	20.0-27.5
Melanoma of Skin	26.3	25.5-27.1	28.2	27.3-29.1	*	*	*	*	*	*
Multiple Myeloma	8.2	7.7-8.6	7.7	7.2-8.1	18.7	15.3-22.2	4.7	2.9-6.6	9.0	6.5-11.5
Non-Hodgkin Lymphoma	23.6	22.8-24.3	23.9	23.1-24.7	19.9	16.6-23.1	13.1	10.2-16.0	20.0	16.5-23.5
Oral Cavity & Pharynx	17.6	17.0-18.3	18.0	17.3-18.7	14.4	11.7-17.2	12.1	9.4-14.9	17.9	14.5-21.2
Pancreas	14.2	13.6-14.8	14.4	13.8-15.0	16.9	13.6-20.2	7.4	5.0-9.9	11.4	8.5-14.3
Prostate	125.1	123.4-126.8	115.2	113.5-116.9	215.5	204.8-226.1	65.1	58.2-71.9	138.9	129.4-148.4
Stomach	9.6	9.1-10.1	8.8	8.3-9.2	16.8	13.6-20.1	12.8	9.7-15.9	14.8	11.6-18.1
Testis	6.4	6.0-6.8	7.6	7.1-8.1	*	*	1.9	1.1-2.7	3.6	2.6-4.5
Thyroid	10.0	9.6-10.5	10.4	9.8-10.9	6.5	4.8-8.2	11.3	8.9-13.7	6.2	4.6-7.8
Urinary Bladder	41.6	40.6-42.6	43.8	42.7-44.9	19.2	15.6-22.7	14.6	11.1-18.0	17.4	13.7-21.1

[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-ADJUSTED[1] INCIDENCE RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
FEMALES

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	453.8	450.9-456.8	466.3	463.0-469.6	401.8	389.3-414.2	300.9	288.3-313.5	325.6	313.8-337.4
Brain & Other Nervous System	5.9	5.5-6.2	6.2	5.7-6.6	4.2	3.0-5.5	3.6	2.3-4.9	4.7	3.4-6.1
Breast	135.8	134.2-137.4	141.4	139.6-143.2	119.3	112.6-126.0	87.4	80.9-93.8	89.9	83.9-95.8
Breast *in situ*[4]	43.9	42.9-44.8	45.6	44.6-46.7	40.0	36.2-43.9	31.1	27.4-34.9	32.4	28.9-35.9
Bronchus & Lung	61.8	60.7-62.9	65.4	64.2-66.6	44.8	40.5-49.0	32.1	27.7-36.5	26.9	23.2-30.6
Cervix Uteri	5.2	4.9-5.5	4.7	4.4-5.1	8.7	6.9-10.5	6.8	5.1-8.6	8.5	6.7-10.4
Colon / Rectum	34.9	34.1-35.7	34.9	34.1-35.8	38.0	34.2-41.9	29.3	25.2-33.5	26.9	23.3-30.6
Corpus Uteri & Uterus, NOS	29.5	28.8-30.3	30.6	29.7-31.4	25.0	21.9-28.1	15.1	12.4-17.9	21.2	18.4-24.1
Esophagus	2.2	2.0-2.4	2.2	2.0-2.4	2.1	1.2-3.0	*	*	*	*
Hodgkin Lymphoma	2.6	2.4-2.9	2.9	2.6-3.2	1.7	1.0-2.5	*	*	2.7	1.8-3.7
Kidney & Renal Pelvis	10.7	10.2-11.2	10.9	10.3-11.4	12.2	10.0-14.4	5.5	3.8-7.3	8.6	6.7-10.4
Larynx	1.6	1.4-1.7	1.6	1.4-1.8	*	*	*	*	*	*
Leukemia	10.1	9.7-10.6	10.1	9.6-10.6	7.8	6.1-9.6	7.3	5.4-9.1	8.6	6.7-10.5
Liver & Intrahepatic Bile Ducts	3.7	3.4-3.9	3.3	3.0-3.5	4.8	3.5-6.1	9.1	6.8-11.4	6.4	4.6-8.3
Melanoma of Skin	17.9	17.3-18.5	19.7	19.0-20.4	*	*	*	*	2.4	1.4-3.4
Multiple Myeloma	5.2	4.8-5.5	4.5	4.2-4.8	14.7	12.3-17.1	*	*	7.7	5.8-9.6
Non-Hodgkin Lymphoma	16.5	16.0-17.1	16.7	16.1-17.3	14.2	11.9-16.5	10.2	7.8-12.6	16.3	13.6-19.1
Oral Cavity & Pharynx	7.0	6.6-7.3	7.1	6.7-7.5	4.7	3.4-6.0	7.0	5.0-9.0	6.6	4.8-8.4
Ovary	11.9	11.4-12.3	12.4	11.9-12.9	8.6	6.8-10.4	7.7	5.8-9.7	7.2	5.6-8.9
Pancreas	11.3	10.8-11.7	11.4	10.9-11.9	13.7	11.4-16.1	8.2	5.9-10.5	8.0	6.0-10.0
Stomach	4.5	4.2-4.7	3.9	3.6-4.2	7.8	6.0-9.6	9.2	6.9-11.6	7.7	5.8-9.6
Thyroid	29.0	28.2-29.8	29.1	28.2-30.1	24.3	21.3-27.2	28.0	24.5-31.4	27.5	24.6-30.5
Urinary Bladder	11.4	10.9-11.9	11.9	11.4-12.4	6.9	5.2-8.6	*	*	5.8	4.1-7.4

[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-ADJUSTED[1] INCIDENCE RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
TOTAL

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	480.4	478.2-482.6	485.9	483.5-488.3	471.7	461.5-482.0	313.4	303.7-323.1	364.7	355.0-374.4
Brain & Other Nervous System	6.9	6.6-7.2	7.3	7.0-7.6	4.5	3.5-5.4	3.5	2.6-4.5	5.8	4.6-6.9
Breast	--[5]	--	--	--	--	--	--	--	--	--
Breast *in situ*[4]	--	--	--	--	--	--	--	--	--	--
Bronchus & Lung	66.1	65.3-66.9	68.7	67.8-69.6	56.2	52.5-59.9	44.6	40.7-48.5	33.8	30.6-37.0
Cervix Uteri	--	--	--	--	--	--	--	--	--	--
Colon / Rectum	38.8	38.2-39.5	38.8	38.1-39.5	43.4	40.3-46.6	31.6	28.5-34.8	30.6	27.6-33.6
Corpus Uteri & Uterus, NOS	--	--	--	--	--	--	--	--	--	--
Esophagus	5.8	5.6-6.1	6.1	5.9-6.4	4.6	3.6-5.6	*	*	3.2	2.2-4.1
Hodgkin Lymphoma	3.0	2.8-3.2	3.1	2.9-3.3	2.7	2.0-3.4	1.3	0.8-1.9	3.3	2.5-4.2
Kidney & Renal Pelvis	15.7	15.3-16.1	16.0	15.5-16.4	15.9	14.0-17.7	8.0	6.4-9.5	12.9	11.1-14.6
Larynx	3.5	3.3-3.7	3.6	3.4-3.8	3.3	2.4-4.2	1.4	0.7-2.1	3.5	2.5-4.4
Leukemia	13.0	12.7-13.4	13.3	12.8-13.7	8.7	7.4-10.1	7.9	6.4-9.4	9.5	7.9-11.0
Liver & Intrahepatic Bile Ducts	8.0	7.7-8.2	6.8	6.5-7.1	12.5	10.9-14.1	19.5	17.0-21.9	14.1	12.2-16.0
Melanoma of Skin	21.3	20.8-21.7	23.1	22.5-23.6	*	*	*	*	2.2	1.5-2.9
Multiple Myeloma	6.5	6.2-6.7	5.9	5.6-6.2	16.3	14.3-18.2	3.4	2.4-4.5	8.3	6.7-9.8
Non-Hodgkin Lymphoma	19.6	19.2-20.1	19.8	19.3-20.3	16.7	14.8-18.6	11.6	9.7-13.5	18.0	15.8-20.2
Oral Cavity & Pharynx	11.9	11.6-12.3	12.2	11.8-12.6	8.8	7.5-10.2	9.4	7.8-11.1	11.5	9.7-13.3
Ovary	--	--	--	--	--	--	--	--	--	--
Pancreas	12.6	12.2-13.0	12.7	12.3-13.1	15.2	13.3-17.1	7.8	6.2-9.5	9.4	7.8-11.1
Prostate	--	--	--	--	--	--	--	--	--	--
Stomach	6.7	6.4-6.9	6.0	5.7-6.3	11.5	9.8-13.2	10.8	8.9-12.7	10.7	9.0-12.4
Testis	--	--	--	--	--	--	--	--	--	--
Thyroid	19.8	19.3-20.3	20.0	19.4-20.5	16.0	14.3-17.8	20.1	17.9-22.2	17.5	15.8-19.3
Urinary Bladder	24.1	23.6-24.6	25.5	24.9-26.0	11.9	10.1-13.6	8.0	6.3-9.6	10.5	8.7-12.3

[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, 2009-2013

MALES

AGE-ADJUSTED[1] MORTALITY RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Bronchus & Lung 54.4	Bronchus & Lung 51.6	Bronchus & Lung 37.6	Bronchus & Lung 26.6
2	Prostate 19.0	Prostate 40.3	Liver & Intrahepatic Bile Duct 21.6	Prostate 14.7
3	Colon/Rectum 16.4	Colon/Rectum 19.0	Colon/Rectum 9.1	Liver & Intrahepatic Bile Duct 12.4
4	Pancreas 12.7	Liver & Intrahepatic Bile Duct 15.5	Prostate 7.5	Colon/Rectum 12.1
5	Leukemia 9.2	Pancreas 14.6	Leukemia 5.4	Pancreas 8.9

FEMALES

AGE-ADJUSTED[1] MORTALITY RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Bronchus & Lung 41.0	Bronchus & Lung 27.7	Bronchus & Lung 15.7	Bronchus & Lung 12.6
2	Breast 19.7	Breast 23.5	Colon/Rectum 9.8	Breast 10.8
3	Colon/Rectum 11.3	Colon/Rectum 14.2	Breast 8.4	Colon/Rectum 9.9
4	Pancreas 9.8	Pancreas 11.2	Pancreas 6.3	Pancreas 6.5
5	Ovary 8.0	Corpus Uteri & Uterus, NOS 7.6	Liver & Intrahepatic Bile Duct 6.2	Leukemia 4.8

[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/ETHNICITY[1]
Massachusetts, 2009-2013
MALES

	All Races[2]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**
All Sites	32417	100.0	29354	100.0	1457	100.0	672	100.0	847	100.0
Brain & Other Nervous System	880	2.7	821	2.8	19	1.3	9	1.3	27	3.2
Breast	53	0.2	51	0.2	2	0.1	0	0.0	0	0.0
Bronchus & Lung	8760	27.0	8029	27.3	345	23.7	196	29.2	168	19.8
Colon / Rectum	2663	8.2	2400	8.2	134	9.2	54	8.0	69	8.1
Esophagus	1472	4.5	1380	4.7	44	3.0	23	3.4	21	2.5
Hodgkin Lymphoma	72	0.2	60	0.2	4	0.3	2	0.3	6	0.7
Kidney & Renal Pelvis	772	2.4	712	2.4	27	1.8	10	1.5	21	2.5
Larynx	278	0.9	247	0.8	12	0.8	4	0.6	13	1.5
Leukemia	1412	4.4	1306	4.5	38	2.6	29	4.3	36	4.3
Liver & Intrahepatic Bile Ducts	1741	5.4	1372	4.7	123	8.4	137	20.4	102	12.0
Melanoma of Skin	696	2.2	680	2.3	6	0.4	2	0.3	4	0.5
Multiple Myeloma	634	2.0	549	1.9	52	3.6	8	1.2	23	2.7
Non-Hodgkin Lymphoma	1124	3.5	1028	3.5	44	3.0	15	2.2	31	3.7
Oral Cavity & Pharynx	662	2.0	582	2.0	36	2.5	19	2.8	24	2.8
Pancreas	2086	6.4	1901	6.5	95	6.5	27	4.0	59	7.0
Prostate	3034	9.4	2705	9.2	214	14.7	30	4.5	75	8.9
Stomach	677	2.1	546	1.9	50	3.4	29	4.3	51	6.0
Testis	24	0.1	23	0.1	0	0.0	0	0.0	1	0.1
Thyroid	105	0.3	99	0.3	4	0.3	1	0.1	1	0.1
Urinary Bladder	1327	4.1	1268	4.3	32	2.2	10	1.5	16	1.9
Other Sites	3945	12.2	3595	12.2	176	12.1	67	10.0	99	11.7

[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/ETHNICITY[1]
Massachusetts, 2009-2013
FEMALES

	All Races[2]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**
All Sites	32123	100.0	29299	100.0	1452	100.0	540	100.0	766	100.0
Brain & Other Nervous System	723	2.3	655	2.3	18	1.2	15	2.8	24	3.1
Breast	4307	13.4	3879	13.2	239	16.5	66	12.2	115	15.0
Bronchus & Lung	8529	27.0	8038	27.4	275	18.9	101	18.7	100	13.0
Cervix Uteri	274	0.9	227	0.8	25	1.7	8	1.5	14	1.8
Colon / Rectum	2734	8.5	2437	8.3	143	9.8	64	11.8	82	10.7
Corpus Uteri & Uterus, NOS	1007	3.1	880	3.0	75	5.2	17	3.1	30	3.9
Esophagus	372	1.2	336	1.1	14	1.0	7	1.3	13	1.7
Hodgkin Lymphoma	54	0.2	51	0.2	0	0.0	0	0.0	2	0.3
Kidney & Renal Pelvis	515	1.6	485	1.7	16	1.1	5	0.9	7	1.7
Larynx	92	0.3	87	0.3	2	0.1	1	0.2	2	0.3
Leukemia	1144	4.4	1036	3.5	52	3.6	12	2.2	42	5.5
Liver & Intrahepatic Bile Ducts	771	2.4	649	2.2	43	3.0	43	8.0	35	4.6
Melanoma of Skin	422	1.3	412	1.4	5	0.3	2	0.4	3	0.4
Multiple Myeloma	638	2.0	542	1.9	68	4.7	5	0.9	21	2.7
Non-Hodgkin Lymphoma	1027	3.2	943	3.2	38	2.6	16	3.0	29	3.8
Oral Cavity & Pharynx	303	0.9	272	0.9	10	0.7	11	2.0	10	1.3
Ovary	1690	5.3	1572	5.4	67	4.6	25	4.6	24	3.1
Pancreas	2260	7.0	2048	7.0	111	7.6	40	7.4	55	7.2
Stomach	550	1.7	443	1.5	43	3.0	25	4.6	36	4.7
Thyroid	114	0.4	97	0.3	6	0.4	4	0.7	6	0.8
Urinary Bladder	654	2.0	624	2.1	19	1.3	3	0.6	8	1.0
Other Sites	3943	12.3	3576	12.2	183	12.6	70	13.0	108	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 20.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY[1]
Massachusetts, 2009-2013
TOTAL

	All Races[2]		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**
All Sites	64543	100.0	58656	100.0	2909	100.0	1212	100.0	1613	100.0
Brain & Other Nervous System	1603	2.4	1486	2.5	37	1.3	24	2.0	51	3.2
Breast	4360	6.8	3930	6.7	241	8.3	66	5.4	115	7.1
Bronchus & Lung	17290	26.8	16068	27.4	620	21.3	297	24.5	268	16.6
Cervix Uteri	274	0.4	227	0.4	25	0.9	8	0.7	14	0.9
Colon / Rectum	5398	8.4	4838	8.2	277	9.5	118	9.7	151	9.4
Corpus Uteri & Uterus, NOS	1007	1.6	880	1.5	75	2.6	17	1.4	30	1.9
Esophagus	1844	2.9	1718	2.9	58	2.0	30	2.5	34	2.1
Hodgkin Lymphoma	126	0.2	111	0.2	4	0.1	2	0.2	8	0.5
Kidney & Renal Pelvis	1287	2.0	1197	2.0	43	1.5	15	1.2	28	1.7
Larynx	370	0.6	334	0.6	14	0.5	5	0.4	15	0.9
Leukemia	2556	4.0	2342	4.0	90	3.1	41	3.4	78	4.8
Liver & Intrahepatic Bile Ducts	2512	3.9	2021	3.4	166	5.7	180	14.8	137	8.5
Melanoma of Skin	1118	1.7	1092	1.9	11	0.4	4	0.3	7	0.4
Multiple Myeloma	1272	2.0	1091	1.9	120	4.1	13	1.1	44	2.7
Non-Hodgkin Lymphoma	2151	3.3	1971	3.4	82	2.8	31	2.6	60	3.7
Oral Cavity & Pharynx	965	1.5	854	1.5	46	1.6	30	2.5	34	2.1
Ovary	1690	2.6	1572	2.7	67	2.3	25	2.1	24	1.5
Pancreas	4346	6.7	3949	6.7	206	7.1	67	5.5	114	7.1
Prostate	3035	4.7	2706	4.6	214	7.4	30	2.5	75	4.6
Stomach	1227	1.9	989	1.7	93	3.2	54	4.5	87	5.4
Testis	24	0.04	23	0.04	0	0.0	0	0.0	1	0.1
Thyroid	219	0.3	196	0.3	10	0.3	5	0.4	7	0.4
Urinary Bladder	1981	3.1	1892	3.2	51	1.7	13	1.1	24	1.5
Other Sites	7888	12.2	7171	12.2	359	12.3	137	11.3	207	12.8

[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-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
MALES

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	195.9	193.8-198.1	199.4	197.2-201.7	220.6	209.3-232.0	120.4	111.3-129.5	128.7	120.0-137.4
Brain & Other Nervous System	5.1	4.8-5.5	5.5	5.2-6.0	*	*	*	*	3.2	2.0-4.4
Breast	0.3	0.2-0.4	0.3	0.3-0.4	*	*	*	*	*	*
Bronchus & Lung	52.9	51.8-54.0	54.4	53.2-55.6	51.6	46.2-57.1	37.6	32.3-42.9	26.6	22.6-30.6
Colon / Rectum	16.1	15.5-16.8	16.4	15.7-17.0	19.0	15.8-22.2	9.1	6.7-11.5	12.1	9.3-15.0
Esophagus	8.6	8.1-9.0	9.1	8.6-9.5	6.1	4.3-7.9	4.7	2.8-6.0	3.4	1.9-4.9
Hodgkin Lymphoma	0.4	0.3-0.5	0.4	0.3-0.5	*	*	*	*	*	*
Kidney & Renal Pelvis	4.5	4.2-4.9	4.7	4.3-5.0	4.4	2.7-6.0	*	*	2.5	1.4-3.6
Larynx	1.6	1.4-1.8	1.6	1.4-1.9	*	*	*	*	*	*
Leukemia	8.8	8.4-9.3	9.2	8.7-9.7	5.8	3.9-7.6	5.4	3.5-7.4	4.9	3.3-6.5
Liver & Intrahepatic Bile Ducts	9.9	9.4-10.3	8.8	8.4-9.3	15.5	12.7-18.2	21.6	18.0-25.2	12.4	10.0-14.9
Melanoma of Skin	4.2	3.9-4.5	4.6	4.3-5.0	*	*	*	*	*	*
Multiple Myeloma	3.8	3.5-4.1	3.7	3.4-4.0	7.8	5.7-9.9	*	*	3.9	2.3-5.5
Non-Hodgkin Lymphoma	6.9	6.5-7.3	7.1	6.7-7.5	6.2	4.4-8.0	*	*	4.3	2.8-5.8
Oral Cavity & Pharynx	3.8	3.5-4.1	3.8	3.5-4.1	4.8	3.2-6.4	*	*	3.5	2.1-4.9
Pancreas	12.4	11.9-12.9	12.7	12.1-13.3	14.6	11.6-17.5	5.1	3.2-7.1	8.9	6.6-11.2
Prostate	19.3	18.6-20.0	19.0	18.3-19.7	40.3	34.9-45.7	7.5	4.8-10.2	14.7	11.4-18.0
Stomach	4.1	3.8-4.4	3.7	3.4-4.0	7.6	5.5-9.7	5.0	3.2-6.8	7.2	5.3-9.2
Testis	0.1	0.08-0.2	0.2	0.1-0.2	*	*	*	*	*	*
Thyroid	0.6	0.5-0.7	0.7	0.5-0.8	*	*	*	*	*	*
Urinary Bladder	8.3	7.8-8.8	8.8	8.3-9.3	5.8	3.8-7.8	*	*	*	*

[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 22.
AGE-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
FEMALES

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	141.1	139.6-142.7	145.3	143.6-146.9	145.8	138.3-153.3	78.7	72.1-85.3	88.5	82.2-94.7
Brain & Other Nervous System	3.4	3.2-3.7	3.6	3.4-3.9	*	*	*	*	2.3	1.4-3.2
Breast	19.2	18.6-19.8	19.7	19.1-20.3	23.5	20.5-26.4	8.4	6.4-10.5	10.8	8.9-12.8
Bronchus & Lung	38.4	37.6-39.2	41.0	40.1-41.9	27.7	24.5-31.0	15.7	12.7-18.8	12.6	10.1-15.1
Cervix Uteri	1.3	1.2-1.5	1.3	1.1-1.5	2.2	1.4-3.1	*	*	*	*
Colon / Rectum	11.4	11.0-11.9	11.3	10.9-11.8	14.2	11.9-16.5	9.8	7.4-12.2	9.9	7.8-12.1
Corpus Uteri & Uterus, NOS	4.4	4.2-4.7	4.4	4.1-4.7	7.6	5.9-9.4	*	*	3.6	2.3-4.9
Esophagus	1.6	1.4-1.8	1.6	1.5-1.8	*	*	*	*	*	*
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	5.0	4.7-5.3	5.1	4.8-5.4	5.5	4.0-6.9	*	*	4.8	3.3-6.2
Liver & Intrahepatic Bile Ducts	3.4	3.2-3.7	3.2	3.0-3.5	4.2	3.0-5.5	6.2	4.3-8.0	4.3	2.9-5.8
Melanoma of Skin	1.9	1.7-2.1	2.2	1.9-2.4	*	*	*	*	*	*
Multiple Myeloma	2.7	2.5-2.9	2.5	2.3-2.7	6.9	5.3-8.6	*	*	2.7	1.6-3.9
Non-Hodgkin Lymphoma	4.3	4.0-4.5	4.3	4.1-4.6	4.0	2.7-5.2	*	*	3.9	2.5-5.3
Oral Cavity & Pharynx	1.3	1.1-1.4	1.3	1.2-1.5	*	*	*	*	*	*
Ovary	7.5	7.2-7.9	8.0	7.6-8.4	6.6	5.0-8.1	3.2	2.0-4.5	2.8	1.7-3.9
Pancreas	9.7	9.3-10.1	9.8	9.4-10.3	11.2	9.1-13.2	6.3	4.4-8.3	6.5	4.8-8.3
Stomach	2.3	2.1-2.5	2.0	1.9-2.2	4.5	3.1-5.8	3.5	2.1-4.9	3.6	2.4-4.8
Thyroid	0.5	0.4-0.6	0.5	0.4-0.6	*	*	*	*	*	*
Urinary Bladder	2.6	2.4-2.8	2.8	2.6-3.0	*	*	*	*	*	*

[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-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2009-2013
TOTAL

	All Races		White, non-Hispanics		Black, non-Hispanics		Asian, non-Hispanics		Hispanics	
Cancer Site / Type	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**	**Rates**	**95% CL**
All Sites	162.9	161.7-164.2	166.7	165.4-168.1	173.4	167.1-179.7	97.3	91.9-102.8	105.1	100.0-110.3
Brain & Other Nervous System	4.2	4.0-4.4	4.5	4.3-4.8	2.0	1.3-2.6	1.6	1.0-2.3	2.6	1.9-3.4
Breast	-	-	-	-	-	-	-	-	-	-
Bronchus & Lung	44.3	43.6-45.0	46.4	45.7-47.1	37.1	34.1-40.0	25.5	22.6-28.4	18.5	16.3-20.7
Cervix Uteri	-	-	-	-	-	-	-	-	-	-
Colon / Rectum	13.4	13.1-13.8	13.5	13.1-13.8	16.2	14.3-18.1	9.6	7.8-11.3	10.7	9.0-12.5
Corpus Uteri & Uterus, NOS	-	-	-	-	-	-	-	-	-	-
Esophagus	4.6	4.4-4.8	4.9	4.7-5.1	3.2	2.4-4.1	2.6	1.7-3.5	2.4	1.6-3.3
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	3.2-3.5	2.6	1.8-3.4	*	*	1.5	0.9-2.0
Larynx	0.9	0.8-1.0	1.0	0.8-1.1	*	*	*	*	*	*
Leukemia	6.6	6.3-6.8	6.8	6.5-7.0	5.4	4.3-6.5	3.2	2.2-4.2	4.9	3.8-6.0
Liver & Intrahepatic Bile Ducts	6.3	6.1-6.6	5.7	5.5-6.0	9.0	7.6-10.4	13.3	11.4-15.2	8.0	6.6-9.3
Melanoma of Skin	2.9	2.7-3.0	3.2	3.0-3.4	*	*	*	*	*	*
Multiple Myeloma	3.2	3.0-3.3	3.0	2.8-3.2	7.2	5.9-8.5	*	*	3.2	2.3-4.1
Non-Hodgkin Lymphoma	5.4	5.1-5.6	5.5	5.2-5.7	4.9	3.8-6.0	2.4	1.6-3.3	4.1	3.1-5.1
Oral Cavity & Pharynx	2.4	2.3-2.6	2.4	2.3-2.6	2.6	1.8-3.3	2.0	1.3-2.8	2.3	1.5-3.0
Ovary	-	-	-	-	-	-	-	-	-	-
Pancreas	10.9	10.6-11.2	11.1	10.8-11.5	12.7	10.9-14.4	5.8	4.4-7.2	7.6	6.2-9.0
Prostate	-	-	-	-	-	-	-	-	-	-
Stomach	3.1	2.9-3.3	2.8	2.6-2.9	5.8	4.6-6.9	4.2	3.1-5.3	5.1	4.0-6.2
Testis	-	-	-	-	-	-	-	-	-	-
Thyroid	0.6	0.5-0.6	0.6	0.5-0.6	*	*	*	*	*	*
Urinary Bladder	4.9	4.7-5.1	5.2	4.9-5.4	3.4	2.5-4.3	*	*	2.0	1.2-2.8

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

Table 24.
INCIDENCE RATES[1] FOR SELECTED CANCER SITES BY SEX
Massachusetts and U.S. (2009-2013)

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	523.0	519.5-526.5	522.6	522.0-523.1	453.8*	450.9-456.8	419.0	418.6-419.5
Brain & Other Nervous System	8.1	7.6-8.5	7.8	7.8-7.9	5.9	5.5-6.2	5.6	5.6-5.7
Breast	1.4	1.2-1.6	1.4	1.3-1.4	135.8*	134.2-137.4	123.1	122.9-123.4
Breast *in situ*[2]	0.1	0.1-0.2	N/A	N/A	43.9*	42.9-44.8	31.1	31.0-31.2
Bronchus & Lung	72.8*	71.5-74.1	76.7	76.4-76.9	61.8*	60.7-62.9	54.1	53.9-54.2
Cervix Uteri	--	--			5.2*	4.9-5.5	7.7	7.7-7.8
Colon / Rectum	43.9*	42.9-44.9	48.4	48.2-48.5	34.9*	34.1-35.7	36.6	36.5-36.8
Corpus Uteri & Uterus, NOS	--	--			29.5*	28.8-30.3	25.3	25.2-25.4
Esophagus	10.4*	9.9-10.9	8.3	8.2-8.4	2.2*	2.0-2.4	1.8	1.8-1.8
Hodgkin Lymphoma	3.4	3.1-3.6	3.1	3.1-3.2	2.6	2.4-2.9	2.4	2.4-2.5
Kidney & Renal Pelvis	21.6	20.9-22.3	21.5	21.4-21.6	10.7	10.2-11.2	11.3	11.2-11.4
Larynx	5.9	5.6-6.3	6.3	6.2-6.4	1.6	1.4-1.7	1.4	1.4-1.4
Leukemia	16.9	16.2-17.5	16.9	16.8-17.0	10.1	9.7-10.6	10.4	10.3-10.4
Liver & Intrahepatic Bile Ducts	13.1*	12.5-13.6	11.5	11.4-11.6	3.7	3.4-3.9	3.9	3.9-3.9
Melanoma of Skin	26.3	25.5-27.1	25.4	25.3-25.6	17.9*	17.3-18.5	15.8	15.8-15.9
Multiple Myeloma	8.2	7.7-8.6	7.7	7.7-7.8	5.2	4.8-5.5	5.1	5.0-5.1
Non-Hodgkin Lymphoma	23.6	22.8-24.3	23.1	23.0-23.2	16.5	16.0-17.1	16.0	15.9-16.1
Oral Cavity & Pharynx	17.6	17.0-18.3	16.9	16.8-17.0	7.0*	6.6-7.3	6.3	6.2-6.4
Ovary	--	--			11.9	11.4-12.3	11.9	11.8-12.0
Pancreas	14.2	13.6-14.8	14.0	13.9-14.1	11.3	10.8-11.7	10.9	10.8-11.0
Prostate	125.1*	123.4-126.8	131.6	131.3-131.8	--	--		
Stomach	9.6	9.1-10.1	9.2	9.2-9.3	4.5	4.2-4.7	4.6	4.6-4.7
Testis	6.4*	6.0-6.8	5.5	5.4-5.5	--			
Thyroid	10.0*	9.6-10.5	6.8	6.8-6.9	29.0*	28.2-29.8	20.3	20.2-20.4
Urinary Bladder	41.6*	40.6-42.6	36.4	36.3-36.6	11.4*	10.9-11.9	9.0	9.0-9.1

[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 available
* indicates that the Massachusetts incidence rate differed significantly from the national rate ($p < 0.05$).
Data Sources: Massachusetts: Massachusetts Cancer Registry and United States: NAACCR Fast Stats: An interactive tool for quick access to key NAACCR cancer statistics. North American Association of Central Cancer Registries. http://www.naaccr.org/. (Accessed on 1-28-2016)

Table 25.
MORTALITY RATES[1] FOR SELECTED CANCER SITES BY SEX
Massachusetts and U.S. (2009-2013)

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	195.9*	193.8-198.1	204.0	203.6-204.3	141.1*	139.6-142.7	143.9	143.6-144.1
Brain & Other Nervous System	5.1	4.8-5.5	5.3	5.2-5.3	3.4	3.2-3.7	3.5	3.5-3.6
Breast	0.3	0.2-0.4	0.3	0.3-0.3	19.2*	18.6-19.8	21.6	21.5-21.7
Bronchus & Lung	52.9*	51.8-54.0	57.8	57.6-57.9	38.4*	37.6-39.2	37.1	37.0-37.2
Cervix Uteri	-	-	-	-	1.3*	1.2-1.5	2.3	2.3-2.4
Colon / Rectum	16.1*	15.5-16.8	18.2	18.1-18.3	11.4*	11.0-11.9	13.0	12.9-13.0
Corpus Uteri & Uterus, NOS	-	-	-	-	4.4	4.2-4.7	4.5	4.4-4.5
Esophagus	8.6*	8.1-9.0	7.4	7.3-7.4	1.6	1.4-1.8	1.5	1.5-1.6
Hodgkin Lymphoma	0.4	0.3-0.5	0.4	0.4-0.5	0.3	0.2-0.3	0.3	0.3-0.3
Kidney & Renal Pelvis	4.5*	4.2-4.9	5.7	5.6-5.7	2.2*	2.0-2.4	2.5	2.5-2.5
Larynx	1.6*	1.4-1.8	1.9	1.9-1.9	0.4	0.3-0.5	0.4	0.4-0.4
Leukemia	8.8	8.4-9.3	9.2	9.1-9.3	5.0	4.7-5.3	5.1	5.1-5.2
Liver & Intrahepatic Bile Ducts	9.9*	9.4-10.3	9.1	9.0-9.2	3.4	3.2-3.7	3.7	3.6-3.7
Melanoma of Skin	4.2	3.9-4.5	4.1	4.0-4.1	1.9	1.7-2.1	1.7	1.7-1.7
Multiple Myeloma	3.8*	3.5-4.1	4.4	4.3-4.4	2.7	2.5-2.9	2.8	2.7-2.8
Non-Hodgkin Lymphoma	6.9*	6.5-7.3	7.7	7.7-7.8	4.3*	4.0-4.5	4.7	4.7-4.8
Oral Cavity & Pharynx	3.8	3.5-4.1	3.8	3.7-3.8	1.3	1.1-1.4	1.3	1.3-1.4
Ovary	-	-	-	-	7.5	7.2-7.9	7.6	7.5-7.6
Pancreas	12.4	11.9-12.9	12.6	12.5-12.6	9.7	9.3-10.1	9.6	9.5-9.6
Prostate	19.3*	18.6-20.0	20.6	20.5-20.8	-	-	-	-
Stomach	4.1	3.8-4.4	4.5	4.4-4.5	2.3	2.1-2.5	2.4	2.4-2.4
Testis	0.1	0.08-0.2	0.3	0.2-0.3	-	-	-	-
Thyroid	0.6	0.5-0.7	0.4	0.5-0.5	0.5	0.4-0.6	0.6	0.5-0.5
Urinary Bladder	8.3*	7.8-8.8	7.7	7.6-7.7	2.6*	2.4-2.8	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: National Center for Health Statistics.

APPENDICES

APPENDIX I

ICD CODES USED FOR THIS REPORT

Cancer Site/Type	……..*C o d e s*……..	
	ICD-O-3*	**ICD-10****
Brain & Other Nervous System	C70.0-C72.9 except 9590-9989	C70-C72
Breast (includes *in situ*)	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 *in situ*)	C67.0 – C67.9 except 9590 – 9989	C67

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

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

APPENDIX II:

Population and Rate Changes

The population estimates for 2009-2013 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. (3) 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.

Appendix III

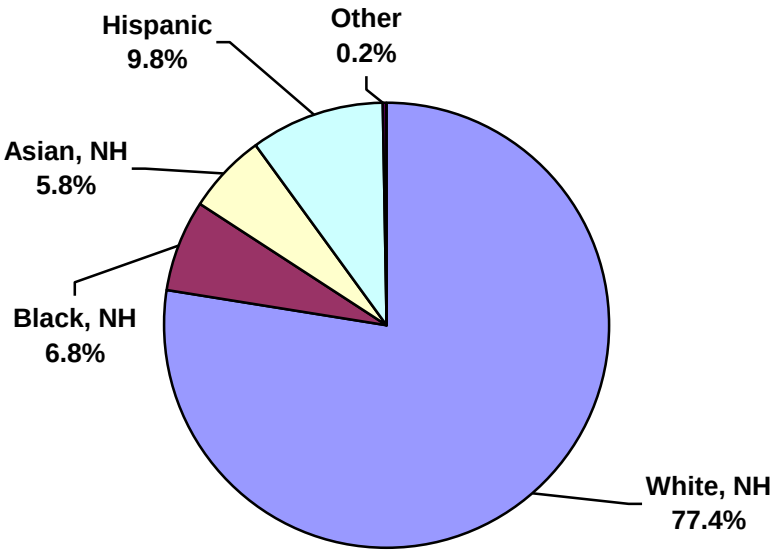
POPULATION ESTIMATES BY AGE, RACE/ETHNICTIY, AND SEX
Massachusetts, 2009-2013

Age Group	White, non-Hispanic			Black, non-Hispanic			Asian, non-Hispanic			Hispanic		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
00-04	623630	594870	1218500	87396	83438	170834	68061	66517	134578	163964	157042	321006
05-09	677387	647736	1325123	85892	81700	167592	64988	65735	130723	149706	144070	293776
10-14	737012	701325	1438337	85336	82083	167419	56721	58400	115121	142152	136498	278650
15-19	840650	818023	1658673	100394	97427	197821	64892	70894	135786	157448	149897	307345
20-24	839434	843045	1682479	101862	100449	202311	81160	89193	170353	159642	150951	310593
25-29	805696	810487	1616183	86524	87478	174002	89862	100417	190279	147978	139564	287542
30-34	730408	742274	1472682	78422	83096	161518	86775	97178	183953	139650	137052	276702
35-39	730733	753803	1484536	73102	80015	153117	84998	89932	174930	117826	123175	241001
40-44	877947	911466	1789413	75348	82105	157453	73161	78504	151665	106309	113270	219579
45-49	1005262	1040594	2045856	78048	81657	159705	62315	66318	128633	93060	102565	195625
50-54	1027343	1073423	2100766	70718	75807	146525	51090	55151	106241	73208	82185	155393
55-59	924800	982585	1907385	55144	61621	116765	41519	46634	88153	53306	62945	116251
60-64	794710	865270	1659980	40974	49304	90278	31904	36318	68222	37982	47040	85022
65-69	585861	661774	1247635	27050	35833	62883	21736	24334	46070	24703	32171	56874
70-74	402201	488137	890338	18287	26317	44604	16640	18894	35534	15669	22438	38107
75-79	311691	416006	727697	12584	20328	32912	11562	13496	25058	9970	15410	25380
80-84	244935	382049	626984	7788	14791	22579	6760	9060	15820	5981	9909	15890
85+	215613	482348	697961	5983	14286	20269	4869	7822	12691	4904	9268	14172

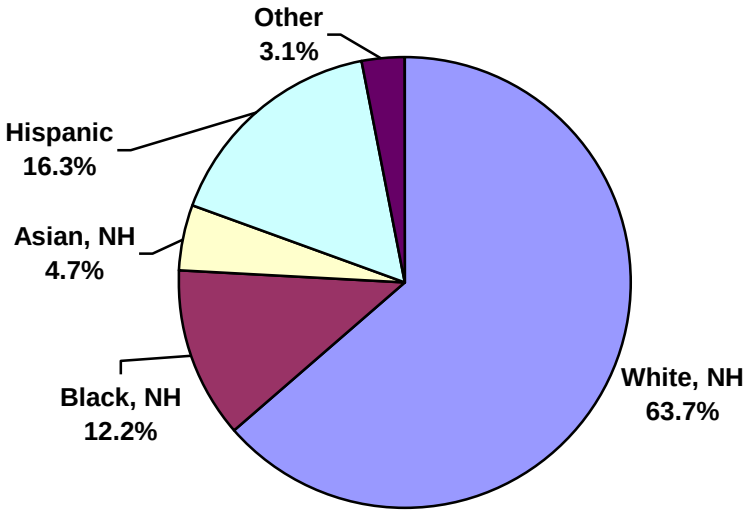
Population Data Source: United States Census Data (2009-2013)

Appendix IV
Racial/Ethnic Breakdown of the Massachusetts and United States Populations*

Massachusetts (2009-2013)



United States (2009-2013)



Data Source: United States Census Data, 2009-2013

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