CANCER INCIDENCE AND MORTALITY IN MASSACHUSETTS 2003-2007:

STATEWIDE REPORT

Bureau of Health Information, Statistics,
Research, and Evaluation

Massachusetts Department of Public Health

June 2010

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Susan T. Gershman, Director, Massachusetts Cancer Registry
Bureau of Health Information, Statistics, Research, and Evaluation

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Massachusetts Cancer Registry Staff

Susan T. Gershman, M.S., M.P.H., Ph.D., C.T.R., *Director*

Bertina Backus, M.P.H., *Epidemiologist*
Donna Barlow, L.P.N., C.T.R., *Cancer Registrar/ Death Clearance Coordinator*
Bruce Caldwell, *Research Analyst/Geocoder*
Nancy Donovan, M.A., O.T.R., C.T.R., *Cancer Registrar*
Patricia J. Drew, C.T.R., *Cancer Registrar/ Quality Assurance Coordinator*
Loi Huynh, *Software Developer*
Regina Kenney, *Data Acquisition Coordinator*
Richard Knowlton, M.S., *Epidemiologist*
Ann MacMillan, M.P.H., *Epidemiologist*
Mary Mroszczyk, C.T.R., *Geocoding/ Special Projects Coordinator*
Elizabeth Prestosa, C.T.R., *Asst. Director of Operations*
Sadie Phillips-Scott, *Administrative Assistant*
Judith Raymond, C.T.R., *Cancer Registrar/ Education Coordinator*
Barbara J. Rhodes, C.M.A., C.T.R., *Cancer Registrar*
Pamela Shuttle, C.T.R, R.H.I.T., *Cancer Registrar/ Non-Hospital Reporting Coordinator*
Hung Tran, *Software Developer*
Donna J. Vincent, R.H.I.A., *Geocoder*

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Paul C. Schroy, III, M.D., M.P.H.
Ingrid Stendhal, CTR

For further information, please contact the following:

Massachusetts Cancer Registry ..... (617) 624-5642
Research and Epidemiology ..... (617) 624-5635
Occupational Health Surveillance ..... (617) 624-5626
Bureau of Environmental Health ..... (617) 624-5757
Cancer Prevention and Control Initiative ..... (617) 624-5484
Massachusetts Department of Public Health website ..... www.mass.gov/dph

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EXECUTIVE SUMMARY

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Cancer Incidence and Mortality in Massachusetts, 2003-2007: Statewide Report presents cancer incidence and mortality data for the Commonwealth from 2003 through 2007. The data include numbers and rates for 24 types of cancer, detailed information about the most commonly occurring types of cancer, information about age-specific patterns, a discussion of cancer trends, an examination of patterns by race/ethnicity, and a comparison of Massachusetts and national cancer rates. The report provides data only on invasive cancers, except for urinary bladder (which includes *in situ* and invasive cancers combined) and *in situ* breast cancer.

Highlights from the report

- From 2003 to 2007 there were 179,324 newly diagnosed cases of cancer and 66,332 deaths from cancer among Massachusetts residents. The average annual age-adjusted incidence rate was 514.1 per 100,000 persons and the average annual age-adjusted mortality rate was 186.3 per 100,000 persons. Overall, cancer incidence rates for both males and females in Massachusetts remained stable over this time period. Mortality from all types of cancer combined decreased by 1.3% annually for males and by 2.1% for females from 2003 to 2007. Only the female decrease in mortality was statistically significant.

- Prostate cancer was the most common type of newly diagnosed cancer among Massachusetts males. Prostate cancer accounted for approximately 28% of new cancers among males in the state from 2003 to 2007. The average annual age-adjusted incidence rate of prostate cancer was 164.9 per 100,000 males. From 2003 to 2007, the annual incidence rate of prostate cancer increased an average of 1.4% per year and the mortality rate of prostate cancer decreased by 2.5% per year. The changes in prostate cancer incidence and mortality were not statistically significant.

- From 2003 to 2007, invasive breast cancer was the most common type of newly diagnosed cancer among Massachusetts females, accounting for approximately 28% of new cancers among females in the state. The average annual age-adjusted incidence rate of breast cancer was 132.1 per 100,000 females. The incidence rate of female invasive breast cancer remained stable over the years 2003-2007. The mortality rate from invasive breast cancer decreased during this period by 4.1% annually, and was statistically significant. The age-adjusted incidence rate of *in situ* breast cancer for Massachusetts females was 46.1 per 100,000.

- Cancer of the bronchus and lung was the most common cause of cancer deaths among both Massachusetts males and females between 2003 and 2007, accounting for 28.6% of all cancer deaths among males and 26.6% of all cancer deaths among females. During this time period, the mortality rate of cancer of the bronchus and lung in Massachusetts decreased by 1.3% annually for males and by 1.2% annually for females. Neither of these decreases was statistically significant. The incidence rate of cancer of the bronchus and lung remained stable for Massachusetts females during 2003-2007 and decreased by 1.2% for males. The decrease among males was not statistically significant.

- Colo-rectal cancer incidence decreased significantly among both Massachusetts males and females during 2003-2007. For males, the incidence rate decreased an average of 6.8 % per year, and for females an average of 4.6% per year. Mortality from colo-rectal cancer also decreased significantly among Massachusetts males and females for 2003-2007 (4.3% per year among males, and 4.0% per year among females).

- Thyroid cancer incidence increased significantly among both Massachusetts males and females during 2003-2007. For males, the incidence rate increased an average of 11.5% per year, and for

females an average of 12.5% per year. Mortality from thyroid cancer increased 16.5% per year for males and decreased 4.1% for females, though neither of the changes in mortality was statistically significant.

- For all types of cancer combined for 2003-2007, black, non-Hispanics had the highest age-adjusted incidence and mortality rates among Massachusetts males. Both their incidence and mortality rates were significantly higher than those of all other racial/ethnic groups.

- For all Massachusetts male race/ethnicity groups diagnosed between 2003 and 2007, cancers of the prostate, bronchus and lung, and colon/rectum were the top three most commonly diagnosed cancers, although rankings differed by race/ethnicity group. Cancer of the bronchus and lung was the most common cause of cancer death for all groups.

- For all types of cancer combined for 2003-2007, white, non-Hispanics had the highest age-adjusted incidence rate among Massachusetts females and black, non-Hispanic females had the highest age-adjusted mortality rate. The incidence rate for white, non-Hispanic females was statistically significantly higher that those of all other groups. The mortality rate for black, non-Hispanic females was significantly higher than those of all other racial/ethnic groups.

- Breast cancer was the most commonly diagnosed cancer for all Massachusetts female race/ethnicity groups from 2003 to 2007. Cancers of the bronchus and lung and colon/rectum were also leading cancers among females. Bronchus and lung was second and colon/rectum was third for white, non-Hispanic and black, non-Hispanic females. For Asian, non-Hispanic females and Hispanics, colon/rectum was second and bronchus and lung was third.

- Between 2003 and 2007, cancer of the bronchus and lung was the most common cause of cancer death among all female race/ethnicities in Massachusetts except Hispanic females. Breast cancer was the most common cause of death among Hispanic females.

- Age-adjusted cancer incidence rates in Massachusetts were generally higher than their national counterparts. The Massachusetts male and female incidence rates for all sites combined for the period 2003 through 2007 were 598.0 per 100,000 and 458.9 per 100,000, respectively, while the 2002-2006 rates for the North American Association of Central Cancer Registries (NAACCR) were 556.5 per 100,000 and 414.8 per 100,000, respectively.

- Age-adjusted cancer mortality rates in Massachusetts for both males and females for 2003-2007 were slightly higher than age-adjusted mortality rates in the United States. The Massachusetts male and female mortality rates for all sites combined for this period were 230.1 per 100,000 and 159.1 per 100,000, respectively, while the national rates for males and females were 229.9 per 100,000 and 157.8 per 100,000, respectively.

INTRODUCTION

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, 2003-2007: Statewide Report,* is produced annually with 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 http://www.mass.gov/dph/mcr.

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 2003 through 2007;*
- provides detailed information about the most commonly occurring types of cancer for 2003 through 2007;
- examines cancer incidence patterns by age, sex, and race/ethnicity;
- reviews Massachusetts cancer incidence and mortality trends for 2003 through 2007; and
- compares Massachusetts incidence and mortality data with national incidence and mortality data.

The rest of the report is organized into the following sections:

- **METHODS** provides a detailed explanation of the data collection, data processing, and statistical techniques employed in this report and the limitations to consider when reviewing the data.
- **OVERVIEW** provides an overview of cancer incidence and mortality data in Massachusetts from 2003 through 2007, including leading types of cancer, cancer incidence by age and sex, cancer trends, cancer patterns by race/ethnicity, and a comparison of rates in Massachusetts with those in the U.S.
- **FIGURES & TABLES** present cancer incidence and mortality data for 24 types of cancer for 2003-2007. There are 6 figures and 24 tables in this section with breakdowns such as sex, race/ethnicity, year, age group, state data versus national data, and cancer type.
- **APPENDICES** 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.

** 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.*

METHODS

METHODS

Data Sources

Cancer Incidence

The MCR collects reports of newly diagnosed cancer cases from health care facilities and practitioners throughout Massachusetts. Facilities reporting to the MCR in 2007 included 69 Massachusetts acute care hospitals, 7 radiation centers, 3 endoscopy centers, 4 surgical centers, 14 independent laboratories, 1 medical practice associations, 1 radiation/oncology center and approximately 500 private practice physicians. Reports from dermatologists' offices and dermatopathology laboratories, particularly on cases of melanoma, have only been collected by the MCR since 2001. Reports from urologists' offices have only been collected by the MCR since 2002. Currently, the MCR collects information on *in situ* and invasive cancers and benign tumors of the brain and associated tissues. The MCR does not collect information on basal and squamous cell carcinomas of the skin.

The MCR also collects information from reporting hospitals on cases diagnosed and treated in staff physician offices when this information is available. Not all hospitals report this type of case, however, and some hospitals report such cases as if the patients had been diagnosed and treated by the hospital directly. Collecting these types of data makes the MCR's overall case ascertainment more complete. Some cancer types that may be reported to the MCR in this manner are melanoma, prostate, colon/rectum, and oral cancers.

In addition, the MCR identifies previously unreported cancer cases through review of death certificate data to further improve case completeness. This process is referred to as death clearance and identifies cancers mentioned on death certificates that were not previously reported to the MCR. In some instances, the MCR obtains additional information on these cases through follow-up activities with hospitals, nursing homes, hospice residences, and physicians' offices. In other instances, a cancer-related cause of death recorded on a Massachusetts death certificate is the only source of information for a cancer case. These "death certificate only" cancer diagnoses are, therefore, poorly documented, and have not been confirmed by review of complete clinical and pathological information. Such cases are included in this report, but they comprise less than 3% of all cancer cases.

Case reports from 2001 onward were coded following the *International Classification of Diseases for Oncology, Third Edition* (ICD-O-3), which was implemented in North America with cases diagnosed as of January 1, 2001 (1).

Each year, the North American Association of Central Cancer Registries (NAACCR) reviews cancer registry data for quality, completeness, and timeliness. The NAACCR certification results for the MCR for diagnosis years 2003-2006 are presented in Table A. Results from the 2007 certification were not available at the time of the publication of this report. For 2003-2006, the MCR's annual case count was estimated by NAACCR to be more than 95% complete each year. The MCR has achieved the gold standard for this certification element as well as for six other certification elements for each case year since 1997. (See Table A.)

The Massachusetts cancer cases presented in this report are primary cases of cancer diagnosed among Massachusetts residents during 2003-2007 and reported to the MCR as of March 15, 2010. These data include some additional cases diagnosed in 2003-2006 that were not counted in the previous report, *Cancer Incidence and Mortality in Massachusetts 2002-2006: Statewide Report*, because they were reported to the MCR too late to be incorporated in that report.

Cancer sites/types are grouped according to coding definitions adapted from the National Cancer Institute (NCI)'s Surveillance, Epidemiology and End Results (SEER) Program (Appendix I). The Massachusetts data presented are invasive cancers, with the exception of urinary bladder and breast cancer. Both *in situ* and invasive cancers are presented for these sites. (See section 'Definition of Cancer Sites' on page 14 for additional information about the urinary bladder category.) *In situ* cancers are neoplasms diagnosed at the earliest stage, before they have spread, when they are limited to a small number of cells and have not invaded the organ itself. Invasive cancers have spread beyond the layer of cells where they started and have the potential to spread to other parts of the body. Typically, published incidence rates do not combine invasive and *in situ* cancers due to differences in the biologic significance, survival prognosis, and types of treatment of the tumors. Because a substantial number of breast cancers are diagnosed at a pre-invasive (*in situ*) stage, we present an additional category for these data that is separate from the invasive breast cancer data. The *in situ* breast cancer cases are not added into the totals for all cancer sites combined. Due to the specific nature of the diagnostic techniques and treatment patterns for bladder cancer, *in situ* and invasive cancers of the urinary bladder are combined and *in situ* urinary bladder cases are added into the totals for all cancer sites combined.

The national incidence data are from NAACCR. The NAACCR incidence rates include data from 40 states and 5 metropolitan areas, and cover about 80% of the United States population, including Massachusetts (2). At this time the most recent data available from NAACCR are for the period 2002-2006.

Cancer Mortality

The Massachusetts death data were obtained from the Massachusetts Registry of Vital Records and Statistics, which has legal responsibility for collecting reports of deaths in this state. Death reports from 2003 to 2007 were coded using the *International Classification of Diseases, Tenth Revision* (ICD-10) (3). The cancer site/type groups for deaths in this report were based on cancer site/type categories from the NCI's SEER Program (Appendix I). These SEER cancer site/type definitions are the standard categories commonly used by cancer registries. The cancer mortality data published in this report may differ slightly from the cancer mortality data published in *Massachusetts Deaths*, the annual Massachusetts Department of Public Health mortality surveillance publication, because *Massachusetts Deaths* uses cancer site/type groupings from the National Center for Health Statistics.

The U.S. mortality data presented here are from NAACCR, which uses data from the National Center for Health Statistics (4). The NAACCR mortality rates cover the entire U.S. population from 2002-2006.

Definitions

Population Estimates

All of the population estimates used in this report were produced by the National Center for Health Statistics (NCHS) in collaboration with the Census Bureau's Population Estimation Program. The NCHS reallocates the multiple race categories from the Census Bureau population estimates file to create four mutually exclusive race categories that are consistent with the race categories used to collect cancer incidence and cancer mortality data. The population data used in this report are presented in Appendix III.

Race/Ethnicity

The MCR uses an algorithm developed by NAACCR called the NAACCR Hispanic Identification Algorithm (NHIA) to help classify Hispanic ethnicity. The algorithm is only applied to cases with an

unknown Spanish/Hispanic origin or cases that have been classified as Hispanic based on a Spanish surname only. The algorithm uses last name, maiden name, birthplace, race, and sex to determine the ethnicity of these cases.

The race/ethnicity categories presented in this report are mutually exclusive. Cases and deaths are only included in one race/ethnicity category. The race/ethnicity tables include the categories white, non-Hispanic; black, non-Hispanic; Asian, non-Hispanic; and Hispanic. The total population in Massachusetts also includes unknown races/ethnicities and Native Americans. As a result, the number of cases for the total population is not the sum of cases by race/ethnicity.

Statistical Terms

- *Age-Specific Rates* – Age-specific rates were calculated by dividing the number of people in an age group who were diagnosed with cancer or died of cancer in a given time frame by the number of people in that same age group overall in that time frame. They are presented as rates per 100,000 residents and are site- and sex-specific.

- *Age-Adjusted Rates* – An age-adjusted incidence or mortality rate is a weighted average of the age-specific rates, where the weights are the proportions of persons in the corresponding age groups of a standard 100,000 population. The potential confounding effect of age is reduced when comparing age-adjusted rates for populations with different age structures. The 2000 U.S. Census Bureau population distribution was used as a standard. Rates were age-adjusted using eighteen 5-year age groups. Age-adjusted rates can only be compared if they are adjusted to the same standard population. It is also important to note that differences in methodologies used in calculating rates, such as number of age groups used, may cause slight variations in results.

- *Confidence Intervals (CI) or Confidence Limits (CL)* – The confidence interval (CI)—also called a confidence limit (CL)—is a range of values determined by the degree of variability of the data within which the true value should lie. The 95% confidence intervals presented in this report mean that 95 times out of 100 this range of values will contain the true one. The confidence interval indicates the precision of the rate calculation; the wider the interval, the less certain the rate. Statistically, the width of the interval reflects the size of the population and the number of events; smaller populations and smaller number of cases yield less precise estimates that have wider confidence intervals. Confidence intervals were used in the report as a conservative statistical test to estimate the difference between the age-adjusted incidence or mortality rates with the probability of error of 5% or less ($p \leq 0.05$). Rates and confidence intervals were not calculated when there were fewer than 20 cases.

- *Estimated Annual Percent Change (EAPC)* – The EAPC is a statistical method for trend analysis. It shows how much a cancer rate has increased or decreased over the observed period of time. This estimation assumes that the change in incidence or mortality rates is constant during the observed time period. The EAPC for a short time period (2003-2007 for this report) was calculated using the SEER methods. The EAPC = $100*(e^{m}-1)$, where m is a slope of the linear regression line, which is an approximation of the function of the natural logarithm of the rates by the year of diagnosis (5). A positive EAPC corresponds to an increasing trend, while a negative EAPC corresponds to a decreasing trend. All of the EAPC values calculated in this report were statistically tested ($p \leq 0.05$) against the hypothesis that they are equal to zero (the rate is neither increasing nor decreasing).

- *Median Age at Diagnosis* – The median age at diagnosis is the point (in age) where half of cancer cases occurred below this age and half of cases occurred above this age.

Interpreting the Data

When interpreting cancer incidence and mortality data in this report, it is important to consider the following:

Border Areas and Neighboring States

Some areas of Massachusetts appear to have low cancer incidence, but this may be due to loss of cases in Massachusetts residents who were diagnosed in neighboring states and not reported to the MCR. Presently the MCR has reciprocal reporting agreements with the following fifteen states: Alaska, Arkansas, Connecticut, Florida, Maine, Mississippi, New Hampshire, New York, North Carolina, Rhode Island, South Carolina, Texas, Vermont, Wisconsin, and Wyoming.

Cases Diagnosed in Non-Hospital Settings

During the time period covered by this report, the MCR's information sources for most newly diagnosed cases of cancer were hospitals. In addition, the MCR collected information from reporting hospitals on cases diagnosed and treated in staff physician offices, when this information was available. In 2001, dermatologists and dermatopathology laboratories were added as reporting sources. The addition of these new reporting sources may elevate the incidence of melanoma diagnosed in the years 2001 and later. In 2002, urologists' offices and a general laboratory were added as reporting sources. Some types of cancer in this report, such as prostate cancer, may be under-reported because they are diagnosed primarily by private physicians, private laboratories, health maintenance organizations, or radiotherapy centers that escape the case identification systems used by hospitals. The extent of this under-reporting has not been determined exactly, but cases included in this report represent the great majority of cases statewide and provide an essential basis for evaluating statewide cancer incidence patterns.

Definition of Cancer Sites

Reports published by the MCR since 2004 use a definition for urinary bladder that includes both *in situ* and invasive cancers. Prior reports included only invasive cases in the urinary bladder category. This change was made to conform to the definitions of the NCI's SEER Program. The addition of *in situ* cases in this category has elevated both the number of cases and rates for this site and for all sites combined compared with reports published prior to 2004. The first statewide report to use this expanded definition was *Cancer Incidence and Mortality in Massachusetts 1997-2001: Statewide Report.*

The implementation of ICD-O-3 coding in 2001, and corresponding cancer site recodes, has changed the incidence of some types of tumors, especially ovarian cancer, leukemias, and lymphomas. These changes may affect annual site-specific incidence, causing a drop or spike in 2003-2007 rates, as well as the incidence of all sites combined and average annual incidence rates. Therefore, caution should be exercised when comparing rates in 2003-2007 with those prior to 2001.

Trends

Trend data should be interpreted with caution. Apparent increases or decreases in cancer incidence over time may reflect changes in diagnostic methods or case reporting rather than true changes in cancer occurrence. Also, cancer incidence trends may appear more favorable than they actually are because they have not been adjusted for reporting error or delay (6). Typically, statewide Massachusetts cancer incidence data are released about two years after the close of a diagnosis year; for example, data for cases diagnosed between January 1, 2007 and December 31, 2007 are being released for the first time in early 2010. The MCR continues to receive case reports on an ongoing basis even after the data are released.

These delayed case reports, as well as corrections to cases based on subsequent details from the reporting facilities, result in reporting delay and error; the more recent diagnosis years may be less complete than the earlier diagnosis years. Finally, the following should be considered when interpreting trend data:

- The EAPC assumes that the change in rate is the same over the entire time period examined, which may or may not be true for the trends examined in this report.
- If the percent difference in rates between the years 2003 and 2007 is small, the statistical significance of the EAPC may have no practical importance.

Race/Ethnicity

Race/ethnicity data for cancer cases are based on information in the medical record. Race/ethnicity data for cancer deaths are based on information from death certificates as reported by next-of-kin and funeral directors. Errors in these source documents may lead to incorrect classification of race/ethnicity. Also, completeness of the race/ethnicity data may be different for cancer cases and cancer deaths. Some race/ethnicity categories may be under-reported if race/ethnicity is not available for all cases. Counts and rates may under-represent the true incidence of cancer in some racial/ethnic populations. The NAACCR Hispanic Identification Algorithm (NHIA) has been implemented in this report to help classify Hispanic ethnicity.

Table A.
North American Association of Central Cancer Registries (NAACCR) Certification Results for the Massachusetts Cancer Registry (MCR), 2003-2006[1]

Registry Element	Gold Standard	Silver Standard	MCR Results By Year				Standard Achieved
			2003	2004	2005	2006	
Completeness of case ascertainment [§]	95%	90%	>95%	>95%	>95%	95%	Gold
Unknown "age at diagnosis"	≤2%	≤3%	0.0%	0.0%	0.0%	0.0%	Gold
Unknown "sex"	≤2%	≤3%	0.0%	0.0%	0.0%	0.0%	Gold
Unknown "race"	≤3%	≤5%	1.4%	1.4%	1.6%	1.5%	Gold
"Death certificate only" cases [†]	≤3%	≤5%	1.6%	1.8%	1.5%	1.9%	Gold
Duplicate primary cases	≤0.1%	≤0.2%	0.02%	0.05%	0.03%	0.02%	Gold
Timeliness	Data submitted within 24 months of close of calendar year.						Gold

[1] Certification results for 2007 are not yet available.
[§] Completeness of case ascertainment was estimated by methods from the NAACCR.
[†] "Death certificate only" cases are cases that are identified through the death certificate clearance process and only have information from a death certificate.

OVERVIEW

OVERVIEW

In Massachusetts, from 2003 through 2007, there were 179,324[1] newly diagnosed cases of cancer – 90,222 in males and 89,090 in females. For all types of cancer combined for 2003-2007, the average annual age-adjusted incidence rate among males was 598.0 cases per 100,000 and the average annual age-adjusted incidence rate among females was 458.9 cases per 100,000.

During the same time period, there were 66,332 deaths due to cancer – 33,207 males and 33,125 females. For all types of cancer combined for 2003-2007, the age-adjusted mortality rate was 230.1 deaths per 100,000 for males and 159.1 deaths per 100,000 for females.

Leading Types of Cancer

Incidence

Males

The most commonly diagnosed type of cancer in Massachusetts males from 2003-2007 was prostate cancer, followed by cancers of the bronchus and lung, colon/rectum, and urinary bladder. These four cancer types comprised approximately 59% of newly diagnosed cases. Prostate cancer comprised approximately 28% of all male incident cases (Figure 1).

From 2003-2007, the age-adjusted incidence rates for these four leading types of cancer were 164.9 cases per 100,000 for prostate cancer, 83.8 cases per 100,000 for cancer of the bronchus and lung, 60.7 cases per 100,000 for colo-rectal cancer, and 46.6 cases per 100,000 for urinary bladder cancer. Other leading cancer types for males included melanoma, non-Hodgkin lymphoma, cancer of the kidney and renal pelvis, cancer of the oral cavity and pharynx, leukemia, and pancreatic cancer (Figure 2).

Females

Among Massachusetts females, the most commonly diagnosed cancer types were cancers of the breast, bronchus and lung, colon/rectum, and corpus uteri (uterus), representing approximately 59% of new cancer cases during 2003-2007. Breast cancer comprised approximately 28% of all female incident cases (Figure 1).

From 2003-2007, the age-adjusted incidence rates for these four leading types of cancer were 132.1 cases per 100,000 for breast cancer, 64.0 cases per 100,000 for cancer of the bronchus and lung, 44.1 cases per 100,000 for colo-rectal cancer, and 29.1 cases per 100,000 for cancer of the uterus. Other leading cancer types for females included thyroid cancer, melanoma, non-Hodgkin lymphoma, ovarian cancer, urinary bladder cancer, and pancreatic cancer (Figure 2).

Mortality

Males

Cancer of the bronchus and lung was the leading cause of cancer death for Massachusetts males between 2003 and 2007. During this time period, cancer of the bronchus and lung accounted for approximately 29% of all cancer deaths in males. Prostate cancer ranked second in mortality for males. The third and

[1] The male and female case counts will not add up to the total case count because the MCR collects two additional sex/gender classifications (transsexuals and persons with sex chromosome abnormalities/hermaphrodites).

fourth most common causes of cancer death were cancers of the colon/rectum and pancreas, respectively. These four types of cancer comprised 54% of all cancer deaths for this time period (Figure 3).

From 2003 to 2007, the age-adjusted mortality rates for the four leading causes of cancer death were 65.3 deaths per 100,000 for cancer of the bronchus and lung, 24.6 deaths per 100,000 for prostate cancer, 21.0 deaths per 100,000 for colo-rectal cancer, and 13.4 deaths per 100,000 for pancreatic cancer. Other leading causes of cancer death for males during this time period included cancer of the esophagus, leukemia, cancer of the urinary bladder, non-Hodgkin lymphoma, and cancers of the liver and intrahepatic bile ducts and the kidney and renal pelvis (Figure 4).

Females

Cancer of the bronchus and lung was also the leading cause of cancer death for Massachusetts females between 2003 and 2007. During this time period, lung cancer accounted for approximately 27% of all cancer deaths in females. Breast cancer ranked second in mortality for females. The third and fourth most common causes of cancer death were cancers of the colon/rectum and pancreas, respectively. These four types of cancer comprised approximately 57% of all cancer deaths for this time period (Figure 3).

From 2003 to 2007, the age-adjusted mortality rates for these four leading causes of cancer death were 43.7 deaths per 100,000 for cancer of the bronchus and lung, 22.9 deaths per 100,000 for breast cancer, 14.8 deaths per 100,000 for colo-rectal cancer, and 10.2 deaths per 100,000 for pancreatic cancer. Other leading causes of cancer death for females during this time period included ovarian cancer, non-Hodgkin lymphoma, leukemia, and cancers of the uterus, brain and other nervous system, and liver and intrahepatic bile ducts (Figure 4).

Cancer Incidence Patterns by Age

The likelihood of being diagnosed with cancer increased steadily with age for many cancers. The age-specific incidence rate for all sites combined for males rose from 24.1 per 100,000 in the age group 0-4 to 3481.6 per 100,000 in the age group 80-84 (Table 1). For females, the age-specific rate for all sites combined increased from 25.0 per 100,000 for ages 0-4 to 2188.3 for ages 80-84 (Table 2). The cancer incidence rate for people aged 85 and above declined for both males and females (Tables 1 and 2).

The median age of diagnosis with any type of cancer in the period 2003-2007 was 67.0 years for males and 66.0 years for females (Tables 1 and 2). For many of the cancer types presented in this report, the median age at diagnosis was age 60 or older. The following cancers were diagnosed at a younger median age (males and females are combined for cancers occurring in both sexes): brain and other nervous system (median age – 58.0), breast *in situ* (median age – _56.0), cervix (median age – 49.0), Hodgkin lymphoma (median age – _38.0), testis (median age – 36.0), and thyroid (median age – _49.0) (Tables 1-3).

Cancer Trends

Incidence

All of the data describing percent increases and decreases per year are based upon the estimated annual percent change (EAPC). From 2003 to 2007, though cancer rates fluctuated by year, overall cancer incidence in Massachusetts remained unchanged for both males and females. Nationally, cancer incidence rates for all cancer sites combined decreased by 0.9% per year for males from 1997 to 2006 and by 0.5% per year for females from 1997 to 2006, with both decreases being statistically significant (7). Incidence trends in the leading cancers affecting Massachusetts males and females are discussed below. See Figures

5 and 6 for incidence trends and Tables 4, 5, and 6 for annual age-adjusted incidence rates over the years 2003 to 2007.

Males

Among Massachusetts males between 2003 and 2007, the incidence rate of prostate cancer increased by 1.4% per year, though this increase was not statistically significant (Figure 5). The incidence rate of prostate cancer was 164.6 cases per 100,000 males in 2003 and increased to 168.4 cases per 100,000 males in 2007 (Table 4). In addition, there was an overall decrease in prostate cancer from its peak incidence of 217.4 per 100,000 in 1992. Nationally, incidence rates for prostate cancer decreased non-significantly by 0.9% per year between 1997 and 2006. The national incidence rates for prostate cancer stabilized from 1995-2001 after a steep increase from 1988-1992 and a subsequent decline from 1992-1995 (7). The increase in prostate cancer incidence during the late 1980s and early 1990s is attributed to changes in diagnostic methodology and increased prostate-specific antigen (PSA) screening (8).

In Massachusetts, the age-adjusted incidence rate of cancer of the bronchus and lung in males declined by 1.2% per year between 2003 and 2007 (Figure 5), though the decrease was not statistically significant. The incidence rate for cancer of the bronchus and lung fell from 84.2 cases per 100,000 males in 2003 to 79.9 cases per 100,000 in 2007 (Table 4). Nationally, the incidence rates for cancer of the lung and bronchus declined significantly by 2.0% per year from 1997 to 2006 (7).

The incidence rate of colo-rectal cancer in Massachusetts males decreased from 69.0 cases per 100,000 males in 2003 to 51.8 cases per 100,000 in 2007. The estimated annual percent decrease was 6.8% and was statistically significant (Figure 5). National data show that colo-rectal cancer incidence rates decreased significantly by 2.7% per year from 1997 to 2006 for males (7).

The only cancer that increased significantly from 2003 to 2007 among males in Massachusetts was thyroid cancer with an estimated annual percent increase of 11.5%. Nationally, thyroid cancer also increased significantly by 5.8% from 1997 to 2006. (7).

Females

Invasive breast cancer incidence in Massachusetts females remained stable during the period 2003-2007 increasing only 0.3% during this time period. This increase was not statistically significant (Figure 6). The incidence rate increased from 130.6 cases per 100,000 females in 2003 to 133.5 cases per 100,000 in 2007 (Table 5). Nationally, breast cancer incidence rates decreased significantly by 1.5% from 1997-2006 (7). Breast cancer incidence in women began to decline at the turn of the century after an increase in the latter part of the 1990s (1994-1999). (7). Rising breast cancer incidence during the 1990s has been attributed to increased mammography screening (9).

The incidence of cancer of the bronchus and lung among Massachusetts females increased non-significantly by 0.6% per year between 2003 and 2007. The rate rose from 62.5 cases per 100,000 females in 2003 to 63.6 cases per 100,000 in 2007 (Table 5). The national rate of cancer of the bronchus and lung among females increased non-significantly by 0.1% per year from 1997 to 2006 (7).

The incidence rate of colo-rectal cancer, which is the third most common cancer among Massachusetts females, decreased significantly by 4.6% per year from 2003 through 2007. The Massachusetts incidence rate was 48.1 per 100,000 in 2003 and 40.2 per 100,000 in 2007. Nationally, the rates for colo-rectal cancer decreased significantly by 2.0% per year from 1997-2006 (7).

The annual incidence rate for uterine cancer, the fourth most common cancer among Massachusetts females overall, increased non-significantly by 1.5% over the years 2003 to 2007 (Figure 6). Nationally, the rates for uterine cancer decreased non-significantly by 0.1% per year from 1997-2006 (7).

Among Massachusetts females, thyroid cancer incidence rates increased significantly by 12.5% per year between 2003 and 2007. Nationally, the rates for thyroid cancer in females increased significantly by 7.4% per year from 1997-2006 (7). These increases have been observed in the U.S. as well as globally. Although changes in diagnostic procedures, including the introduction and greater use of ultrasound and fine-needle biopsy, have likely contributed to the increase in incidence, more research on the relationship between temporal trends, diagnostic procedures, and exposure to radiation and other potential risk factors is needed (7). For more detailed information on thyroid cancer in Massachusetts, please refer to the MCR publication *Data Report: Thyroid Cancer in Massachusetts* (10). This report can be accessed at www.mass.gov/dph/mcr under "Special Reports."

In addition to the changes mentioned above, ovarian cancer decreased significantly by 4.7% per year for 2003-2007 in Massachusetts and 1.7% per year nationally for 1997-2006 (7).

Mortality

Cancer mortality for all sites combined from 2003 to 2007 decreased by 1.3% per year for Massachusetts males and 2.1% per year for Massachusetts females. The decrease among females was statistically significant, while the decrease among males was not (Figures 5 and 6). Recent national data for all cancer sites combined show statistically significant declines in mortality rates by 1.7% per year for men and 1.0% per year for women from 1997-2006 (7).

Males

Among Massachusetts males, mortality from bronchus and lung, prostate, and colo-rectal cancers all decreased from 2003 to 2007, though only the decrease from colo-rectal cancer was statistically significant. Deaths due to prostate cancer decreased 2.5% per year; cancer of the bronchus and lung, 1.3% per year; and colo-rectal cancer, 4.3% per year (Figure 5). Nationally, from 1997-2006, prostate cancer mortality decreased by 4.0%, colo-rectal cancer by 2.8%, lung cancer by 2,0%, and stomach cancer by 3.7%; all of these decreases were significant (7).

Females

For Massachusetts females, the bronchus and lung cancer mortality rate decreased non-significantly by 1.2% per year, while breast cancer mortality decreased significantly by 4.1% per year. The colo-rectal cancer mortality rate declined significantly for females by 4.0% per year. Nationally, from 1997-2006, breast cancer and colo-rectal cancer mortality decreased significantly by 1.9% per year and 2.6% per year, respectively, while lung cancer mortality decreased non-significantly by 0.1% per year (7).

It is important to note that the mortality rates for most cancers with significant increases or decreases are low (Tables 7 and 8). A trend based on a small number of deaths may not be stable over a longer period. As a result, the statistical significance of EAPC for these sites may have no practical importance.

Cancer Patterns by Race/Ethnicity

Incidence

Table 10 presents the five leading cancers (based on age-adjusted rates) by race/ethnicity and sex. Tables 11, 12, and 13 present the distribution of cases by cancer type for all races combined and by race/ethnicity groups for males, females, and both sexes for the period 2003-2007. Age-adjusted rates for all races combined and by race/ethnicity, cancer type, and sex are presented in Tables 14, 15, and 16. The tables include age-adjusted rates and their surrounding 95% confidence intervals or limits (95% CL). (See the Methods section of this report for more information about confidence intervals.)

Overall, of the total 179,324 newly diagnosed cancer cases during 2003-2007, 162,325 occurred in white, non-Hispanics, 6,769 in black, non-Hispanics, 3,059 in Asian, non-Hispanics, and 4.679 in Hispanics (Table 13). The remaining 2,492 cases occurred in American Indians or those whose race/ethnicity was unknown.

Males

Based on age-adjusted rates, the most common types of cancer among Massachusetts males include: (See Table 10 for rates.)

- Prostate cancer: First among all race/ethnicity groups.
- Lung cancer: Second among white, non-Hispanic, black, non-Hispanic, and Asian, non-Hispanic men; third among Hispanic men.
- Colo-rectal cancer: Second among Hispanic men; third among white, non-Hispanic, black, non-Hispanic, and Asian, non-Hispanic men.
- Urinary bladder cancer: Fourth among white, non-Hispanic, and Hispanic men; fifth among black non-Hispanic men.
- Liver cancer: Fourth among Asian, non-Hispanic men.
- Melanoma: Fifth among white, non-Hispanic men.
- Kidney cancer: Fourth among black, non-Hispanic men.
- Non-Hodgkin lymphoma: Fifth among Asian, non-Hispanic and Hispanic men.
- Stomach: Fifth among Asian, non-Hispanic men

From 2003 to 2007, black, non-Hispanic males had the highest incidence rate of all cancer types combined (631.0 per 100,000). This rate was significantly higher than the rates for all other race/ethnicity groups ($p \leq 0.05$). Asian, non-Hispanic males had the lowest incidence rate of all sites combined (320.3 per 100,000) ($p \leq 0.05$). Black, non-Hispanic males had the highest rate of prostate cancer (252.9 per 100,000); this rate was significantly higher than the rates for other race/ethnicity groups. Nationally, prostate cancer incidence rates decreased significantly by 1.9% from 1997-2006 among black, non-Hispanic males. The 2002-2006 incidence rates, however, still remained higher than in white, non-Hispanic males (231.9 vs. 146.3) (7). Asian, non-Hispanic men in Massachusetts had a significantly higher rate of liver cancer compared with the other groups. Nationally, the rate for liver cancer among Asians from 2002-2006 was nearly triple that of white, non-Hispanics (21.4 vs. 8.0) (7).

Females

Based on age-adjusted rates, the most common types of cancer among Massachusetts females include: (See Table 10 for rates.)

- Breast cancer: First among women of all race/ethnicity groups.

- Lung cancer: Second among white, non-Hispanic and black, non-Hispanic women; third among Asian, non-Hispanic and Hispanic women.
- Colo-rectal cancer: Second among Asian, non-Hispanic and Hispanic women; third among white, non-Hispanic and black, non-Hispanic women.
- Uterine cancer: Fourth among white, non-Hispanic, black, non-Hispanic and Hispanic women; fifth among Asian non-Hispanic women.
- Thyroid cancer: Fourth among Asian, non-Hispanic women; fifth among white non-Hispanic, black, non-Hispanic and Hispanic women.

During 2003-2007, white, non-Hispanic females had the highest incidence rate of all cancer types combined (469.4 per 100,000) among all race/ethnicity groups. This rate was significantly higher than the rates for the other race/ethnicity groups ($p \leq 0.05$). Asian, non-Hispanic females had the lowest incidence rate of all sites combined (296.0 per 100,000) ($p \leq 0.05$). The rates of invasive breast and lung cancer were statistically significantly higher for white, non-Hispanic females—136.3 and 67.0 cases per 100,000, respectively—than for the other race/ethnicity groups. The breast cancer *in situ* incidence rate was also statistically significantly higher among white, non-Hispanic females (47.3 cases per 100,000) than among the other race/ethnicity groups (Table 15).

Mortality

Table 17 presents the five leading causes of cancer mortality by race/ethnicity and sex**.** The number of cancer-related deaths, age-adjusted mortality rates, and 95% confidence intervals by cancer type, race/ethnicity, and sex are presented in Tables 18 through 23.

Of the 66,332 deaths from cancer between 2003 and 2007, 61,584 occurred among white, non-Hispanics, 2,699 among black, non-Hispanics, 887 among Asian, non-Hispanics, and 1,091 among Hispanics (Table 20). Overall death rates were significantly higher in the black, non-Hispanic population as compared with all other race/ethnicity groups, which is consistent with national data (7).

Males

Based on age-adjusted rates, the most common causes of cancer deaths among Massachusetts males include: (See Table 17 for rates.)

- Lung cancer: First among men of all race/ethnicity groups.
- Prostate cancer: Second among white, non-Hispanic, black, non-Hispanic, and Hispanic men; fourth among Asian, non-Hispanic men.
- Liver cancer: Second among Asian, non-Hispanic men; third among Hispanic men; fifth among black, non-Hispanic men.
- Colo-rectal cancer: Third among white, non-Hispanic, black, non-Hispanic, and Asian, non-Hispanic men; fourth among Hispanic men.
- Pancreatic cancer: Fourth among white, non-Hispanic and black, non-Hispanic men.
- Stomach cancer: Fifth among Asian, non-Hispanic and Hispanic men.
- Esophageal cancer: Fifth among white, non-Hispanic men.

For all types of cancer combined for 2003-2007, black, non-Hispanic males had the highest age-adjusted mortality rate among males, with 282.3 deaths per 100,000 males. This was significantly higher than the rates for the three other racial/ethnic groups. Black, non-Hispanic males had significantly higher mortality rates of the following cancers as compared with white, non-Hispanics:

- bronchus and lung cancer (77.7 per 100,000 vs. 66.7 per 100,000),

- liver cancer (14.4 per 100,000 vs. 7.5 per 100,000),
- multiple myeloma (8.8 per 100,000 vs. 4.3 per 100,000),
- prostate cancer (50.2 per 100,000 vs. 24.4 per 100,000), and
- stomach cancer (13.0 per 100,000 vs. 5.2 per 100,000).

Mortality data were limited for both Asian, non-Hispanic and Hispanic males due to small numbers, but Asian, non-Hispanic males had the highest mortality rate of cancer of the liver and intrahepatic bile ducts, 20.2 per 100,000 (Table 21). This rate was significantly higher than that of white, non-Hispanic males and Hispanics, but not those of black non-Hispanic males.

Females

Based on age-adjusted rates, the most common causes of cancer deaths among Massachusetts females include: (See Table 17 for rates.)

- Lung cancer: First among white, non-Hispanic, black, non-Hispanic, and Asian, non-Hispanic women; second among Hispanic women.
- Breast cancer: First among Hispanic women; second among white, non-Hispanic and black non-Hispanic women; fifth among Asian, non-Hispanic women.
- Colo-rectal cancer: Third among white, non-Hispanic, black, non-Hispanic, and Hispanic women; second among Asian, non-Hispanic women.
- Pancreatic cancer: Third among Asian, non-Hispanic women; fourth among white, non-Hispanic, black, non-Hispanic, and Hispanic women.
- Liver cancer: Fourth among Asian, non-Hispanic women.
- Uterine cancer: Fifth among black, non-Hispanic and Hispanic women.
- Ovarian cancer: Fifth among white, non-Hispanic women.

For all types of cancer combined for 2003-2007, black, non-Hispanic females had the highest age-adjusted mortality rate among females, with 174.3 deaths per 100,000 females. This rate was statistically significantly elevated compared to the rates for white, non-Hispanic females., Asian, non-Hispanic females, and Hispanic females. White, non-Hispanic females had statistically significantly elevated mortality rates of lung cancer (45.7 per 100,000) compared with the other racial/ethnic groups. Breast cancer mortality rates were statistically significantly higher among black, non-Hispanic females than among white, non-Hispanic females. Both these groups had statistically significantly elevated rates when compared with Asian, non-Hispanics and Hispanics. The mortality rate from colo-rectal cancer was statistically significantly higher in white, non-Hispanic and black, non-Hispanic females compared with the other two racial/ethnic groups (Table 22).

Massachusetts Compared with the U.S.

Age-adjusted incidence and mortality rates in Massachusetts are compared with national rates in Table 24. The national incidence and mortality data are from the North American Association of Central Cancer Registries (NAACCR). It is important to interpret these data cautiously. Cancer rates may be affected by differences in the racial/ethnic composition of the population, differences in population estimates, the prevalence of cancer risk factors, and cancer screening rates. Cancer rates in Massachusetts and NAACCR areas or the United States may differ because of these variations. Massachusetts incidence and mortality data cover the period 2003-2007, while national incidence and mortality data cover the period 2002-2006 (the most recent data available at the time this report was produced).

Incidence

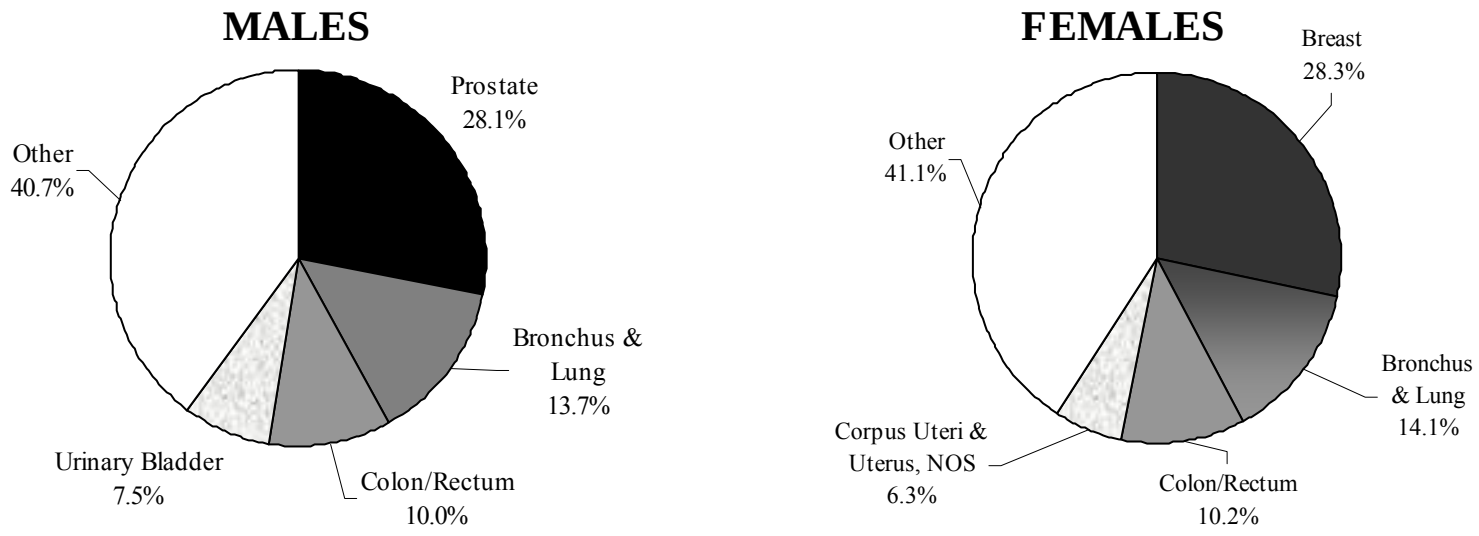
The NAACCR incidence data represent about 80% of the U.S. population, including 81% of whites, 75% of blacks, 90% of Asian/Pacific Islanders, and 91% of Hispanics/Latinos (2). For all cancer sites combined and for both sexes, the age-adjusted incidence rates were higher in Massachusetts than in the NAACCR areas. The incidence rates in Massachusetts were slightly higher than the incidence rates in the NAACCR areas for leading cancers: female bronchus and lung, male and female colo-rectal, female breast, prostate, and uterine. Lung cancer incidence among males was lower in Massachusetts than in the NAACCR areas (83.8 versus 86.4 per 100,000 males). The incidence of *in situ* breast cancer in females was higher in Massachusetts than in NAACCR registries (46.1 versus 29.3 per 100,000 females). The incidence rate of cervical cancer in Massachusetts was lower than the incidence rate in the NAACCR registries (5.9 versus 8.3 per 100,000 females) (Table 24).

Mortality

The national mortality data cover the entire United States population. For males, the age-adjusted mortality rate in Massachusetts was slightly higher than the age-adjusted mortality rate in the United States for all cancer sites combined, 230.1 versus 229.9 per 100,000 males. Lung cancer and prostate cancer mortality rates were lower for Massachusetts compared with the U.S., and bladder cancer mortality rates were higher. For females, the age-adjusted mortality rate for all cancer sites combined in Massachusetts was slightly higher than the national rate (159.0 versus 157.8 per 100,000) (Table 24). Breast cancer mortality rates were slightly lower in Massachusetts compared with the U.S. and bronchus and lung and bladder cancer mortality rates were slightly higher.

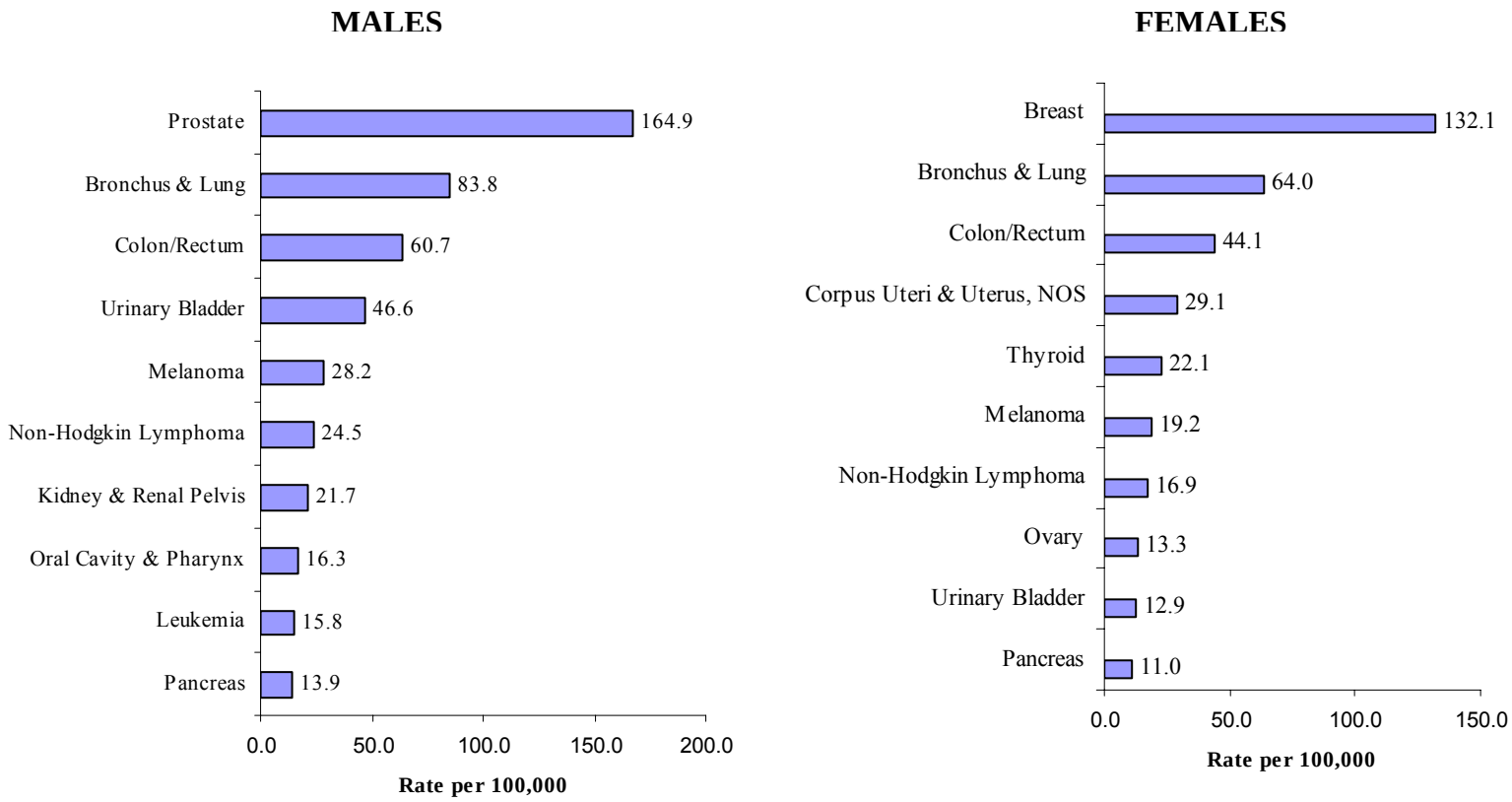
FIGURES & TABLES

Figure 1.
CANCER INCIDENCE CASES BY CANCER TYPE AND SEX
Massachusetts, 2003-2007



Source: Massachusetts Cancer Registry

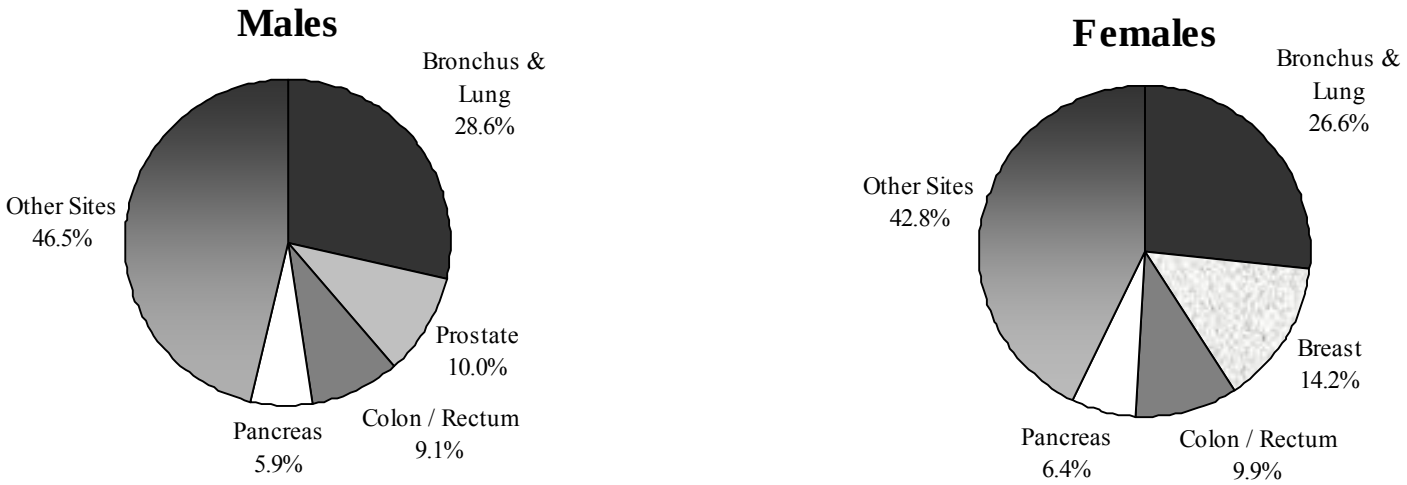
Figure 2.
INCIDENCE RATES[1] FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2003-2007



[1] Rates are age-adjusted to the 2000 U.S. Standard Population. * Breast cancer rates do not include *in situ* cases.

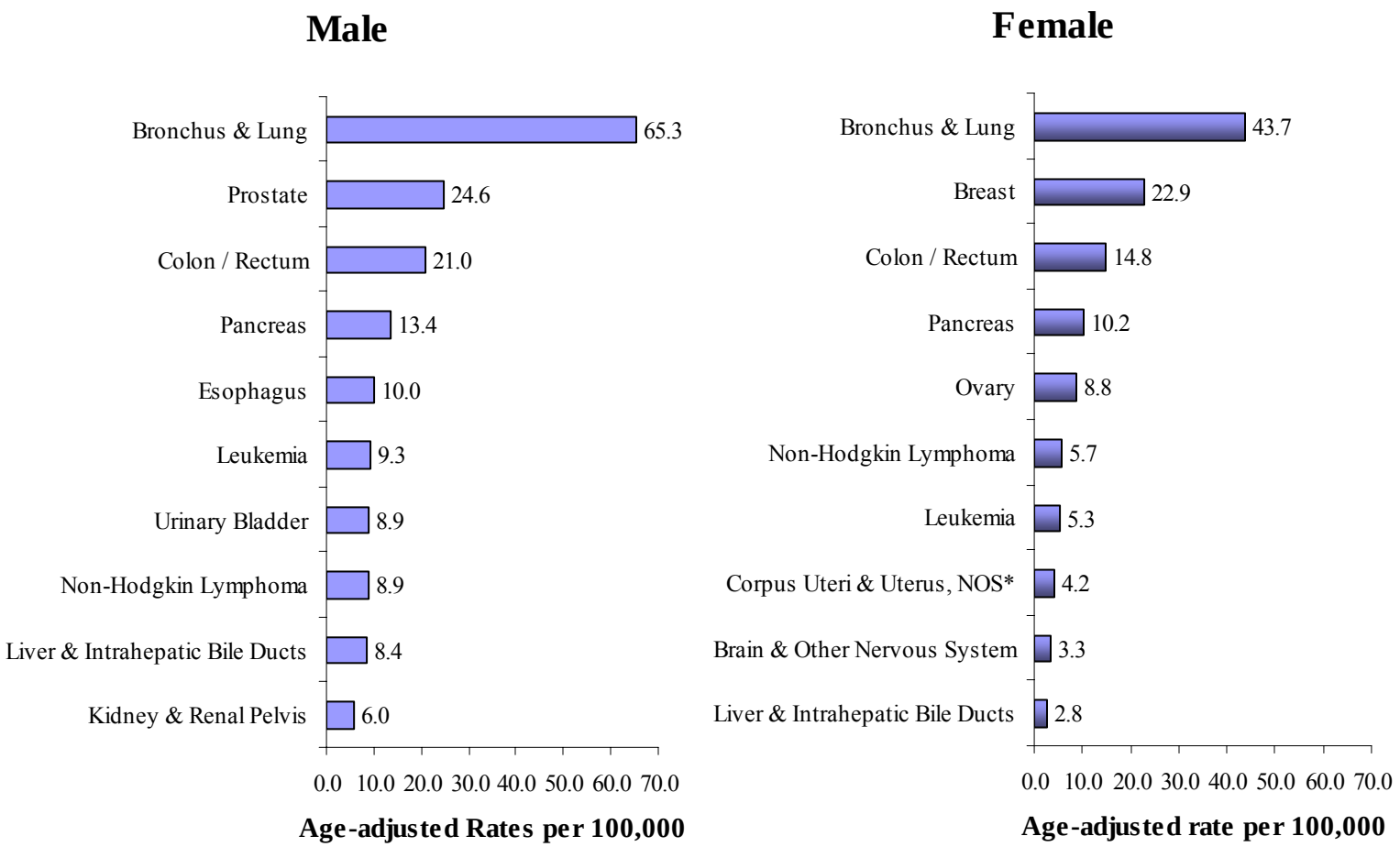
Source: Massachusetts Cancer Registry

Figure 3.
CANCER DEATHS BY CANCER TYPE AND SEX
Massachusetts, 2003-2007



Source: Massachusetts Cancer Registry

Figure 4.
MORTALITY RATES[1] FOR TEN LEADING CANCER TYPES BY SEX
Massachusetts, 2003-2007



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

Source: Massachusetts Cancer Registry

Table 1.
AGE-SPECIFIC INCIDENCE RATES[1] AND MEDIAN AGES FOR SELECTED CANCER SITES
Massachusetts, 2003-2007
MALES

	Age Groups																		Median
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+**	**Age**
All Sites	24.1	14.0	15.1	24.7	34.7	53.9	73.2	100.2	167.3	310.3	640.3	1082.0	1686.3	2393.0	2982.6	3340.0	3481.6	3240.5	67.0
Brain & Other Nervous System	5.2	4.4	2.0	3.0	1.5	3.6	3.9	4.3	6.0	10.0	10.4	15.0	16.0	19.0	29.3	33.8	35.5	25.6	57.0
Breast	--	--	--	--	--	--	--	0.1	0.4	0.5	1.4	1.9	3.9	6.7	6.4	8.7	7.9	11.5	69.0
Breast *in situ*[2]	--	--	--	0.1	--	0.1	--	0.1	0.1	0.2	0.3	0.6	0.4	0.4	1.9	--	0.8	--	59.5
Bronchus & Lung	0.3	--	0.1	0.3	0.2	1.3	2.1	4.3	11.7	30.0	61.8	118.7	220.9	358.3	493.6	598.3	602.2	453.8	71.0
Colon / Rectum	--	--	0.1	0.6	0.3	1.8	4.3	8.4	16.4	32.1	73.6	94.9	138.6	219.9	281.6	362.1	442.8	459.0	69.0
Esophagus	--	--	--	--	--	0.1	0.5	0.9	2.7	6.5	13.5	26.2	36.7	48.8	55.1	63.5	73.0	51.6	66.5
Hodgkin Lymphoma	0.1	1.0	1.9	3.9	4.9	6.7	5.0	5.1	4.2	3.0	3.0	4.3	4.5	3.8	5.7	5.9	11.0	4.7	39.0
Kidney & Renal Pelvis	1.6	0.5	0.1	0.1	0.5	0.8	2.6	5.5	11.5	19.8	32.2	40.7	65.2	81.3	86.5	114.4	114.8	81.4	64.0
Larynx	--	--	--	--	--	--	0.3	0.5	1.5	3.4	8.2	16.4	22.8	34.1	35.2	34.4	33.9	28.7	66.0
Leukemia	8.5	3.6	3.5	3.4	3.1	2.8	3.5	3.1	5.6	8.3	13.3	19.8	33.8	41.2	64.3	85.6	104.2	115.8	67.0
Liver & Intrahepatic Bile Ducts	0.9	--	--	0.1	0.3	0.2	0.6	1.2	3.2	9.8	24.4	28.8	28.0	35.3	46.3	51.2	44.2	34.9	62.0
Melanoma of Skin	--	0.2	0.6	1.4	3.0	5.3	9.6	12.4	17.5	26.0	33.2	51.2	70.0	92.2	115.4	128.9	144.4	150.2	64.0
Multiple Myeloma	--	--	--	--	--	0.3	0.4	1.1	2.1	3.1	8.4	11.9	17.4	23.8	36.9	42.8	48.1	50.1	69.0
Non-Hodgkin Lymphoma	0.6	1.9	2.7	2.9	2.7	4.8	6.0	9.8	14.0	17.6	27.2	40.8	52.0	70.2	97.4	128.1	158.6	151.3	66.0
Oral Cavity & Pharynx	--	0.2	0.4	0.6	1.0	1.0	1.2	3.5	8.7	17.2	31.5	49.1	54.7	57.5	59.8	59.6	57.2	52.7	60.0
Pancreas	--	--	--	0.1	0.1	--	0.4	1.0	2.4	5.9	11.3	23.1	38.8	53.9	69.3	87.2	110.5	96.5	70.0
Prostate	0.1	--	--	--	--	0.1	0.1	1.0	12.4	52.0	194.1	395.6	639.5	892.8	961.9	834.9	629.4	579.5	66.0
Stomach	--	--	--	--	0.1	0.6	1.1	1.4	2.9	5.9	8.0	13.3	24.8	35.7	51.1	71.3	85.2	93.9	71.0
Testis	0.2	--	0.3	2.5	10.0	13.8	15.9	14.4	10.8	8.6	5.7	3.4	2.5	1.6	1.2	1.4	--	2.1	36.0
Thyroid	0.1	--	0.2	1.2	2.0	3.3	5.4	8.1	9.5	12.3	14.4	13.9	16.5	18.8	20.3	20.4	13.4	11.0	53.0
Urinary Bladder	--	--	--	0.1	0.4	1.0	2.0	3.2	6.6	14.0	28.0	56.4	107.7	162.8	255.3	331.9	400.9	389.1	73.0
Other Sites	6.4	2.2	3.3	4.5	4.6	6.5	8.6	10.9	16.9	24.1	36.7	56.7	92.2	135.4	210.2	276.0	364.2	397.4	70.0

[1] per 100,000 [2] Breast *in situ* is excluded from "All Sites." [3] Dashed-out age groups had no incident cases.

Source: Massachusetts Cancer Registry

Table 2.
AGE-SPECIFIC INCIDENCE RATES[1] AND MEDIAN AGES FOR SELECTED CANCER SITES
Massachusetts, 2003-2007
FEMALES

	Age Groups																		Median
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+**	**Age**
All Sites	25.0	10.9	12.5	22.2	40.3	71.9	122.6	192.2	308.8	493.1	649.9	872.7	1181.4	1495.1	1808.6	2062.3	2188.3	1882.6	66.0
Brain & Other Nervous System	6.2	3.0	2.5	2.4	1.9	3.2	3.2	2.8	4.6	6.5	6.1	9.2	11.4	15.9	18.4	19.4	24.1	14.4	59.0
Breast	--	--	0.1	0.1	1.0	7.2	26.5	67.8	128.2	219.2	244.8	298.3	372.2	409.9	426.0	465.5	454.9	344.0	61.0
Breast *in situ*[2]	--	--	--	--	0.2	1.6	4.4	16.9	63.7	107.4	112.6	121.1	132.0	124.9	121.1	109.5	90.8	36.4	56.0
Bronchus & Lung	0.1	--	--	0.2	0.4	0.5	2.5	4.6	14.5	33.8	57.5	108.8	200.9	291.4	379.5	401.1	370.0	235.6	71.0
Cervix Uteri	--	--	--	0.5	1.4	4.1	8.5	10.2	10.7	8.9	9.3	11.1	7.6	11.0	8.2	9.3	9.9	8.2	49.0
Colon / Rectum	--	--	--	0.2	0.6	2.1	4.4	7.6	14.3	28.8	51.9	63.1	86.9	137.9	198.0	267.9	342.9	364.3	75.0
Corpus Uteri & Uterus, NOS	--	--	--	0.2	0.4	1.5	3.8	7.6	14.5	31.5	63.0	88.9	115.5	108.6	98.7	96.6	83.0	62.4	62.0
Esophagus	--	--	--	--	--	--	0.1	0.2	0.5	1.2	1.3	4.4	4.7	10.8	15.2	16.7	16.3	15.4	74.0
Hodgkin Lymphoma	--	0.2	1.5	4.0	6.5	4.1	4.8	3.8	3.7	2.1	1.6	2.3	2.4	2.7	3.0	4.3	4.6	2.1	37.0
Kidney & Renal Pelvis	1.7	0.4	0.1	0.1	0.5	0.8	2.0	2.8	6.2	9.4	15.1	22.8	28.4	38.4	50.2	52.3	54.4	31.3	67.0
Larynx	--	--	--	--	--	0.2	0.2	0.3	0.6	1.4	2.9	3.1	5.8	6.9	9.9	5.6	4.8	4.2	66.0
Leukemia	8.4	3.3	2.6	1.8	1.5	3.3	2.8	3.7	4.7	6.3	8.4	10.4	19.8	23.4	38.1	43.9	55.1	55.4	70.0
Liver & Intrahepatic Bile Ducts	0.7	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.7	1.8	4.2	6.5	5.9	9.8	13.0	15.7	20.9	17.3	71.0
Melanoma of Skin	0.1	0.2	0.3	2.4	6.7	11.7	15.8	17.5	21.4	28.3	29.3	31.7	41.1	42.8	47.2	56.8	62.8	54.6	57.0
Multiple Myeloma	--	--	--	--	--	0.1	--	0.1	1.0	2.0	5.1	8.9	9.7	13.4	19.5	28.4	27.1	23.5	73.0
Non-Hodgkin Lymphoma	0.6	0.5	1.0	1.2	2.3	2.8	3.6	5.4	8.5	11.5	18.2	29.3	43.1	54.8	66.4	94.9	111.9	89.0	71.0
Oral Cavity & Pharynx	--	--	0.3	0.5	0.6	1.6	1.4	2.4	3.9	6.0	10.1	13.5	18.3	20.6	29.4	28.6	24.1	28.3	66.0
Ovary	0.1	0.3	0.6	0.9	2.3	1.6	2.8	5.4	8.6	15.8	24.2	27.3	37.2	43.0	48.3	51.1	55.7	48.8	64.0
Pancreas	--	--	--	0.1	--	0.3	--	0.9	3.0	5.0	10.6	15.3	23.9	38.8	57.1	80.3	78.7	81.8	75.0
Stomach	--	0.1	--	--	--	0.5	1.0	1.4	1.6	2.8	3.5	5.9	8.6	14.2	22.7	28.6	39.2	48.4	76.0
Thyroid	0.1	0.1	0.7	4.3	11.0	20.1	30.8	35.7	37.6	40.9	37.8	38.2	37.4	38.2	32.7	26.2	18.8	10.4	47.0
Urinary Bladder	--	--	--	0.2	0.2	0.6	0.6	1.9	3.0	5.1	9.7	20.2	31.7	53.6	72.9	81.3	88.3	84.6	73.0
Other Sites	6.9	2.6	2.8	3.1	3.2	5.3	7.4	9.8	16.8	24.9	35.2	53.5	69.1	108.8	154.0	187.4	240.8	258.4	73.0

[1] per 100,000 [2] Breast *in situ* is excluded from "All Sites." [3] Dashed-out age groups had no incident cases.

Source: Massachusetts Cancer Registry

Table 3.
AGE-SPECIFIC INCIDENCE RATES[1] AND MEDIAN AGES FOR SELECTED CANCER SITES

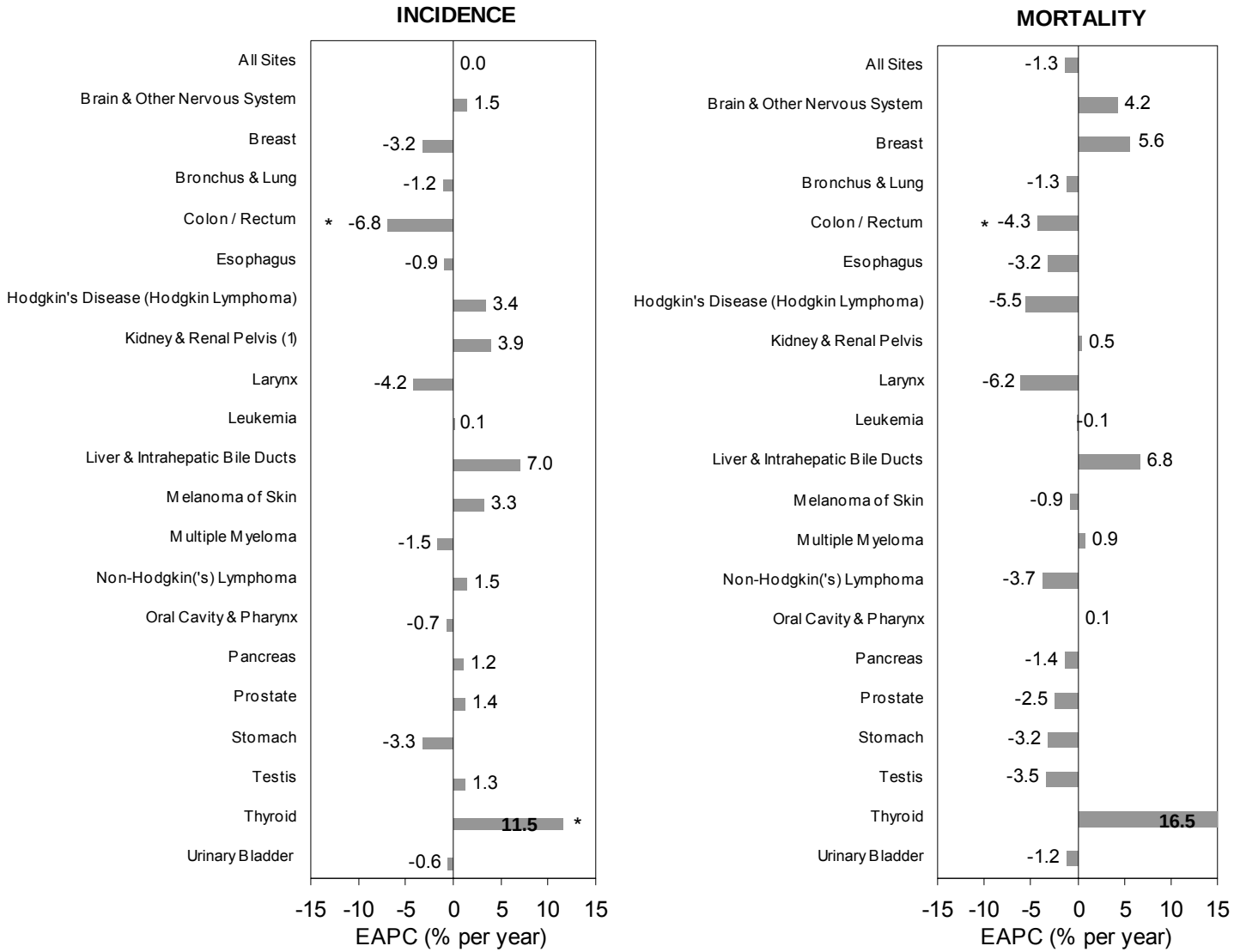
Massachusetts, 2003-2007
TOTAL

Cancer Site / Type	Age Groups																		Median
	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+	Age
All Sites	24.5	12.5	13.8	23.5	37.5	63.0	98.1	147.0	239.1	403.8	645.3	973.8	1420.8	1908.8	2325.5	2586.4	2664.0	2274.5	67.0
Brain & Other Nervous System	5.7	3.7	2.3	2.7	1.7	3.4	3.6	3.5	5.3	8.2	8.2	12.0	13.6	17.3	23.2	25.3	28.3	17.6	58.0
Breast	--	--	0.0	0.0	0.5	3.6	13.4	34.5	65.2	112.3	126.5	155.4	197.6	224.2	241.3	278.1	290.6	248.1	61.0
Breast *in situ*[2]	--	--	--	0.0	0.1	0.8	2.2	8.6	32.4	55.0	58.0	63.0	69.6	67.6	68.6	64.6	57.7	25.9	56.0
Bronchus & Lung	0.2	--	0.0	0.2	0.3	0.9	2.3	4.5	13.1	31.9	59.6	113.6	210.4	322.2	429.8	482.0	455.5	298.5	71.0
Cervix Uteri	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49.0
Colon / Rectum	--	--	0.0	0.4	0.5	2.0	4.4	8.0	15.4	30.4	62.4	78.4	111.4	175.7	234.8	306.6	379.6	391.6	72.0
Corpus Uteri & Uterus, NOS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	62.0
Esophagus	--	--	--	--	--	0.0	0.3	0.5	1.6	3.8	7.3	14.9	19.9	28.3	32.8	35.9	37.1	25.9	68.0
Hodgkin Lymphoma	0.1	0.6	1.7	3.9	5.7	5.4	4.9	4.5	4.0	2.5	2.3	3.2	3.4	3.2	4.2	4.9	7.0	2.9	38.0
Kidney & Renal Pelvis	1.7	0.5	0.1	0.1	0.5	0.8	2.3	4.1	8.8	14.5	23.4	31.4	45.8	58.2	66.2	77.8	76.6	45.7	65.0
Larynx	--	--	--	--	--	0.1	0.2	0.4	1.1	2.4	5.5	9.5	13.8	19.4	21.0	17.4	15.5	11.3	66.0
Leukemia	8.4	3.5	3.1	2.6	2.3	3.1	3.1	3.4	5.2	7.3	10.8	14.9	26.4	31.6	49.6	61.0	73.1	72.8	68.0
Liver & Intrahepatic Bile Ducts	0.8	0.1	0.0	0.1	0.2	0.3	0.5	0.8	1.9	5.7	14.1	17.3	16.4	21.5	27.7	30.3	29.4	22.4	64.0
Melanoma of Skin	0.1	0.2	0.4	1.9	4.9	8.5	12.7	15.0	19.5	27.2	31.2	41.1	54.8	65.6	77.2	86.4	92.8	82.3	61.0
Multiple Myeloma	--	--	--	--	--	0.2	0.2	0.6	1.5	2.5	6.7	10.4	13.3	18.3	27.2	34.3	34.8	31.1	71.0
Non-Hodgkin Lymphoma	0.6	1.2	1.8	2.1	2.5	3.8	4.8	7.6	11.2	14.5	22.6	34.9	47.3	61.9	80.0	108.5	129.2	107.0	68.0
Oral Cavity & Pharynx	--	0.1	0.3	0.5	0.8	1.3	1.3	3.0	6.3	11.5	20.5	30.6	35.6	37.6	42.8	41.3	36.3	35.4	62.0
Ovary	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64.0
Pancreas	--	--	--	0.1	0.0	0.1	0.2	0.9	2.7	5.5	10.9	19.0	31.0	45.7	62.4	83.1	90.4	86.1	73.0
Prostate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	66.0
Stomach	--	0.1	--	--	0.0	0.5	1.1	1.4	2.3	4.4	5.6	9.5	16.3	24.1	35.2	46.1	56.1	61.5	73.0
Testis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36.0
Thyroid	0.1	0.1	0.4	2.7	6.5	11.8	18.2	22.1	23.7	26.9	26.4	26.5	27.5	29.3	27.3	23.9	16.8	10.5	49.0
Urinary Bladder	--	--	--	0.1	0.3	0.8	1.3	2.5	4.8	9.4	18.6	37.7	67.7	103.9	153.2	184.1	203.2	172.4	73.0
Other Sites	6.7	2.4	3.1	3.8	3.9	5.9	8.0	10.3	16.9	24.5	35.9	55.1	80.0	121.1	178.7	223.8	286.2	298.5	71.0

[1] per 100,000 [2] Breast *in situ* is excluded from "All Sites." [3] Dashed-out age groups had no incident cases or are found only in one sex.

Source: Massachusetts Cancer Registry

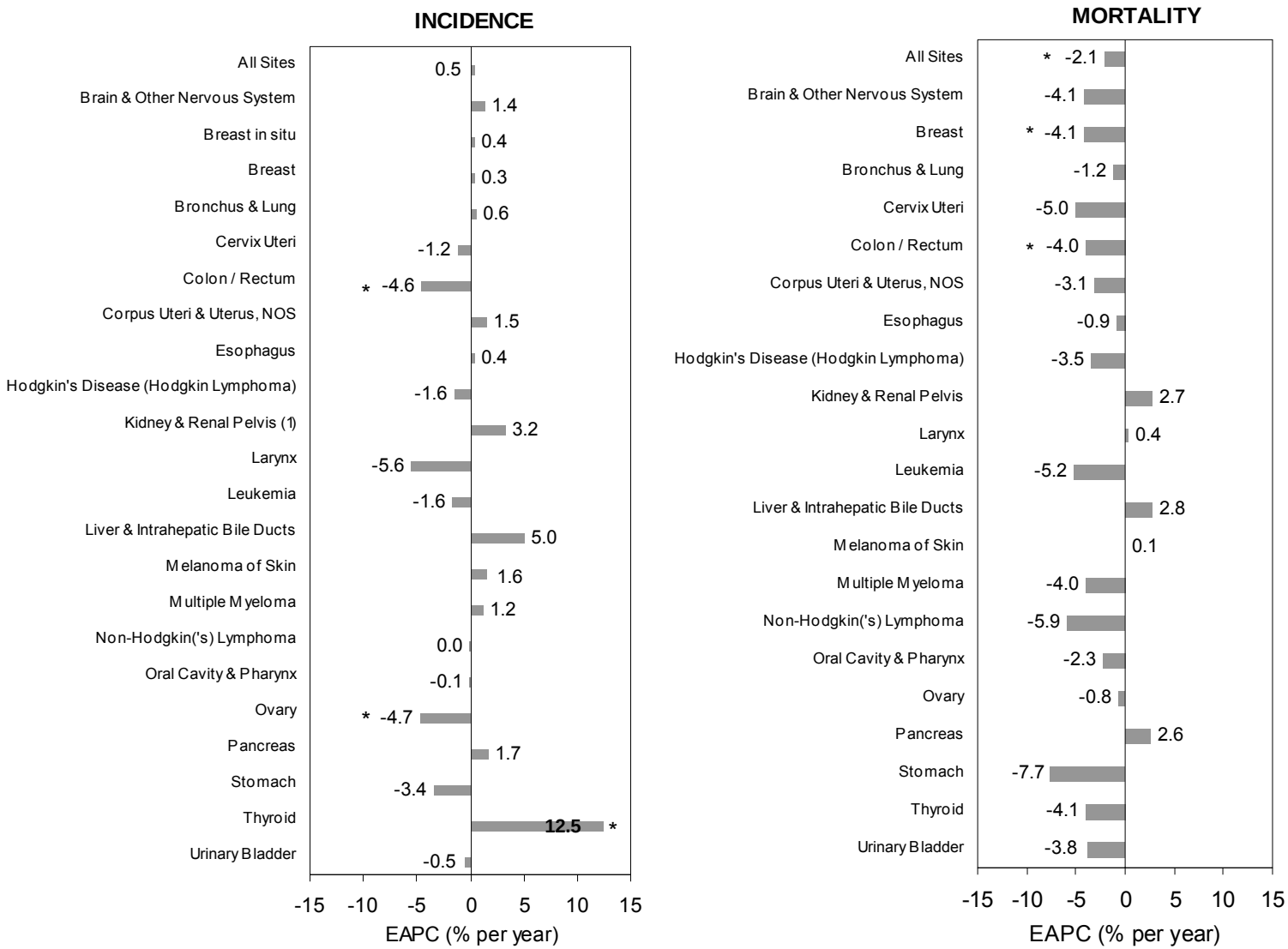
Figure 5.
ESTIMATED ANNUAL PERCENT CHANGE (EAPC) IN AGE-ADJUSTED CANCER RATES AMONG MALES
Massachusetts, 2003-2007



* EAPC 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.
ESTIMATED ANNUAL PERCENT CHANGE (EAPC) IN AGE-ADJUSTED CANCER RATES AMONG FEMALES
Massachusetts, 2003-2007



* EAPC 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, 2003-2007
MALES

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites (Excluding Breast *in situ*)	598.0	592.3	600.1	610.6	589.3
Brain & Other Nervous System	8.3	9.1	8.7	8.2	9.4
Breast	1.7	1.3	1.1	1.6	1.3
Breast *in situ*[3]	0.2	0.2	0.2	0.3	0.1
Bronchus & Lung	84.2	84.4	87.6	83.3	79.9
Colon / Rectum	69.0	65.6	60.1	57.3	51.8
Esophagus	11.5	12.6	10.9	11.3	11.6
Hodgkin Lymphoma	3.6	3.8	4.1	3.9	4.2
Kidney & Renal Pelvis	19.7	20.2	22.9	23.6	22.1
Larynx	7.4	7.1	6.7	7.3	5.9
Leukemia	15.4	16.5	15.7	15.5	16.0
Liver & Intrahepatic Bile Ducts	8.8	10.0	10.6	12.4	11.1
Melanoma of Skin	25.5	27.3	28.2	32.4	27.5
Multiple Myeloma	7.1	7.5	7.0	7.0	6.8
Non-Hodgkin Lymphoma	24.0	23.7	24.9	24.9	25.2
Oral Cavity & Pharynx	17.0	15.8	16.4	16.4	16.1
Pancreas	13.8	13.1	14.6	14.5	13.9
Prostate	164.6	157.1	162.6	171.7	168.4
Stomach	11.0	12.2	10.8	9.2	10.7
Testis	6.3	5.7	7.0	6.3	6.4
Thyroid	6.1	6.2	8.4	8.3	9.1
Urinary Bladder	48.2	45.8	45.8	47.1	46.1

[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, 2003-2007
FEMALES

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites (Excluding Breast *in situ*)	453.9	457.6	454.8	469.8	458.6
Brain & Other Nervous System	6.6	5.4	6.0	6.8	6.3
Breast	130.6	133.4	130.4	132.3	133.5
Breast *in situ*[3]	47.7	44.4	45.2	44.8	48.3
Bronchus & Lung	62.5	63.6	65.7	65.0	63.6
Cervix Uteri	5.3	7.0	6.0	6.2	5.3
Colon / Rectum	48.1	46.5	44.0	41.6	40.2
Corpus Uteri & Uterus, NOS	28.4	29.1	27.6	30.8	29.8
Esophagus	2.5	2.3	2.6	2.4	2.5
Hodgkin Lymphoma	3.1	2.8	2.6	3.4	2.6
Kidney & Renal Pelvis	10.1	9.8	11.1	12.0	10.7
Larynx	2.0	1.6	1.3	1.6	1.5
Leukemia	10.2	9.6	9.2	9.6	9.4
Liver & Intrahepatic Bile Ducts	2.9	2.7	2.8	3.2	3.4
Melanoma of Skin	17.5	19.7	19.5	20.8	18.4
Multiple Myeloma	4.2	3.8	3.5	4.7	4.0
Non-Hodgkin Lymphoma	17.0	17.2	16.6	16.8	17.2
Oral Cavity & Pharynx	6.7	6.4	6.0	7.2	6.3
Ovary	14.5	13.8	13.5	12.6	11.9
Pancreas	11.0	10.3	10.4	12.6	10.8
Stomach	5.4	4.8	4.5	4.9	4.5
Thyroid	18.6	18.5	22.2	25.9	28.3
Urinary Bladder	12.6	13.5	13.2	12.6	12.7

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000 females
[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, 2003-2007
TOTAL

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites (Excluding Breast *in situ*)	510.9	511.0	512.8	525.4	510.6
Brain & Other Nervous System	7.4	7.1	7.2	7.4	7.7
Breast	72.0	73.2	71.6	72.6	72.9
Breast *in situ*[3]	25.5	23.7	24.2	24.0	25.7
Bronchus & Lung	71.2	71.9	74.4	72.1	69.9
Cervix Uteri	–[4]	–	–	–	–
Colon / Rectum	57.0	55.0	50.9	48.3	45.2
Corpus Uteri & Uterus, NOS	–	–	–	–	–
Esophagus	6.4	6.8	6.3	6.4	6.5
Hodgkin Lymphoma	3.3	3.2	3.3	3.7	3.4
Kidney & Renal Pelvis	14.3	14.4	16.3	17.0	15.7
Larynx	4.4	4.0	3.7	4.1	3.4
Leukemia	12.3	12.6	11.9	12.0	12.2
Liver & Intrahepatic Bile Ducts	5.6	6.0	6.3	7.4	6.9
Melanoma of Skin	20.7	22.8	22.7	25.5	22.1
Multiple Myeloma	5.4	5.3	5.1	5.7	5.2
Non-Hodgkin Lymphoma	19.9	20.0	20.3	20.4	20.6
Oral Cavity & Pharynx	11.4	10.7	10.7	11.4	10.8
Ovary	–	–	–	–	–
Pancreas	12.1	11.5	12.2	13.4	12.2
Prostate	–	–	–	–	–
Stomach	7.7	7.9	7.1	6.7	7.2
Testis	–	–	–	–	–
Thyroid	12.5	12.6	15.5	17.3	18.9
Urinary Bladder	27.1	26.8	26.6	26.7	26.5

[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] Dashed-out cancers are those found in only one sex.

Source: Massachusetts Cancer Registry

Table 7.
ANNUAL AGE-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2003-2007
MALES

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites	237.9	231.1	227.7	231.7	222.2
Brain & Other Nervous System	4.9	4.7	5.5	5.6	5.5
Breast	0.2	0.6	0.3	0.5	0.3
Bronchus & Lung	67.2	65.6	64.9	66.5	62.6
Colon / Rectum	23.3	21.4	20.7	21.0	18.9
Esophagus	11.1	9.2	10.4	10.0	9.0
Hodgkin Lymphoma	0.6	0.4	0.3	0.4	0.4
Kidney & Renal Pelvis	5.9	6.3	5.4	6.1	6.1
Larynx	2.2	2.6	2.1	1.7	2.0
Leukemia	9.6	9.1	9.0	9.9	9.1
Liver & Intrahepatic Bile Ducts	7.2	7.2	9.3	8.8	9.1
Melanoma of Skin	4.6	4.2	4.3	4.4	4.4
Multiple Myeloma	4.4	4.3	4.0	4.3	4.6
Non-Hodgkin Lymphoma	9.5	9.0	9.4	8.8	8.0
Oral Cavity & Pharynx	3.7	4.3	3.4	3.6	4.1
Pancreas	14.1	12.7	13.8	13.2	13.0
Prostate	27.0	24.5	23.2	24.6	23.8
Stomach	5.9	5.9	5.7	5.8	5.0
Testis	0.2	0.3	0.1	0.1	0.2
Thyroid	0.3	0.7	0.3	0.4	0.7
Urinary Bladder	8.9	9.6	8.4	9.4	8.5

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000 males

Source: Massachusetts Cancer Registry

Table 8.
ANNUAL AGE-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2003-2007
FEMALES

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites	165.6	162.9	158.4	157.4	151.5
Brain & Other Nervous System	3.8	3.3	3.0	3.1	3.2
Breast	24.4	24.0	22.9	23.1	20.1
Bronchus & Lung	45.5	43.2	43.8	43.3	42.9
Cervix Uteri	1.3	1.7	1.6	1.4	1.1
Colon / Rectum	15.9	15.4	15.3	14.0	13.5
Corpus Uteri & Uterus, NOS	4.4	4.2	4.4	4.3	3.7
Esophagus	2.1	2.1	2.0	2.0	2.0
Hodgkin Lymphoma	0.3	0.3	0.2	0.3	0.3
Kidney & Renal Pelvis	2.2	2.4	2.4	2.7	2.4
Larynx	0.5	0.5	0.7	0.4	0.6
Leukemia	5.7	5.8	5.1	5.5	4.5
Liver & Intrahepatic Bile Ducts	2.6	3.0	2.5	2.8	3.0
Melanoma of Skin	2.1	1.6	2.7	2.0	1.9
Multiple Myeloma	3.2	2.5	2.6	2.6	2.5
Non-Hodgkin Lymphoma	6.0	6.1	6.2	5.3	4.7
Oral Cavity & Pharynx	1.6	1.5	1.1	1.7	1.4
Ovary	8.8	9.2	8.3	9.5	8.3
Pancreas	9.7	10.1	10.0	9.8	11.2
Stomach	3.1	3.0	2.1	2.1	2.5
Thyroid	0.7	0.4	0.4	0.6	0.4
Urinary Bladder	2.6	2.4	2.8	2.0	2.4

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000 females

Source: Massachusetts Cancer Registry

Table 9.
ANNUAL AGE-ADJUSTED[1] MORTALITY RATES[2] FOR SELECTED CANCER SITES
Massachusetts, 2003-2007
TOTAL

Cancer Site / Type	2003	2004	2005	2006	2007
All Sites	193.1	188.7	184.9	186.1	178.9
Brain & Other Nervous System	4.3	4.0	4.1	4.2	4.2
Breast	14.1	13.9	13.2	13.3	11.6
Bronchus & Lung	54.4	52.0	52.2	52.7	50.8
Cervix Uteri	–	–	–	–	–
Colon / Rectum	18.8	17.9	17.5	16.9	15.8
Corpus Uteri & Uterus, NOS	–	–	–	–	–
Esophagus	5.9	5.1	5.6	5.5	5.1
Hodgkin Lymphoma	0.5	0.4	0.3	0.4	0.4
Kidney & Renal Pelvis	3.7	4.0	3.6	4.1	4.0
Larynx	1.3	1.4	1.3	1.0	1.2
Leukemia	7.3	7.1	6.6	7.3	6.2
Liver & Intrahepatic Bile Ducts	4.6	4.9	5.5	5.5	5.7
Melanoma of Skin	3.1	2.7	3.3	3.0	2.9
Multiple Myeloma	3.7	3.2	3.2	3.3	3.3
Non-Hodgkin Lymphoma	7.4	7.2	7.4	6.7	6.0
Oral Cavity & Pharynx	2.5	2.8	2.1	2.5	2.6
Ovary	–	–	–	–	–
Pancreas	11.5	11.2	11.7	11.3	12.0
Prostate	–	–	–	–	–
Stomach	4.2	4.2	3.5	3.6	3.5
Testis	–	–	–	–	–
Thyroid	0.5	0.5	0.3	0.5	0.5
Urinary Bladder	5.0	5.2	4.9	4.8	4.7

[1] Rates are age-adjusted to the 2000 U.S. Standard Population.
[2] per 100,000 total population
[3] Dashed-out cancers are those found in only one sex.

Source: Massachusetts Cancer Registry

Table 10.
FIVE LEADING CANCER INCIDENCE RATES BY RACE/ETHNICITY AND SEX
Massachusetts, 2003-2007

MALES

AGE-ADJUSTED[1] INCIDENCE RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Prostate 158.7	Prostate 252.9	Prostate 68.8	Prostate 161.2
2	Bronchus & Lung 85.7	Bronchus & Lung 91.3	Bronchus & Lung 50.2	Colon / Rectum 44.1
3	Colon / Rectum 61.1	Colon / Rectum 56.0	Colon / Rectum 43.0	Bronchus & Lung 39.1
4	Urinary Bladder 48.8	Kidney & Renal Pelvis 24.2	Liver & Intrahepatic Bile Ducts 31.2	Urinary Bladder 20.0
5	Melanoma of Skin 29.4	Urinary Bladder 22.6	Stomach 14.4	Non-Hodgkin Lymphoma 17.8

FEMALES

AGE-ADJUSTED[1] INCIDENCE RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Breast[3] 136.3	Breast 113.2	Breast 75.6	Breast 86.1
2	Bronchus & Lung 67.0	Bronchus & Lung 48.0	Colon / Rectum 34.5	Colon / Rectum 35.5
3	Colon / Rectum 44.1	Colon / Rectum 42.9	Bronchus & Lung 30.1	Bronchus & Lung 24.0
4	Corpus Uteri & Uterus, NOS 29.8	Corpus Uteri & Uterus, NOS 22.5	Thyroid 27.4	Corpus Uteri & Uterus, NOS 23.1
5	Thyroid 22.7	Thyroid 20.1	Corpus Uteri & Uterus, NOS 18.5	Thyroid 21.5

[1] Rates are age-adjusted to the 2000 U.S. Standard Population
[2] per 100,000
[3] Breast cancer rates do not include breast *in situ* cases.

Source: Massachusetts Cancer Registry

Table 11.
INCIDENCE CASES AND PERCENTAGE OF CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY[1]
Massachusetts, 2003-2007
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	90222	100.0	81276	100.0	3627	100.0	1406	100.0	2321	100.0
Brain & Other Nervous System	1346	1.5	1252	1.5	27	0.7	22	1.6	40	1.7
Breast[3]	206	0.2	188	0.2	11	0.3	1	0.1	4	0.2
Bronchus & Lung	12365	13.7	11488	14.1	488	13.5	193	13.7	168	7.2
Colon / Rectum	9037	10.0	8227	10.1	318	8.8	183	13.0	216	9.3
Esophagus	1770	2.0	1643	2.0	63	1.7	23	1.6	34	1.5
Hodgkin Lymphoma	612	0.7	549	0.7	21	0.6	9	0.6	31	1.3
Kidney & Renal Pelvis	3341	3.7	3032	3.7	147	4.1	44	3.1	98	4.2
Larynx	1058	1.2	974	1.2	34	0.9	6	0.4	33	1.4
Leukemia	2344	2.6	2125	2.6	69	1.9	41	2.9	75	3.2
Liver & Intrahepatic Bile Ducts	1665	1.8	1279	1.6	106	2.9	161	11.5	112	4.8
Melanoma of Skin	4307	4.8	3977	4.9	10	0.3	6	0.4	23	1.0
Multiple Myeloma	1057	1.2	919	1.1	69	1.9	12	0.9	42	1.8
Non-Hodgkin Lymphoma	3702	4.1	3323	4.1	131	3.6	70	5.0	128	5.5
Oral Cavity & Pharynx	2601	2.9	2348	2.9	99	2.7	57	4.1	78	3.4
Pancreas	2073	2.3	1922	2.4	75	2.1	31	2.2	44	1.9
Prostate	25333	28.1	22051	27.1	1445	39.8	279	19.8	737	31.8
Stomach	1578	1.7	1325	1.6	105	2.9	52	3.7	86	3.7
Testis	1006	1.1	928	1.1	11	0.3	15	1.1	39	1.7
Thyroid	1214	1.3	1083	1.3	31	0.9	43	3.1	33	1.4
Urinary Bladder	6763	7.5	6465	8.0	112	3.1	43	3.1	82	3.5
Other Sites	6844	7.6	6178	7.6	255	7.0	115	8.2	218	9.4

[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.
INCIDENCE CASES AND PERCENTAGE OF CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY[1]
Massachusetts, 2003-2007
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	89090	100.0	81038	100.0	3142	100.0	1653	100.0	2358	100.0
Brain & Other Nervous System	1127	1.3	1042	1.3	17	0.5	18	1.1	44	1.9
Breast[3]	25174	28.3	22947	28.3	941	29.9	463	28.0	665	28.2
Bronchus & Lung	12578	14.1	11892	14.7	371	11.8	138	8.3	139	5.9
Cervix Uteri	1056	1.2	832	1.0	82	2.6	39	2.4	90	3.8
Colon / Rectum	9113	10.2	8317	10.3	329	10.5	172	10.4	225	9.5
Corpus Uteri & Uterus, NOS	5596	6.3	5080	6.3	180	5.7	104	6.3	169	7.2
Esophagus	497	0.6	448	0.6	28	0.9	9	0.5	11	0.5
Hodgkin Lymphoma	493	0.6	432	0.5	19	0.6	8	0.5	30	1.3
Kidney & Renal Pelvis	2069	2.3	1887	2.3	83	2.6	24	1.5	61	2.6
Larynx	307	0.3	275	0.3	16	0.5	1	0.1	12	0.5
Leukemia	1854	2.1	1675	2.1	69	2.2	33	2.0	56	2.4
Liver & Intrahepatic Bile Ducts	602	0.7	483	0.6	32	1.0	40	2.4	37	1.6
Melanoma of Skin	3571	4.0	3271	4.0	9	0.3	9	0.5	25	1.1
Multiple Myeloma	823	0.9	709	0.9	69	2.2	7	0.4	33	1.4
Non-Hodgkin Lymphoma	3370	3.8	3065	3.8	106	3.4	58	3.5	101	4.3
Oral Cavity & Pharynx	1265	1.4	1118	1.4	47	1.5	51	3.1	36	1.5
Ovary	2567	2.9	2363	2.9	60	1.9	55	3.3	68	2.9
Pancreas	2258	2.5	2080	2.6	94	3.0	39	2.4	39	1.7
Stomach	1012	1.1	829	1.0	66	2.1	55	3.3	58	2.5
Thyroid	3968	4.5	3302	4.1	181	5.8	196	11.9	215	9.1
Urinary Bladder	2616	2.9	2491	3.1	53	1.7	17	1.0	41	1.7
Other Sites	7174	8.1	6500	8.0	290	9.2	117	7.1	203	8.6

[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.
INCIDENCE CASES AND PERCENTAGE OF CASES FOR SELECTED CANCER SITES BY RACE/ETHNICITY[1]
Massachusetts, 2003-2007
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	179324	100.0	162325	100.0	6769	100.0	3059	100.0	4679	100.0
Brain & Other Nervous System	2473	1.4	2294	1.4	44	0.7	40	1.3	84	1.8
Breast[4]	25381	14.2	23136	14.3	952	14.1	464	15.2	669	14.3
Bronchus & Lung	24946	13.9	23383	14.4	859	12.7	331	10.8	307	6.6
Cervix Uteri	1056	0.6	832	0.5	82	1.2	39	1.3	90	1.9
Colon / Rectum	18150	10.1	16544	10.2	647	9.6	355	11.6	441	9.4
Corpus Uteri & Uterus, NOS	5596	3.1	5080	3.1	180	2.7	104	3.4	169	3.6
Esophagus	2268	1.3	2092	1.3	91	1.3	32	1.0	45	1.0
Hodgkin Lymphoma	1105	0.6	981	0.6	40	0.6	17	0.6	61	1.3
Kidney & Renal Pelvis	5410	3.0	4919	3.0	230	3.4	68	2.2	159	3.4
Larynx	1365	0.8	1249	0.8	50	0.7	7	0.2	45	1.0
Leukemia	4198	2.3	3800	2.3	138	2.0	74	2.4	131	2.8
Liver & Intrahepatic Bile Ducts	2267	1.3	1762	1.1	138	2.0	201	6.6	149	3.2
Melanoma of Skin	7879	4.4	7249	4.5	19	0.3	15	0.5	48	1.0
Multiple Myeloma	1881	1.0	1629	1.0	138	2.0	19	0.6	75	1.6
Non-Hodgkin Lymphoma	7073	3.9	6389	3.9	237	3.5	128	4.2	229	4.9
Oral Cavity & Pharynx	3866	2.2	3466	2.1	146	2.2	108	3.5	114	2.4
Ovary	2568	1.4	2364	1.5	60	0.9	55	1.8	68	1.5
Pancreas	4331	2.4	4002	2.5	169	2.5	70	2.3	83	1.8
Prostate	25335	14.1	22053	13.6	1445	21.3	279	9.1	737	15.8
Stomach	2590	1.4	2154	1.3	171	2.5	107	3.5	144	3.1
Testis	1006	0.6	928	0.6	11	0.2	15	0.5	39	0.8
Thyroid	5183	2.9	4385	2.7	212	3.1	239	7.8	248	5.3
Urinary Bladder	9379	5.2	8956	5.5	165	2.4	60	2.0	123	2.6
Other Sites	14018	7.8	12678	7.8	545	8.1	232	7.6	421	9.0

[1] Cases are only included in one race/ethnicity category. [2] Total includes persons classified as 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, 2003-2007
MALES

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites (Excluding Breast *in situ*)	598.0	594.1-602.0	599.9	595.7-604.0	631.0	609.1-653.0	320.3	302.2-338.5	447.0	426.1-467.8
Brain & Other Nervous System	8.7	8.3-9.2	9.5	8.9-10.0	2.9	1.8-4.1	3.8	2.1-5.6	5.2	3.3-7.2
Breast	1.4	1.2-1.6	1.4	1.2-1.6	*	*	*	*	*	*
Breast *in situ*[4]	0.2	0.1-0.3	0.2	0.1-0.3	*	*	*	*	*	*
Bronchus & Lung	83.8	82.4-85.3	85.7	84.1-87.3	91.3	82.7-99.9	50.2	42.6-57.8	39.1	32.6-45.6
Colon / Rectum	60.7	59.4-62.0	61.1	59.8-62.5	56.0	49.4-62.6	43.0	36.2-49.7	44.1	37.4-50.7
Esophagus	11.6	11.0-12.1	11.9	11.3-12.5	11.5	8.5-14.6	6.5	3.6-9.4	6.8	4.2-9.4
Hodgkin Lymphoma	3.9	3.6-4.2	4.3	4.0-4.7	2.8	*	*	*	2.6	1.5-3.7
Kidney & Renal Pelvis	21.7	21.0-22.4	22.0	21.2-22.8	24.2	20.0-28.4	9.5	6.5-12.6	17.4	13.4-21.4
Larynx	6.9	6.5-7.3	7.1	6.6-7.5	5.9	3.7-8.0	*	0.3-3.0	6.5	4.1-8.9
Leukemia	15.8	15.2-16.5	16.2	15.5-16.9	10.9	8.0-13.7	8.2	5.4-11.0	11.5	8.1-14.9
Liver & Intrahepatic Bile Ducts	10.6	10.1-11.1	9.2	8.7-9.7	17.1	13.6-20.7	31.2	26.1-36.4	17.4	13.8-21.0
Melanoma of Skin	28.2	27.3-29.0	29.4	28.4-30.3	*	*	*	*	3.1	1.6-4.6
Multiple Myeloma	7.1	6.7-7.5	6.8	6.4-7.3	12.0	9.0-15.1	*	*	9.3	6.0-12.5
Non-Hodgkin Lymphoma	24.5	23.7-25.3	24.8	23.9-25.6	18.8	15.3-22.3	14.2	10.6-17.9	17.8	14.1-21.5
Oral Cavity & Pharynx	16.3	15.7-17.0	16.6	15.9-17.2	14.9	11.7-18.0	10.0	7.1-12.8	12.5	9.3-15.7
Pancreas	13.9	13.3-14.6	14.2	13.6-14.9	13.5	10.3-16.8	8.2	5.1-11.4	8.9	5.9-11.9
Prostate	164.9	162.9-167.0	158.7	156.6-160.8	252.9	239.1-266.7	68.8	60.4-77.3	161.2	148.5-173.9
Stomach	10.8	10.2-11.3	10.0	9.4-10.5	20.9	16.7-25.2	14.4	10.2-18.6	17.7	13.4-22.1
Testis	6.3	5.9-6.7	7.4	6.9-7.9	*	*	*	*	2.6	1.7-3.4
Thyroid	7.6	7.2-8.1	7.9	7.5-8.4	4.2	2.6-5.8	6.4	4.4-8.4	5.0	2.9-7.1
Urinary Bladder	46.6	45.4-47.7	48.8	47.6-50.0	22.6	18.1-27.1	10.7	7.3-14.0	20.0	15.2-24.9

[1] Rates are age-adjusted to the 2000 U.S. Standard Population. [2] per 100,000
[3] Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category.
[4] Breast *in situ* 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, 2003-2007
FEMALES

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites (Excluding Breast *in situ*)	458.9	455.9-462.0	469.4	466.0-472.7	390.0	376.1-403.8	296.0	280.9-311.1	321.6	307.3-335.9
Brain & Other Nervous System	6.2	5.9-6.6	6.7	6.3-7.1	*	*	*	*	3.8	2.5-5.0
Breast	132.1	130.4-133.7	136.3	134.5-138.1	113.2	105.8-120.5	75.6	68.4-82.8	86.1	79.0-93.2
Breast *in situ*[4]	46.1	45.1-47.1	47.3	46.2-48.4	37.1	32.9-41.3	31.5	26.9-36.1	33.3	29.2-37.4
Bronchus & Lung	64.0	62.9-65.2	67.0	65.8-68.2	48.0	43.0-53.0	30.1	25.0-35.3	24.0	19.8-28.2
Cervix Uteri	5.9	5.6-6.3	5.6	5.2-6.0	9.6	7.5-11.7	6.5	4.3-8.6	10.0	7.7-12.3
Colon / Rectum	44.1	43.1-45.0	44.1	43.2-45.1	42.9	38.2-47.6	34.5	29.1-39.9	35.5	30.5-40.6
Corpus Uteri & Uterus, NOS	29.1	28.4-29.9	29.8	29.0-30.6	22.5	19.2-25.9	18.5	14.8-22.2	23.1	19.3-26.9
Esophagus	2.5	2.2-2.7	2.4	2.2-2.7	3.6	2.3-5.0	*	*	*	*
Hodgkin Lymphoma	2.9	2.7-3.2	3.2	2.9-3.5	*	*	*	*	2.9	1.7-4.1
Kidney & Renal Pelvis	10.7	10.3-11.2	11.0	10.5-11.5	10.1	7.9-12.4	4.9	2.8-7.0	8.6	6.2-10.9
Larynx	1.6	1.4-1.8	1.6	1.4-1.8	2.0	*	*	*-	*	*
Leukemia	9.6	9.2-10.1	9.9	9.4-10.4	8.6	6.5-10.7	5.0	3.2-6.8	6.2	4.3-8.0
Liver & Intrahepatic Bile Ducts	3.0	2.8-3.2	2.7	2.4-2.9	4.0	2.6-5.5	8.8	6.0-11.6	6.3	4.1-8.5
Melanoma of Skin	19.2	18.5-19.8	20.5	19.7-21.2	*	*	*	*	3.0	1.7-4.4
Multiple Myeloma	4.1	3.8-4.3	3.8	3.5-4.1	9.0	6.9-11.2	1.6	*	5.6	3.6-7.7
Non-Hodgkin Lymphoma	16.9	16.4-17.5	17.1	16.5-17.7	12.6	10.2-15.1	11.3	8.2-14.3	14.5	11.3-17.6
Oral Cavity & Pharynx	6.5	6.2-6.9	6.4	6.1-6.8	5.6	4.0-7.2	8.5	6.0-10.9	5.6	3.6-7.6
Ovary	13.3	12.8-13.8	13.8	13.2-14.3	7.3	5.5-9.2	8.3	6.0-10.6	9.6	7.0-12.1
Pancreas	11.0	10.6-11.5	11.1	10.6-11.6	12.7	10.1-15.3	8.8	6.0-11.7	6.5	4.3-8.7
Stomach	4.8	4.5-5.1	4.3	4.0-4.6	8.8	6.7-11.0	11.1	8.0-14.2	9.4	6.8-12.1
Thyroid	22.7	22.0-23.4	22.7	21.9-23.5	20.1	17.1-23.1	27.4	23.3-31.4	21.5	18.4-24.7
Urinary Bladder	12.9	12.4-13.4	13.6	13.0-14.1	7.4	5.4-9.4	*	*	7.1	4.8-9.5

[1] Rates are age-adjusted to the 2000 U.S. Standard Population. [2] per 100,000
[3] Race/ethnicity categories are mutually exclusive. Cases are only included in one race/ethnicity category.
[4] Breast *in situ* is excluded from "All Sites."
* An age-adjusted incidence rate was not calculated when there were fewer than 20 cases.

Source: Massachusetts Cancer Registry

Table 16.
AGE-ADJUSTED[1] INCIDENCE RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2003-2007
TOTAL

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites (Excluding Breast *in situ*)	514.1	511.7-516.5	520.5	518.0-523.1	486.6	474.6-498.6	305.2	293.6-316.7	372.2	360.2-384.2
Brain & Other Nervous System	7.3	7.1-7.6	7.9	7.6-8.3	2.4	1.7-3.1	3.1	2.1-4.1	4.3	3.2-5.4
Breast	72.5	71.6-73.4	74.6	73.6-75.5	64.9	60.7-69.2	39.5	35.7-43.3	48.0	44.0-52.1
Breast *in situ* [4]	24.6	24.1-25.1	25.2	24.6-25.7	20.9	18.5-23.3	16.3	13.9-18.7	18.2	15.9-20.5
Bronchus & Lung	71.9	71.0-72.8	74.3	73.3-75.3	65.1	60.6-69.6	39.3	34.8-43.7	30.2	26.6-33.9
Cervix Uteri	—	—	—	—	—	—	—	—	—	—
Colon / Rectum	51.2	50.5-52.0	51.5	50.7-52.2	48.6	44.7-52.5	38.5	34.2-42.8	39.3	35.3-43.4
Corpus Uteri & Uterus, NOS	—	—	—	—	—	—	—	—	—	—
Esophagus	6.5	6.2-6.7	6.6	6.3-6.9	6.8	5.4-8.3	4.0	2.5-5.4	4.0	2.7-5.3
Hodgkin Lymphoma	3.4	3.2-3.6	3.7	3.5-3.9	2.3	1.6-3.1	*	*	2.8	2.0-3.7
Kidney & Renal Pelvis	15.5	15.1-16.0	15.8	15.4-16.3	16.0	13.9-18.2	7.1	5.3-8.9	12.4	10.2-14.5
Larynx	3.9	3.7-4.1	4.0	3.8-4.2	3.6	2.6-4.6	*	*	3.5	2.4-4.7
Leukemia	12.2	11.8-12.6	12.5	12.1-12.9	9.5	7.9-11.2	6.4	4.8-8.0	8.3	6.6-10.0
Liver & Intrahepatic Bile Ducts	6.4	6.2-6.7	5.6	5.3-5.8	9.6	7.9-11.3	19.6	16.8-22.5	11.4	9.4-13.5
Melanoma of Skin	22.8	22.3-23.3	24.0	23.4-24.5	*	*	*	*	3.1	2.1-4.1
Multiple Myeloma	5.3	5.1-5.6	5.1	4.9-5.4	10.4	8.6-12.1	*	*	7.1	5.3-8.9
Non-Hodgkin Lymphoma	20.2	19.8-20.7	20.4	19.9-20.9	15.4	13.3-17.4	12.7	10.3-15.1	16.1	13.7-18.5
Oral Cavity & Pharynx	11.0	10.6-11.3	11.1	10.7-11.4	9.6	8.0-11.2	9.2	7.3-11.0	8.8	7.0-10.6
Ovary	—	—	—	—	—	—	—	—	—	—
Pancreas	12.3	11.9-12.6	12.5	12.1-12.9	13.1	11.1-15.2	8.5	6.4-10.6	7.6	5.8-9.4
Prostate	—	—	—	—	—	—	—	—	—	—
Stomach	7.3	7.0-7.6	6.7	6.4-7.0	13.7	11.6-15.8	12.4	10.0-14.9	13.0	10.6-15.4
Testis	—	—	—	—	—	—	—	—	—	—
Thyroid	15.4	15.0-15.8	15.5	15.0-16.0	12.9	11.1-14.7	17.1	14.8-19.4	13.7	11.8-15.7
Urinary Bladder	26.8	26.2-27.3	28.1	27.5-28.7	13.4	11.3-15.5	6.9	5.1-8.7	12.4	10.0-14.7

[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] Dashed-out cancers are found in only one sex. * 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, 2003-2007

MALES

AGE-ADJUSTED[1] MORTALITY RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Bronchus & Lung 66.7	Bronchus & Lung 77.7	Bronchus & Lung 41.4	Bronchus & Lung 25.4
2	Prostate 24.4	Prostate 50.2	Liver & Intrahepatic Bile Ducts 20.2	Prostate 16.0
3	Colon / Rectum 21.4	Colon / Rectum 23.8	Colon / Rectum 9.1	Liver & Intrahepatic Bile Ducts 10.4
4	Pancreas 13.6	Pancreas 15.0	Prostate 9.0	Colon / Rectum 10.1
5	Esophagus 10.2	Liver & Intrahepatic Bile Ducts 14.4	Stomach 5.8	Stomach 9.6

FEMALES

AGE-ADJUSTED[1] MORTALITY RATE[2]				
RANK	**White, non-Hispanic**	**Black, non-Hispanic**	**Asian, non-Hispanic**	**Hispanic**
1	Bronchus & Lung 45.7	Bronchus & Lung 38.2	Bronchus & Lung 18.0	Breast 12.3
2	Breast 23.4	Breast 29.3	Colon / Rectum 9.0	Bronchus & Lung 10.6
3	Colon / Rectum 14.9	Colon / Rectum 17.7	Pancreas 7.9	Colon / Rectum 9.5
4	Pancreas 10.2	Pancreas 12.2	Liver & Intrahepatic Bile Duct 7.2	Pancreas 6.2
5	Ovary 9.3	Corpus Uteri & Uterus, NOS 6.7	Breast 7.0	Corpus Uteri & Uterus, NOS 4.5

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

Source: Massachusetts Cancer Registry

Table 18.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY[1]
Massachusetts, 2003-2007
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	33207	100.0	30720	100.0	1380	100.0	502	100.0	567	100.0
Brain & Other Nervous System	808	2.4	766	2.5	15	1.1	12	2.4	13	2.3
Breast	56	0.2	49	0.2	4	0.3	1	0.2	2	0.4
Bronchus & Lung	9495	28.6	8842	28.8	386	28.0	145	28.9	113	19.9
Colon / Rectum	3011	9.1	2803	9.1	116	8.4	39	7.8	49	8.6
Esophagus	1489	4.5	1385	4.5	56	4.1	19	3.8	26	4.6
Hodgkin Lymphoma	67	0.2	63	0.2	3	0.2	0	0.0	1	0.2
Kidney & Renal Pelvis	873	2.6	834	2.7	26	1.9	5	1.0	8	1.4
Larynx	315	0.9	292	1.0	19	1.4	2	0.4	2	0.4
Leukemia	1332	4.0	1231	4.0	52	3.8	21	4.2	25	4.4
Liver & Intrahepatic Bile Ducts	1273	3.8	1032	3.4	85	6.2	92	18.3	61	10.8
Melanoma of Skin	646	1.9	643	2.1	1	0.1	0	0.0	2	0.4
Multiple Myeloma	619	1.9	559	1.8	43	3.1	2	0.4	12	2.1
Non-Hodgkin Lymphoma	1270	3.8	1186	3.9	48	3.5	14	2.8	21	3.7
Oral Cavity & Pharynx	582	1.8	526	1.7	20	1.4	21	4.2	15	2.6
Pancreas	1969	5.9	1825	5.9	81	5.9	21	4.2	41	7.2
Prostate	3306	10.0	3044	9.9	188	13.6	23	4.6	47	8.3
Stomach	815	2.5	683	2.2	65	4.7	21	4.2	45	7.9
Testis	30	0.1	29	0.1	0	0.0	0	0.0	1	0.2
Thyroid	67	0.2	63	0.2	2	0.1	2	0.4	0	0.0
Urinary Bladder	1242	3.7	1200	3.9	29	2.1	4	0.8	9	1.6
Other Sites	3942	11.9	3665	11.9	141	10.2	58	11.6	74	13.1

[1] Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.
[2] The number of deaths for all races is not the sum of deaths by race/ethnicity.

Source: Massachusetts Cancer Registry

Table 19.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY [1]
Massachusetts, 2003-2007
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	33125	100.0	30864	100.0	1319	100.0	385	100.0	524	100.0
Brain & Other Nervous System	633	1.9	600	1.9	13	1.0	3	0.8	17	3.2
Breast	4703	14.2	4341	14.1	240	18.2	36	9.4	82	15.6
Bronchus & Lung	8807	26.6	8376	27.1	282	21.4	76	19.7	64	12.2
Cervix Uteri	269	0.8	228	0.7	21	1.6	4	1.0	16	3.1
Colon / Rectum	3294	9.9	3069	9.9	131	9.9	40	10.4	52	9.9
Corpus Uteri & Uterus, NOS	868	2.6	786	2.5	50	3.8	6	1.6	26	5.0
Esophagus	428	1.3	394	1.3	25	1.9	5	1.3	4	0.8
Hodgkin Lymphoma	58	0.2	56	0.2	0	0.0	0	0.0	2	0.4
Kidney & Renal Pelvis	509	1.5	485	1.6	14	1.1	6	1.6	2	0.4
Larynx	110	0.3	104	0.3	5	0.4	0	0.0	1	0.2
Leukemia	1109	3.3	1029	3.3	40	3.0	16	4.2	22	4.2
Liver & Intrahepatic Bile Ducts	583	1.8	502	1.6	31	2.4	30	7.8	20	3.8
Melanoma of Skin	413	1.2	405	1.3	2	0.2	2	0.5	3	0.6
Multiple Myeloma	569	1.7	508	1.6	36	2.7	3	0.8	20	3.8
Non-Hodgkin Lymphoma	1244	3.8	1163	3.8	37	2.8	18	4.7	24	4.6
Oral Cavity & Pharynx	305	0.9	285	0.9	8	0.6	6	1.6	6	1.1
Ovary	1793	5.4	1703	5.5	48	3.6	14	3.6	26	5.0
Pancreas	2133	6.4	1972	6.4	88	6.7	34	8.8	36	6.9
Stomach	556	1.7	476	1.5	41	3.1	22	5.7	16	3.1
Thyroid	103	0.3	89	0.3	7	0.5	3	0.8	4	0.8
Urinary Bladder	546	1.6	515	1.7	21	1.6	2	0.5	8	1.5
Other Sites	4091	12.4	3777	12.2	179	13.6	59	15.3	73	13.9

[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 Cancer Registry

Table 20.
NUMBER AND PERCENTAGE OF DEATHS FOR SELECTED CANCER SITES BY RACE/ETHNICITY [1]
Massachusetts, 2003-2007
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	66332	100.0	61584	100.0	2699	100.0	887	100.0	1091	100.0
Brain & Other Nervous System	1441	2.2	1366	2.2	28	1.0	15	1.7	30	2.7
Breast	4759	7.2	4390	7.1	244	9.0	37	4.2	84	7.7
Bronchus & Lung	18302	27.6	17218	28.0	668	24.7	221	24.9	177	16.2
Cervix Uteri	269	0.4	228	0.4	21	0.8	4	0.5	16	1.5
Colon / Rectum	6305	9.5	5872	9.5	247	9.2	79	8.9	101	9.3
Corpus Uteri & Uterus, NOS	868	1.3	786	1.3	50	1.9	6	0.7	26	2.4
Esophagus	1917	2.9	1779	2.9	81	3.0	24	2.7	30	2.7
Hodgkin Lymphoma	125	0.2	119	0.2	3	0.1	0	0.0	3	0.3
Kidney & Renal Pelvis	1382	2.1	1319	2.1	40	1.5	11	1.2	10	0.9
Larynx	425	0.6	396	0.6	24	0.9	2	0.2	3	0.3
Leukemia	2441	3.7	2260	3.7	92	3.4	37	4.2	47	4.3
Liver & Intrahepatic Bile Ducts	1856	2.8	1534	2.5	116	4.3	122	13.8	81	7.4
Melanoma of Skin	1059	1.6	1048	1.7	3	0.1	2	0.2	5	0.5
Multiple Myeloma	1188	1.8	1067	1.7	79	2.9	5	0.6	32	2.9
Non-Hodgkin Lymphoma	2514	3.8	2349	3.8	85	3.1	32	3.6	45	4.1
Oral Cavity & Pharynx	887	1.3	811	1.3	28	1.0	27	3.0	21	1.9
Ovary	1793	2.7	1703	2.8	48	1.8	14	1.6	26	2.4
Pancreas	4102	6.2	3797	6.2	169	6.3	55	6.2	77	7.1
Prostate	3307	5.0	3045	4.9	188	7.0	23	2.6	47	4.3
Stomach	1371	2.1	1159	1.9	106	3.9	43	4.8	61	5.6
Testis	30	0.0	29	0.0	0	0.0	0	0.0	1	0.1
Thyroid	170	0.3	152	0.2	9	0.3	5	0.6	4	0.4
Urinary Bladder	1788	2.7	1715	2.8	50	1.9	6	0.7	17	1.6
Other Sites	8033	12.1	7442	12.1	320	11.9	117	13.2	147	13.5

[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 Cancer Registry

Table 21.
AGE-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2003-2007
MALES

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites	230.1	227.6-232.6	233.4	230.8-236.1	282.3	266.3-298.3	129.5	117.2-141.8	121.5	110.0-133.0
Brain & Other Nervous System	5.2	4.9-5.6	5.6	5.2-6.0	*	*	*	*	*	*
Breast	0.4	0.3-0.5	0.4	0.3-0.5	*	*	*	*	*	*
Bronchus & Lung	65.3	64.0-66.7	66.7	65.3-68.0	77.7	69.5-85.9	41.1	34.0-48.2	25.4	20.1-30.6
Colon / Rectum	21.0	20.3-21.8	21.4	20.6-22.2	23.8	19.2-28.4	9.1	5.9-12.2	10.1	6.8-13.3
Esophagus	10.0	9.4-10.5	10.2	9.7-10.7	10.1	7.3-12.9	*	*	5.0	2.8-7.1
Hodgkin Lymphoma	0.4	0.3-0.5	0.5	0.4-0.6	*	*	*	*	*	*
Kidney & Renal Pelvis	6.0	5.6-6.4	6.2	5.8-6.7	5.6	3.3-7.9	*	*	*	*
Larynx	2.1	1.9-2.4	2.2	1.9-2.4	*	*	*	*	*	*
Leukemia	9.3	8.8-9.9	9.5	9.0-10.1	10.6	7.5-13.7	5.1	2.7-7.6	4.0	2.0-6.1
Liver & Intrahepatic Bile Ducts	8.4	7.9-8.8	7.5	7.1-8.0	14.4	11.1-17.7	20.2	15.8-24.7	10.4	7.5-13.3
Melanoma of Skin	4.4	4.0-4.7	4.8	4.5-5.2	*	*	*	*	*	*
Multiple Myeloma	4.3	4.0-4.7	4.3	3.9-4.6	8.8	6.0-11.7	*	*	*	*
Non-Hodgkin Lymphoma	8.9	8.4-9.4	9.1	8.6-9.7	8.6	6.0-11.2	*	*	4.0	2.0-6.0
Oral Cavity & Pharynx	3.8	3.5-4.2	3.9	3.5-4.2	3.5	1.8-5.1	4.5	2.3-6.6	*	*
Pancreas	13.4	12.8-14.0	13.6	13.0-14.3	15.0	11.5-18.5	5.6	3.0-8.2	8.8	5.7-11.8
Prostate	24.6	23.7-25.4	24.4	23.5-25.2	50.2	42.8-57.6	9.0	5.2-12.8	16.0	11.2-20.8
Stomach	5.7	5.3-6.1	5.2	4.8-5.6	13.0	9.6-16.4	5.8	3.2-8.4	9.6	6.4-12.9
Testis	0.2	0.1-0.2	0.2	0.1-0.3	*	*	*	*	*	*
Thyroid	0.5	0.4-0.6	0.5	0.4-0.6	*	*	*	*	*	*
Urinary Bladder	8.9	8.4-9.4	9.4	8.8-9.9	6.7	4.1-9.3	*	*	*	*

[1] Rates are age-adjusted to the 2000 U.S. Standard Population. [2] per 100,000
[3] Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.
* An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Source: Massachusetts Cancer Registry

Table 22.
AGE-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2003-2007
FEMALES

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites	159.1	157.4-160.9	162.6	160.7-164.5	174.3	164.7-183.8	84.5	75.7-93.3	84.8	76.9-92.7
Brain & Other Nervous System	3.3	3.0-3.5	3.5	3.2-3.7	*	*	*	*	*	*
Breast	22.9	22.2-23.6	23.4	22.7-24.1	29.3	25.5-33.0	7.0	4.6-9.4	12.3	9.4-15.2
Bronchus & Lung	43.7	42.8-44.6	45.7	44.7-46.7	38.2	33.7-42.7	18.0	13.9-22.2	10.6	7.8-13.4
Cervix Uteri	1.4	1.2-1.6	1.3	1.2-1.5	2.5	1.4-3.5	*	*	*	*
Colon / Rectum	14.8	14.3-15.3	14.9	14.4-15.5	17.7	14.6-20.7	9.0	6.1-11.9	9.5	6.8-12.2
Corpus Uteri & Uterus, NOS	4.2	3.9-4.5	4.1	3.8-4.4	6.7	4.8-8.6	*	*	4.5	2.7-6.2
Esophagus	2.0	1.9-2.2	2.1	1.8-2.3	3.3	2.0-4.6	*	*	*	*
Hodgkin Lymphoma	0.3	0.2-0.4	0.3	0.2-0.4	*	*	*	*	*	*
Kidney & Renal Pelvis	2.4	2.2-2.6	2.5	2.3-2.7	*	*	*	*	*	*
Larynx	0.5	0.4-0.7	0.6	0.5-0.7	*	*	*	*	*	*
Leukemia	5.3	5.0-5.6	5.4	5.1-5.8	5.3	3.6-7.0	*	*	2.9	1.6-4.2
Liver & Intrahepatic Bile Ducts	2.8	2.5-3.0	2.6	2.4-2.8	4.2	2.7-5.7	7.2	4.5-9.8	3.6	1.9-5.3
Melanoma of Skin	2.1	1.9-2.3	2.3	2.0-2.5	*	*	*	*	*	*
Multiple Myeloma	2.7	2.4-2.9	2.6	2.3-2.8	5.1	3.4-6.8	*	*	3.4	1.8-4.9
Non-Hodgkin Lymphoma	5.7	5.3-6.0	5.7	5.4-6.0	4.9	3.3-6.5	*	*	4.2	2.4-6.0
Oral Cavity & Pharynx	1.5	1.3-1.6	1.5	1.3-1.7	*	*	*	*	*	*
Ovary	8.8	8.4-9.2	9.3	8.8-9.7	6.3	4.5-8.2	*	*	4.3	2.5-6.1
Pancreas	10.2	9.7-10.6	10.2	9.8-10.7	12.2	9.6-14.8	7.9	5.2-10.6	6.2	4.0-8.5
Stomach	2.5	2.3-2.7	2.3	2.1-2.5	5.5	3.8-7.2	4.5	2.5-6.5	*	*
Thyroid	0.5	0.4-0.6	0.4	0.3-0.5	*	*	*	*	*	*
Urinary Bladder	2.5	2.2-2.7	2.5	2.3-2.7	3.0	1.7-4.3	*	*	*	*

[1] Rates are age-adjusted to the 2000 U.S. Standard Population. [2] per 100,000
[3] Race/ethnicity categories are mutually exclusive. Deaths are only included in one race/ethnicity category.
* An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Source: Massachusetts Cancer Registry

Table 23.
AGE-ADJUSTED[1] MORTALITY RATES[2] AND 95% CONFIDENCE LIMITS (95% CL)
FOR SELECTED CANCER SITES BY RACE/ETHNICITY[3]
Massachusetts, 2003-2007
TOTAL

	All Races		White, non-Hispanic		Black, non-Hispanic		Asian, non-Hispanic		Hispanic	
Cancer Site / Type	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**	**Rate**	**95% CL**
All Sites	186.3	184.9-187.7	189.6	188.1-191.1	214.1	205.8-222.5	104.8	97.5-112.1	100.0	93.4-106.6
Brain & Other Nervous System	4.1	3.9-4.4	4.4	4.2-4.7	1.7	1.1-2.4	*	*	1.9	1.1-2.7
Breast	13.2	12.8-13.6	13.5	13.1-13.9	17.2	15.0-19.5	3.8	2.5-5.1	7.2	5.5-8.9
Bronchus & Lung	52.4	51.6-53.1	54.1	53.3-54.9	53.6	49.4-57.7	28.4	24.5-32.3	16.8	14.1-19.5
Cervix Uteri	–[4]	–	–	–	–	–	–	–	–	–
Colon / Rectum	17.4	16.9-17.8	17.6	17.1-18.0	20.1	17.5-22.7	9.2	7.0-11.3	9.9	7.8-12.0
Corpus Uteri & Uterus, NOS	–	–	–	–	–	–	–	–	–	–
Esophagus	5.4	5.2-5.7	5.6	5.3-5.8	6.1	4.7-7.5	3.1	1.8-4.4	2.6	1.6-3.6
Hodgkin Lymphoma	0.4	0.3-0.4	0.4	0.3-0.5	*	*	*	*	*	*
Kidney & Renal Pelvis	3.9	3.7-4.1	4.1	3.8-4.3	3.1	2.1-4.1	*	*	*	*
Larynx	1.2	1.1-1.3	1.3	1.1-1.4	1.9	1.1-2.7	*	*	*	*
Leukemia	6.9	6.6-7.2	7.0	6.7-7.3	7.3	5.7-8.8	3.6	2.4-4.9	3.3	2.3-4.4
Liver & Intrahepatic Bile Ducts	5.2	5.0-5.5	4.8	4.5-5.0	8.6	7.0-10.2	13.5	10.9-16.0	6.7	5.1-8.3
Melanoma of Skin	3.0	2.8-3.2	3.3	3.1-3.5	*	*	*	*	*	*
Multiple Myeloma	3.3	3.1-3.5	3.3	3.1-3.5	6.6	5.1-8.1	*	*	3.0	1.9-4.1
Non-Hodgkin Lymphoma	7.0	6.7-7.2	7.1	6.8-7.4	6.4	5.0-7.9	3.8	2.4-5.1	4.1	2.8-5.4
Oral Cavity & Pharynx	2.5	2.3-2.7	2.5	2.3-2.7	2.1	1.3-2.9	2.7	1.6-3.8	2.1	1.1-3.1
Ovary	–	–	–	–	–	–	–	–	–	–
Pancreas	11.6	11.2-11.9	11.7	11.3-12.1	13.5	11.4-15.6	6.9	5.0-8.8	7.4	5.6-9.2
Prostate	–	–	–	–	–	–	–	–	–	–
Stomach	3.8	3.6-4.0	3.5	3.3-3.7	8.5	6.8-10.1	5.1	3.5-6.6	5.7	4.1-7.3
Testis	–	–	–	–	–	–	–	–	–	–
Thyroid	0.5	0.4-0.6	0.5	0.4-0.5	*	*	*	*	*	*
Urinary Bladder	4.9	4.7-5.2	5.1	4.9-5.4	4.4	3.1-5.6	*	*	*	*

[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] Dashed-out cancers are found in only one sex.
* An age-adjusted mortality rate was not calculated when there were fewer than 20 deaths.

Source: Massachusetts Cancer Registry

Table 24.
INCIDENCE AND MORTALITY RATES[1] FOR SELECTED CANCER SITES BY SEX
Massachusetts, 2003-2007, and U.S., 2002-2006*

Cancer Site / Type	MALES				FEMALES			
	Incidence		Mortality		Incidence		Mortality	
	MA	NAACCR	MA	U.S.	MA	NAACCR	MA	U.S.
All Sites	598.0	556.5	230.1	229.9	458.9	414.8	159.1	157.8
Brain & Other Nervous System	8.7	7.9	5.2	5.3	6.2	5.7	3.3	3.5
Breast	1.4	1.4	0.4	0.3	132.1	121.8	22.9	24.5
Breast *in situ*[2]	0.2	0.2	n/a[4]	n/a	46.1	29.3	n/a[4]	n/a
Bronchus & Lung	83.8	86.4	65.3	70.5	64.0	55.5	43.7	40.9
Cervix Uteri	–[3]	–	–	–	5.9	8.3	1.4	2.5
Colon / Rectum	60.7	59.0	21.0	21.9	44.1	43.6	14.8	15.4
Corpus Uteri & Uterus, NOS	–	–	–	–	29.1	23.6	4.2	4.1
Esophagus	11.6	8.6	10.0	7.8	2.5	2.0	2.0	1.7
Hodgkin Lymphoma	3.9	3.2	0.4	0.5	2.9	2.5	0.3	0.4
Kidney & Renal Pelvis	21.7	19.6	6.0	6.0	10.7	10.2	2.4	2.7
Larynx	6.9	7.1	2.1	2.3	1.6	1.5	0.5	0.5
Leukemia	15.8	16.0	9.3	9.8	9.6	9.6	5.3	5.5
Liver & Intrahepatic Bile Ducts	10.6	8.4	8.4	6.2	3.0	2.6	2.8	2.2
Melanoma of Skin	28.2	22.6	4.4	3.9	19.2	14.6	2.1	1.7
Multiple Myeloma	7.1	7.0	4.3	4.5	4.1	4.6	2.7	3.0
Non-Hodgkin Lymphoma	24.5	23.1	8.9	9.0	16.9	16.3	5.7	5.7
Oral Cavity & Pharynx	16.3	16.0	3.8	3.9	6.5	6.1	1.5	1.5
Ovary	–	–	–	–	12.3	13.0	8.8	8.8
Pancreas	13.9	13.1	13.4	12.3	11.0	10.2	10.2	9.3
Prostate	164.9	155.5	24.6	25.6	–	–	–	–
Stomach	10.8	10.0	5.7	5.5	4.8	4.9	2.8	2.8
Testis	6.3	5.3	0.2	0.3	–	–	–	–
Thyroid	7.6	4.9	0.5	0.5	22.7	14.2	0.5	0.5
Urinary Bladder	46.6	37.9	8.9	7.5	12.9	9.6	2.6	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.
[3] Dashed-out cancers are found in only one sex.
[4] Rates are not available for that cancer subtype.

Sources: Massachusetts Cancer Registry and North American Association of Central Cancer Registries (NAACCR).
* NAACCR data for 2003-2007 were not available at the time this report was prepared.

APPENDICES

APPENDIX I

ICD CODES USED FOR THIS REPORT

Cancer Site / Type	. . . . . *Codes*	
	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	C00.0 - 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

	. . . . . *C o d e s*	
Cancer Site / Type	**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	C25
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.* (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 2003-2007 that were 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.(11) 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/ETHNICITY, AND SEX
Massachusetts, 2003-2007

Age Group	White, non-Hispanic			Black, non-Hispanic			Asian, non-Hispanic			Hispanic		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
0-4	707,107	678,537	1,385,644	90,297	85,962	176,259	59,082	57,472	116,554	121,906	117,258	239,164
5-9	752,497	717,373	1,469,870	78,446	75,367	153,813	50,647	52,557	103,204	116,379	111,945	228,324
10-14	826,561	781,904	1,608,465	85,767	82,555	168,322	49,235	48,140	97,375	122,653	116,429	239,082
15-19	867,233	849,333	1,716,566	87,372	86,535	173,907	52,115	53,949	106,064	117,598	112,524	230,122
20-24	821,802	833,045	1,654,847	84,797	84,522	169,319	64,788	72,241	137,029	122,813	114,789	237,602
25-29	743,926	752,064	1,495,990	74,856	74,892	149,748	78,274	83,329	161,603	127,771	115,770	243,541
30-34	795,979	809,756	1,605,735	68,127	74,880	143,007	89,898	86,520	176,418	114,983	111,418	226,401
35-39	938,361	971,390	1,909,751	72,117	77,959	150,076	75,266	72,343	147,609	102,023	106,255	208,278
40-44	1,067,466	1,097,002	2,164,468	73,529	79,213	152,742	62,455	60,687	123,142	88,810	93,367	182,177
45-49	1,063,932	1,105,518	2,169,450	65,323	69,843	135,166	48,011	50,830	98,841	66,411	73,885	140,296
50-54	951,692	999,853	1,951,545	51,291	56,281	107,572	38,738	41,023	79,761	48,708	55,262	103,970
55-59	835,266	887,812	1,723,078	38,972	46,049	85,021	28,584	30,722	59,306	34,771	41,901	76,672
60-64	618,449	679,615	1,298,064	26,368	34,108	60,476	19,725	20,933	40,658	23,105	28,110	51,215
65-69	453,085	526,553	979,638	19,118	26,000	45,118	15,671	16,718	32,389	15,463	20,718	36,181
70-74	386,390	488,219	874,609	14,136	20,809	34,945	11,598	13,025	24,623	10,165	14,894	25,059
75-79	333,144	477,668	810,812	9,703	16,189	25,892	7,343	9,605	16,948	6,885	10,105	16,990
80-84	238,279	410,792	649,071	5,938	11,895	17,833	4,641	6,219	10,860	4,147	6,551	10,698
85+	180,313	449,968	630,281	4,590	10,330	14,920	3,121	5,199	8,320	3,455	6,705	10,160

Source: National Center for Health Statistics. Postcensal estimates of the resident population of the United States for July 1, 2000-July 1, 2007, by year, county, age, bridged race, Hispanic origin, and sex (Vintage 2007). Prepared under a collaborative arrangement with the U.S. Census Bureau; released August 7, 2008. Available from: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm as of September 5, 2008.

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