Cancer in Connecticut 2005

With Focus on

Tobacco-Related Cancers

Connecticut Tumor Registry would like to extend special thanks to the cancer registrars and other persons responsible for cancer data collection throughout the state of Connecticut for all of their dedication and hard work.

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Connecticut Tumor Registry
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1 INTRODUCTION

Connecticut Tumor Registry

The Connecticut Tumor Registry is a statewide population-based resource for examining cancer patterns and trends in Connecticut. The registry database includes reported cancers diagnosed since 1935 making it the oldest cancer registry in the USA. Connecticut Tumor Registry is primarily a hospital-based reporting system. All licensed acute-care hospitals in Connecticut are required by public health legislation to report incident cases, along with information on follow-up and treatment. Since 1983, licensed clinical laboratories have been required to report. In addition, the Registry has reciprocal cancer-reporting agreements with all of the adjacent states and several other states (including Florida). These agreements improve the quality of the registry data by allowing identification of Connecticut residents who are diagnosed or treated in other states, which is important in obtaining accurate estimates of cancer rates among Connecticut residents.

The Connecticut Tumor Registry has been part of the Surveillance, Epidemiology and End Results (SEER) Program of the National Cancer Institute since its inception in 1973. Most of the Registry's funding comes from the SEER Program. The SEER program is a unique and important resource: the program currently covers approximately 26% of the total US population, including considerable proportions of the country's minority populations. By 1992, the SEER program comprised registries covering Atlanta, Connecticut, Detroit, Hawaii, Iowa, the Los Angeles area, the San Francisco area, San Jose-Monterey CA, New Mexico, Seattle, and Utah. In order to address the need to better explain the cancer burden in racial/ethnic minorities and medically underserved populations, the program was expanded in 2001 when several new SEER areas were added. Further details about the areas and populations covered by the SEER program are available on the SEER website: http://seer.cancer.gov/

Data in the Connecticut Tumor Registry

The Connecticut Tumor Registry collects information on all invasive cancers (those that have penetrated into cells beyond the layer of tissue in which they developed) and in situ cancers (early cancers that have not spread to neighboring tissue), excluding non-melanoma skin cancers and in situ cancers of the cervix. The registry also collects information on benign (non-cancerous) tumors in the brain and central nervous system (CNS), as these produce similar clinical effects to malignant brain and CNS tumors and can be life-threatening. Data collected include the clinical characteristics of the tumor (site, histology, behavior, extent of disease), treatment details and sociodemographic information on the cancer patient (age, gender, race, ethnicity). The registry has a comprehensive quality assurance program in place to ensure that the data are complete, accurate and timely.

Uses of Registry Data

Connecticut Tumor Registry data are used for the following purposes:

- To contribute to the SEER database on cancer incidence, stage at diagnosis, treatment and survival.
- To provide accurate cancer surveillance statistics to inform public health policy and cancer control efforts at the local, state and national levels.
- To support epidemiological research into the causes and distribution of cancer.
- To address local concerns about cancer rates.

Data from the Connecticut Tumor Registry are included with those from other SEER registries in the National Cancer Institute's annual publication entitled '**Cancer Statistics Review**', and in

national publications from the North American Association of Central Cancer Registries (NAACCR). The Connecticut Tumor Registry has provided data to the Central Brain Tumor Registry of the United States (CBTRUS) since 1992. The CBTRUS provides a resource for descriptive statistical data on all primary brain tumors irrespective of behavior. The Connecticut Tumor Registry also contributes data to the International Agency for Research on Cancer (IARC) series of publications '**Cancer Incidence in Five Continents**', which is updated regularly. The Connecticut Tumor Registry participates in special research studies sponsored by the National Cancer Institute. Further details of research that the registry has undertaken or participated in can be found in the 'Research Studies' section at the end of this report.

The Connecticut Tumor Registry has produced a number of monographs examining cancer incidence and trends in Connecticut, a number of which are available to download from the registry website: http://www.ct.gov/dph (select 'Statistics & Research' from the main menu on the left side and scroll down for the Tumor Registry page).

Data from the Connecticut Tumor Registry have been used in hundreds of scientific publications by researchers worldwide. A selection of recent publications can be found in the 'Publications' section at the end of this report. A full publication list, updated periodically, can be downloaded from the registry website.

Confidentiality of Registry Data

Connecticut Tumor Registry adheres to strict policies and procedures in order to maintain confidentiality. The identities of all patients and institutions reported to the Registry are protected by Connecticut General Statute 19a-25, and may be released to qualified investigators for legitimate cancer studies only if a written protocol, describing the study's methods and procedures for protecting confidentiality, is approved by the Human Investigations Committee of the Connecticut Department of Public Health.

2 THE CONNECTICUT POPULATION

Although cancer affects people of any age, gender or race, some cancers affect different groups of the population disproportionately. In order to better understand the burden of cancer in the people of Connecticut, a demographic profile of the state is given below.

Age and Gender

The population pyramid below shows the sex and age distribution of the Connecticut population as recorded in the last census.

Figure 1: Population pyramid for Connecticut.
(Source: US Census Bureau, 2000)

- Age is a major risk factor in almost all cancers, with over 85% of malignant[1] cancers diagnosed in people aged 50 years or older. In 2000, 30% of the Connecticut population was aged 50 or older. This proportion is likely to be much higher in the next census.
- Women have a clear life expectancy advantage over men: in 2000 there were over two and a half times as many women as men aged 85 years or older.

[1] Excluding non-melanoma skin cancers but including in situ bladder cancers, which are difficult to distinguish from invasive bladder tumors.

2 THE CONNECTICUT POPULATION

Race and Ethnicity

Connecticut is a culturally diverse state. Figure 2 shows the racial and ethnic composition of the state as recorded in the 2000 census.

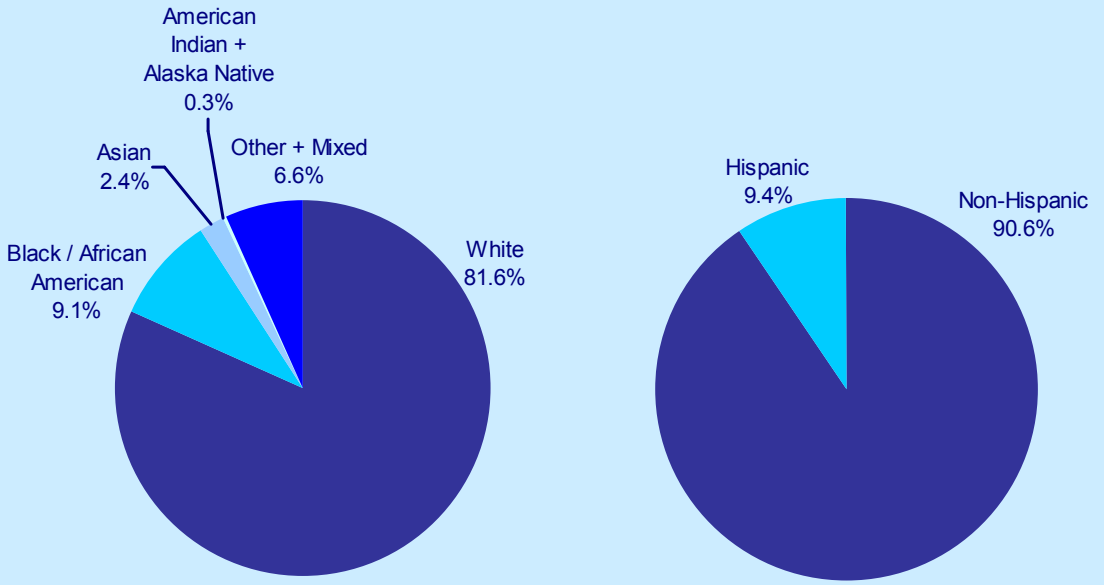


Figure 2: Racial and ethnic distribution of Connecticut population. (Source: US Census Bureau, 2000)

- In 2000, almost 1 in 10 people in Connecticut were of Black/African American race[2].
- In 2000, almost 1 in 10 people in Connecticut were of Hispanic ethnicity[2].

This is of key importance because cancer incidence, mortality and survival rates vary between different racial and ethnic groups[3,4]:

[2] Race and ethnicity are not mutually exclusive. People of a particular race may be of any ethnicity and conversely, people of a particular ethnicity may be of any race.

[3] Espey, D.K., Wu, X-C., Swan, J., Wiggins, C., Jim, M., Ward, E., Wingo, P.A., Howe, H.L., Ries, L.A.G., Miller, B.A., Jemal, A., Ahmed, F., Cobb, N., Kaur, J.S., Edwards, B.K. Annual report to the nation on the status of cancer, 1975-2004, featuring cancer in American Indians and Alaska Natives, *Cancer* 110:2119-2152, 2007.

[4] Ries, L.A.G., Young, J.L., Keel, G.E., Eisner, M.P., Lin, Y.D., Horner, M-J. (Editors). *SEER Survival Monograph: Cancer Survival Among Adults: U.S. SEER Program, 1988-2001, Patient and Tumor Characteristics*. National Cancer Institute, SEER Program, NIH Pub. No. 07-6215, Bethesda, MD, 2007.

2 THE CONNECTICUT POPULATION

Cancer Disparities by Race-Ethnicity in the United States and in Connecticut

The racial-ethnic diversity of the population in the U.S., and in Connecticut, is of great interest with regard to disparities in cancer risk, cancer screening, treatment of cancer and survival of patients diagnosed with cancer.

Some selected findings on disparities are listed below.

- Black men and women have the highest cancer mortality rates for all cancers combined.
- Black men have the highest cancer incidence rates for all cancers combined.
- Breast cancer incidence is highest in White women but breast cancer mortality is highest, and breast cancer survival poorest, in Black women.
- Black men have considerably higher mortality rates from prostate cancer than any other racial or ethnic group.
- Rates of cervical cancer are highest in Hispanic women.
- Rates of stomach cancer are highest in Asian or Pacific Islanders.
- American Indians and Alaska Natives have the poorest survival from all cancers combined.
- Overall cancer incidence rates are lower in Hispanic populations, but not for certain cancer sites/types.

Reducing cancer health disparities remains a priority for Connecticut, and is being addressed through research, community health initiatives and the state cancer control plan.

The section in this report on tobacco-related cancers includes data for the largest minority group with the most accurate data on cancer (i.e., African Americans / Blacks) in Connecticut.

3 CANCER INCIDENCE

Cancer incidence is a measure of the new occurrence (diagnosis) of cancer in a population and is one indicator of the cancer burden in that population. Cancer incidence is influenced by the demographic profile of the population as well as factors such as the availability of screening (early detection of asymptomatic cancers) and changes in diagnostic techniques and in the reporting of cancers.

Ten Most Common Newly Diagnosed Cancers in Men

The ten most common invasive (malignant) cancers newly diagnosed in 2005 in men in Connecticut are shown in Figure 3. The numbers do not include in situ cancers except for bladder cancers (due to the difficulty in distinguishing in situ from invasive bladder tumors). These ten cancers accounted for 78% of all of the invasive cancers.
The most commonly diagnosed cancer was prostate cancer, accounting for 27% of cancers diagnosed, followed by lung cancer (13%) and bladder cancer (8%).

Type of Cancer	Number of Cancers	Percent
Prostate	2,502	27%
Lung	1,240	13%
Bladder*	733	8%
Colon	639	7%
Melanoma of the Skin	537	6%
Non-Hodgkin Lymphoma	428	5%
Rectum	344	4%
Kidney and Renal Pelvis	325	3%
Oral Cavity and Pharynx	276	3%
Pancreas	272	3%
Other cancers	2,081	22%
All invasive cancers*	9,377	100%

*including in situ bladder cancers (see text)

Figure 3: Ten most commonly diagnosed invasive cancers* in men in Connecticut in 2005.
*Including in situ bladder cancers (see text)
(Source: Connecticut Tumor Registry/SEER Database)

Ten Most Common Newly Diagnosed Cancers in Women

The ten most common invasive cancers newly diagnosed in 2005 in women in Connecticut are shown in Figure 4. The numbers do not include in situ cancers except for bladder cancers (due to the difficulty in distinguishing in situ from invasive bladder tumors). These ten cancers accounted for 79% of all of the invasive cancers.
The most commonly diagnosed cancer was breast cancer, accounting for 29% of cancers diagnosed, followed by lung cancer (14%) and colon cancer (8%).

3 CANCER INCIDENCE

Type of Cancer	Number of Cancers	Percent
Breast	2,802	29%
Lung	1,294	14%
Colon	723	8%
Uterus	611	6%
Melanoma of the Skin	452	5%
Non-Hodgkin Lymphoma	399	4%
Thyroid	396	4%
Ovary	281	3%
Bladder*	274	3%
Pancreas	271	3%
Other cancers	2,050	21%
All invasive cancers*	9,553	100%

*including in situ bladder cancers (see text)

Figure 4: Ten most commonly diagnosed invasive cancers* in women in Connecticut in 2005.
*Including in situ bladder cancers (see text)
(Source: Connecticut Tumor Registry/SEER Database)

3 CANCER INCIDENCE

The cancer incidence rate is defined as the number of new cancer cases per 100,000 persons per year. In this chapter the rates are presented as age-specific rates or age-adjusted rates. Age-adjustment allows comparison of rates between different groups of people or between different time periods, ensuring that any differences in rate are not just due to different proportions of older people. All age-adjusted rates are adjusted to the 2000 US Standard Population.

Cancer Incidence Age Profile

Figure 5 shows the age specific incidence rates of all invasive cancers (including in situ bladder cancers) in men and women in Connecticut in 2005 by age at diagnosis. In both genders the rates increased with increasing age up to age 80-84 years, and subsequently decreased. 71% of all invasive cancers in men and 63% of all invasive cancers in women were diagnosed in people aged 60 years or older. The rates in men were more than 1.5 times higher than the rates in women, for people aged 65 years or older

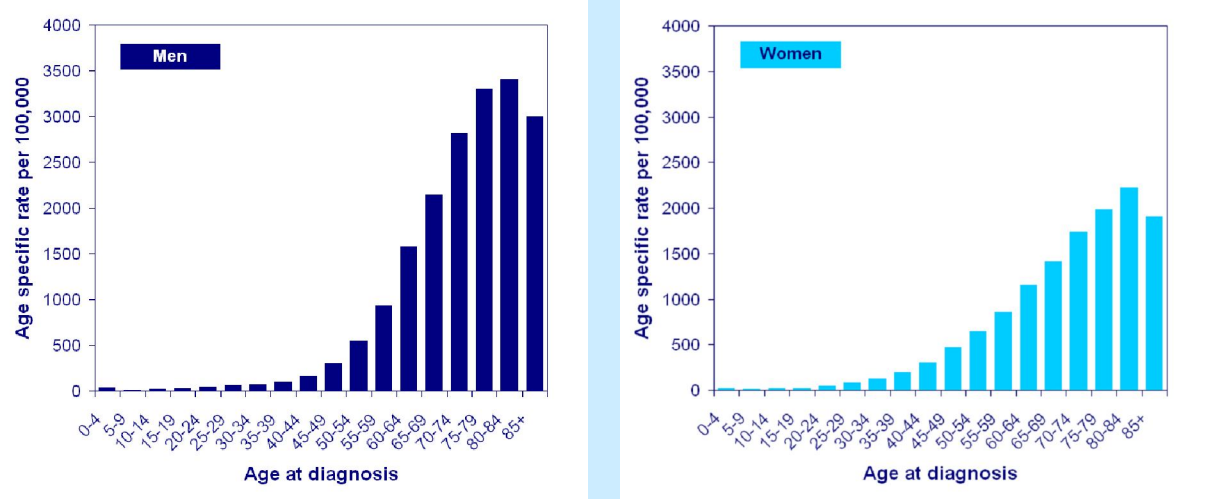


Figure 5: Age specific incidence rates of all invasive cancers* combined in men and women in Connecticut in 2005 by age at diagnosis.
*Including in situ bladder cancers
(Source: Connecticut Tumor Registry/SEER Database)

3 CANCER INCIDENCE

Trends in Cancer Incidence

Figure 6 shows the annual age-adjusted incidence rates of the five currently most common cancers in men and women in Connecticut from 1973 through 2005.

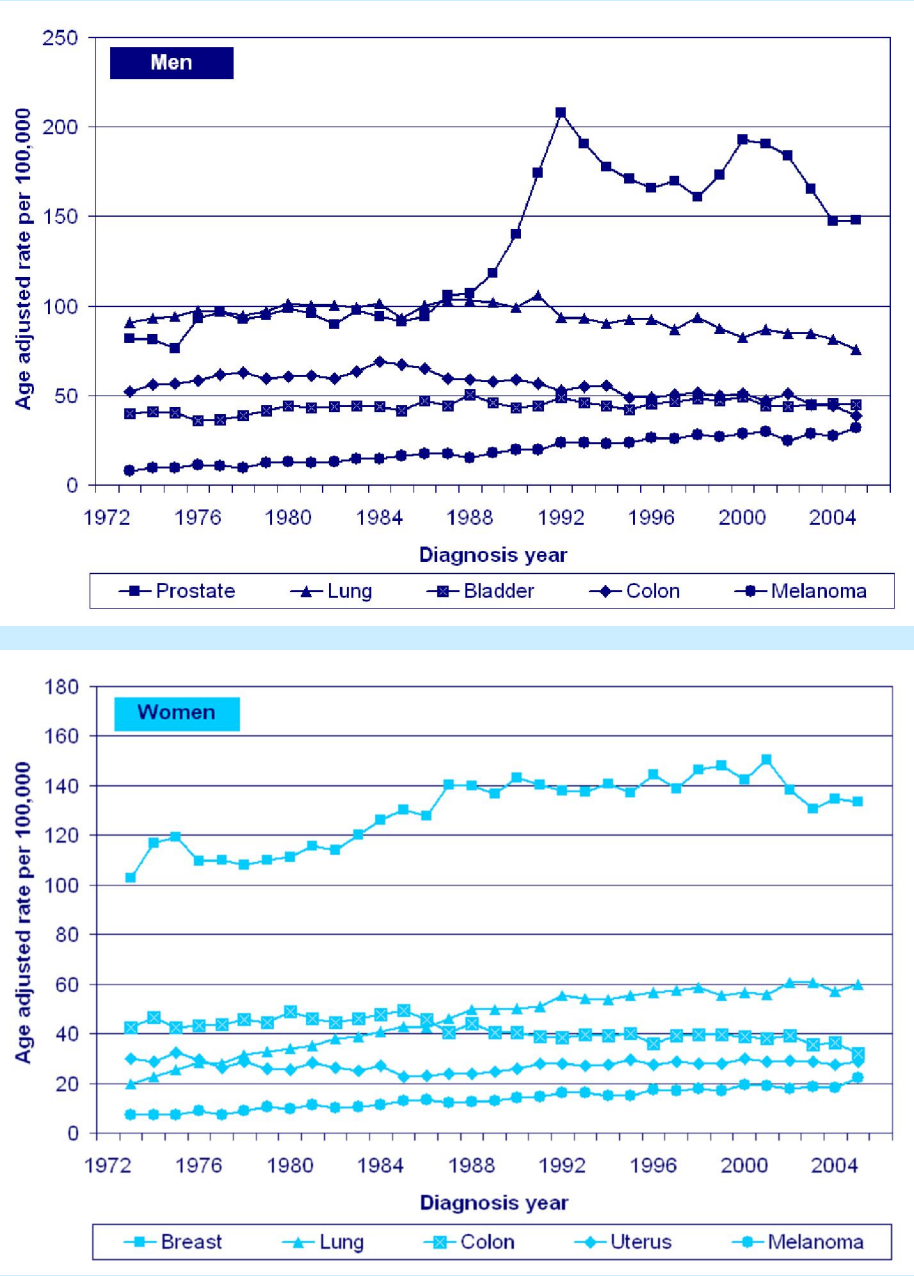


Figure 6: Trends in age adjusted incidence rates of the five currently most common cancers in men and women in Connecticut 1973-2005.
(Source: Connecticut Tumor Registry/SEER Database)

3 CANCER INCIDENCE

Key points

- Lung cancer incidence rates decreased over time in men but increased in women, reflecting differences in the changing patterns of tobacco usage between the sexes.
- Colon cancer incidence rates in both men and women increased until the mid-1980s and decreased thereafter. The reasons contributing to this are complex and include changes in people's exposures to risk factors and in colonoscopy usage (which can prevent colorectal cancer through detection and removal of pre-malignant polyps).
- Rates of incidence of melanoma of the skin increased over time in both men and women. The reasons contributing to this are complex and include changes in people's exposure to ultraviolet radiation (sunlight and tanning beds) and in diagnostic and screening practices.
- In men, prostate cancer incidence increased dramatically in the early 1990s, due in part to the introduction of PSA testing. The rate peaked in 1992 and fluctuated somewhat thereafter.
- In women, breast cancer incidence rates increased until 2001, decreased slightly thereafter and leveled off. The reasons contributing to this are complex and include changes in hormonal factors (having children later in life, hormone replacement therapy usage) and in screening mammography usage.

4 CANCER MORTALITY

The cancer mortality rate is the most reliable measure of progress against cancer[5]. The recording of death has been stable over time, and mortality rates are less susceptible to external factors (such as screening) than survival rates.

Ten Most Common Causes of Cancer Death in Men

The ten most common causes of cancer death in 2005 in men in Connecticut are shown in Figure 7. These ten cancers accounted for 74% of all cancer deaths. The most common cause of cancer death was lung cancer, accounting for 27% of cancer deaths, followed by prostate cancer (12%) and pancreatic cancer (7%).

Cause of Cancer Death	Number of Deaths	Percent
Lung	957	27%
Prostate	406	12%
Pancreas	235	7%
Colon	222	6%
Non-Hodgkin Lymphoma	151	4%
Esophagus	143	4%
Leukemia	142	4%
Bladder	138	4%
Liver	105	3%
Stomach	100	3%
Other cancers	924	26%
All invasive cancers	3,523	100%

Figure 7: Ten most common causes of cancer death in men in Connecticut in 2005. (Source: Connecticut Tumor Registry/SEER Database)

Ten Most Common Causes of Cancer Death in Women

The ten most common causes of cancer death in 2005 in women in Connecticut are shown in Figure 8. These ten cancers accounted for 75% of all cancer deaths. The most common cause of cancer death was lung cancer, accounting for 25% of cancer deaths, followed by breast cancer (15%) and colon cancer (9%).

[5] Extramural Committee To Assess Measures of Progress Against Cancer. Measurement of Progress Against Cancer. *Journal of the National Cancer Institute* 82:825-835, 1990.

4 CANCER MORTALITY

Cause of Cancer Death	Number of Deaths	Percent
Lung	873	25%
Breast	532	15%
Colon	301	9%
Pancreas	242	7%
Ovary	174	5%
Non-Hodgkin Lymphoma	122	3%
Leukemia	120	3%
Uterus	106	3%
Brain and Other Nervous System	85	2%
Stomach	83	2%
Other cancers	891	25%
All invasive cancers	3,529	100%

Figure 8: Ten most common causes of cancer death in women in Connecticut in 2005. (Source: Connecticut Tumor Registry/SEER Database)

The cancer mortality rate is defined as the number of cancer deaths per 100,000 persons per year. In this chapter the rates are presented as age-specific rates or age-adjusted rates. Age-adjustment allows comparison of rates between different groups of people or between different time periods, ensuring that any differences in rate are not just due to different proportions of older people. All age-adjusted rates are adjusted to the 2000 US Standard Population.

Cancer Mortality Age Profile

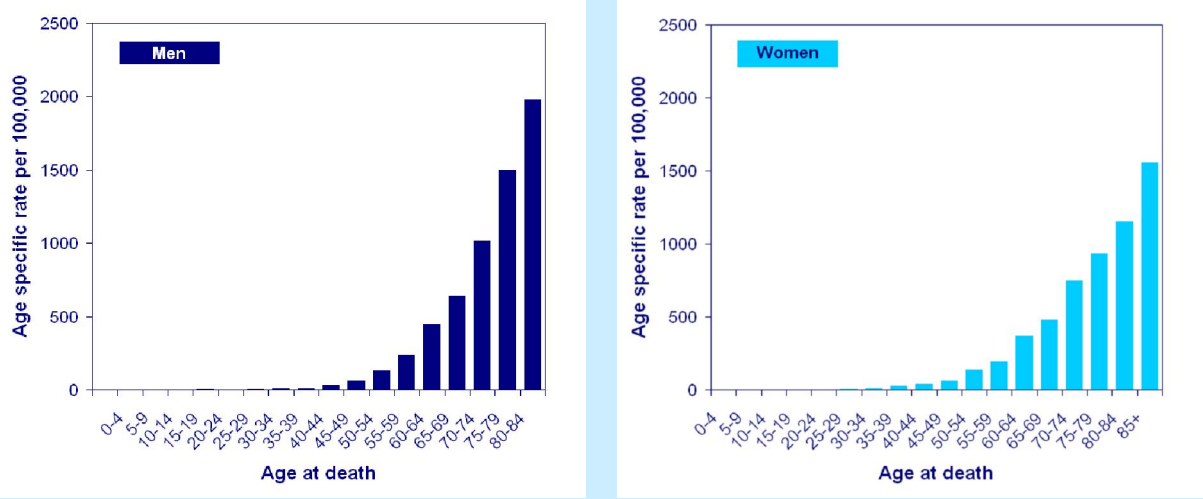
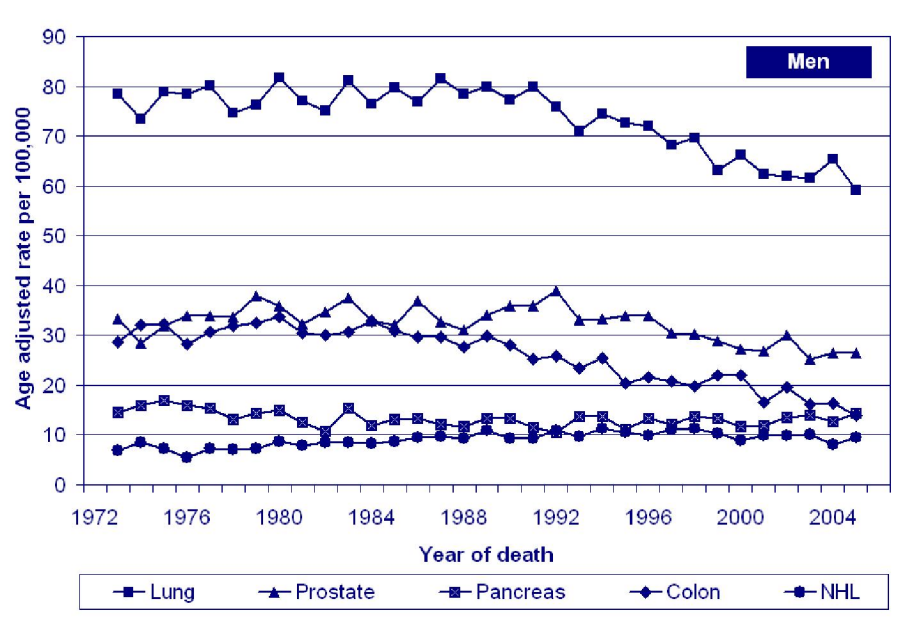


Figure 9: Age specific death rates from all invasive cancers combined in men and women in Connecticut in 2005 by age at diagnosis. (Source: Connecticut Tumor Registry/SEER Database)

4 CANCER MORTALITY

Figure 9 shows the age specific mortality rates of all invasive cancers in men and women in Connecticut in 2004 by age at death. In both genders the rate increased with increasing age. Over 80% of all cancer deaths in men and women were in people aged 60 years or older. The rates in men were more than 50% higher than the rates in women, for people aged 60 years or older

Trends in Cancer Mortality



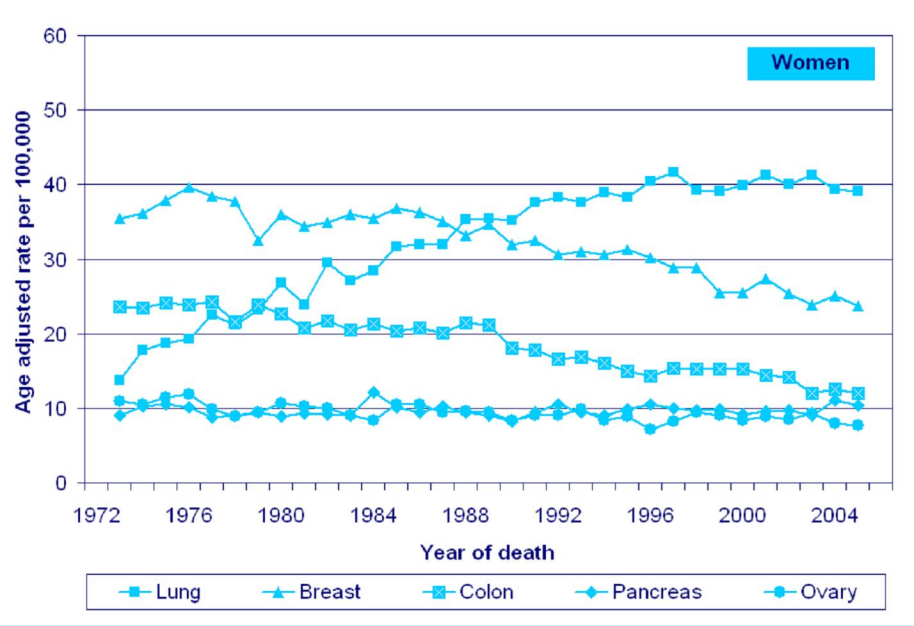


Figure 10: Trends in age adjusted mortality rates of the five most common causes of cancer death in men and women in Connecticut 1973-2005. (NHL: Non-Hodgkin Lymphoma) (Source: Connecticut Tumor Registry/SEER Database)

4 CANCER MORTALITY

Key points

- Lung cancer mortality rates in men were stable until the late 1980s then decreased steadily thereafter. In women, rates increased until the mid 1990s and leveled off thereafter. These rates reflect differences in the changing patterns of tobacco usage between the sexes.
- Colon cancer mortality rates in men and women have generally decreased over time. The reasons contributing to this are complex and include changes in people's exposures to risk factors and in colonoscopy usage (which can prevent colorectal cancer through detection and removal of pre-malignant polyps).
- In men, prostate cancer mortality rates were steady until the early 1990s, and decreased thereafter. The reasons contributing to this are complex and may include PSA testing[6] and changes in treatment.
- In women, breast cancer mortality rates decreased over time. The reasons contributing to this are complex and include earlier detection through mammography screening and changes in treatment.

[6] The U.S. Preventive Services Task Force deem evidence on the benefits of PSA testing to be insufficient to make a recommendation for its use in men aged less than 75 years. They recommend *against* its use in men aged 75 years and older (http://www.ahrq.gov/clinic/uspstf/uspsprca.htm).

5 CANCER SURVIVAL

Cancer survival is measured in a number of different ways depending on the intended purpose of the measure. The survival rate is a measure of how long people live after diagnosis with cancer. The relative survival rate adjusts for mortality in the general population, and is defined as the ratio of a cancer patient's chance of surviving their cancer a given period of time relative to that of a person of the same age and sex in the general US population. Hence a group of cancer patients with a 100% 5-year relative survival rate indicates that they are just as likely to survive 5 years as people in the general population of the same age and sex. It does not mean that all patients will survive for 5 years after diagnosis of cancer.

5-Year Relative Survival from the Five Most Commonly Diagnosed Cancers

Figure 11 shows 5-year relative survival from the five most commonly diagnosed cancers in men and women in Connecticut in 2005.

Men		Women	
Type of Cancer	**5 Year relative survival**	**Type of Cancer**	**5 Year relative survival**
Prostate	98%	Breast	89%
Lung	15%	Lung	20%
Bladder	81%	Colon	63%
Colon	66%	Uterus	86%
Melanoma of the Skin	92%	Melanoma of the Skin	93%

Figure 11: 5-year relative survival from the five most commonly diagnosed cancers in men and women in Connecticut in 2005.
Cancers diagnosed in 1996-2000 and followed up through the end of December 2005.
(Source: Connecticut Tumor Registry/SEER Database)

In men, 5-year survival ranged from 98% for men diagnosed with prostate cancer to 15% for men diagnosed with lung cancer. In women, 5-year survival ranged from 93% for women diagnosed with melanoma of the skin to 20% for women diagnosed with lung cancer. Where the cancer affected men and women (i.e., lung cancer, colon cancer and melanoma of the skin), the 5-year relative survival rate was higher in women although only statistically significantly higher for lung cancer.

5 CANCER SURVIVAL

Variation in 5-Year Relative Survival with Stage at Diagnosis

Figure 12 shows the variation in 5-year relative survival with stage at diagnosis for the five most commonly diagnosed cancers in men and women in Connecticut in 2005. Also shown is the stage distribution of these cancers.

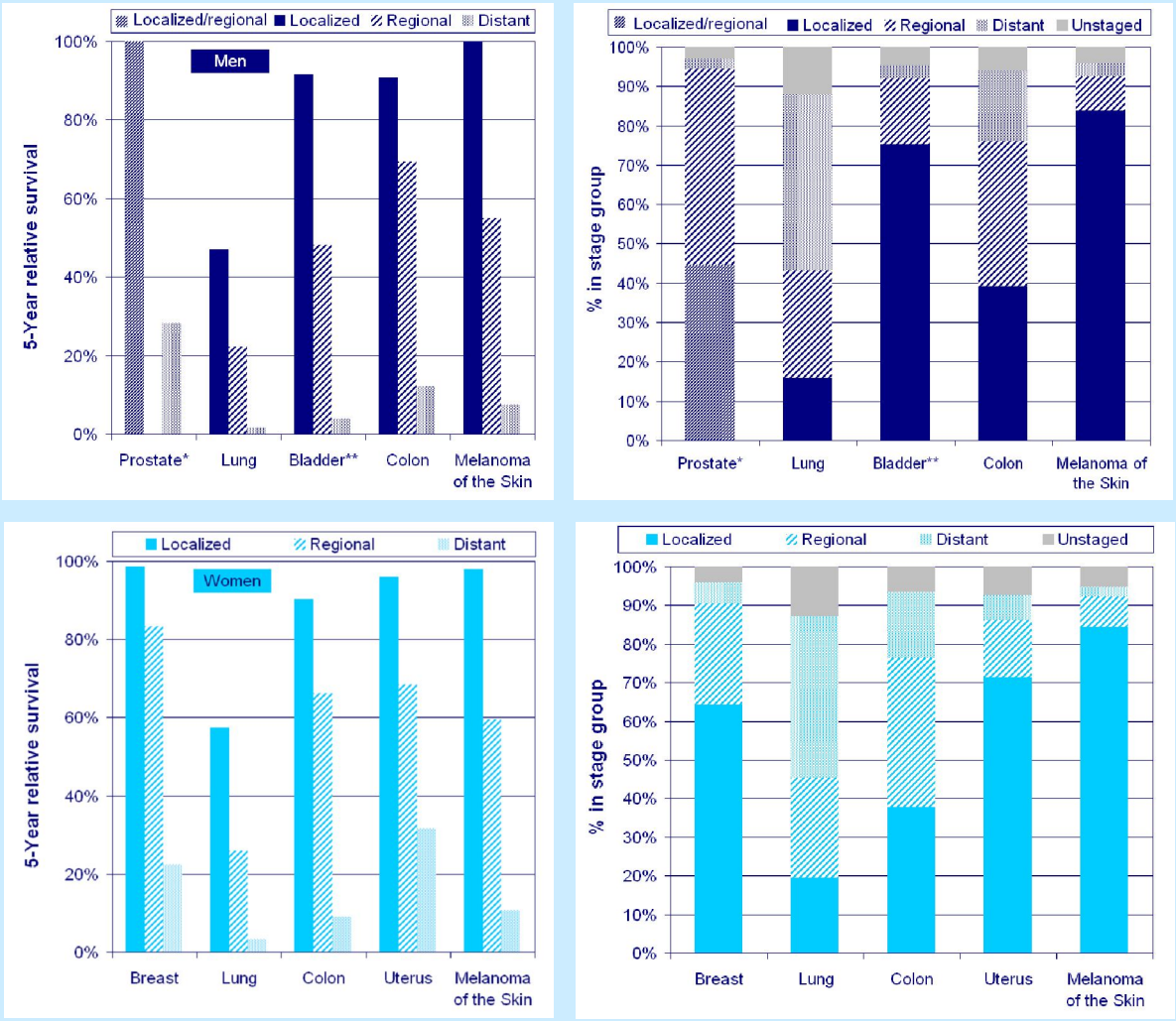


Figure 12: (a) 5-year relative survival from the five most commonly diagnosed cancers in men and women in Connecticut in 2005, by stage at diagnosis.
Cancers diagnosed in 1996-2000 and followed up through the end of December 2005.
(b) Stage distribution of the five most commonly diagnosed cancers in men and women in Connecticut in 2005. Cancers diagnosed 1996-2000.
*Prostate: Localized and regional stages are combined into a single stage category.
**Bladder: 'Localized' also includes in situ cancers.
(Source: Connecticut Tumor Registry/SEER Database)

5 CANCER SURVIVAL

Key Points

- For all of the cancers shown, the more advanced the stage of the cancer at diagnosis the poorer the 5-year relative survival.
- 5-Year relative survival was highest in men for prostate cancer and in women for breast cancer in all stage groups.
- 5-Year relative survival was poorest in both men and women for lung cancer; more than 2 in 5 lung cancers were diagnosed at a late (distant) stage.

Trends in 5-Year Relative Survival

Figure 13 shows trends in 5-year relative survival from the five most commonly diagnosed cancers in men and women in Connecticut in 2005, for cancers diagnosed 1973-2000.

Key Points

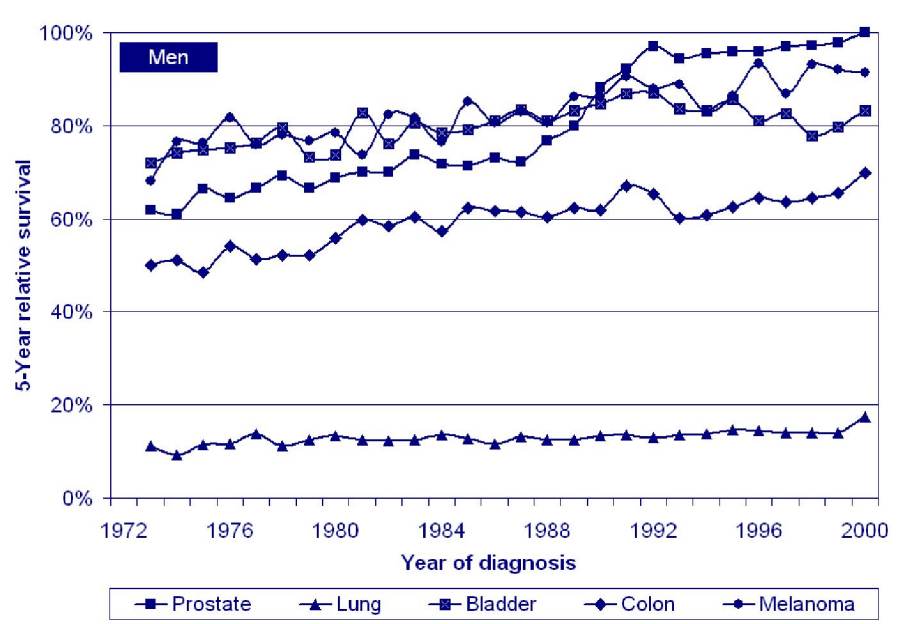
- 5-Year relative survival rates have improved over time for all of the cancers shown.
- In men, the greatest improvement in survival has been for prostate cancer, due in part to PSA testing[6], which can detect early prostate cancer in asymptomatic men, and improvements in treatment. However, PSA testing may lead to inflated survival rates due to various biases[7].
- In women, the greatest improvement in survival has been for breast cancer, due in part to mammography screening, which can detect early breast cancer in asymptomatic women, and improvements in treatment. Although mammography screening is subject to the same biases as PSA testing (see above), it has been proven to reduce mortality from breast cancer and is recommended by the U.S. Preventive Services Task Force for women aged 40 years and older[8].
- Although lung cancer survival has seen slight improvement in both men and women, prognosis remains poor and prevention, early detection and effective treatments must continue to be research priorities.
- As an indicator of overall progress in cancer control, age-adjusted mortality rates provide a more reliable measure than survival since the recording of mortality has been stable over time and mortality rates are less susceptible to biases[9].

[7] Jemal, A., Clegg, L.X., Ward, E., Ries, L.A.G., Wu, X., Jamison, P.M., Wingo, P.A., Howe, H.L., Anderson, R.N. and Edwards, BK. Annual Report to the Nation on the Status of Cancer, 1975-2001, with a Special Feature Regarding Survival. *Cancer* 101:3-27, 2004.

[8] http://www.ahrq.gov/clinic/uspstf/uspsbrca.htm

[9] Welch, H.G., Schwartz, L.M. and Woloshin, S. Are Increasing 5-Year Survival Rates Evidence of Success Against Cancer? *JAMA* 283:2975-2978, 2000.

5 CANCER SURVIVAL



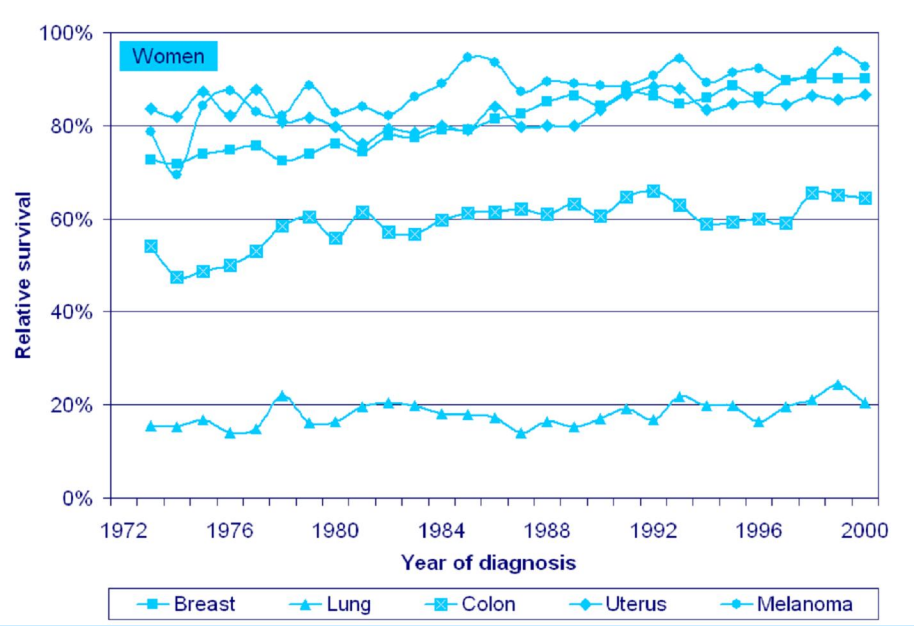


Figure 13: Trends in 5-year relative survival from the five most commonly diagnosed cancers in men and women in Connecticut in 2005.
Cancers diagnosed 1973-2000 and followed up through the end of December 2005.
(Source: Connecticut Tumor Registry/SEER Database)

6 TOBACCO-RELATED CANCERS

Exposure to tobacco smoke is a major cause of morbidity and mortality, and is implicated in a number of diseases and conditions including cancer, cardiovascular disease, respiratory disease and reproductive effects[10]. Substantial evidence points to strong a causal relationship between smoking and the following cancers[10,11]:

- Lung
- Bladder
- Oral cavity and pharynx
- Esophageal
- Laryngeal

Smoking habits vary greatly between men and women, and between different races. This chapter examines the variation in incidence, mortality and survival rates of the above tobacco-related cancers in Connecticut residents by gender and race.

Note. Rates are presented for the SEER race categories Black and White, which include people of both Hispanic and non-Hispanic ethnicities. Data for other race categories (American Indian/Alaskan Native, Asian or Pacific Islander) are not presented because of small numbers leading to unstable rate estimates. Where rates presented here are based on <16 cases (or deaths), they are highlighted with an asterisk. Such rates are considered unreliable[12].

Incidence of Tobacco-Related Cancers

Figure 14 shows age-adjusted incidence rates of tobacco-related cancers in Black and White men and women in Connecticut, diagnosed in six 5-year time periods from 1976-1980 to 2001-2005.

[10] US Department of Health and Human Services, *The Health Consequences of Smoking: A Report of the Surgeon General.* U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Atlanta, GA, 2004.

[11] National Cancer Institute, *Cigarette Smoking and Cancer: Questions and Answers*. NCI Fact Sheet 10.14, 2004. Available online: http://www.cancer.gov/cancertopics/factsheet/Tobacco/cancer

[12] A case (or death) count below 16 results in the width of the 95% confidence interval around the rate being at least as large as the rate itself. Further details available under Statistical Methods in:
U.S. Cancer Statistics Working Group. United States Cancer Statistics: 2004 Incidence and Mortality. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; 2007. Available online at:
http://www.cdc.gov/cancer/npcr/npcrpdfs/US_Cancer_Statistics_2004_Incidence_and_Mortality.pdf

6 TOBACCO-RELATED CANCERS - INCIDENCE

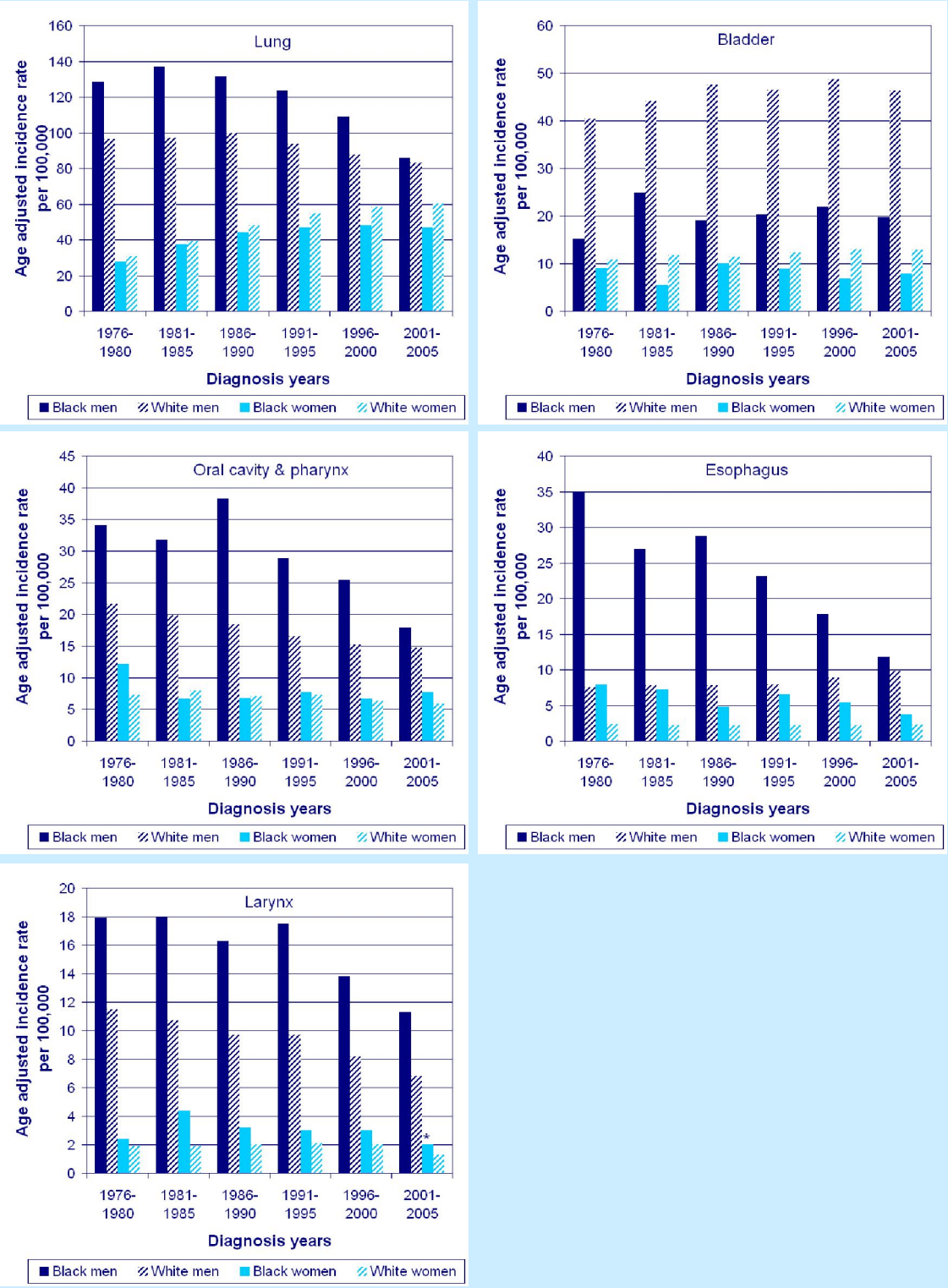


Figure 14: Age-adjusted incidence rates of tobacco-related cancers in Black and White men and women in Connecticut for six diagnosis periods: 1976-1980, 1981-1985, 1986-1990, 1991-1995, 1996-2000 and 2001-2005. (* Rate based on <16 cases; estimate considered unreliable).
(Source: Connecticut Tumor Registry/SEER Database)

6 TOBACCO-RELATED CANCERS - INCIDENCE

Lung cancer:

- In all time periods incidence rates were higher in men than in women although the difference has been decreasing over time. The rates in men have decreased over time while the rates in women have increased, reflecting patterns of smoking in Connecticut men and women[13,14].
- In men, the rates were consistently higher in Black men than White men, although the difference has decreased over time. This is consistent with changes in smoking habits: smoking prevalence has seen greater decreases in White men than Black men [13,14].
- In women, the rates were consistently higher in White women than Black women and the difference has increased over time.

Bladder cancer:

- In all time periods, incidence rates were higher in men that in women. The rates have increased slightly over time.
- In men, the rates were twice as high in White men as in Black men.
- In women, the rates were consistently higher in White women than in Black women.

Cancer of the oral cavity and pharynx

- In all time periods, incidence rates were higher in men than in women although the difference has decreased over time. The rates in men have decreased while the rates in women have remained relatively stable.
- In men, the rates were consistently higher in Black men than in White men.
- In women, the rates in Black and White women were not significantly different.

Esophageal cancer

- In all time periods within race groups, incidence rates in men were consistently higher than in women. In Black men and women, the difference has decreased while in White men and women the difference has increased.
- In men, the rates in Black men were higher than in White men although the difference has decreased significantly over time. The rates in Black men have decreased considerably while the rates in White men have increased gradually.
- In women, the rates in Black women were consistently higher than in White women. The rates in Black women have decreased slightly over time while the rates in White women have remained stable.

Laryngeal cancer

- In all time periods, incidence rates were higher in men than in women although the difference has decreased over time. The rates in men have decreased while the rates in women have remained relatively stable.
- In men, the rates in Black men were higher than in White men although the difference has decreased over time. The rates in Black men have decreased more quickly than the rates in White men.
- In women, the rates in Black women were consistently higher than in White women.

[13] Centers for Disease Control and Prevention, National Health Information Survey. Available on line: http://www.cdc.gov/nchs/about/major/nhis/tobacco/nhis_tobhoma.htm

[14] Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Available on line: http://www.cdc.gov/brfss/

6 TOBACCO-RELATED CANCERS - MORTALITY

Mortality from Tobacco-Related Cancers

Figure 15 shows age-adjusted mortality rates in Black and White men and women in Connecticut, in six 5-year time periods from 1976-1980 to 2001-2005.

Lung cancer:

- In all time periods mortality rates were higher in men than in women although the difference has been decreasing over time. The rates in men have decreased over time while the rates in women have increased, reflecting patterns of smoking in Connecticut men and women[13,14].
- In men, the rates were consistently higher in Black men than White men, although the difference has decreased over time. This is consistent with changes in smoking habits: smoking prevalence has seen greater decreases in White men than Black men over time[13,14].
- In women, the rates were higher in White women than Black women and the difference has increased over time.

Bladder cancer:

- In all time periods, mortality rates were higher in men that in women. The rates have decreased slightly over time.
- In men, the rates were higher in White men than in Black men.
- In women, the rates were lower in White women than in Black women in the earlier time periods but higher in the later time periods.

Cancer of the oral cavity and pharynx

- In all time periods, mortality rates were higher in men than in women although the difference has decreased over time. The rates in men have decreased more rapidly than the rates in women.
- In men, the rates were consistently higher in Black men than in White men.
- In women, except for the earliest time period the rates in Black and White women were not significantly different. In 1976-1980 the rate was higher in Black women than in White women.

Esophageal cancer

- In all time periods within race groups, mortality rates in men were consistently higher than in women. In Black men and women, the difference has decreased while in White men and women the difference has increased slightly.
- In men, the rates in Black men were higher than in White men although the difference has decreased significantly over time. The rates in Black men have decreased considerably while the rates in White men have increased slightly.
- In women, the rates in Black women were consistently higher than in White women. The rates in Black women have decreased gradually over time while the rates in White women have remained stable.

Laryngeal cancer

- In all time periods, mortality rates were higher in men than in women. The rates in men have decreased while the rates in women have remained relatively stable.
- In men, the rates in Black men were higher than in White men although the difference has decreased over time. The rates in Black men have decreased more quickly than the rates in White men.
- In women, the rates in Black women were higher than in White women.

6 TOBACCO-RELATED CANCERS - MORTALITY

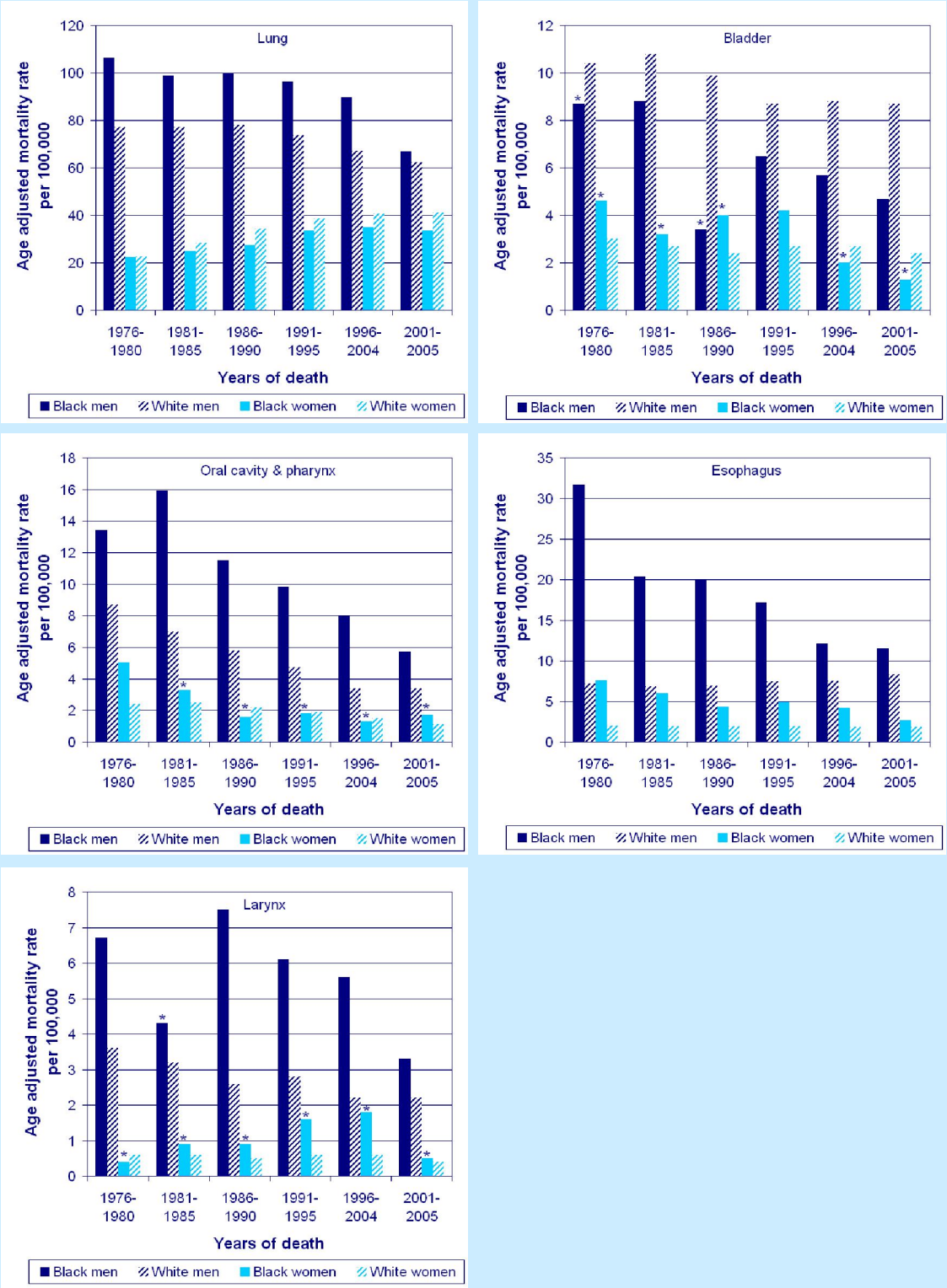


Figure 15: Age-adjusted mortality rates of tobacco-related cancers in Black and White men and women in Connecticut for six time periods: 1976-1980, 1981-1985, 1986-1990, 1991-1995, 1996-2000 and 2001-2005. (* Rate based on <16 cases; estimate considered unreliable).
(Source: Connecticut Tumor Registry/SEER Database)

6 TOBACCO-RELATED CANCERS - SURVIVAL

5-Year Relative Survival from Tobacco-Related Cancers

Figure 16 shows 5-year relative survival rates in Black and White men and women in Connecticut, diagnosed in five 5-year time periods from 1976-1980 to 1996-2000.

Lung cancer:

- In all time periods within race groups, 5-year relative survival rates were lower in men than in women. The rates have not improved significantly over time except in White men, where there has been slight improvement.
- In men, the rates were consistently lower in Black men than White men. The rates in White men have improved slightly and the rates in Black men have not changed over time.
- In women, except for the earlier time period, the rates were lower in Black women than White women.

Bladder cancer:

- In all time periods within race groups, 5-year relative survival rates were higher in men that in women. The rates have improved slightly over time, the greatest improvement seen in Black women.
- In men, the rates were lower in Black men than in White men.
- In women, the rates were lower in Black women than in White women although the difference has decreased slightly over time.

Cancer of the oral cavity and pharynx

- In all time periods within race groups, 5-year relative survival rates were lower in men than in women. The rates have improved slightly over time.
- In men, the rates were consistently lower in Black men than in White men.
- In women, the rates were consistently lower in Black women than in White women.

Esophageal cancer

- In all time periods except 1986-1990 and within race groups, 5-year relative survival rates in men were lower than in women. The rates have improved over time but the improvements have been slower in the rates for Black men and Women.
- In men, the rates in Black men were consistently lower than in White men.
- In women, the rates in Black women were consistently lower than in White women.

Laryngeal cancer

- In all time periods within race groups, 5-year relative survival rates were consistently lower in White women than in White men but similar in Black women and Black men. The rates have decreased slightly over time.
- In men, the rates in Black men were consistently lower than in White men.
- In women, the rates in Black women were lower than in White women.

6 TOBACCO-RELATED CANCERS - SURVIVAL

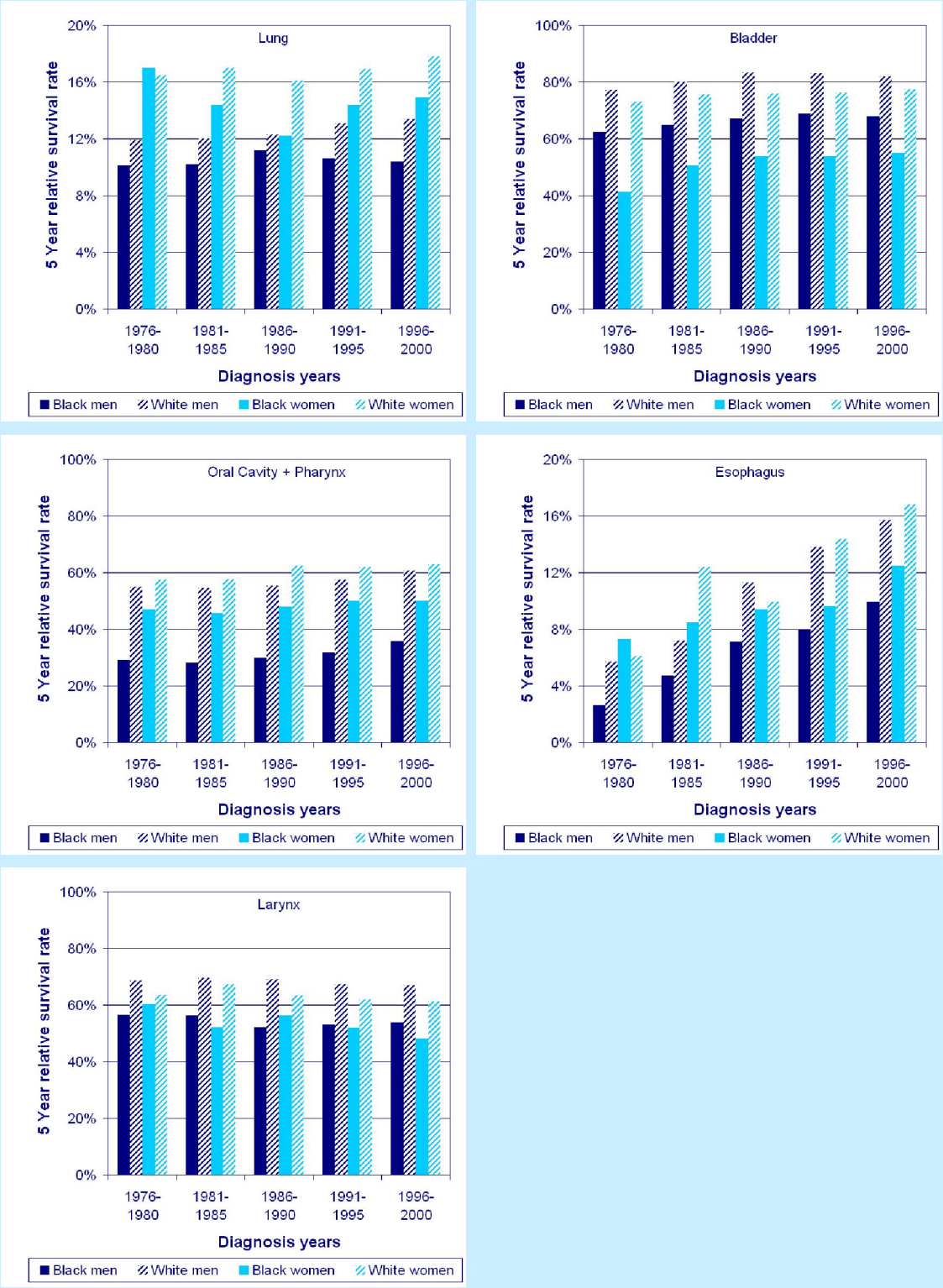


Figure 16: 5-Year relative survival rates of tobacco-related cancers in Black and White men and women in Connecticut for five diagnosis periods 1976-1980, 1981-1985, 1986-1990, 1991-1995 and 1996-2000 and followed up through the end of December 2005. (Source: Connecticut Tumor Registry/SEER Database)

7 RESEARCH STUDIES

A selection of research studies undertaken by Connecticut Tumor Registry, or using Connecticut Tumor Registry data, are described below. Several of the studies have resulted in articles published in peer-reviewed journals; details of these are given in the 'Publications' section of this report.

SEER Patterns of Care

The SEER Patterns of Care (POC) study aims to evaluate the diffusion of state-of-the-art cancer therapy into community practice, to disseminate findings in scientific journals and through professional meetings, and to work with professional organizations to develop educational opportunities to increase the use of state-of-the-art cancer therapy and quality of care in community practice. Each year, NCI selects different cancer sites to be included in the POC studies and randomly samples cases from those ascertained by the SEER registries. In the most recent study, the cancer sites under study were thyroid, glioblastoma, and adolescent/young adult cancers (acute lymphoblastic leukemia, germ cell, lymphoma, sarcoma) diagnosed in 2006. Hospital and physician reports have been obtained in order to verify and supplement information on the first course of treatment. Additionally, POC questionnaires have been mailed to almost 400 physicians in the state. Other information, including insurance status and co-morbidity, has also been collected for the patients. The CTR has participated in all of the SEER POC studies conducted by the SEER Program.

Myelodysplastic Syndromes in Connecticut

Myelodysplastic syndromes (MDS) are a group of diseases in which the production of blood cells by the bone marrow is disrupted. Since 2001, MDS have been reportable to the SEER program, of which Connecticut Tumor Registry is part. A study was undertaken using registry data to examine the incidence, survival and spatial distribution of MDS in Connecticut. This study was a SEER Program-funded Rapid Response Surveillance Study (RRSS).

HER2 Reporting in Pathology Reports

Expression of Human Epidermal growth factor Receptor 2 (HER2) is an important prognostic indicator in breast cancer. Reporting of HER2 status is not, however, currently mandated by the SEER program. Researchers at the University of Connecticut Health Center, in collaboration with staff at the Connecticut Tumor Registry, examined the reporting of HER2 status in breast cancer pathology reports received by the registry.

Geospatial Analysis of Cancer

Researchers from the University of Connecticut Health Center have utilized geo-coded data from the Connecticut Tumor Registry to probe the spatial distributions of breast and prostate cancer incidence and survival using a spatial scan statistic technique.

Central Nervous System Tumors in an Occupational Cohort

The Connecticut Tumor Registry is participating with researchers from the University of Pittsburgh and the University of Illinois at Chicago on a study of central nervous system (CNS) tumors in a cohort of aerospace workers in CT. The multi-year study focused first on CNS and all cause mortality. These two studies have been published. CNS tumor incidence is currently being analyzed. Data from the CTR will be used for the denominators when calculating benign CNS tumors, since these tumors have been reportable in CT since 1962.

7 RESEARCH STUDIES

Data Linkage with Cancer Screening Data

The Connecticut Tumor Registry has undertaken a pilot data linkage study with the Connecticut Breast and Cervical Cancer Early Detection Program (CBCCEDP), part of the Centers for Disease Control and Prevention's National Breast and Cervical Cancer Early Detection Program (http://www.cdc.gov/cancer/nbccedp/). The aim of the study was to develop protocols and methods for the routine linkage of data between the two programs in order to enhance the quality of the data held by the CBCCEDP.

8 PUBLICATIONS

Reports

1. State of Connecticut Department of Public Health. *Cancer Incidence in Connecticut Counties, 1990-2002*. March 2006.

2. State of Connecticut Department of Public Health (DPH). *Cancer Incidence in Connecticut, 2003*. April 2006.

3. State of Connecticut Department of Public Health. *Cancer Incidence (Numbers of Cancers) in Connecticut Towns, 2000-2003*. May 2006.

4. State of Connecticut Department of Public Health. *Incidence of Pediatric Cancers in Connecticut Towns, 2000-2005*. July 2007.

5. State of Connecticut Department of Public Health. *Cancer Incidence in Connecticut, 2005*. December 2007.

Published Articles

The articles listed below are selected recent publications involving researchers in the Connecticut area who used data from the Connecticut Tumor Registry (CTR) or the Yale Rapid Case Ascertainment Shared Resource, which acts as an agent of the CTR.

2006:

1. Claus, E.B., Petruzella, S., Carter, D. and Kasl, S. Quality of life for women diagnosed with breast carcinoma in situ. *Journal of Clinical Oncology* 24:4875-4881, 2006.

2. Gregorio, D.I., Samociuk, H., DeChello, L. and Swede, H. Effects of study area size on geographic characterizations of health events: Prostate cancer incidence in Southern New England, 1994-1998. *International Journal of Health Geographics* 5:8-16, 2006.

3. Kulldorff, M., Song, G., Gregorio, D.I., Samociuk, H. and DeChello, L. Cancer map patterns: Are they random or not? *American Journal of Preventive Medicine* 30:S37-S49, 2006.

4. Lan, Q., Zheng, T., Rothman, N., Zhang, Y., Wang, S.S., Shen, M., Berndt, S.I., Zahm, S.H., Holford, T.R., Leaderer, B., Yeager, M., Welch, R., Boyle, P., Zhang, B., Zou, K., Zhu, Y. and Chanock, S. Cytokine polymorphisms in the Th1/Th2 pathway and susceptibility to non-Hodgkin lymphoma. *Blood* 107:4101-4108, 2006

5. Landgren, O., Zhang, Y., Zahm, S.H., Inskip, P., Zheng, T. and Baris, D. Risk of multiple myeloma following medication use and medical conditions: a case-control study in Connecticut women. *Cancer Epidemiology, Biomarkers and Prevention* 15:2342-2347, 2006.

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6. Mayne, S.T., Risch, H.A., Dubrow, R., Wong-Ho, C., Gammon, M.D., Vaughan, T.L., Borchardt, L., Schoenberg, J.B., Stanford, J.L., West, A.B., Rotterdam, H., Blot, W.J., Fraumeni Jr. J.F. Carbonated soft drink consumption and risk of esophageal adenocarcinoma. *Journal of the National Cancer Institute* 98:72-75, 2006.

7. Polednak, A.P. Comorbid diabetes mellitus and risk of death after diagnosis of colorectal cancer: A population-based study. *Cancer Detection and Prevention* 30:466-72, 2006.

8. Polednak, A.P. Obtaining population-based data on obesity among cancer patients at diagnosis. *Journal of Registry Management* 33:107-111, 2006.

9. Polednak, A.P. Obtaining smoking histories for population-based studies of multiple primary cancers. *International Journal of Cancer* 119:233-235, 2006.

10. Polednak, A.P. Regarding "prevalence of the metabolic syndrome in relation to self-reported cancer history". *Annals of Epidemiology* 16:877-9, 2006.

11. Risch, H.A., Bale, A.E., Beck, P.A. and Zheng, W. PGR +331 A/G and Increased Risk of Epithelial Ovarian Cancer. *Cancer Epidemiology, Biomarkers and Prevention* 15:1738-1741, 2006.

12. Rothman, N., Skibola, C.F., Wang, S.S., Morgan, G., Lan, Q., Smith, M.T., Spinelli, J.J., Willett, E., DeSanjose, S., Cocco, P., Berndt, S.I., Brennan, P., Brooks-Wilson, A., Wacholder, S., Becker, N., Hartge, P., Zheng, T., Roman, E., Holly, E.A., Boffetta, P., Armstrong, B., Cozen, W., Linet, M., Bosch, F.X., Ennas, M.G., Holford, T.R., Gallagher, R.P., Rollinson, S., Bracci, P.M., Cerhan, J.R., Whitby, D., Moore, P.S., Leaderer, B., Lai, A., Spink, C., Davis, S., Bosch, R., Scarpa, A., Zhang, Y., Severson, R.K., Yeager, M., Chanock, S. and Nieters, A. Genetic variation in TNF and IL10 and risk of non-Hodgkin lymphoma: a report from the InterLymph Consortium. *The Lancet Oncology* 7:27-38, 2006.

13. Shen, M., Zheng, T., Lan, Q., Zhang, Y., Zahm, S.H., Wang, S.S., Holford, T.R., Leaderer, B., Yeager, M., Welch, R., Kang, D., Boyle, P., Zhang, B., Zou, K., Zhu, Y., Chanock, S. and Rothman, N. Polymorphisms in DNA repair genes and risk of non-Hodgkin lymphoma among women in Connecticut. *Human Genetics* 119:659-668, 2006.

2007:

14. Albertsen, P.C., Hanley, J.A., Penson, D.F., Barrows, G. and Fine, J. 13-year outcomes following treatment for clinically localized prostate cancer in a population based cohort. *Journal of Urology* 177:932-936, 2007.

15. DiLuna, M.L., King Jr., J.T., Knisely, J.P. and Chiang, V.L. Prognostic factors for survival after stereotactic radiosurgery vary with the number of cerebral metastases. *Cancer* 109:135-145, 2007.

16. Gregorio, D.I., Huang, L., DeChello, L.M., Samociuk, H. and Kulldorff, M. Place of residence effect on likelihood of surviving prostate cancer. *Annals of Epidemiology* 17:520-524, 2007.

8 PUBLICATIONS

17. Greenwald, H.P. and McCorkle, R. Remedies and life changes among invasive cervical cancer survivors. *Urologic Nursing* 27:47-53, 2007.

18. Hatzaras, I., Palesty, J.A., Abir, F., Sullivan, P., Kozol, R.A., Dudrick, S.J. and Longo, W.E. Small-bowel tumors: epidemiologic and clinical characteristics of 1260 cases from the Connecticut Tumor Registry. *Archives of Surgery* 142:229-235, 2007.

19. Huang, L., Kulldorff, M., Gregorio, D.I. A spatial scan statistic for survival data. *Biometrics* 63:109-118, 2007.

20. Lea, C.S., Scotto, J.A., Buffler, P.A., Fine, J., Barnhill, R.L. and Berwick, M. Ambient UVB and Melanoma Risk in the United States: a Case-Control Analysis. *Annals of Epidemiology* 17:447-453, 2007.

21. Ma, X., Selvin, S., Raza, A., Foti, K. and Mayne, S.T. Clustering in the incidence of myelodysplastic syndromes. *Leukemia Research* 31:1683-1686, 2007.

22. Ma, X., Does, M.B., Raza, A. and Mayne, S.T. Myelodysplastic syndromes: incidence and survival in the United States. *Cancer* 109:1536-1542, 2007.

23. Polednak, A.P. Documentation of alcohol use in hospital records of newly diagnosed cancer patients: a population-based study. *American Journal of Drug and Alcohol Abuse* 33:403-409, 2007.

24. Polednak, A.P. Identifying newly diagnosed Hispanic cancer patients who use a physician with a Spanish-language practice, for studies of quality of cancer treatment. *Cancer Detection and Prevention* 31:185-190, 2007.

25. Polednak, A.P. Incidence of skin melanoma in Connecticut towns and counties, 1997-2003. *Connecticut Medicine* 71:275-279, 2007.

26. Polednak A.P. Prevalence and predictors of co-morbid diabetes among newly diagnosed Hispanic cancer patients in Connecticut. *Cancer Detection and Prevention* 31:453-456, 2007..

27. Smith, T., Stein, K.D., Mehta, C.C., Kaw, C., Kepner, J.L., Buskirk, T., Stafford, J. and Baker, F. The rationale, design, and implementation of the American Cancer Society's studies of cancer survivors. *Cancer* 109:1-12, 2007.

28. Terry, M.B., Gammon, M.D., Zhang, F.F., Vaughan, T.L., Chow, W.H., Risch, H.A., Schoenberg, J.B., Mayne, S.T., Stanford, J.L., West, A.B., Rotterdam, H., Blot, W.J., Fraumeni, Jr. J.F. and Santella, R.M. Alcohol dehydrogenase 3 and risk of esophageal and gastric adenocarcinomas. *Cancer Causes and Control*, 18:1039-1046, 2007.

8 PUBLICATIONS

29. Wang, S.S., Slager, S.L., Brennan, P., Holly, E.A., De Sanjose, S., Bernstein, L., Boffetta, P., Cerhan, J.R., Maynadie, M., Spinelli, J.J., Chiu, B.C., Cocco, P., Mensah, F., Zhang, Y., Nieters, A., Dal Maso, L., Bracci, P.M., Costantini, A.S., Vineis, P., Severson, R.K., Roman, E., Cozen, W., Weisenburger, D., Davis, S., Franceschi, S., La Vecchia, C., Foretova, L., Becker, N., Staines, A., Vornanen, M., Zheng, T. and Hartge, P. Family history of hematopoietic malignancies and risk of non-Hodgkin lymphoma (NHL): a pooled analysis of 10,211 cases and 11,905 controls from the InterLymph Consortium. *Blood* 109:3479-3488, 2007.

30. Zhang, Y., Holford, T.R., Leaderer, B., Boyle, P., Zhu, Y., Wang, R., Zou, K., Zhang, B., Wise, J.P. Sr., Qin, Q., Kilfoy, B., Han, J. and Zheng, T. Ultraviolet radiation exposure and risk of non-Hodgkin's lymphoma. *American Journal of Epidemiology* 165:1255-1264, 2007.

31. Zhang, Y., Wang, R., Holford, T.R., Leaderer, B., Zahm, S.H., Boyle, P., Zhu, Y., Qin, Q. and Zheng, T. Family history of hematopoietic and non-hematopoietic malignancies and risk of non-Hodgkin lymphoma. *Cancer Causes Control* 18:351-359, 2007.

2008:

32. Kaufman, E.L., Jacobson, J.S., Hershman, D.L., Desai, M., Neugut, A.I. Effect of breast cancer radiotherapy and cigarette smoking on risk of second primary lung cancer. *Journal of Clinical Oncology* 26:392-398, 2008.

33. Lu-Yao, G.L., Albertsen, P.C., Moore, D.F., Shih, W., Lin, Y., DiPaola, R.S. and Yao, S.L. Survival Following Primary Androgen Deprivation Therapy Among Men with Localized Prostate Cancer. *Journal of the American Medical Association* 300:173-181, 2008.

34. Lu-Yao, G.L., Albertsen P.C., Stanford J.L., Stukel T.A., Walker-Corkery E. and Barry M.J. Screening, Treatment and Prostate Cancer Mortality in the Seattle Area and Connecticut: Fifteen-year Follow-up. *Journal of General Internal Medicine*, 23:1809-14, 2008.

35. Navarro Silvera, S.A., Mayne, S.T., Risch, H., Gammon, N.D., Vaughan, T., Chow, H., Dubrow, R., Schoenberg, J., Stanford, J.L., West, A.B., Rotterdam, H., Blot, W.J. and Fraumeni, J.F. Jr. Food group intake and Risk of subtypes of esophageal and gastric cancer. *International Journal of Cancer* 123:852-860, 2008.

36. Penson, D.F., McLerran, D., Feng, Z., Li, L., Albertsen, P.C., Gilliland, F.D., Hamilton, A., Hoffman, R.M., Stephenson, R.A., Potosky, A.L., Stanford, J.L. 5-Year Urinary and Sexual Outcomes after Radical Prostatectomy: results from the Prostate Cancer Outcomes Study. *Journal of Urology* 179:S40-S44, 2008.

37. Polednak, A.P. Indicators of nutritional screening in hospital records of newly diagnosed Hispanic and Asian American adult cancer patients in Connecticut. *Nutrition* 24:1053-1056, 2008.

9 GLOSSARY OF TERMS

Rate, Age-adjusted rate	Rates of new cancer cases or deaths are the numbers of cases or deaths in a given number of men or women (usually 100,000) in a year. Because the risk of cancer increases with age, rates are usually age-adjusted, which allows rates in different groups of people to be compared even when one group has a higher proportion of older people.
Benign	A benign tumor is histologically (microscopically) non-cancerous and does not spread to other parts of the body.
Incidence	Incidence is the number of newly diagnosed cases during a specific time period.
In situ	"In situ" cancers are pre-invasive, early-stage cancers that have not invaded through the immediate microscopic layer of tissue and cannot spread through the lymph or blood vessels.
Invasive (Malignant)	Invasive (malignant) cancers are those that have spread (or 'invaded') into cells beyond the microscopic layer of tissue in which they first developed.
Metastatic	Metastatic or distant stage cancer has spread from the primary site to distant organs or distant lymph nodes.
Mortality	Mortality is the number of deaths during a specific time period.
Screening	Cancer screening is testing people for very early signs of a particular cancer before they have any symptoms. Examples of cancer screening tests include: • Mammography for breast cancer; • Pap smears for cervical cancer; • Colonoscopy and fecal occult blood testing for colorectal cancer.
Survival, Relative survival	The survival rate is a measure of how long people live after diagnosis with cancer. The relative survival rate is defined as the ratio of a cancer patient's chance of surviving a given time interval to that of a person of the same age and sex in the general US population (i.e., the rate has been adjusted for mortality in the general population).
SEER	The Surveillance, Epidemiology and End Results program of the National Cancer Institute. http://seer.cancer.gov/

9 GLOSSARY OF TERMS

Stage at diagnosis

The stage of a cancer is a measure of how far the cancer has spread at the time of diagnosis. Stage is usually based on the size of the tumor, whether lymph nodes contain cancer, and whether the cancer has spread (metastasized) from the original site to other parts of the body. "*In situ*" cancer is pre-invasive cancer that has not invaded through the immediate microscopic layer of tissue and cannot spread through the lymph or blood vessels. *Localized* cancer is limited to the organ in which it began, without evidence of spread. *Regional* cancer has spread beyond the original (primary) site to nearby lymph nodes or organs and tissues. *Distant* stage cancer has spread from the primary site to distant organs or distant lymph nodes. Unstaged cancers are those for which there is not enough information to indicate a stage.

10 DATA SOURCES

Software:

Surveillance Research Program, National Cancer Institute SEER*Stat software (www.seer.cancer.gov/seerstat) version 6.4.4.

Databases

Incidence:
Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov/) SEER*Stat Database: Incidence - SEER 9 Regs Limited-Use, Nov 2007 Sub (1973-2005) <Katrina/Rita Population Adjustment> - Linked To County Attributes - Total U.S., 1969-2005 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2008, based on the November 2007 submission.

Mortality:
Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov/) SEER*Stat Database: Mortality - All COD, Aggregated With State, Total U.S. (1969-2005) <Katrina/Rita Population Adjustment>, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2008. Underlying mortality data provided by NCHS (www.cdc.gov/nchs).

Survival:
Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov/) SEER*Stat Database: Incidence - SEER 17 Regs Limited-Use + Hurricane Katrina Impacted Louisiana Cases, Nov 2007 Sub (1973-2005 varying) - Linked To County Attributes - Total U.S., 1969-2005 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2008, based on the November 2007 submission.

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Or visit our website:

www.ct.gov/dph (select 'Statistics & Research' from main menu on left side and scroll down for Tumor Registry page)