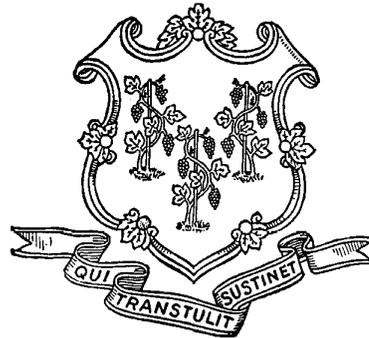


THE CONNECTICUT TUMOR REGISTRY



*State of Connecticut
Department of Public Health
Connecticut Tumor Registry
410 Capitol Avenue, MS# 13TMR
P.O. Box 340308
Hartford, CT 06134-0308*

July, 2001

INTRODUCTION

The Connecticut Tumor Registry, located in the Department of Public Health, is a population-based resource for examining cancer patterns in Connecticut. The Registry has been part of the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program since 1973. About 90% of the Registry's funding comes from the SEER Program. The SEER Program is a unique and important resource. The SEER Program has included registries covering Atlanta, Connecticut, Detroit, Hawaii, Iowa, the Los Angeles area, the San Francisco area, San Jose-Monterey CA, New Mexico, Seattle, and Utah. Since 1992, the SEER areas covered about 15% of the total population of the U.S., and considerable proportions of the country's minority populations. In 2001, several new SEER areas were added , as described on the SEER website (www.seer.cancer.gov).

The Connecticut Tumor Registry database includes all reported cancers diagnosed from 1935, and is primarily a hospital-based reporting system. All licensed 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 data in the Registry by allowing identification of Connecticut residents whose cancers are diagnosed or treated in other states. This is important in obtaining accurate estimates of cancer rates among Connecticut residents. At the time that this report was written, incidence data were considered complete through 1998.

PURPOSES AND ACTIVITIES OF THE REGISTRY

Data from the Registry are included with those from other SEER registries in the National Cancer Institute's annual publication entitled Cancer Statistics Review. This document is used by the National Cancer Institute as part of the process of setting priorities for research on the prevention and treatment of cancer in the U.S. population. Data from the Connecticut Tumor Registry are also included in national publications from the North American Association of Central Cancer Registries (NAACCR) and in an international publication, Cancer Incidence in Five Continents. These reports are updated periodically.

In August 2000, the Registry submitted a computerized statistical data file to the National Cancer Institute (NCI) that included more than 360,000 cancers diagnosed among Connecticut residents from 1973 through 1998. The Registry has a computerized database with statistical information on cancers diagnosed among Connecticut residents since 1935, or a period of more than 60 years, which is longer than that covered by any other cancer registry in the United States.

The Registry provides a database for cancer surveillance efforts at the state and local levels. It provides statistical data to individual researchers in Connecticut, other states in the U.S. and in other countries. It also responds to inquiries from Connecticut newspapers and other news media for statistical information about cancer in Connecticut. 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.

The Registry participates in special research studies sponsored by the National Cancer Institute. For example, SEER's "Patterns of Care" studies collect comprehensive information on specific treatments for samples of patients with certain cancers.

Registry data are used for various statistical analyses and reports on cancer incidence rates for the entire Connecticut population by age, sex, and year of diagnosis. Incidence rates refer to the number of newly diagnosed cancers per 100,000 people per year. A monograph includes cancer incidence rates for Connecticut from 1980-84 through 1995-98 to 1998, and a report is also available with data for 1998.

INCIDENCE OF INVASIVE CANCER IN CONNECTICUT RESIDENTS: 1998

Numbers of cancers newly diagnosed during 1998, and reported to the Registry, are shown below for the ten most common types of invasive cancer occurring in male and female residents of Connecticut. The data do not include "in situ" cancers; however, because of the difficulty in distinguishing in situ from invasive bladder cancers, SEER registries recode bladder cancers reported as in situ to invasive. In situ cancers are not "invasive," or have not penetrated (microscopically) into deeper layers of the tissue in which the cancer originated, and therefore have little chance of spreading.

The National Cancer Institute has estimated that the lifetime risk of developing an invasive cancer is about 40%. That is, about four out of every ten persons in the U.S. will develop some type of cancer at some time during their entire lives. The cancer sites with highest lifetime risks are breast for females and prostate for males. These risks refer to an individual's entire expected lifetime, and should not be confused with risks during any single year (or other time period) or at any specific age.

The Most Commonly Occurring Invasive Cancers in Connecticut: 1998

MALES			FEMALES		
Type of Cancer	Number of Cancers	Percent	Type of Cancer	Number of Cancers	Percent
1. Prostate	2,397	27%	1. Breast	2,832	31%
2. Lung	1,400	16%	2. Lung	1,168	13%
3. Colon	747	8%	3. Colon	854	9%
4. Bladder	695	8%	4. Corpus Uteri	530	6%
5. Melanoma of skin	430	5%	5. Non-Hodgkin's lymphoma	365	4%
6. Non-Hodgkin's lymphoma	372	4%	6. Melanoma of skin	335	4%
7. Rectum	327	4%	7. Ovary	313	3%
8. Kidney	284	3%	8. Rectum	297	3%
9. Leukemia	256	3%	9. Bladder	257	3%
10. Oral, pharynx	249	3%	10. Pancreas	219	2%
All other	1749	20%	All other	1891	21%
Total cancers	8,906	100%	Total cancers	9,061	100%

Note: "In situ" cancers are excluded, except bladder. All numbers will change slightly due to late reporting.

TIME TRENDS IN INCIDENCE RATES FOR COMMON CANCERS IN CONNECTICUT

Incidence rates for cancer change over time, for various reasons including changes in risk factors for specific types of cancer and changes in rates of screening. In making comparisons of cancer incidence over time, rates are "adjusted" to take into account changes in the age structure of the population; for example, the "aging" of the population, or the growing numbers of elderly persons, will result in increases in cancer rates because overall cancer rates rise with age. The Connecticut Tumor Registry, along with NCI and the SEER Program, adjusts cancer incidence rates by using the age distribution of the entire U.S. population in 1970 as the standard.

Average annual age-adjusted incidence rates (per 100,000 males or females, per year). for invasive breast cancer in women showed large increases during the late 1980's, due largely to increased rates of screening for breast cancer by mammography. Even larger increases in cancer incidence rates have been found for prostate cancer in Connecticut (and other states) from about 1989 to 1992, due to the introduction of screening for prostate-specific antigen (PSA testing). Prostate cancer incidence rates peaked in 1992 and have been declining since that time, although the age-adjusted rates have not returned to pre-1989 levels.

Another important trend involves lung cancer. Age-adjusted incidence rates for lung cancer have been declining in men in Connecticut after 1985-89, but rates have continued to rise in women. This difference reflects trends in smoking rates.

Time Trends in Average Annual Age-Adjusted Incidence Rates per 100,000

Males or Females in Connecticut per Year

Selected types of cancer		1980-84	1985-89	1990-94	1995-98
All invasive cancers	Males	431.6	441.8	493.4	491.0
	Females	335.1	353.4	363.2	381.4
Breast	Females	97.5	112.4	115.9	121.8
Prostate	Males	71.3	77.3	138.7	139.5
Lung	Males	85.4	85.2	79.1	75.7
	Females	33.1	40.6	45.3	49.1
Colon	Males	48.7	47.8	42.8	38.6
	Females	36.2	33.9	30.3	30.3
Rectum	Males	22.7	22.6	19.1	18.0
	Females	13.3	12.4	11.4	11.7
Melanoma of skin	Males	11.3	14.1	18.2	21.6
	Females	8.9	10.7	12.5	14.4
Non-Hodgkin's lymphoma	Males	13.9	16.3	19.1	20.6
	Females	10.6	12.6	12.9	14.5

For both males and females, age-adjusted incidence rates for invasive cancers of the colon and rectum have been declining in recent years. The explanation for these declines is uncertain, but both changes in cancer screening rates and dietary habits may be involved. Screening for pre-invasive lesions in the large bowel results in the surgical removal of lesions

before they have a chance to progress to invasive cancer; therefore, increases in screening rates would result in declining rates of invasive cancer.

Other important trends in cancer incidence include the increase in age-adjusted incidence rates for melanoma of the skin, which is believed to be due largely to trends in recreational exposure to sunlight or other sources of ultraviolet radiation. The increase in rates for non-Hodgkin's lymphoma is due in part to the AIDS epidemic.

Trends in cancer incidence rates in Connecticut (since 1935-39) have been described in publications from the Registry; copies are available on request. Cancer trends in Connecticut have been similar to those for the entire SEER Program. Cancer incidence rates in Connecticut are generally slightly higher than those for all SEER areas combined, but similar to those for other urban SEER areas such as Detroit and Atlanta. Cancer mortality data are available for the entire country. The age-adjusted annual mortality rates (per 100,000 per year) for all invasive cancers in 1994-98 were 194 for males and 138 for females in Connecticut, compared to 206 for males and 139 for females in the entire U.S.

SURVIVAL

The survival of patients after diagnosis of cancer is analyzed by the SEER Program. The relative survival rate is the likelihood that patients will escape death due to causes associated with their cancer. This survival rate takes into account death rates for the entire population of the U.S. in the appropriate age, sex, and race category and time period. A relative survival rate of 100% would indicate no difference from the survival expected on the basis of death rates in the general population.

The 5-year relative survival rate for lung cancer patients diagnosed in 1992-97 in Connecticut was 17%, which means that the chance of survival was only about 17% of that expected. In contrast, the five-year relative survival rate was about 85% or higher for patients

diagnosed with invasive breast cancer, prostate cancer or malignant melanoma of the skin. Lung cancer is the most common cause of death due to cancer, in both men and women. Relative survival rates for Connecticut are generally very close to those for the entire SEER Program. Data are shown for cancers diagnosed from 1992 through 1997; follow-up is too limited for cancers diagnosed in 1998.

Five-Year Relative Survival Rates for Invasive Cancers Diagnosed in Connecticut Residents in 1992-97	
Lung cancer	17%
All cancers except lung	67%
Breast	84%
Prostate	94%
Colorectal	61%
Uterine cervix	67%
Melanoma of skin	88%

Source: Analyses of SEER public-use data file.

STAGE AT DIAGNOSIS

The relative survival rate for cancer patients is strongly dependent on the extent of disease ("stage") at which it is diagnosed. A simplified system of stage at diagnosis is defined as including in situ, local, regional and distant (also called "metastatic") stages. Invasive cancers are local stage if they are confined entirely to the organ of origin. Regional cancers are those that have extended beyond the limits of the organ of origin directly into surrounding tissues or organs, or into lymph nodes in the region. Distant or metastatic stage cancers are

those that have spread to parts of the body remote from the primary tumor either by direct extension or by metastasis (through the blood or lymphatic systems).

The table below shows that stage at diagnosis varies among the most common types of cancer in Connecticut. In situ cancers of the uterine cervix are usually detected by routine cancer screening (the Pap test or cervical smear), but are no longer collected by the SEER Program. The table includes reportable in situ cancers; these cancers are not included in routine statistics on cancer incidence rates published by the SEER Program. Melanoma of the skin is also often diagnosed at the in situ stage. Many in situ breast cancers are detected by routine cancer screening by mammography. In contrast to breast cancer, the majority of ovarian cancers are diagnosed at a late stage. The development of new screening tests to detect ovarian cancer at an early stage, along with new treatments, are major research priorities at the National Cancer Institute.

Screening by mammography and clinical breast examination by a health professional are widely recognized as important in reducing the risk of dying of breast cancer, although improvements in screening methods are needed.

Proportion Diagnosed at Each Stage in 1998

Type of Cancer	In situ %	Local %	Regional %	Distant %	Unknown %
Colon	8	34	39	13	6
Rectum	9	43	28	13	8
Melanoma of Skin	37	54	4	2	4
Breast, females	21	54	19	3	3
Ovary	2	27	16	46	9
Prostate	1	83	7	3	5

Note: Percentages have been rounded to the nearest whole number. Cervix is not shown because in situ cervical cancers are no longer collected by SEER.

REGISTRY PUBLICATIONS

Data from the Connecticut Tumor Registry have been used in hundreds of scientific publications by researchers worldwide. A list of these publications, updated periodically, is available from the Registry, or from the Department of Public Health's website (www.state.ct.us/dph).

Also available are copies of the following monographs produced by the Registry. If you would like a copy of any publication please call our office at (860) 509-7163 or fax your request to (860) 509-7161. Some of these publications are available on the Department of Public Health's internet website.

1. **Cancer Incidence in Connecticut, 1980-98.** Includes age-specific incidence rates for each sex, by time period, from 1980-84 through 1995-98. A separate report is also available for cancers diagnosed in 1998.
2. **Incidence of Selected Cancers in Connecticut by County and Town, 1990-94**
3. **Cancer Incidence in Connecticut by Town of Residence, 1997.**
4. **Cancer Incidence in Connecticut Counties, 1997**

Note: SEER publications, with data for Connecticut and other geographic areas covered by the SEER Program, are available from the National Cancer Institute's Cancer Statistics Branch (phone 301-496-8510) or on the internet at www-seer.cancer.gov.