

Recognition of TCR Funding Sources:

Maintaining a statewide cancer registry that meets Centers for Disease Control and Prevention (CDC) high quality data standards and North American Association of Central Cancer Registries (NAACCR) gold certification is accomplished through collaborative funding efforts.

The Texas Cancer Registry recognizes the following whose financial support is essential to accomplishing the Texas Cancer Registry mission for our State, and as the 4th largest cancer registry in the Nation.

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Cancer in Texas

Cancer is the leading cause of death for people under the age of 85 in Texas and the Nation ^[1]. It is estimated that 1 in 2 men and 1 in 3 women will be diagnosed with cancer in his or her lifetime^[2]. In 2010, an estimated 104,141 Texans will be newly diagnosed with cancer and an estimated 37,984 (approximately 22% of all Texas deaths) will die of the disease^[3].



Cancer is also one of the most costly illnesses in the United States. The National Institutes of Health estimate overall costs for cancer in 2007 at \$219.2 billion^[4]. In Texas alone, costs in 2007 were estimated to be \$21.9 billion^[5].

The Texas Cancer Registry (TCR) of the Texas Department of State Health Services is the primary source for cancer data in Texas and is the 4th largest cancer registry in the Nation. TCR data are one way in which local, state, and national public health officials and other stakeholders measure the Texas cancer burden in the fight against cancer. The TCR also plays a significant role in measuring the burden nationwide.

TCR data are used by a wide variety of customers for a multitude of different purposes. The data can be used to determine those at highest risk of developing cancer, target prevention and control interventions, identify and address cancer disparities, and evaluate whether prevention, screening, and treatment efforts are making a difference. TCR data also contribute significantly to clinical, epidemiologic, and health services research and investigations. Importantly, TCR data also directly support activities related to Proposition 15 and the new Cancer Prevention and Research Institute of Texas.

This report, Cancer in Texas, is our general report to the public on the status of cancer in Texas.

About the Texas Cancer Registry

The TCR was legislatively mandated in 1979 and statewide data have been collected since 1995. Data are collected from over 500 hospitals, cancer treatment centers, ambulatory surgery centers, and pathology laboratories located throughout the state, as well as from other state registries. The TCR currently meets the National Program of Central Cancer Registries, Centers for Disease Control and Prevention (CDC) high quality data standards and is Gold Certified by the North American Association of Central Cancer Registries (NAACCR).

The TCR receives approximately 250,000 reports of cancer annually. Included in these are more than 20,000 reports of cancer from out-of-state residents, distributed throughout the U.S., who are seeking care in Texas. The TCR sends these reports to their residing state cancer registry, providing a significant contribution to the overall national cancer surveillance system.

The TCR collects information such as the types of cancers that occur and their locations within the body, the extent of cancer at the time of diagnosis (disease stage), the kinds of first course treatment that patients receive, length of survival, and patient characteristics.

The long-term vision of the TCR is to collect and provide data that are equivalent in timeliness, completeness, and quality as those of the National Cancer Institute (NCI), Surveillance, Epidemiology and End Results (SEER) Program registries. The ultimate goal and purpose of the TCR is to collect the highest quality cancer data that will contribute towards cancer prevention and control, improving diagnosis, treatment, survival, and quality of life for cancer patients.

TCR data are widely used and disseminated. The TCR receives approximately 500 data requests each year and almost 200,000 statistical web page hits. Texas data are also available from a number of other sources as well, including the NCI, the CDC, NAACCR, and the American Cancer Society. Data from the TCR are currently supporting almost 30 research studies and there are over 100 peer-reviewed research articles in which TCR contributed data. The TCR also responds to concerns about cancer clusters and typically conducts between 30 and 50 investigations per year.



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Expected New Cancer Cases and Deaths for Leading Cancer Sites, 2010*

It is estimated that there will be 104,141 Texans newly diagnosed with cancer and 37,984 will die in 2010. More than 31,000 new cases will be for female breast cancer and male prostate cancer combined.

Table 1. Expected number of new cancer cases and deaths in Texas females, 2010.

	New Cases	% of Total		Deaths	% of Total
Breast	15,347	32%	Lung	4,290	25%
Lung	5,918	12%	Breast	2,770	16%
Colon	3,535	7%	Colon	1,364	8%
Corpus & Uterus, NOS	2,281	5%	Pancreas	1,024	6%
Non-Hodgkin's Lymphoma	1,903	4%	Ovary	976	6%
Melanoma	1,737	4%	Non-Hodgkin's Lymphoma	622	4%
Thyroid	1,604	3%	Leukemia	593	3%
Ovary	1,491	3%	Liver & Intrahepatic Bile Duct	515	3%
Kidney & Renal Pelvis	1,462	3%	Corpus & Uterus, NOS	447	3%
Cervix	1,219	3%	Brain, ONS	435	3%
All Others (All - Selected)	11,989	25%	All Others (All - Selected)	4,290	25%
All Sites Combined	48,487	100%	All Sites Combined	17,324	100%

Table 2. Expected number of new cancer cases and deaths in Texas males, 2010.

	New Cases	% of Total		Deaths	% of Total
Prostate	15,718	28%	Lung	6,335	31%
Lung	8,440	15%	Prostate	1,810	9%
Colon	3,914	7%	Colon	1,623	8%
Urinary Bladder	2,685	5%	Liver & Intrahepatic Bile Duct	1,137	6%
Melanoma	2,487	4%	Pancreas	1,126	5%
Kidney & Renal Pelvis	2,326	4%	Leukemia	894	4%
Non-Hodgkin's Lymphoma	2,240	4%	Non-Hodgkin's Lymphoma	756	4%
Rectum	1,766	3%	Esophagus	678	3%
Oral Cavity & Pharynx	1,700	3%	Kidney & Renal Pelvis	639	3%
Leukemia	1,641	3%	Urinary Bladder	569	3%
All Others (All - Selected)	12,737	23%	All Others (All - Selected)	5,095	25%
All Sites Combined	55,654	100%	All Sites Combined	20,659	100%

*For most cancer sites new cases were estimated by applying the 2002–2006 age-, sex-, and race/ethnic specific incidence or mortality rates for Texas to the 2010 Texas population projections. For melanoma, breast cancer, and prostate cancer incidence, expected cases were obtained by applying the age-, sex-, and race/ethnic-specific incidence rates for California to the 2010 Texas population projections. California rates were used for these sites due to additional case ascertainment methods and similar population composition.

Estimated Number of Texans Living with Cancer

With more people being diagnosed with cancer, improvements in treatment, and cancers being caught earlier, there are increasing numbers of cancer survivors. Additionally, the number of persons living with cancer will continue to increase as the population grows and ages. Using methods from the National Cancer Institute, the TCR calculated limited-duration prevalence, which estimates the number of people living on a specified date (January 1, 2006) who had a cancer diagnosis in the past 10 years (January 1, 1996 – December 31, 2005). This estimate is lower than calculating complete prevalence (anyone alive who was ever diagnosed with cancer), however, enough years of data are not yet available to calculate complete prevalence. The cancer sites with the highest prevalence in Texas are prostate, breast, and colon and rectum.

Table 3. Estimated number of Texans living on January 1, 2006 with a prior diagnosis of cancer in the past 10 years.

Site	Total	Males	Females
All Sites Combined	428,684	213,608	215,076
Bladder	18,243	13,697	4,546
Brain, ONS	4,378	2,337	2,041
Breast	91,934	528	91,406
Cervix	6,748	0	6,748
Colon & Rectum	41,218	20,960	20,258
Esophagus	1,380	1,047	333
Eye & Orbit	1,094	593	501
Gallbladder	399	86	313
Hodgkins Disease	4,553	2,406	2,147
Kaposi Sarcoma	1,184	1,121	63
Kidney & Renal Pelvis	11,199	6,729	4,470
Larynx	3,143	2,526	617
Leukemia	9,975	5,740	4,235
Acute Lymphocytic Leukemia	2,499	1,394	1,105
Liver & Bile Duct	1,678	1,160	518
Lung & Bronchus	16,042	7,538	8,504
Melanoma	23,001	12,003	10,998
Mesothelioma	221	152	69
Myeloma	3,400	1,854	1,546
Non-Hodgkins Lymphoma	18,012	9,389	8,623
Oral Cavity & Pharynx	8,840	5,924	2,916
Ovary	5,661	0	5,661
Pancreas	1,722	824	898
Prostate	98,690	98,690	0
Small Intestine	1,382	715	667
Stomach	3,268	1,870	1,398
Testis	5,365	5,365	0
Thyroid	13,623	2,923	10,700
Uterus & NOS	16,240	0	16,240

Trends in Texas Cancer Incidence and Mortality

Cancer incidence refers to the occurrence of a new case of cancer (diagnosed for the first time), and cancer mortality to a death from cancer. Rates are calculated by dividing the number of new cancer cases or deaths during a specified time period (typically 1 year) by the appropriate population at risk, for example county or state populations. Because the demographics of populations in different areas can vary considerably, and cancer rates differ by population characteristics, especially by age, rates are adjusted for age to make estimates comparable between groups and geographic areas.

Figures 1 and 2 present trends in cancer incidence and mortality rates, and trends in the numbers of new cancer cases and deaths, during the last 12 years (1995–2006). The striking finding from these figures is that even though both cancer incidence and cancer mortality rates have been declining in recent years, both the numbers of new cancer cases and the numbers of cancer deaths each year are increasing. This counterintuitive finding can be explained by the increasing size and aging of the Texas population. Although there is a greater number of people diagnosed with cancer in Texas (numerator), the proportion of cases compared to the population (denominator) is decreasing.

Figure 1. Trends in the total number of new cancer cases and incidence rate in Texas, 1995–2006.

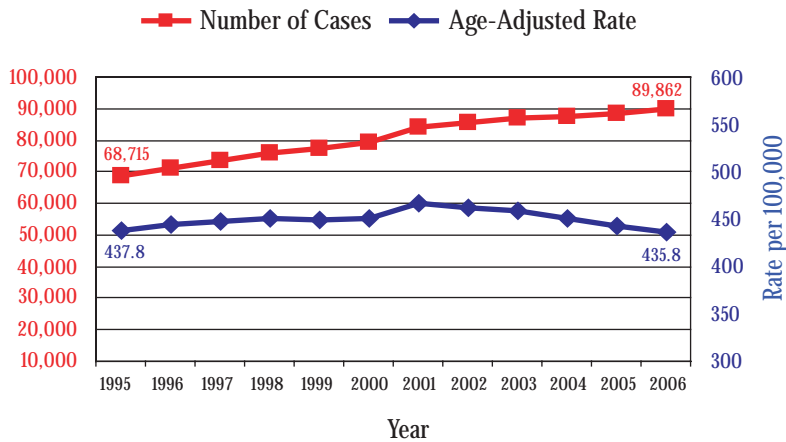
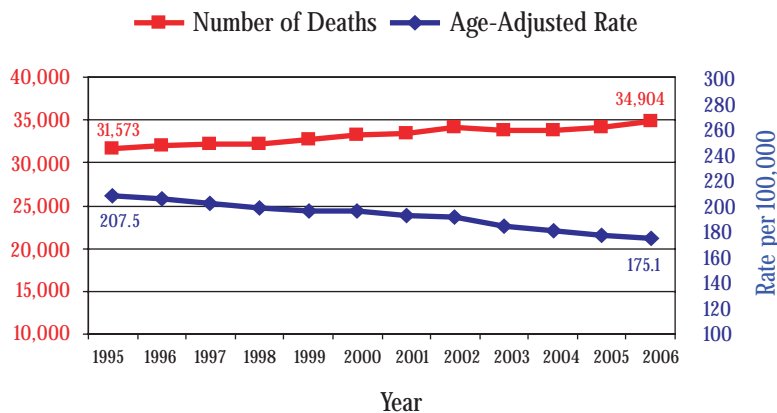


Figure 2. Trends in the total number of cancer deaths and mortality rate in Texas, 1995–2006.



Cancer Trends by Sex

Cancer Incidence and mortality rates are decreasing much faster among males than females. From 1995 to 2006, the overall cancer incidence rate declined by about 5% among men, but increased by 3% among women (Figure 3). Over the same period, mortality rates decreased by 20% among men, and by 13% among women (Figure 4).

Figure 3. Age-adjusted cancer incidence rates for males and females in Texas, 1995–2006.

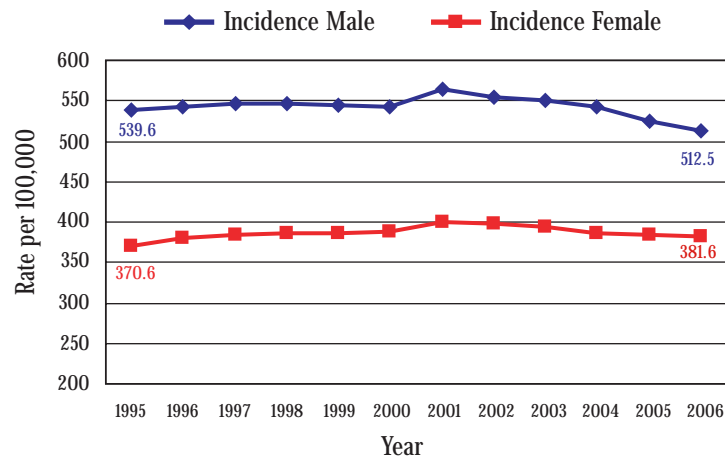
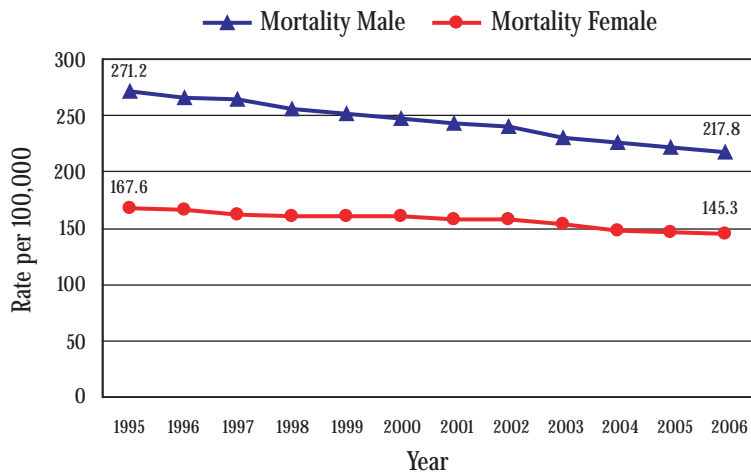


Figure 4. Age-adjusted cancer mortality rates for males and females in Texas, 1995–2006.



Lung Cancer Trends

One major reason for the greater decrease in cancer rates among men compared to women is from changes in lung cancer rates. In Texas, the lung cancer incidence rate in males declined by 24% between 1995 and 2006 but rates have remained steady among females (Figure 5). Mortality rates declined 26% among males and only 6% among females during the same period (Figure 6). The differences in lung cancer incidence and mortality rates by sex are seen nationwide^[2] and are due to historical differences in smoking patterns.^[1] Smoking rates peaked earlier among males and the greater decline in lung cancer rates is a result of their earlier decline in smoking rates.

Figure 5. Age-adjusted lung cancer incidence rates for males and females in Texas, 1995–2006.

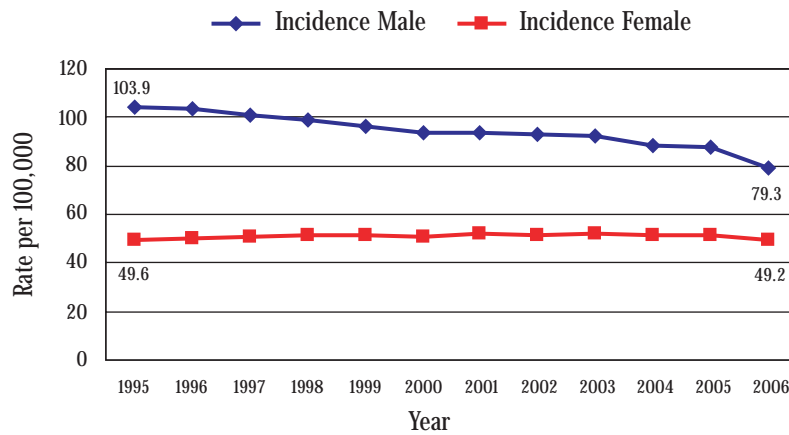
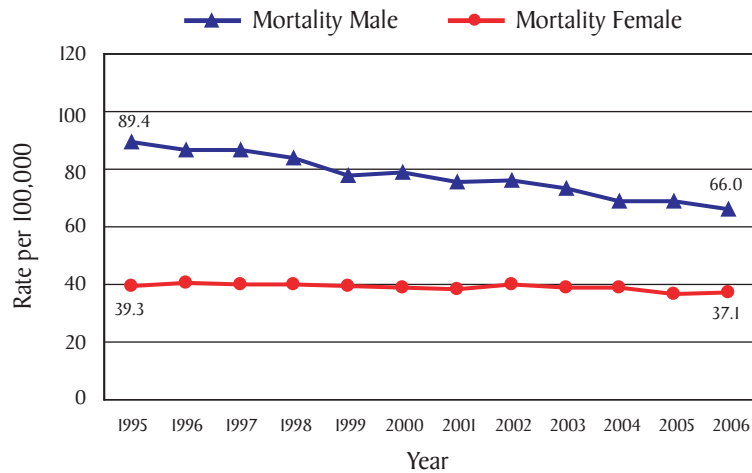


Figure 6. Age-adjusted lung cancer mortality rates for males and females in Texas, 1995–2006.



Colorectal Cancer Trends

The overall incidence rate of colorectal cancer in Texas declined over 8% between 1995 and 2006. The decline was greater among males (15%) than females (8%) (Figure 7). This decline is thought to be due to screening, in which colon polyps are removed before cancer develops ^[6]. The overall colorectal cancer mortality rate declined almost 21% from 1995 to 2006, 19% among males and 24% among females (Figure 8).

Figure 7. Age-adjusted colorectal cancer incidence rates for males and females in Texas, 1995–2006.

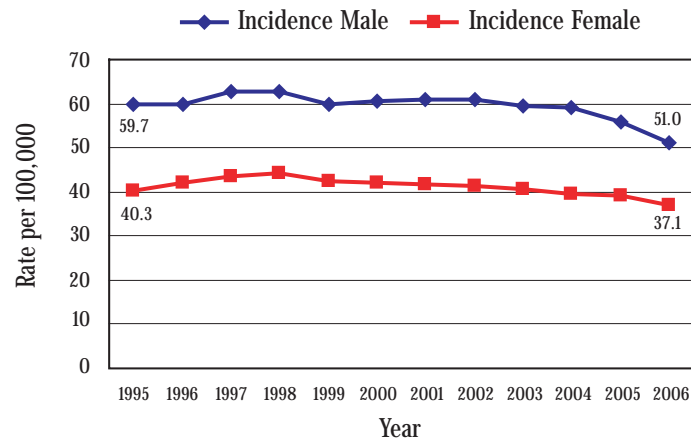
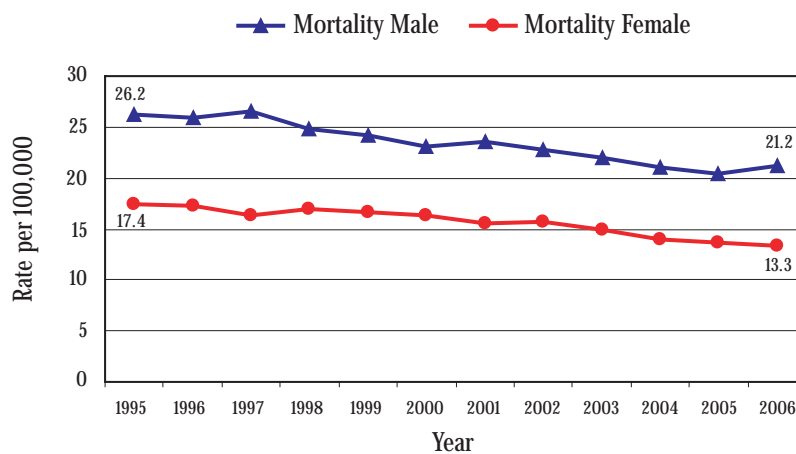


Figure 8. Age-adjusted colorectal cancer mortality rates for males and females in Texas, 1995–2006.



Liver Cancer Trends

Liver cancer incidence has increased substantially (81%) since 1995, especially among males (Figure 9). This trend is occurring nationally as well. Hepatitis (specifically hepatitis B and C) is a major risk factor for liver cancer, and increases in hepatitis infections likely explain the increasing rates of liver cancer^[7, 8]. Liver cancer has a poor survival rate, with only 14% surviving 5 years^[4]. The overall mortality rate from liver cancer increased 22% from 1995 to 2006, 23% among males (Figure 10).

Figure 9. Age-adjusted liver cancer incidence rates for males and females in Texas, 1995–2006.

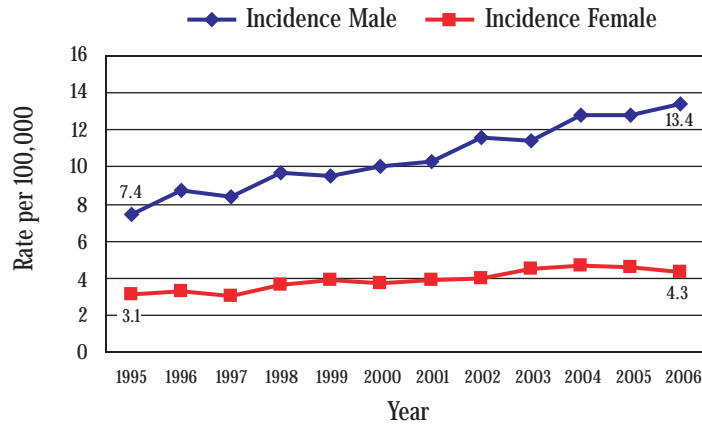
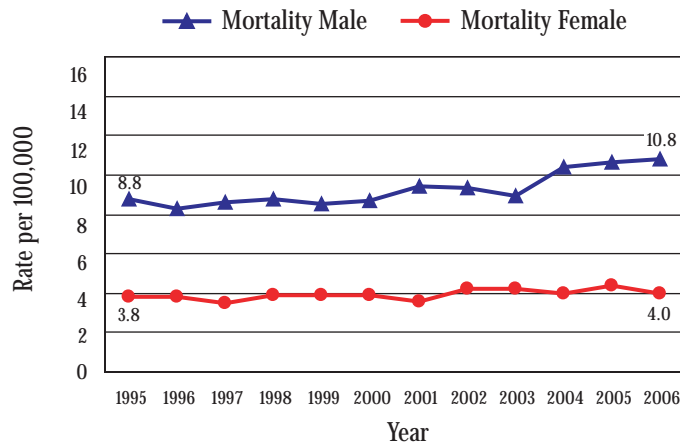


Figure 10. Age-adjusted liver cancer mortality rates for males and females in Texas, 1995–2006.



Racial and Ethnic Variation in Cancer Rates

Cancer incidence and mortality rates vary greatly by race and ethnicity. The differences change by cancer site and can be a result of many factors, including differences in risk factors, access to care, and appropriate treatment. In Texas, the highest overall cancer incidence and mortality rates are found among blacks, followed by non-Hispanic whites. The lowest overall cancer incidence and mortality rates are found among Asian/Pacific Islanders (Figures 11-12). The greatest disparities are found among males, where black males have an incidence rate 1.2 times higher and a mortality rate 1.4 times higher than non-Hispanic whites. Conversely, Hispanic and Asian/Pacific Islander males have incidence rates 1.3 and 2.2 times lower, respectively, and mortality rates 1.4 and 2.0 times lower, respectively, than non-Hispanic whites.

Figure 11. Overall age-adjusted cancer incidence and mortality rates in females by race and ethnicity in Texas, 2002–2006.

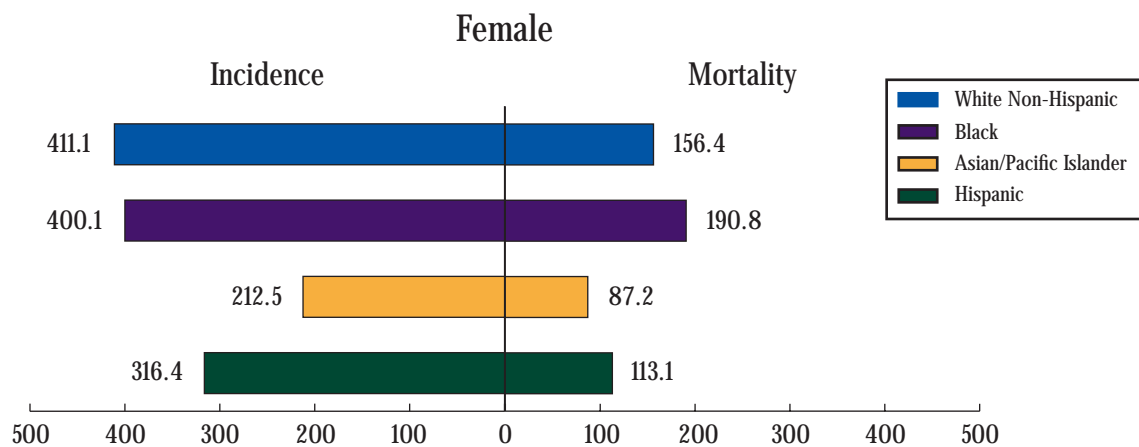
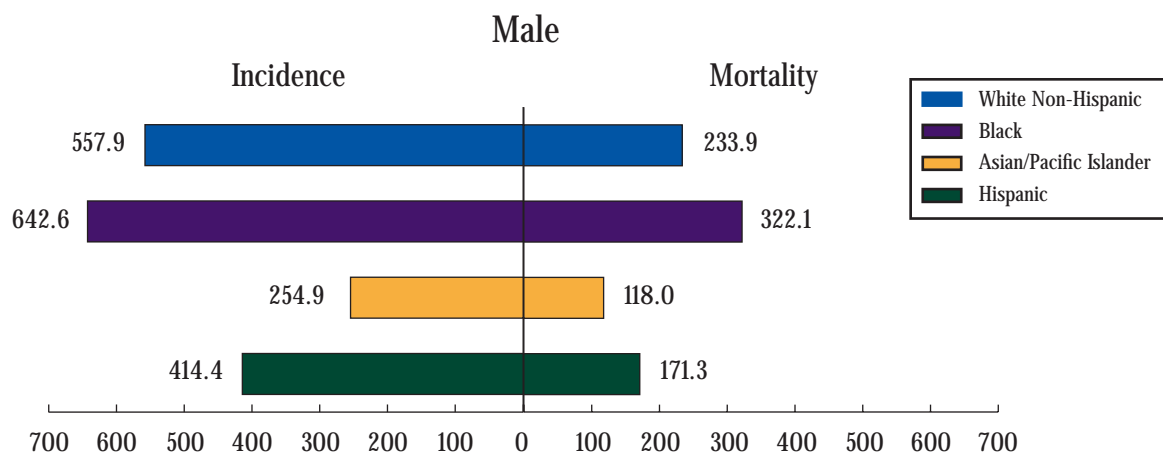


Figure 12. Overall age-adjusted cancer incidence and mortality rates in males by race and ethnicity in Texas, 2002–2006.



Geographic Variation in Cancer Rates

Cancer incidence and mortality rates vary substantially by geographic region. The reasons for this are not always clear but some explanations for the differences in rates include regional variations in risk factors, such as smoking, and population demographics, such as age, racial/ethnic makeup, and socioeconomic status. In addition, the Texas–Mexico border and large rural portions of our State make Texas unique and present distinct challenges for cancer prevention and control.

Tobacco is the leading cause of preventable deaths in the United States and Texas and accounts for 90% of lung cancers, either by primary use or secondhand exposure ^[9]. Lung cancer is the 2nd most commonly diagnosed cancer in Texas and has a large impact on regional variations in cancer rates. As can be seen in Figures 13 and 14, the pattern of overall cancer incidence and mortality rates by Health Service Region (HSR) closely reflect the pattern of lung cancer. More information about Texas HSR’s can be found on the DSHS webpage: <http://www.dshs.state.tx.us/regions/default.shtm>.

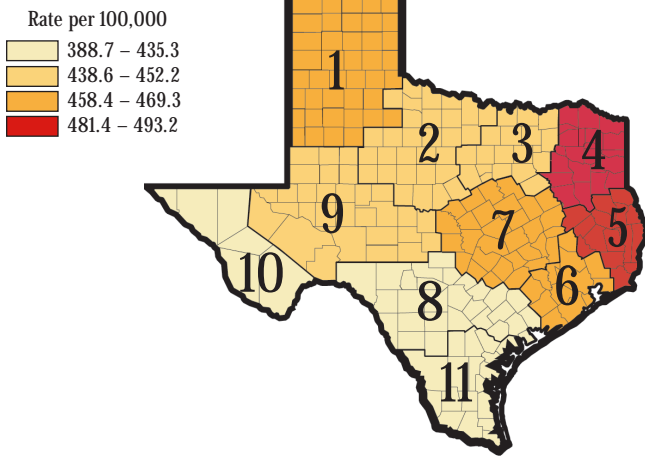
Table 4. Age-adjusted cancer incidence rates by Health Service Region and by sex, 2002–2006.

	Total		Male		Female	
	Cases	Rate	Cases	Rate	Cases	Rate
Texas	438,034	449.4	229,748	536.4	208,286	388.5
Health Service Region 1	18,001	461.6	9,596	555.0	8,405	396.6
Health Service Region 2	13,887	452.2	7,181	526.4	6,706	402.6
Health Service Region 3	108,003	450.9	55,102	531.2	52,901	397.2
Health Service Region 4	28,755	481.4	15,465	579.1	13,290	411.7
Health Service Region 5	20,402	493.2	11,375	609.7	9,027	407.8
Health Service Region 6	96,352	458.4	50,559	550.0	45,793	394.7
Health Service Region 7	49,446	469.3	25,936	556.6	23,510	407.9
Health Service Region 8	47,736	435.3	25,277	521.5	22,459	373.4
Health Service Region 9	11,689	438.6	6,051	506.4	5,638	391.6
Health Service Region 10	12,779	407.2	6,698	499.6	6,081	343.5
Health Service Region 11	30,872	388.7	16,459	467.6	14,413	331.1

Geographic Variation in Cancer Rates (continued)

Figure 13. Overall cancer incidence and mortality rates by Health Service Region in Texas, 2002–2006.

Age-Adjusted Invasive Cancer Incidence Rates in Texas
 All Sites, 2002–2006
 By Health Service Region
 Age-Adjusted to the 2000 U.S. Standard Population
 Texas Rate: 449.4



Age-Adjusted Invasive Cancer Mortality Rates in Texas
 All Sites, 2002–2006
 By Health Service Region
 Age-Adjusted to the 2000 U.S. Standard Population
 Texas Rate: 181.3

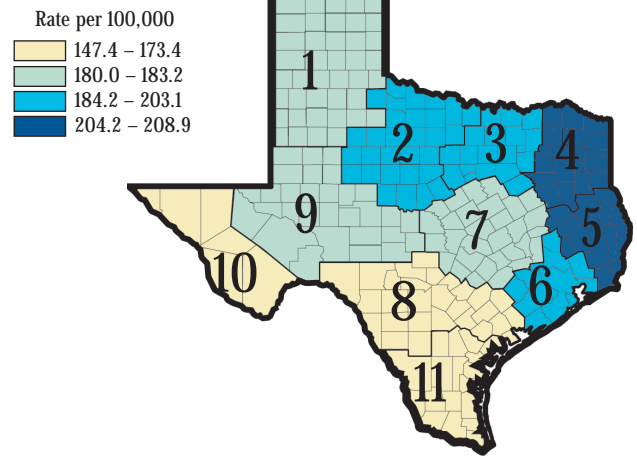
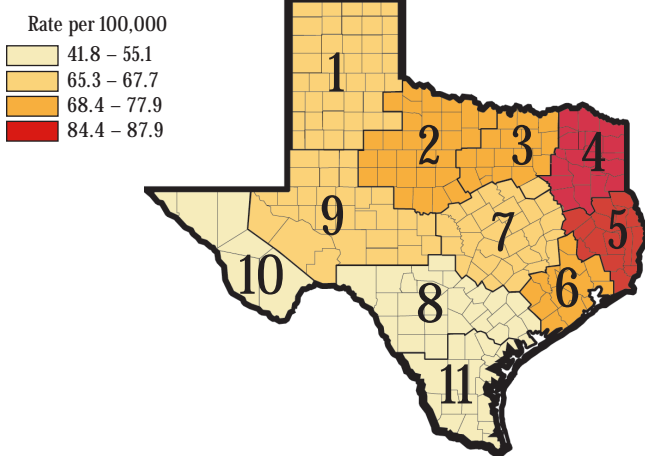
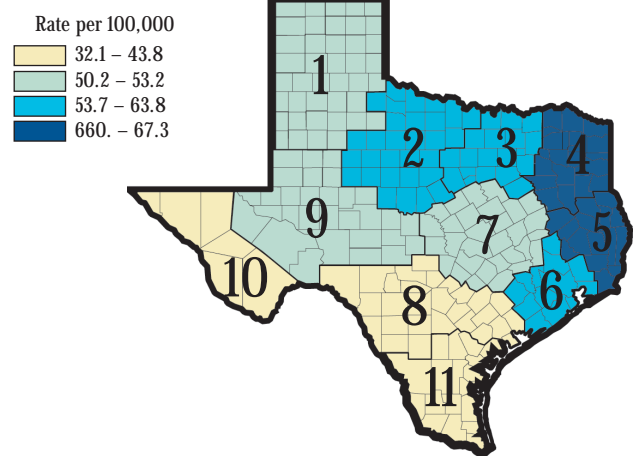


Figure 14. Lung cancer incidence and mortality rates by Health Service Region in Texas, 2002–2006.

Age-Adjusted Invasive Cancer Incidence Rates in Texas
 Lung and Bronchus, 2002–2006
 By Health Service Region
 Age-Adjusted to the 2000 U.S. Standard Population
 Texas Rate: 66.8



Age-Adjusted Invasive Cancer Mortality Rates in Texas
 Lung and Bronchus, 2002–2006
 By Health Service Region
 Age-Adjusted to the 2000 U.S. Standard Population
 Texas Rate: 52.0



Childhood Cancer in Texas

Although less than 1% of all cancers in Texas residents occur before the age of 15, approximately 1200 cases and about 200 cancer deaths occur annually among children and adolescents. In Texas children (ages 0–14 years), lymphoid leukemia is the leading type of cancer diagnosed (Figure 15) with 25% of all childhood malignancies. Astrocytoma, a cancer of brain cells, is the second most common and constitutes 10% of all childhood cancers in Texas. Among Texas adolescents (ages 15–19 years) (Figure 16), the leading cancer type is Hodgkins Lymphoma (12%), followed by gonadal germ cell tumors (11%) and lymphoid leukemia (9%).

Figure 15. Distribution of cancer sites among Texas children aged 0–14 years, 2002–2006.

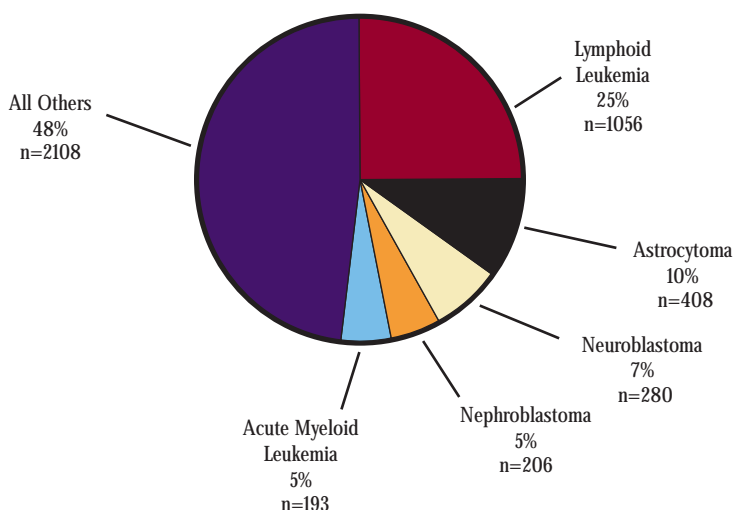
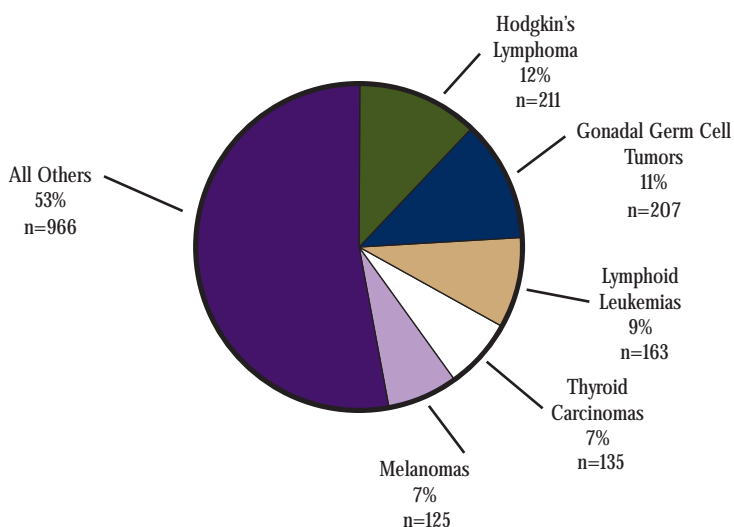


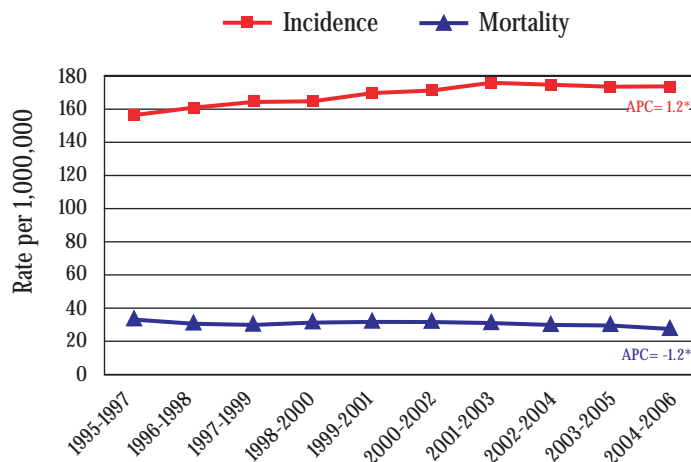
Figure 16. Distribution of cancer sites among Texas adolescents aged 15–19 years, 2002–2006.



Childhood Cancer in Texas (continued)

Trends in childhood and adolescent cancers (ages 0–19 years) indicate that since 1995, the annual percent change (APC) of incidence rates has gone up 1.2% while mortality has gone down 1.2% (Figure 17).

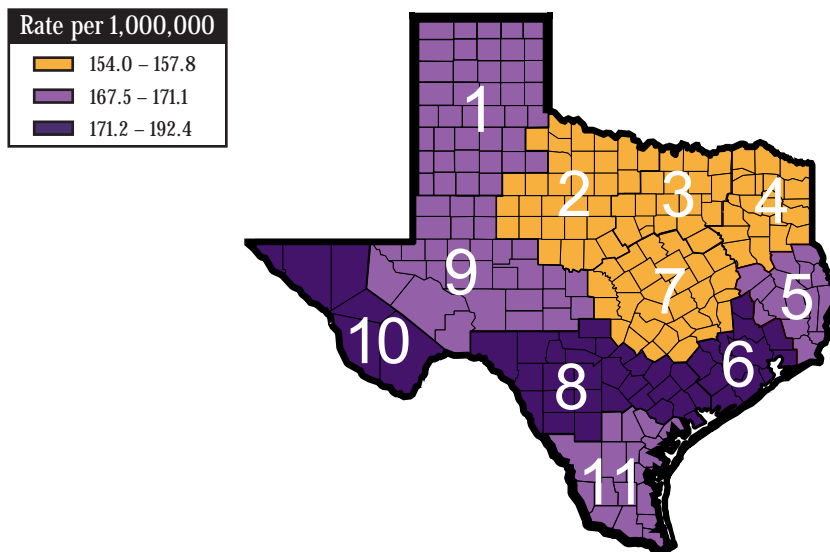
Figure 17. Trends in childhood cancer 1995–1997 to 2004–2006 moving average incidence and mortality rates.



APC=Annual Percent Change and * signifies that the APC is statistically significant.

From 1995–2006, the highest incidence rates of childhood and adolescent cancers (171–192 per 1,000,000) were found in HSR’s 6, 8 and 10 (Figure 18). Although the reason is not known, childhood and adolescent cancer rates are higher among Hispanics. Therefore, HSR’s with higher proportions of Hispanics tend to have higher childhood and adolescent cancer rates.

Figure 18. Childhood and adolescent cancer (0–19 years) by Health Service Region, 1997–2006.



Use of TCR Data – A Sample of Studies and Projects

The TCR has provided data to support numerous studies that impact cancer knowledge in Texas and nationwide. In 2008 alone, TCR data supported 10 NCI funded studies and 28 studies overall. In addition, there were 99 peer-reviewed papers published using TCR data. The following are a sample of studies and publications. For a more complete list of studies and publications in which TCR participated, please visit our website: <http://www.dshs.state.tx.us/tcr/>, and click on the “How Texas Cancer Data Are Being Used” link.

Participation in National Studies

Flight Attendants Health Study
The Transplant Cancer Match Study
Word Trade Center Health Registry
Black Women’s Health Study
NIH-AARP Diet and Health Study
Health Professionals Follow-Up Study
Brain Tumor Epidemiology Consortium
Nurses’ Health Study

Publications

National

Watson M, Saraiya M, Ahmed F, Cardinez CJ, Reichman ME, Weir HK, Richards TB. Using population-based cancer registry data to assess the burden human papillomavirus-associated cancers in the United States: Overview of methods. *Cancer*. Nov 2008; 113: 2841-2854.

Watson M, Saraiya M, Benard V, Coughlin SS, Flowers L, Cokkinides V, Schwenn M, Huang Y, Guiliano A. Burden of cervical cancer in the United States, 1998-2003. *Cancer*. Nov 2008; 113: 2855-2864.

Carrozza SE, Li B, Elgethun K, Whitworth R. Risk of childhood cancer associated with residence in agriculturally intense areas of the United States. *Environ Health Perspect*. Apr 2008; 116: 559-65.

Engels EA, Biggar RJ, Hall HI, Cross H, Crutchfield A, Finch JL, Grigg R, Hylton T, Pawlish KS, McNeel TS, Goedert JJ. Cancer risk in people infected with human immunodeficiency virus in the United States. *Int J Cancer*. 2008; 123: 187-94.

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Whitworth KW, Symanski E, Coker AL. Childhood lymphohematopoietic cancer incidence and hazardous air pollutants in southeast Texas, 1995-2004. *Environ Health Perspectives*. Nov 2008; 116: 1576-1580.

Thompson JA, Carozza SE, Zhu L. Geographic risk modeling of childhood cancer relative to county-level crops, hazardous air pollutants and population density characteristics in Texas. *Environ Health*. Sep 2008; 7:45.

Accessing Texas Cancer Data

The Texas Cancer Registry has made significant efforts to make data available and accessible to anyone with an interest in Texas cancer data. Current and evaluated TCR data are made available via many sources.

Texas Cancer Registry Statistical Data Web Page

<http://www.dshs.state.tx.us/tcr/data.shtm>

Texas Cancer Registry Web Query Tool

Available on the TCR website or access directly at <http://www.cancer-rates.info/tx/>

Data Available for Research

Learn how to request a specialized data file or data linkage from the following web address:

<http://www.dshs.state.tx.us/tcr/researchers.shtm#datasets>

Alternatively, researchers may access Texas Limited-Use Data to conduct their own analysis of Texas cancer data. Information is available at: <http://www.dshs.state.tx.us/tcr/limited-use-data.shtm>

Questions or other data-related assistance, contact:

1-512-458-7523

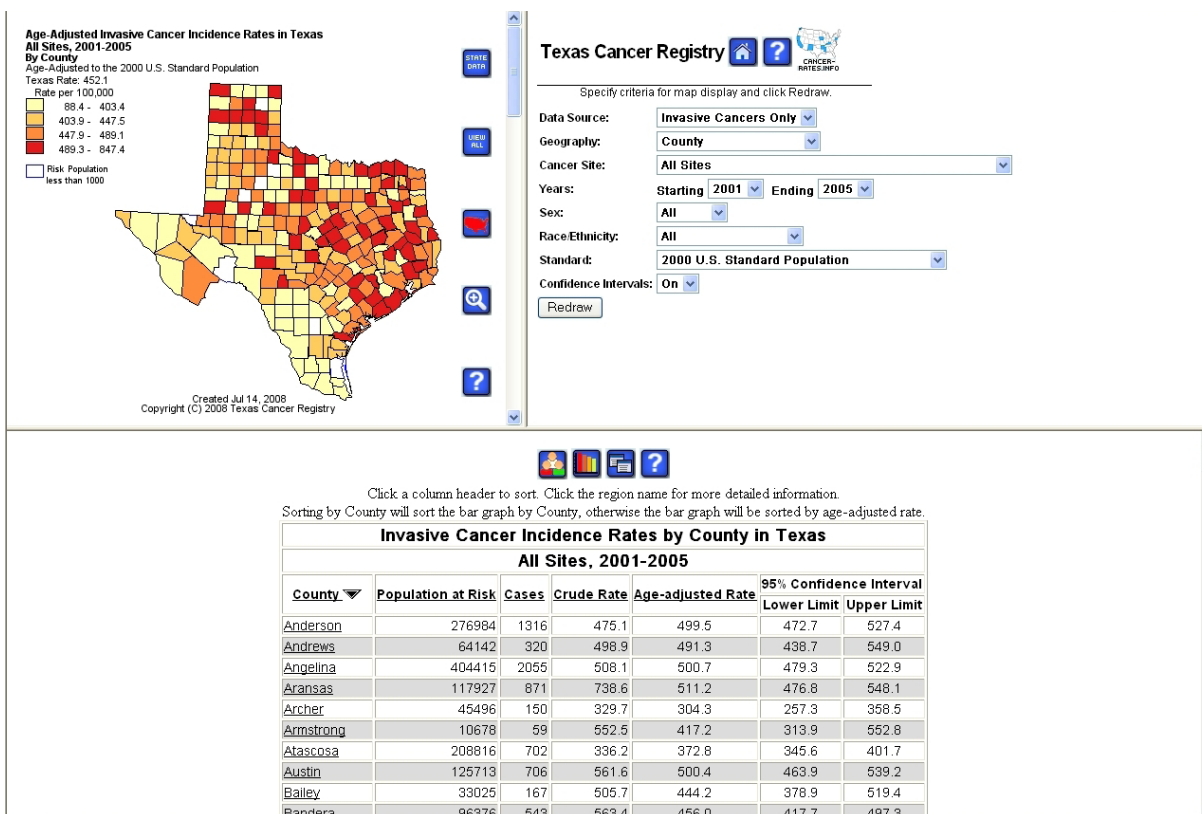
1-800-252-8059 (toll-free)

CancerData@dshs.state.tx.us

Texas Cancer Registry Web Query Tool

Public access to Texas cancer data is now available from our website using our new Web Query Tool. From there it is possible to download current cancer incidence and mortality data tables or maps, by various regional configurations (counties, Councils of Government, Health Service Region, Metropolitan Statistical Area). Data can be presented for all recognized National Cancer Institute SEER site groupings (types of cancer), by race, ethnicity, age, sex and year.

Texas Cancer Registry Web Query Tool (continued)



The user of the Web Query Tool selects specific cancer sites, and years (1995–2006) as well as the sex, race, or ethnicity of the population. Once the specific criteria are chosen, click on the “Redraw” icon and the map will reconfigure to display the requested rate(s).

Data can be presented in a number of different ways by clicking on the various icons.



The question mark icon is available on every page of the query tool, and can always be used to bring up the instructions on using the query tool.



This icon will reconfigure the table to show data for the entire state, with a rate for each year.



This icon will display the rates by the selected geographic region (e.g. county, Health Service Region, Council of Government, Metropolitan Statistical Area) of the state.



This icon will bring up a new screen with the map, and allow the user to select a color map or a gray-scale map, as desired.



This will pull up a new screen to connect the user to the State Cancer Profiles website, where the user can obtain information from every other state that has data available.



This icon will bring up a table of age-specific rates. The age-groups will be the standard 19 age-groups as used in the age-adjustment of rates, and will be the age-specific rates for the selected site and demographics (only available if “State Data” has been selected, above).

Accessing Texas Cancer Data (continued)



The icon showing the chart can be used to show the population data for each year and for each regional configuration.



The icon showing the bar graph can be used to produce a bar graph of the age-adjusted rates in every region of the type that was selected in the regional configuration (COG, Health Service Region, County).



This icon will bring up a trend line, showing the rates by year for the selected site and demographics.



The icon showing the table can be used to produce to produce a new table showing the State Profile, a table of the rates for each major type of cancer, sorted from highest to lowest.



This icon will bring up the home page of the Texas Cancer Registry in a new window.



This will connect to the cancer-rates.info site, to show the other states with available information in this same format, and to connect to the same query tool from these other states.

The Texas Cancer Registry hopes users will find our new Web Query Tool a valuable tool for accessing Texas cancer data, and we will welcome any suggestions to making it better, and will continue to welcome questions about using the Web Query Tool to best advantage.

Technical Notes

Sources of Data

The primary sources of case reporting in the Texas Cancer Registry include Texas hospitals and cancer treatment centers. Additional sources include outpatient clinics, free-standing pathology labs, and other state central cancer registries when Texas residents are diagnosed or treated out of state. Cancer mortality data were extracted from electronic files provided by the DSHS, Center for Health Statistics, that contain demographic and cause of death information from Texas death certificates.

Classification by Anatomic Site

Cancer incidence data are classified by primary anatomic site and histologic type site groupings, based on the International Classification of Diseases for Oncology (ICD-O-3), third edition ^[10]. Site recode groups for classifying types of cancer were recoded using SeerPrep version 2.4.0 software, and these recodes are shown at: http://seer.cancer.gov/siterecode/icdo3_d01272003, obtained 9/15/2006. Cancer incidence data for children and adolescents (ages 0–19) are classified under a different classification system that is categorized primarily by histology (cell type) rather than by anatomic site ^[11]. This classification is also provided on the SEER website: (http://seer.cancer.gov/iccc/iccc3_ext.html).

For cancer mortality, the TCR classifies anatomic site according to the SEER Cause of Death Recode (http://seer.cancer.gov/coderecode/1969+_d09172004/index.html). For statistical reporting of cancer mortality data, SEER has defined major site groups based on the ICD version 10 ^[12]. These site groups are defined consistently across time to facilitate reporting of long term trends, with earlier versions of ICD used for deaths prior to 1999. The use of these cancer site groupings follows national cancer standards, and allows Texas cancer data to be compared directly with national and other state data.

Age-adjusted Rates

Average annual cancer incidence and mortality rates were age-adjusted using the direct method, and 19 age groups up to age 85+. Age-adjustment enables the direct comparison of incidence or mortality rates by eliminating the effect of differences in the age-distributions between various comparison populations. Direct standardization weights the age-specific rates for a given sex, race/ethnicity, or geographic area by the age distribution of the standard population. The 2000 United States standard population was used as the standard for all calculations.

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