Cancer in Texas
2019
ACKNOWLEDGMENTS
The Texas Cancer Registry (TCR) thanks all cancer reporters for their dedication, hard work, and collaboration. Their efforts help us meet national high quality and timeliness standards. They play a significant role in contributing towards the TCR’s mission and the fight against cancer.

ABOUT THE TEXAS CANCER REGISTRY
The TCR is a statewide, population-based registry. It is the primary source for cancer data in Texas.

The TCR serves as the foundation for measuring the cancer burden in Texas; comprehensive cancer control efforts; health disparities; and the progress in cancer prevention, diagnosis, treatment, and survivorship. It also supports a wide variety of cancer-related research. Public health, academic institutions, and the private sector cannot address these priorities without timely, complete, and accurate cancer data.

The TCR is one of the largest cancer registries in the United States. The Centers for Disease Control and Prevention (CDC) National Program of Cancer Registries recognizes it as one of 22 “Registries of Distinction”. It is also Gold Certified by the North American Association of Central Cancer Registries.

The TCR’s goal is to collect, maintain, and disseminate the highest quality cancer data that will contribute towards improving diagnoses, treatments, survival, and quality of life for all cancer patients.

TCR FUNDING
The TCR is funded by the Cancer Prevention and Research Institute of Texas and the Texas Department of State Health Services.

The TCR acknowledges the CDC for its financial support under Cooperative Agreement #1NU58DP006308.

SUGGESTED CITATION
In 2019, an estimated 124,383 new cancer cases are expected to be diagnosed in Texas (60,414 in females, and 63,969 in males).

The most common cancers are breast, lung and bronchus, prostate and colorectal, which make up about 48 percent of all cancer diagnoses.

An estimated 1,242 new cancer cases will be diagnosed in children (ages 0 to 14 years). An additional 577 new cases are expected in adolescents (ages 15 to 19 years).

For more information, visit dshs.texas.gov/tcr/data/estimates.aspx.
The age-adjusted cancer incidence rate in Texas has declined in recent years, but the number of new cancer cases continues to increase. The age-adjusted incidence rate is the number of new cancer cases out of 100,000 people. This rise in new cancer cases is mostly because of an aging and growing Texas population.

In 1995, 74,422 Texans were diagnosed with cancer, and the age-adjusted cancer incidence rate was 474.5 per 100,000. In 2016, 109,084 Texans had a cancer diagnosis, an increase of 46.6 percent. Yet, the age-adjusted cancer incidence rate had fallen to 391.8 per 100,000.

Some cancers associated with excess body weight and infections are expected to increase. Overweight and obesity raise risk for colorectal, esophageal, uterine, pancreas, kidney, and female breast cancers. Except for breast and colorectal cancers, the number of overweight and obesity-related cancers is expected to increase 30–40% by 2020. The CDC estimates that 33 percent of Texas adults are obese. Another 36 percent are overweight.

Cancers associated with infections, including hepatitis and human papillomavirus (HPV), are also expected to increase. New liver cancer cases are expected to increase more than 50 percent in the US. This is likely due to the increase in hepatitis infection, especially among those born between 1945 and 1965. Oral cancers in white men are expected to increase by about 30 percent, likely the result of more HPV infections.

For more information, visit dshs.texas.gov/tcr/data/rates.aspx.
The number of Texas cancer survivors is increasing for many reasons. More people are being diagnosed with cancer, treatment is improving, and cancers are being caught earlier. Also, the number of people living with cancer increases as the population grows.

An estimated 787,375 Texans are cancer survivors (409,666 females and 377,709 males). These are Texans diagnosed with cancer between 1995-2015 who were alive as of January 1, 2016. Some of these people were cancer free, while others were receiving treatment.

Prostate and female breast cancer survivors make up about 40 percent of survivors.

---

**Estimated Cancer Survivors by Public Health Region (PHR)**

- **PHR 1** — 27,547
- **PHR 2** — 19,369
- **PHR 3** — 212,163
- **PHR 4** — 42,105
- **PHR 5** — 28,953
- **PHR 6** — 185,781
- **PHR 7** — 91,697
- **PHR 8** — 84,343
- **PHR 9** — 18,363
- **PHR 10** — 23,982
- **PHR 11** — 53,205

---

**Estimated Cancer Survivors in Texas by Gender for Select Sites**

**Females**

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>178,334</td>
</tr>
<tr>
<td>Colon &amp; Rectum</td>
<td>36,389</td>
</tr>
<tr>
<td>Thyroid</td>
<td>30,640</td>
</tr>
<tr>
<td>Uterus Corpus</td>
<td>30,514</td>
</tr>
<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>18,156</td>
</tr>
<tr>
<td>Lung &amp; Bronchus</td>
<td>17,177</td>
</tr>
<tr>
<td>Melanoma of the Skin</td>
<td>16,521</td>
</tr>
<tr>
<td>Kidney &amp; Renal Pelvis</td>
<td>15,547</td>
</tr>
<tr>
<td>Cervix</td>
<td>14,458</td>
</tr>
<tr>
<td>Leukemia</td>
<td>10,989</td>
</tr>
<tr>
<td>Ovary</td>
<td>10,806</td>
</tr>
</tbody>
</table>

**Males**

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>157,785</td>
</tr>
<tr>
<td>Colon &amp; Rectum</td>
<td>40,619</td>
</tr>
<tr>
<td>Urinary Bladder</td>
<td>23,603</td>
</tr>
<tr>
<td>Kidney &amp; Renal Pelvis</td>
<td>22,633</td>
</tr>
<tr>
<td>Melanoma of the Skin</td>
<td>20,369</td>
</tr>
<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>19,921</td>
</tr>
<tr>
<td>Lung &amp; Bronchus</td>
<td>16,086</td>
</tr>
<tr>
<td>Oral Cavity &amp; Pharynx</td>
<td>14,584</td>
</tr>
<tr>
<td>Leukemia</td>
<td>14,253</td>
</tr>
<tr>
<td>Testis</td>
<td>10,795</td>
</tr>
<tr>
<td>Thyroid</td>
<td>8,859</td>
</tr>
</tbody>
</table>

For more information, visit dshs.texas.gov/tcr/data/prevalence.aspx.
In 2019, an estimated 45,561 Texans are expected to die of cancer (20,745 females and 24,816 males). Some of these people were diagnosed with cancer in previous years.

Lung cancer is the most common cause of cancer death in Texans, followed by colorectal, breast, and pancreatic cancers. These four cancers account for about 47 percent of all cancer deaths.

An estimated 150 Texas children will die of cancer in 2019. An additional 71 adolescents are expected to die of the disease. Cancer remains the leading cause of death from disease for children and adolescents in both Texas and the US.

For more information, visit dshs.texas.gov/tcr/data/estimates.aspx.
The age-adjusted mortality rate in Texas has declined in recent years, but the number of cancer deaths is increasing each year. The age-adjusted mortality rate is the number of deaths attributed to cancer each year out of 100,000 people. This increase is mostly because of an aging and growing Texas population.

In 1995, 31,573 Texans died of cancer, and the age-adjusted cancer mortality rate was 207.5 per 100,000. In 2016, 39,999 Texans died of cancer, an increase of 21.1 percent. Yet, the age-adjusted cancer incidence rate had fallen to 148.6 per 100,000.

In Texas, the mortality rate has decreased more steeply in men than women. The sites that show the greatest decline are prostate, lymphoma, lung, stomach and colorectal cancer. Mortality rates for most cancer sites have decreased or remained stable. But there have been significant increases in mortality rates for liver and bile duct cancer in men and women, oropharyngeal cancer in men, and pancreatic cancer in females.

The decline in mortality rates is attributed to the decrease in smoking and advances in cancer screening and treatment. According to the CDC, the cancer mortality rates will continue to drop most for the following cancers: prostate, colorectal, lung, female breast, oral cavity and pharynx, cervical and melanoma of the skin.¹

---

**TRENDS IN TOTAL NUMBER OF CANCER DEATHS AND MORTALITY RATES, TEXAS, 1995-2016**

For more information, visit [dshs.texas.gov/tcr/data/rates.aspx](http://dshs.texas.gov/tcr/data/rates.aspx).
Leading Causes of Death

For more than a century, heart disease has been the leading cause of death in the US. Cancer has consistently been the second leading cause since 1938. The age-adjusted mortality rate for cancer has been decreasing in Texas since 1993, but the rate for heart disease has been decreasing more steeply. This means the gap between the mortality rates of heart disease and cancer has decreased.

Cancer is expected to surpass heart disease as the leading cause of death in the US by 2020. In 2016, cancer was already the leading cause of death in 37 Texas counties.

Source: Texas Department of State Health Services, Center for Health Statistics; 1990-2016; Texas Mortality Data.
Potential years of life lost estimates the number of years a person could have lived had they not died prematurely of cancer. It helps measure the cancer burden in a population. It also gives more weight to cancers that occur in young people.

Some cancer sites have a large overall number of years of life lost due to the relatively large number of people who die from that cancer. For example, lung cancer led to a total of 627,167 years of life lost, averaging 13.7 years of life lost for each case.

Cancers with a relatively high average number of years of life lost per cancer death are likely those that are diagnosed at younger ages. For example, cervical cancer led to an average of 27.4 years of life lost for each case, with a total of 51,958 years of life lost.

### Potential Years of Life Lost Due to Cancer, Texas, 2012–2016

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Deaths</th>
<th>Total Person-Years of Life Lost</th>
<th>Average Years of Life Lost per Cancer Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Sites</td>
<td>188,093</td>
<td>2,852,014</td>
<td>15.2</td>
</tr>
<tr>
<td>Brain and Other Nervous System</td>
<td>5,353</td>
<td>112,699</td>
<td>21.1</td>
</tr>
<tr>
<td>Female Breast</td>
<td>13,618</td>
<td>252,128</td>
<td>18.5</td>
</tr>
<tr>
<td>Cervix</td>
<td>1,894</td>
<td>51,958</td>
<td>27.4</td>
</tr>
<tr>
<td>Colon and Rectum</td>
<td>17,575</td>
<td>269,943</td>
<td>15.4</td>
</tr>
<tr>
<td>Corpus Uterus</td>
<td>2,848</td>
<td>49,559</td>
<td>17.4</td>
</tr>
<tr>
<td>Esophagus</td>
<td>4,107</td>
<td>61,677</td>
<td>15.0</td>
</tr>
<tr>
<td>Hodgkin Lymphoma</td>
<td>436</td>
<td>8,346</td>
<td>19.1</td>
</tr>
<tr>
<td>Kidney and Renal Pelvis</td>
<td>5,441</td>
<td>82,432</td>
<td>15.2</td>
</tr>
<tr>
<td>Leukemia</td>
<td>7,547</td>
<td>119,551</td>
<td>15.8</td>
</tr>
<tr>
<td>Liver and Intrahepatic Bile Duct</td>
<td>10,236</td>
<td>171,176</td>
<td>16.7</td>
</tr>
<tr>
<td>Lung and Bronchus</td>
<td>45,616</td>
<td>627,167</td>
<td>13.7</td>
</tr>
<tr>
<td>Melanoma of the Skin</td>
<td>2,554</td>
<td>40,425</td>
<td>15.8</td>
</tr>
<tr>
<td>Myeloma</td>
<td>3,779</td>
<td>47,659</td>
<td>12.6</td>
</tr>
<tr>
<td>Non-Hodgkin Lymphoma</td>
<td>6,405</td>
<td>87,253</td>
<td>13.6</td>
</tr>
<tr>
<td>Oral Cavity and Pharynx</td>
<td>3,250</td>
<td>52,670</td>
<td>16.2</td>
</tr>
<tr>
<td>Ovary</td>
<td>4,249</td>
<td>72,488</td>
<td>17.1</td>
</tr>
<tr>
<td>Pancreas</td>
<td>12,485</td>
<td>177,107</td>
<td>14.2</td>
</tr>
<tr>
<td>Prostate</td>
<td>8,501</td>
<td>82,670</td>
<td>9.7</td>
</tr>
<tr>
<td>Stomach</td>
<td>4,250</td>
<td>71,099</td>
<td>16.7</td>
</tr>
<tr>
<td>Urinary Bladder</td>
<td>4,350</td>
<td>46,723</td>
<td>10.7</td>
</tr>
</tbody>
</table>

For more information, visit [dshs.texas.gov/tcr/data/years-life-lost.aspx](dshs.texas.gov/tcr/data/years-life-lost.aspx).
Texas has the second highest liver cancer incidence rate and fourth highest liver cancer mortality rate in the US (including the District of Columbia).4 In 2016, liver cancer (which includes intrahepatic bile duct cancer) was the 5th leading cause of cancer death in Texas.

The TCR estimates that 3,898 Texans will be diagnosed with liver cancer and 2,604 Texans will die from it in 2019.

**TRENDS**

The incidence and mortality rates for most cancers have declined in Texas, but liver cancer rates continue to rise. Figure A shows age-adjusted rates for liver cancer in Texas from 1995-2016. The rate of new liver cancer cases increased by an average of 3.7 percent each year. There were 5.3 cases per 100,000 people in 1995 and 11.5 cases per 100,000 in 2016. During this same period, mortality rates increased by an average of 1.9 percent each year. The mortality rate was 5.9 per 100,000 in 1995 and 8.0 deaths per 100,000 in 2016.

**HEALTH DISPARITIES**

There is a substantial disparity in liver cancer rates by sex and race/ethnicity in Texas. The incidence rate for men is almost three-times higher than for women. Mortality rates in men are also higher compared to women.

Figure B shows the age-adjusted incidence rates for liver cancer by sex and race/ethnicity for 2012-2016. Liver cancer incidence is more than twice as high in Hispanics compared to non-Hispanic (NH) whites. NH Asian/Pacific Islanders (A/PI) and NH blacks also experience higher incidence rates compared to NH whites.

Figure C provides incidence rates by age group and race/ethnicity. The incidence rate for Hispanics steadily increases with age. The incidence rate for NH whites and blacks declines or stabilizes after peaking in the 60-64 years age group.

**SURVIVAL RATES**

Liver cancer has one of the lowest 5-year relative survival rates among all cancers in Texas. This statistic represents the percentage of cancer patients who have survived for five years after diagnosis compared to people without cancer.

For Texans diagnosed with localized liver cancer, the 5-year relative survival rate is 29 percent. If cancer has spread to surrounding tissues or organs and/or regional lymph nodes, the 5-year relative survival rate is 12 percent. If liver cancer has spread to distant organs or tissues, the 5-year relative survival rate is 4 percent.
**Risk Factors Influencing Disparities**

Seventy-eight percent of primary liver cancers diagnosed in Texas are hepatocellular carcinoma (HCC). Major risk factors for HCC in the US are chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infections, fatty liver disease, heavy alcohol use, smoking, overweight/obesity, and diabetes.\(^5,6\) Some of these risk factors are more common in certain populations. This could contribute to disparities in liver cancer incidence rates by sex, age and race/ethnicity.

In the US, HCV is more common in men than women. Also, people born between 1945–1965 had an elevated risk of getting a hepatitis infection before preventive measures, such as screening blood donations, were introduced.

Mexican Americans, particularly among men born in the US, have a higher prevalence of nonalcoholic fatty liver disease. This might explain the high rate of liver cancer in Texas Hispanics.\(^7,8,9\)

Many of these risk factors can be modified. This emphasizes the importance of preventive strategies such as vaccinating for HBV, avoiding tobacco use and excessive alcohol consumption, maintaining a healthy body weight, preventing diabetes, and screening for HCV.\(^7,10\)

*For more information, visit [dshs.texas.gov/tcr/data/liver.aspx](http://dshs.texas.gov/tcr/data/liver.aspx).*
In Texas, female breast cancer is the leading cancer diagnosis and the second leading cancer cause of death in women. An estimated 17,921 Texas women will be diagnosed with invasive breast cancer, and 3,214 will die of the disease in 2019.

**TRENDS**
The incidence rate for breast cancer has decreased by an average of 0.7 percent each year in Texas since 1995. The mortality rate has decreased by an average of 1.7 percent per year. **Figure D** provides age-adjusted incidence and mortality rates for breast cancer for 1995-2016.

**HEALTH DISPARITIES**
There is a substantial disparity in breast cancer mortality rates by race/ethnicity in Texas.

**Figure E** shows age-adjusted incidence rates by race/ethnicity for Texas from 2012-2016.

Incidence rates are highest in non-Hispanic (NH) whites and NH blacks. They are lowest in NH Asian/Pacific Islanders (A/PI).

**Figure F** provides the age-adjusted mortality rates by race/ethnicity for Texas from 2012-2016. Mortality rates are currently highest in NH blacks. They are lowest in NH American Indian/Alaska Natives (AI/AN).

Although NH blacks have an incidence rate that is slightly lower than NH whites, their mortality rate is 41 percent higher. **Figure G** shows the trends in age-adjusted incidence and mortality rates for NH whites and NH blacks since 1995. The incidence rates in NH blacks were lower than that of NH whites in the mid-1990s and early 2000s, but the incidence rates are now similar.

Nationally, the mortality gap between these groups has remained stable over the past few years\(^1\); however, in Texas, the mortality gap between NH whites and NH blacks has decreased since 2013. This reflects a recent stable trend in the mortality rate in NH whites and a declining rate in NH blacks.
**Factors Influencing Disparities**

One likely reason for the large disparity in mortality rates is the difference in the molecular subtype of breast cancer. In Texas, the incidence rate for triple negative breast cancer (TNBC) is almost twice as high in NH blacks compared to NH whites. TNBC grows and spreads faster than other types of breast cancer. It does not have estrogen, progesterone or human epidermal growth factor receptors. This means hormone and targeted therapies don’t work for this type of cancer. The difference in available treatments for TNBC could be one factor underlying the higher mortality rate in NH black women.

Additionally, for all subtypes of breast cancer, NH blacks in Texas are diagnosed at a later stage and have lower survival compared to NH whites. This disparity in survival increases with stage at diagnosis. It is highest for patients diagnosed once the cancer has spread to distant tissues or organs.

There is also a difference in age at diagnosis. NH blacks tend to be younger at diagnosis than NH whites. The mortality gap is highest for ages 20-49 years. Although screening rates are similar for NH blacks and NH whites ages 50-74 years, an earlier average disease onset means that younger NH black women are disproportionately affected by screening age guidelines.

Studies have also shown disparities in treatment and care for NH black breast cancer patients. This includes a low use of adjuvant radiation therapy and systematic therapy and low enrollment in clinical trials. Some health conditions that are more common in NH blacks, like diabetes and hypertension, can also be a factor in survival differences. Lastly, socioeconomic factors such as access to health insurance and use of safety-net hospitals can influence disparities.

For more information, visit [dshs.texas.gov/tcr/data/breast.aspx](http://dshs.texas.gov/tcr/data/breast.aspx).
In Texas, uterine cancer, also known as endometrial cancer, is the fourth leading cancer diagnosis and the seventh leading cancer cause of death in women. The TCR estimates that 3,706 Texans will be diagnosed with uterine cancer and 707 will die of the disease in 2019.

**TRENDS**

The uterine cancer incidence rate has been increasing by 2 percent each year in Texas since 2005. The mortality rate has remained relatively stable overall but with a 3 percent increase per year since 2009. **Figure H** provides age-adjusted incidence and mortality rates for uterine cancer for 1995-2016.

The largest increase in incidence has been in Hispanic women, who have seen a 2.6 percent increase per year since 2005. The mortality rate has also seen a significant increase in Hispanics.

A similar increase in uterine cancer incidence rates has been observed nationwide and is thought to partly reflect rising overweight and obesity rates. Around 60% of uterine cancer cases are attributable to excess body weight. However, additional unknown factors are also thought to be involved.

**HEALTH DISPARITIES**

There is a substantial disparity in uterine cancer rates by race/ethnicity in Texas.

**Figure I** shows age-adjusted incidence rates by race/ethnicity for Texas from 2012-2016. Incidence rates are currently highest in Hispanic and non-Hispanic (NH) blacks. They are lowest in NH Asian/Pacific Islanders (A/PI).

**Figure J** provides the age-adjusted mortality rates by race/ethnicity for Texas from 2012-2016. Although NH blacks have an incidence rate that is only moderately higher than NH whites, their mortality rate is more than twice as high. The second highest mortality rate was in Hispanics.

**FACTORS INFLUENCING DISPARITIES**

One reason for the large difference in mortality rates is likely due to the difference in stage at diagnosis. **Figure K** shows uterine cancer incidence by stage at diagnosis and race/ethnicity. A smaller proportion of uterine cancer cases are diagnosed at the localized stage in NH blacks compared to other racial/ethnic groups.

As with most cancers, uterine cancer survival is highest for those diagnosed at the localized stage. Yet, even for patients diagnosed at the same stage, 5-year survival is lower for NH blacks compared to NH whites:

- localized stage survival is 94% for NH whites and 88% for NH blacks
• regional stage survival is 75% for NH whites and 46% for NH blacks
• distant stage survival is 25% for NH whites and 10% for NH blacks

The difference in mortality could also partly be due to different types of uterine cancer.

In Texas, endometrioid carcinomas account for over 60% of uterine cancers among NH whites, NH A/PIs, and Hispanics, compared to 43% in NH black women. Other carcinomas, carcinosarcomas, and sarcomas make up a higher percentage of uterine cancers among NH black women than in other race/ethnic groups. These other types of uterine cancer include histologies that are more aggressive and have a lower occurrence of specific symptoms leading to later stage diagnoses, when treatment is less effective. But even for patients diagnosed with the same histological type at the same stage, survival is consistently lower for NH black women compared to NH white women, ranging from 2 percent to 32 percent depending upon the stage and type of tumor. This same trend is seen nationwide.

Possible factors leading to the disparity in survival and mortality rates for NH black women could be socioeconomic status, access to healthcare, and treatment decisions.

For more information, visit dshs.texas.gov/tcr/data/disparities.aspx.

* Mortality rate and stage at diagnosis are not presented for NH AI/AN because there were not enough cases to determine significance.
† Precents may not add up 100% because stage is unknown for some cases.
Online Statistics and Data Visualization Tools

The TCR strives to make data available and accessible to anyone with an interest in Texas cancer data. The following online resources use TCR data to provide information on cancer in Texas and the US.

TCR Website
dhs.texas.gov/tcr/

The TCR website offers a wide variety of statistical products, including data tables, topical reports, and fact sheets. It also includes information for researchers interested in obtaining limited-use and confidential data sets.

TCR Web Query Tool
cancer-rates.info/tx

The TCR web query tool allows users to customize cancer incidence and mortality rate tables and maps by cancer site, sex, time frame and race/ethnicity.

CDC/NCI State Cancer Profiles
statecancerprofiles.cancer.gov

State Cancer Profiles characterizes the cancer burden in a standardized manner to motivate action, integrate surveillance into cancer control planning, characterize areas and demographic groups, and expose health disparities.

Cancer Control P.L.A.N.E.T.
cancercontrolplanet.cancer.gov/planet/

Cancer Control P.L.A.N.E.T. portal provides access to data and resources that can help planners, program staff, and researchers design, implement and evaluate evidence-based cancer control programs.

US Cancer Statistics: Data Visualizations
gis.cdc.gov/Cancer/USCS/DataViz.html

The Data Visualizations tool provides information on the numbers and rates of new cancer cases and deaths at the national, state, and county levels. You can see the numbers by sex, age, race and ethnicity, trends over time, survival, and prevalence.

Cancer Statistics Website
cancerstatisticscenter.cancer.org


NAACCR Fast Stats
faststats.naaccr.org

NAACCR Fast Stats is an interactive tool for quick access to key NAACCR and US cancer statistics for major cancer sites by age, sex, race/ethnicity, registry, stage and population standard. Statistics are presented as graphs and tables.
The TCR provides data to support research impacting knowledge of the impact of cancer in Texas and across the nation. The TCR Epidemiology Group averages over 370 requests for cancer data from researchers, medical professionals, students and the public each year. In 2018, the group received 401 requests.

In the past five years, 380 published research journal articles have used TCR data.

Approximately 70 current studies use TCR data. These studies are approved by the Texas Department of State Health Services Institutional Review Board and Research Executive Steering Committee. This data is supporting $92.9 million in grant funding.

Here are brief descriptions of select studies.

**TCR-Medicare**
healthcaredelivery.cancer.gov/seermedicare/

TCR cancer incidence data are linked to Medicare claims data every 2 years. It uses the same methodology as the linkage between the Surveillance, Epidemiology, and End Results (SEER) Program and Medicare data.

This linkage is a collaborative effort between the National Cancer Institute (NCI), cancer registries, and the Centers for Medicare and Medicaid Services. The TCR-Medicare linked data provide detailed information about Medicare beneficiaries with cancer in Texas.

Approximately 95% of Texans ages 65 and older in TCR are matched with Medicare files. The TCR data provide information on participant demographics, cancer incidence, stage of disease, first course of therapy, and survival, while the Medicare claims data include information on hospital stays, physician services, and hospital outpatient visits. These data are used for epidemiologic and health services research related to the diagnosis and treatment procedures, costs, and survival of cancer patients.

The TCR has provided data for this linkage since 2009.

**Virtual Pooled Registry – Cancer Linkage System**
naaccr.org/about-vpr-cls/

The North American Association of Central Cancer Registries (NAACCR) Virtual Pooled Registry Cancer Linkage System (VPR-CLS) is a national system designed to facilitate data linkages between existing study cohorts and central cancer registries such as the TCR. This is a secure, web-based system designed for minimal risk linkages, with the goal of providing timely access to cancer outcome data and a secure and standardized linkage process. The TCR has participated in pilot work with the VPR-CLS and has supported several IRB-approved studies that are using this system.
Transplant Cancer Match Study
transplantmatch.cancer.gov

Solid organ transplantation is a life-saving procedure for individuals with end-stage organ disease, but the need for long-term immunosuppressive medications following the procedure substantially increases cancer risk. Investigators at the NCI and the Health Resources and Services Administration (HRSA) are examining cancer risk, treatment, and outcomes among transplant recipients. For this study, US transplant registry data are linked with data from multiple US cancer registries, including the TCR, to determine which individuals in the US transplant registry develop cancer.

The TCR has participated in data linkages for this study since 2008.

NIH-AARP Diet and Health Study
dietandhealth.cancer.gov

The NCI developed the NIH-AARP Diet and Health Study to examine the relationship between diet, lifestyle, and cancer among adults who were AARP members when the study began in 1995-1996. Questionnaires that asked information about diet, lifestyle, and other health-related behaviors were returned by over 500,000 people, making this one of the largest, long-term studies of diet and health ever conducted. NIH-AARP cohort data are linked to multiple US cancer registries, including the TCR, to provide the NCI researchers with information on cancer outcomes for participants in their cohort.

The TCR has conducted data linkages for this study since 2006.

Black Women’s Health Study
bu.edu/bwhs/

The Black Women’s Health Study (BWHS) is the largest long-term study of African-American women to date. This NCI-funded study aims to identify risk factors of cancer and other disease in African-American women. To achieve these aims, the BWHS cohort data are linked to multiple US cancer registries, including the TCR, to provide important cancer diagnostic, prognostic, and treatment information. About every two years, the study’s cohort data are linked to TCR.

The TCR has conducted data linkages for this study since 2008.

World Trade Center Health Registry
www1.nyc.gov/site/911health/index.page

The World Trade Center Health Registry (WTCHR) was established to evaluate long-term health consequences, including cancer, of the 9/11 disaster among rescue and recovery workers and those who lived, worked or went to school in the World Trade Center area. The WTCHR registrants are linked with multiple US cancer registries, including the TCR, to verify any self-reported cancer and identify unreported incident cancer.

TCR has conducted data linkages for this study since 2008.
AMERICAN CANCER SOCIETY’S CANCER PREVENTION STUDY-3
cancer.org/research/we-conduct-cancer-research/epidemiology/cancer-prevention-study-3.html

The American Cancer Society’s Cancer Prevention Study-3 (CPS-3) is a long-term study of more than 300,000 participants. The study aims to examine the relationship between lifestyle, nutritional, medical, environmental, genetic and other factors that may cause or prevent cancer. Since 2013, the TCR links the CPS-3 cohort data every 3 years to identify new cancer cases and obtain important information about the cancer.

HIV/AIDS CANCER REGISTRY MATCH STUDY
hivmatch.cancer.gov

People who are living with the human immunodeficiency virus (HIV) or who have acquired immunodeficiency syndrome (AIDS) are at increased risk for certain cancers. The HIV/AIDS Cancer Match Study, led by the NCI, aims to better understand the patterns of cancer risk among people living with HIV in the US. The study involves data linkages between multiple US state HIV and cancer registries, including those in Texas.

TCR has participated in data linkages for this study since 2011.

MEXICAN AMERICAN (MANO A MANO) COHORT STUDY
mdanderson.org/research/departments-labs-institutes/departments-divisions/epidemiology/research/mano-a-mano.html

The Mexican American (Mano a Mano) Cohort Study led by investigators at the MD Anderson Cancer Center is investigating behavioral and genetic risk factors for cancer among people of Mexican descent.

PARKLAND-UT SOUTHWESTERN PROSPR CENTER: COLON CANCER SCREENING IN A SAFETY NET
healthcaredelivery.cancer.gov/prospr/

Population-based Research Optimizing Screening through Personalized Regimens (PROSPR) is a NCI-funded network of centers conducting research to improve cancer screening. At the Parkland-UT Southwestern PROSPR Center, investigators focus on improving screening on people in Dallas County who lack insurance or are underinsured. Initially focused on colorectal cancer, the PROSPR Center expanded its mission to include cervical cancer screening. Since 2013, the TCR links the Parkland-UT PROSPR’s data to help investigators determine whether cancer patients receive recommended tests and treatment.


Data Sources and References

Data Sources
All data are from TCR unless otherwise noted.


References
The following organizations provide additional information on cancer that might be helpful to the general public, patients, caregivers and survivors. The TCR's referral to these organizations is informational and does not imply endorsement by the TCR or the Texas Department of State Health Services.

**American Cancer Society**  
800-227-2345, [cancer.org](http://cancer.org)  
The American Cancer Society can answer questions 24 hours a day, every day of the year to empower you with accurate, up-to-date information to help you make educated health decisions.

**CancerCare**  
800-813-4673, [cancercare.org](http://cancercare.org)  
CancerCare provides professional support services and information to help people manage the emotional, practical and financial challenges of cancer.

**HealthCare.gov**  
800-318-2596, [healthcare.gov](http://healthcare.gov)  
HealthCare.gov provides information on health insurance options, including insurance exchanges, Medicaid and Medicare.

**LIVESTRONG**  
855-220-7777, [livestrong.org](http://livestrong.org)  
LIVESTRONG provides direct services to anyone affected by cancer and connects people and communities with the services they need.

**National Cancer Institute**  
800-422-6237, [cancer.gov](http://cancer.gov)  
The National Cancer Institute leads, conducts, and supports cancer research to advance scientific knowledge and help all people live longer, healthier lives.

**Texas County Indigent Health Care Programs**  
800-222-3986, Ext 6467  
The County Indigent Health Care Program helps low-income Texans who don’t qualify for other state or federal health care programs have access to health care services.

**2-1-1 Texas**  
211 or 877-541-7905, [211texas.org](http://211texas.org)  
2-1-1 Texas provides accurate, well-organized and easy-to-find information from state and local health and human services programs, including Medicaid, Children’s Health Insurance Program (CHIP), Breast and Cervical Cancer Services, and Temporary Assistance for Needy Families (TANF).