

**Summary of Investigation Into the Occurrence of Cancer  
Zip Codes 76065, 75104, and 76084, Midlothian, Cedar Hill, and Venus  
Ellis, Dallas, and Johnson County, Texas  
1993–2002  
May 19, 2005**

**Background:**

Concern about a possible excess of cancer prompted the Texas Cancer Registry (TCR) Branch of the Texas Department of State Health Services (DSHS) to examine the occurrence of cancer in zip codes 76065, 75104, 76084, Midlothian, Cedar Hill, and Venus, Texas. Local residents were concerned that benzene, 1, 3 butadiene, and radiation from the nearby cement plants may be causing cancer among residents. Laryngeal cancer has been associated with workers exposed to cement dust. Benzene has shown an association with acute myeloid leukemia and non-Hodgkin's lymphoma in the scientific literature, while radiation has been weakly linked with several leukemia subtypes, non-Hodgkin's lymphoma, and brain cancer. Exposure to 1, 3 butadiene has been associated with leukemia. The TCR evaluated 1995–2002 incidence data and 1993–2002 mortality data for cancers of the female breast, prostate, lung and bronchus, colon and rectum, male bladder, corpus and uterus, non-Hodgkin's lymphoma, brain/CNS, larynx, selected leukemia subtypes, and total childhood cancers. Incidence data are the best indicator of the occurrence of cancer in an area because they show how many cancers were diagnosed each year. Cancer mortality data are used as a supplemental measure and are complete for the entire state through 2002. The rest of this report examines the investigative methods the TCR used, the results of the investigation, recommendations, and general information on cancer risk factors.

**Methodology:**

According to the National Cancer Institute, a cancer cluster is a greater than expected number of cancers among people who live or work in the same area and who develop or die from the same cancer within a short time of each other. The cancer cluster investigation is the primary tool used by the TCR to investigate the possibility of excess cancer in a community. The cancer cluster investigation cannot determine that cancer was associated with or caused by environmental or other risk factors. Instead, the cancer cluster investigation is specifically intended to address the question “Is there an excess of cancer in the area or population of concern?”

The TCR follows guidelines recommended by the Centers for Disease Control and Prevention for investigating cancer clusters<sup>1</sup> and often works with the DSHS Environmental and Injury Epidemiology and Toxicology Branch, as well as other state and federal agencies. In order to determine if an excess of cancer is occurring and if further study is recommended, biologic and epidemiologic evidence are considered. Such evidence may include documented exposures; the toxicity of the exposures; plausible routes by which exposures can reach people (ingesting, touching, breathing); the actual amount of exposure to the people which can lead to absorption in the body; the time from exposure to development of cancer; the statistical significance of the findings; the magnitude of the effect observed; risk factors; and the consistency of the findings over time. The occurrence of rare cancers or unlikely cancers in certain age groups may also indicate a cluster needing further study.

Because excesses of cancer may occur by chance alone, the role of chance is considered in the statistical analysis.

If further study is indicated, the TCR will determine the feasibility of conducting further epidemiologic study. If the epidemiologic study is feasible, the final step is to recommend and/or perform an etiologic investigation to see if the cancer(s) can be related to an exposure. Very few cancer cluster investigations in the United States proceed to this stage.

To determine whether a statistically significant excess of cancer existed in the geographic areas of concern, the number of observed cases and deaths was compared to what would be "expected" based on the state cancer rates. Calculating the expected number(s) of cancer cases takes into consideration the race, sex, and ages of people who are diagnosed or die from cancer. This is important because peoples' race, sex, and age all impact cancer rates. If we are trying to determine if there is more or less cancer in a community compared to the rest of the state, we must make sure that the difference in cancer rates is not simply due to one of these factors.

The attached Tables 1–6 present the number of observed cases and deaths for males and females, the number of "expected" cases and deaths, the standardized incidence ratio (SIR) or standardized mortality ratio (SMR), and the corresponding 99% confidence interval. The standardized incidence or mortality ratio (SIR, SMR) is simply the number of observed cases or deaths compared to the number of "expected" cases or deaths. When the SIR or SMR of a selected cancer is equal to 1.00, then the number of observed cases or deaths is equal to the expected number of cases or deaths, based on the incidence or mortality in the rest of the state. When the SIR or SMR is less than 1.00, fewer people developed or died of cancer than we would have expected. Conversely, an SIR or SMR greater than 1.00 indicates that more people developed or died of cancer than we would have expected. To determine if an SIR or SMR greater than 1.00 or less than 1.00 is statistically significant or outside the variation likely to be due to chance, confidence intervals are also calculated.

A 99% confidence interval is used for statistical significance and takes the likelihood that the result occurred by chance into account. It also indicates the range in which we would expect the SIR or SMR to fall 99% of the time. If the confidence interval contains a range that includes 1.00, no statistically significant excess of cancer is indicated. The confidence intervals are particularly important when trying to interpret small numbers of cases. If only one or two cases are expected for a particular cancer, then the report of three or four observed cases will result in a very large SIR or SMR. As long as the 99% confidence interval contains 1.00, this indicates that the SIR or SMR is still within the range one might expect and, therefore, not statistically significant.

### **Results:**

The analysis of incidence data for zip codes 76065, 75104, and 76084, Midlothian, Cedar Hill, and Venus, Texas, from January 1, 1995–December 31, 2002, and mortality data from January 1, 1993–December 31, 2002, found cancers of the breast, lung and bronchus, corpus and uterus, brain/CNS, bladder, colorectal, non-Hodgkin's lymphoma, selected leukemia subtypes, and total childhood cancers (0–19) to be within normal ranges in both males and females. Prostate cancer mortality was statistically significantly lower than expected in zip

code 76065 males while prostate cancer incidence was statistically significantly lower than expected in zip code 76084 males. Analysis summaries are presented in Tables 1–6.

**Discussion:**

Like other studies, this cancer cluster investigation had limitations. The number of years of incidence data examined was limited to eight years and did not include data for the most recent years. Ten years of mortality data were examined as a supplemental measure. Also, cancer incidence data are based on residence at the time of diagnosis and mortality data the residence at the time of death. It is possible that some residents who may have been exposed and developed cancer no longer lived in the area at the time of diagnosis or death, so were not included in the analyses. However, it is also possible that people may have moved into the area and then developed or died from cancer because of an exposure from a prior residential location or other factors. These cases and deaths are included in the investigation.

**Recommendations:**

Based on the findings and the information discussed above, it is not recommended at this time to further examine the cancers in zip codes 76065, 75104, 76084, Midlothian, Cedar Hill, and Venus, Texas. As new data or additional information become available, consideration will be given to updating or re-evaluating this investigation.

**Information on Cancer and Cancer Risk Factors:**

Overall, the occurrence of cancer is common, with approximately two out of every five persons alive today predicted to develop some type of cancer in their lifetime.<sup>2</sup> In Texas, as in the United States, cancer is the second leading cause of death, exceeded only by heart disease. Also, cancer is not one disease, but many different diseases. Different types of cancer are generally thought to have different causes. If a person develops cancer, it is probably not due to one factor but to a combination of factors such as heredity; diet, tobacco use, and other lifestyle factors; infectious agents; chemical exposures; and radiation exposures. Although cancer may impact individuals of all ages, it primarily is a disease of older persons with over one-half of cancer cases and two-thirds of cancer deaths occurring in persons 65 and older. Finally, it takes time for cancer to develop, more than 10 years can go by between the exposure to a carcinogen and a diagnosis of cancer.<sup>3</sup>

The chances of a person developing cancer as a result of exposure to an environmental contaminant are slight. Most experts agree that exposure to pollution, occupational, and industrial hazards account for fewer than 10% of cancer cases.<sup>4</sup> According to Richard Doll and Richard Peto, renowned epidemiologists at the University of Oxford, pollution and occupational exposures are estimated to collectively cause 4–6% of all cancer deaths.<sup>5</sup> The Harvard Center for Cancer Prevention estimates 5% of cancer deaths are due to occupational factors, 2% to environmental pollution and 2% to ionizing/ultraviolet radiation.<sup>6</sup> Additionally much of the evidence that pollutants and pesticide residues increase cancer risk is presently considered quite weak and inconsistent. In contrast, the National Cancer Institute estimates that lifestyle factors such as tobacco use and diet cause 50 to 75 percent of cancer deaths.<sup>7</sup> Eating a healthy diet and refraining from tobacco are the best ways to prevent many kinds of cancer. One-third of all cancer deaths in this country could be prevented by eliminating the use of tobacco products. Additionally, about 25 to 30 percent of the cases of several major cancers are associated with obesity and physical inactivity.<sup>8</sup>

**Known Risk Factors for Cancers Examined in This Investigation:**

The following is a brief discussion summarized from the American Cancer Society and the National Cancer Institute about cancer risk factors for the specific cancers studied in this investigation.<sup>9,10</sup>

The occurrence of cancer may vary by race/ethnicity, gender, type of cancer, geographic location, population group, and a variety of other factors. Scientific studies have identified a number of factors for various cancers that may increase an individual's risk of developing a specific type of cancer. These factors are known as risk factors. Some risk factors we can do nothing about, but many are a matter of choice.

**Prostate Cancer**

Prostate cancer is the most common type of malignant cancer (other than skin) diagnosed in men, affecting an estimated one in five American men. Risk factors for prostate cancer include aging, a high fat diet, physical inactivity, and a family history of prostate cancer. African American men are at higher risk of acquiring prostate cancer and dying from it. Prostate cancer is most common in North America and northwestern Europe. It is less common in Asia, Africa, Central America, and South America.

**Breast Cancer**

Simply being a woman is the main risk factor for developing breast cancer. Breast cancer can affect men, but this disease is about 100 times more common among women than men. White women are slightly more likely to develop breast cancer than are African-American women, but African Americans are more likely to die of this cancer because they are often diagnosed at an advanced stage when breast cancer is harder to treat and cure. Other risk factors for breast cancer include aging, presence of genetic markers such as the BRCA1 and BRCA2 genes, personal and family history of breast cancer, previous breast biopsies, previous breast irradiation, diethylstilbestrol therapy, oral contraceptive use, not having children, hormone replacement therapy, alcohol, and obesity. Currently, research does not show a link between breast cancer risk and environmental pollutants such as the pesticide DDE (chemically related to DDT) and PCBs (polychlorinated biphenyls).

**Lung and Bronchus Cancer**

The greatest single risk factor for lung cancer is smoking. The American Cancer Society estimates that 87% of lung cancer is due to smoking. Several studies have shown that the lung cells of women have a genetic predisposition to develop cancer when they are exposed to tobacco smoke. Other risk factors include secondhand smoke, asbestos exposure, radon exposure, carcinogenic agents in the workplace such as arsenic or vinyl chloride, marijuana smoking, recurring inflammation of the lungs, exposure to industrial grade talc, people with silicosis and berylliosis, personal and family history of lung cancer, diet, and air pollution.

**Brain/CNS Cancer**

The large majority of brain cancers are not associated with any risk factors. Most brain cancers simply happen for no apparent reason. A few risk factors associated with brain cancer are known and include radiation treatment, occupational exposure to vinyl chloride, immune system disorders, and family history of brain and spinal cord cancers. Possible risk

factors include exposure to *aspartame* (a sugar substitute) and exposure to electromagnetic fields from cellular telephones or high-tension wires.

### **Bladder Cancer**

The greatest risk factor for bladder cancer is smoking. Smokers are more than twice as likely to get bladder cancer as nonsmokers. Whites are two times more likely to develop bladder cancer than are African Americans. Other risk factors for bladder cancer include occupational exposure to aromatic amines such as benzidine and beta-naphthylamine, aging, chronic bladder inflammation, personal history of urothelial carcinomas, birth defects involving the bladder and umbilicus, high doses of certain chemotherapy drugs, and use of the herb *Aristolochia Fangchi*.

### **Colon and Rectum Cancer**

Colorectal cancer is the second leading cause of cancer death in both men and women. Researchers have identified several risk factors that increase a person's chance of developing colorectal cancer: family and personal history of colorectal cancer, hereditary conditions such as familial adenomatous polyposis, personal history of intestinal polyps and chronic inflammatory bowel disease, aging, a diet mostly from animal sources, physical inactivity, obesity, smoking, and heavy use of alcohol. People with diabetes have a 30%-40% increased chance of developing colon cancer. Recent research has found a genetic mutation leading to colorectal cancer in Jews of Eastern European descent (Ashkenazi Jews).

### **Laryngeal Cancer**

Risk factors for laryngeal and hypopharynx cancer include tobacco use, alcohol abuse, poor nutrition, infection with human papillomavirus, a weakened immune system, and occupational exposure. Men who are aging and African Americans are more likely to be diagnosed with this cancer.

### **Acute Lymphocytic Leukemia**

Possible risk factors for ALL include the following: being male, being white, being older than 70 years of age, past treatment with chemotherapy or radiation therapy, exposure to atomic bomb radiation, or having a certain genetic disorder such as Down syndrome.

### **Chronic Lymphocytic Leukemia**

Possible risk factors for CLL include the following: being middle-aged or older, male, or white; a family history of CLL or cancer of the lymph system; having relatives who are Russian Jews or Eastern European Jews; or having exposure to herbicides or insecticides including Agent Orange, an herbicide used during the Vietnam War.

### **Acute Myeloid Leukemia**

Possible risk factors for AML include the following: being male; smoking, especially after age 60; having had treatment with chemotherapy or radiation therapy in the past; having treatment for childhood ALL in the past; being exposed to atomic bomb radiation or the chemical benzene; or having a history of a blood disorder such as myelodysplastic syndrome.

### **Chronic Myeloid Leukemia**

Most people with CML have a gene mutation (change) called the Philadelphia chromosome.

The Philadelphia chromosome is not passed from parent to child.

### **Non-Hodgkin's Lymphoma**

Risk factors for non-Hodgkin's lymphoma include infection with *Helicobacter pylori*, human immunodeficiency virus (HIV), human T-cell leukemia/lymphoma virus (HTLV-1), or the Epstein-Barr virus and malaria. Other possible risk factors include certain genetic diseases, radiation exposure, immuno-suppressant drugs after organ transplantation, benzene exposure, the drug Dilantin, exposure to certain pesticides, a diet high in meats or fat, or certain chemotherapy drugs.

For additional information about cancer, visit the "Resources" link on our web site at <http://www.dshs.state.tx.us/tcr/>.

Questions or comments regarding this investigation may be directed to Ms. Brenda Mokry, Texas Cancer Registry, at 1-800-252-8059 or [brenda.mokry@dshs.state.tx.us](mailto:brenda.mokry@dshs.state.tx.us).

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**Table 1**

**Number of Observed and Expected Cancer Cases and Race Adjusted Standardized Incidence Ratios, Selected Cancers, Zip Code 76065, Midlothian, TX, 1995–2002**

<b>Males</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Prostate</b>	53	62.22	0.85	0.58– 1.20
<b>Larynx</b>	6	4.00	1.50	0.38 – 3.92
<b>Lung and Bronchus</b>	52	41.18	1.26	0.86 – 1.79
<b>Colorectal</b>	24	24.58	0.98	0.54 – 1.62
<b>Bladder</b>	11	12.71	0.87	0.34 – 1.79
<b>Non-Hodgkin’s Lymphoma</b>	14	10.19	1.37	0.61 – 2.63
<b>Brain/CNS</b>	5	4.61	1.09	0.23 – 3.07
<b>Acute Lymphocytic Leukemia</b>	0	1.20	0.00	0.00 – 4.41
<b>Chronic Lymphocytic Leukemia</b>	0	2.01	0.00	0.00 – 2.63
<b>Acute Myeloid Leukemia</b>	4	1.97	2.03	0.34 – 6.39
<b>Chronic Myeloid Leukemia</b>	2	0.95	2.09	0.11 – 9.71
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.38	0.00	0.00 – 13.99
<b>Total Childhood Cancers (0-19)</b>	3	4.44	0.68	0.08 – 2.47
<b>Females</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Breast</b>	57	71.58	0.80	0.55 – 1.11
<b>Lung and Bronchus</b>	25	27.20	0.92	0.51 – 1.51
<b>Colorectal</b>	18	20.33	0.89	0.44 – 1.58
<b>Larynx</b>	0	0.91	0.00	0.00 – 5.83
<b>Non-Hodgkin’s Lymphoma</b>	10	7.82	1.28	0.48 – 2.74
<b>Brain/CNS</b>	1	3.59	0.28	0.00 – 2.07
<b>Corpus and Uterus</b>	5	10.62	0.47	0.10 – 1.33
<b>Acute Lymphocytic Leukemia</b>	0	0.82	0.00	0.00 – 6.49
<b>Chronic Lymphocytic Leukemia</b>	0	1.26	0.00	0.00 – 4.21
<b>Acute Myeloid Leukemia</b>	1	1.50	0.67	0.00 – 4.96
<b>Chronic Myeloid Leukemia</b>	1	0.63	1.59	0.01 – 11.82
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.32	0.00	0.00 – 16.59
<b>Total Childhood Cancers (0-19)</b>	3	3.57	0.84	0.09 – 3.08

Note: The SIR (standardized incidence ratio) is defined as the number of observed cases divided by the number of expected cases. The latter is based on race-, sex-, and age-specific cancer incidence rates for Texas during the period 1995–2002. The SIR has been rounded to the second decimal place.

\*Significantly higher than expected at the  $p < 0.01$  level.

\*\*Significantly lower than expected at the  $p < 0.01$  level.

Table 2

**Number of Observed and Expected Cancer Deaths and Race Adjusted Standardized Mortality Ratios, Selected Cancers, Zip Code 76065, Midlothian, TX, 1993–2002**

<b>Males</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SMR</b>	<b>99% CI</b>
Prostate	2	9.86	0.20**	0.01 – 0.94
Larynx	1	1.33	0.75	0.00 – 5.57
Lung and Bronchus	50	41.95	1.19	0.80 – 1.70
Colorectal	9	11.15	0.81	0.28 – 1.79
Bladder	2	2.62	0.76	0.04 – 3.53
Non-Hodgkin's Lymphoma	11	5.11	2.15	0.84– 4.45
Brain/CNS	7	4.14	1.69	0.49 – 4.14
Acute Lymphocytic Leukemia	0	0.47	0.00	0.00 – 11.24
Chronic Lymphocytic Leukemia	0	1.01	0.00	0.00 – 5.23
Acute Myeloid Leukemia	2	1.65	1.21	0.06 – 5.60
Chronic Myeloid Leukemia	0	0.52	0.00	0.00 – 10.13
Aleukemic, Subleukemic, & NOS	0	0.71	0.00	0.00 – 7.51
<b>Total Childhood Cancers (0-19)</b>	<b>1</b>	<b>0.98</b>	<b>1.02</b>	<b>0.01 – 7.55</b>
<b>Females</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SMR</b>	<b>99% CI</b>
Breast	16	17.25	0.93	0.44 – 1.71
Lung and Bronchus	25	25.66	0.97	0.55 – 1.60
Colorectal	11	9.43	1.17	0.46 – 2.41
Larynx	0	0.29	0.00	0.00 – 18.06
Corpus and Uterus	2	2.06	0.97	0.05 – 4.51
Non-Hodgkin's Lymphoma	5	3.96	1.26	0.27 – 3.58
Brain/CNS	2	3.05	0.66	0.03 – 3.04
Acute Lymphocytic Leukemia	0	0.31	0.00	0.00 – 16.98
Chronic Lymphocytic Leukemia	0	0.58	0.00	0.00 – 9.21
Acute Myeloid Leukemia	2	1.25	1.60	0.08 – 7.41
Chronic Myeloid Leukemia	0	0.33	0.00	0.00 – 16.21
Aleukemic, Subleukemic, & NOS	0	0.47	0.00	0.00 – 11.24
<b>Total Childhood Cancers (0-19)</b>	<b>1</b>	<b>0.74</b>	<b>1.34</b>	<b>0.01 – 9.98</b>

Note: The SMR (standardized mortality ratio) is defined as the number of observed deaths divided by the number of expected deaths. The latter is based on race-, sex-, and age-specific cancer mortality rates for Texas during the period 1993–2002. The SMR has been rounded to the second decimal place.

\*Significantly higher than expected at the  $p < 0.01$  level.

\*\*Significantly lower than expected at the  $p < 0.01$  level.

**Table 3**

**Number of Observed and Expected Cancer Cases and Race Adjusted Standardized Incidence Ratios, Selected Cancers, Zip Code 75104, Cedar Hill, TX, 1995–2002**

<b>Males</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Prostate</b>	62	81.75	0.76	0.53– 1.04
<b>Larynx</b>	4	6.16	0.65	0.11 – 2.04
<b>Lung and Bronchus</b>	45	57.16	0.79	0.52 – 1.14
<b>Colorectal</b>	29	34.88	0.83	0.49 – 1.32
<b>Bladder</b>	13	15.42	0.84	0.36 – 1.65
<b>Non-Hodgkin’s Lymphoma</b>	11	15.11	0.73	0.29 – 1.51
<b>Brain/CNS</b>	5	6.67	0.75	0.16 – 2.12
<b>Acute Lymphocytic Leukemia</b>	1	1.98	0.51	0.00 – 3.76
<b>Chronic Lymphocytic Leukemia</b>	3	2.59	1.16	0.13 – 4.23
<b>Acute Myeloid Leukemia</b>	2	2.81	0.71	0.04 – 3.31
<b>Chronic Myeloid Leukemia</b>	3	1.46	2.05	0.23 – 7.50
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.54	0.00	0.00 – 9.88
<b>Total Childhood Cancers (0-19)</b>	4	7.72	0.52	0.09 – 1.63
<b>Females</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Breast</b>	121	119.28	1.01	0.79 – 1.28
<b>Lung and Bronchus</b>	31	40.45	0.77	0.46 – 1.20
<b>Colorectal</b>	23	34.47	0.67	0.36 – 1.12
<b>Larynx</b>	1	1.55	0.64	0.00 – 4.79
<b>Non-Hodgkin’s Lymphoma</b>	16	12.66	1.26	0.60 – 2.33
<b>Brain/CNS</b>	5	5.71	0.88	0.19 – 2.48
<b>Corpus and Uterus</b>	7	16.26	0.43	0.13 – 1.05
<b>Acute Lymphocytic Leukemia</b>	0	1.47	0.00	0.00 – 3.61
<b>Chronic Lymphocytic Leukemia</b>	3	1.87	1.60	0.18 – 5.86
<b>Acute Myeloid Leukemia</b>	5	2.56	1.96	0.42 – 5.54
<b>Chronic Myeloid Leukemia</b>	0	1.16	0.00	0.00 – 4.56
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.55	0.00	0.00 – 9.55
<b>Total Childhood Cancers (0-19)</b>	5	6.71	0.74	0.16 – 2.11

Note: The SIR (standardized incidence ratio) is defined as the number of observed cases divided by the number of expected cases. The latter is based on race-, sex-, and age-specific cancer incidence rates for Texas during the period 1995–2002. The SIR has been rounded to the second decimal place.

\*Significantly higher than expected at the p< 0.01 level.

\*\*Significantly lower than expected at the p< 0.01 level.

**Table 4**

**Number of Observed and Expected Cancer Deaths and Race Adjusted Standardized Mortality Ratios, Selected Cancers, Zip Code 75104, Cedar Hill, TX, 1993–2002**

<b>Males</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SMR</b>	<b>99% CI</b>
Prostate	10	12.97	0.77	0.29 – 1.65
Larynx	1	2.22	0.45	0.00 – 3.34
Lung and Bronchus	54	58.45	0.92	0.63 – 1.30
Colorectal	11	16.20	0.68	0.27 – 1.41
Bladder	2	3.26	0.61	0.03 – 2.84
Non-Hodgkin's Lymphoma	6	7.28	0.82	0.21– 2.15
Brain/CNS	8	5.66	1.41	0.45 – 3.28
Acute Lymphocytic Leukemia	1	0.77	1.30	0.01 – 9.64
Chronic Lymphocytic Leukemia	0	1.29	0.00	0.00 – 4.12
Acute Myeloid Leukemia	1	2.28	0.44	0.00 – 3.25
Chronic Myeloid Leukemia	0	0.87	0.00	0.00 – 6.08
Aleukemic, Subleukemic, & NOS	0	0.96	0.00	0.00 – 5.52
<b>Total Childhood Cancers (0-19)</b>	<b>2</b>	<b>1.98</b>	<b>1.01</b>	<b>0.05 – 4.09</b>
<b>Females</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SMR</b>	<b>99% CI</b>
Breast	34	32.03	1.06	0.65 – 1.63
Lung and Bronchus	29	38.29	0.76	0.44 – 1.20
Colorectal	14	16.48	0.85	0.38 – 1.63
Larynx	0	0.54	0.00	0.00 – 9.83
Corpus and Uterus	2	3.51	0.57	0.03 – 2.64
Non-Hodgkin's Lymphoma	6	6.32	0.95	0.24 – 2.48
Brain/CNS	6	4.61	1.30	0.33 – 3.40
Acute Lymphocytic Leukemia	0	0.62	0.00	0.00 – 8.50
Chronic Lymphocytic Leukemia	2	0.96	2.08	0.11 – 9.64
Acute Myeloid Leukemia	3	2.14	1.40	0.16 – 5.13
Chronic Myeloid Leukemia	0	0.63	0.00	0.00 – 8.48
Aleukemic, Subleukemic, & NOS	0	0.86	0.00	0.00 – 6.13
<b>Total Childhood Cancers (0-19)</b>	<b>2</b>	<b>1.70</b>	<b>1.17</b>	<b>0.06 – 5.44</b>

Note: The SMR (standardized mortality ratio) is defined as the number of observed deaths divided by the number of expected deaths. The latter is based on race-, sex-, and age-specific cancer mortality rates for Texas during the period 1993–2002. The SMR has been rounded to the second decimal place.

\*Significantly higher than expected at the  $p < 0.01$  level.

\*\*Significantly lower than expected at the  $p < 0.01$  level.

**Table 5**

**Number of Observed and Expected Cancer Cases and Race Adjusted Standardized Incidence Ratios, Selected Cancers, Zip Code 76084, Venus, TX, 1995–2002**

<b>Males</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Prostate</b>	6	24.76	0.24**	0.06– 0.63
<b>Larynx</b>	3	1.74	1.72	0.19 – 6.30
<b>Lung and Bronchus</b>	15	16.70	0.90	0.41 – 1.69
<b>Colorectal</b>	6	10.47	0.57	0.15 – 1.49
<b>Bladder</b>	1	4.87	0.21	0.00 – 1.52
<b>Non-Hodgkin’s Lymphoma</b>	2	4.58	0.44	0.02 – 2.02
<b>Brain/CNS</b>	1	2.01	0.50	0.00 – 3.69
<b>Acute Lymphocytic Leukemia</b>	0	0.54	0.00	0.00 – 9.84
<b>Chronic Lymphocytic Leukemia</b>	1	0.79	1.27	0.01 – 9.42
<b>Acute Myeloid Leukemia</b>	0	0.85	0.00	0.00 – 6.21
<b>Chronic Myeloid Leukemia</b>	0	0.45	0.00	0.00 – 11.73
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.16	0.00	0.00 – 33.24
<b>Total Childhood Cancers (0-19)</b>	1	1.71	0.58	0.00 – 4.33
<b>Females</b>				
<b>Site</b>	<b>Observed</b>	<b>Expected</b>	<b>SIR</b>	<b>99% CI</b>
<b>Breast</b>	14	23.70	0.59	0.26 – 1.13
<b>Lung and Bronchus</b>	9	8.67	1.04	0.36 – 2.31
<b>Colorectal</b>	7	6.28	1.12	0.32 – 2.73
<b>Larynx</b>	0	0.30	0.00	0.00 – 17.74
<b>Non-Hodgkin’s Lymphoma</b>	1	2.54	0.39	0.00 – 2.93
<b>Brain/CNS</b>	0	1.23	0.00	0.00 – 4.31
<b>Corpus and Uterus</b>	2	3.48	0.57	0.03 – 2.66
<b>Acute Lymphocytic Leukemia</b>	1	0.32	3.10	0.02 – 23.03
<b>Chronic Lymphocytic Leukemia</b>	0	0.38	0.00	0.00 – 14.01
<b>Acute Myeloid Leukemia</b>	1	0.50	2.00	0.01 – 14.86
<b>Chronic Myeloid Leukemia</b>	0	0.21	0.00	0.00 – 25.58
<b>Aleukemic, Subleukemic, &amp; NOS</b>	0	0.09	0.00	0.00 – 59.80
<b>Total Childhood Cancers (0-19)</b>	1	1.35	0.74	0.00 – 5.49

Note: The SIR (standardized incidence ratio) is defined as the number of observed cases divided by the number of expected cases. The latter is based on race-, sex-, and age-specific cancer incidence rates for Texas during the period 1995–2002. The SIR has been rounded to the second decimal place.

\*Significantly higher than expected at the  $p < 0.01$  level.

\*\*Significantly lower than expected at the  $p < 0.01$  level.

Table 6

Number of Observed and Expected Cancer Deaths and Race Adjusted Standardized Mortality Ratios, Selected Cancers, Zip Code 76084, Venus, TX, 1993–2002

Males				
Site	Observed	Expected	SMR	99% CI
Prostate	2	3.75	0.53	0.03 – 2.48
Larynx	0	0.60	0.00	0.00 – 8.89
Lung and Bronchus	16	16.94	0.94	0.45 – 1.74
Colorectal	1	4.74	0.21	0.00 – 1.57
Bladder	0	1.00	0.00	0.00 – 5.27
Non-Hodgkin's Lymphoma	1	2.21	0.45	0.00– 3.36
Brain/CNS	0	1.73	0.00	0.00 – 3.07
Acute Lymphocytic Leukemia	0	0.23	0.00	0.00 – 23.14
Chronic Lymphocytic Leukemia	1	0.39	2.58	0.01 – 19.16
Acute Myeloid Leukemia	0	0.70	0.00	0.00 – 7.59
Chronic Myeloid Leukemia	0	0.26	0.00	0.00 – 20.57
Aleukemic, Subleukemic, & NOS	0	0.29	0.00	0.00 – 18.35
Total Childhood Cancers (0-19)	0	0.38	0.00	0.00 – 13.95
Females				
Site	Observed	Expected	SMR	99% CI
Breast	3	5.50	0.55	0.06 – 2.00
Lung and Bronchus	6	8.07	0.74	0.19 – 1.94
Colorectal	2	2.74	0.73	0.04 – 3.38
Larynx	0	0.09	0.00	0.00 – 56.98
Corpus and Uterus	0	0.62	0.00	0.00 – 8.55
Non-Hodgkin's Lymphoma	0	1.20	0.00	0.00 – 4.43
Brain/CNS	0	1.00	0.00	0.00 – 5.29
Acute Lymphocytic Leukemia	0	0.12	0.00	0.00 – 46.07
Chronic Lymphocytic Leukemia	0	0.15	0.00	0.00 – 34.47
Acute Myeloid Leukemia	2	0.40	4.97	0.26 – 23.05
Chronic Myeloid Leukemia	0	0.10	0.00	0.00 – 52.51
Aleukemic, Subleukemic, & NOS	0	0.14	0.00	0.00 – 38.86
Total Childhood Cancers (0-19)	0	0.28	0.00	0.00 – 18.91

Note: The SMR (standardized mortality ratio) is defined as the number of observed deaths divided by the number of expected deaths. The latter is based on race-, sex-, and age-specific cancer mortality rates for Texas during the period 1993–2002. The SMR has been rounded to the second decimal place.

\*Significantly higher than expected at the  $p < 0.01$  level.

\*\*Significantly lower than expected at the  $p < 0.01$  level.