TCEQ Environmental Health Update

FROM 2017 AND 2018 DATA

This update is based on the latest available health data (up to 2017 for blood lead data and cancer incidence, and 2018 for overall mortality rates and for asthma endpoints). Also presented are environmental data from 2018 to match the health data.

ABOUT THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) TOXICOLOGY, RISK ASSESSMENT, AND RESEARCH DIVISION (TD)

- The TD helps the TCEQ make scientifically sound decisions by applying toxicological principles when evaluating environmental data, issuing authorizations, developing environmental regulations, and making policy decisions. The TD also conducts research to address environmental toxicology questions that are important to the state of Texas.
- TCEQ toxicologists identify chemical hazards, evaluate potential exposures, assess human health risks, and communicate risk to the general public and stakeholders.

TOXICOLOGY, RISK ASSESSMENT, AND RESEARCH DIVISION

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TCEQ Environmental Health Update

Common Terms

Air monitoring comparison values (AMCVs) are chemical-specific short- and long-term air concentrations used to evaluate air monitoring data. These values are developed to protect human health and welfare, and are set well below levels where health effects are known to occur. Slight exceedances of AMCVs will not necessarily lead to health effects, but the TCEQ works to keep ambient air concentrations below AMCVs.

Air toxics, also known as *hazardous air pollutants (HAPs)*, are pollutants that are known or suspected to cause cancer or other serious health effects. Benzene, arsenic, and mercury are examples of air toxics.

Automated gas chromatograph (autoGC) is a sampler that measures volatile organic compounds every hour, continuously, 22 hours per day, and 7 days per week.

A canister sampler collects volatile organic compounds during a 24-hour sampling duration once every-sixth-day.

Volatile organic compounds (VOCs) are potentially toxic chemicals that readily evaporate into the air and are often used as solvents, degreasers, paint thinners, and fuels (e.g. benzene).

Statewide Environmental Health Updates

Air Quality

Ambient Air Monitoring

- Data from monitoring air toxics can be used for finding pollution sources, evaluating air permit applications, and identifying potential health concerns.
- The TCEQ toxicology staff uses ambient air monitoring data to assess the potential for measured concentrations of air toxics to impair health and/or cause odors. Benzene is of particular focus because it is the chemical that is measured closest to its AMCV.
- In 2018, all monitors in Texas had annual average benzene concentrations below the state's long-term AMCV. Figure 1 represents the majority of monitoring sites in some major Texas cities.
- In addition to benzene, all 85 VOCs monitored in Texas in 2018 were below their AMCVs.

Programs to Decrease Ambient Air Toxics

The TCEQ uses **air permitting, ambient air monitoring**, and the **Air Pollution Watch List (APWL)** to ensure that ambient air toxic concentrations are at levels that are protective of public health and welfare (Figure 2).

FIGURE 2
Three State Programs to Decrease Ambient Air Toxic Levels

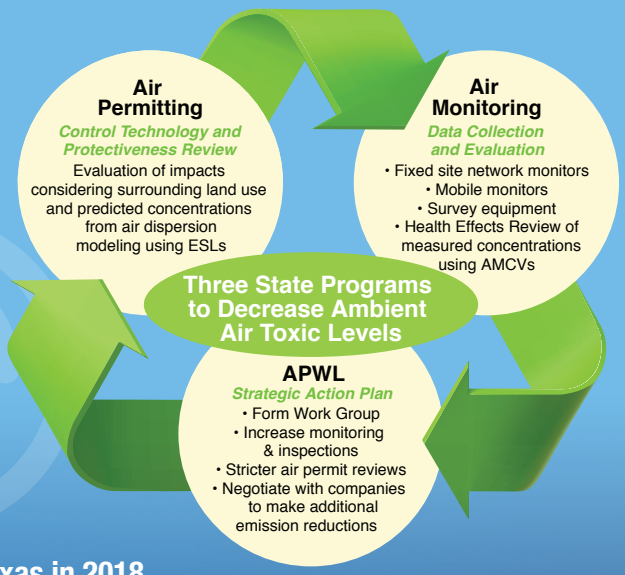
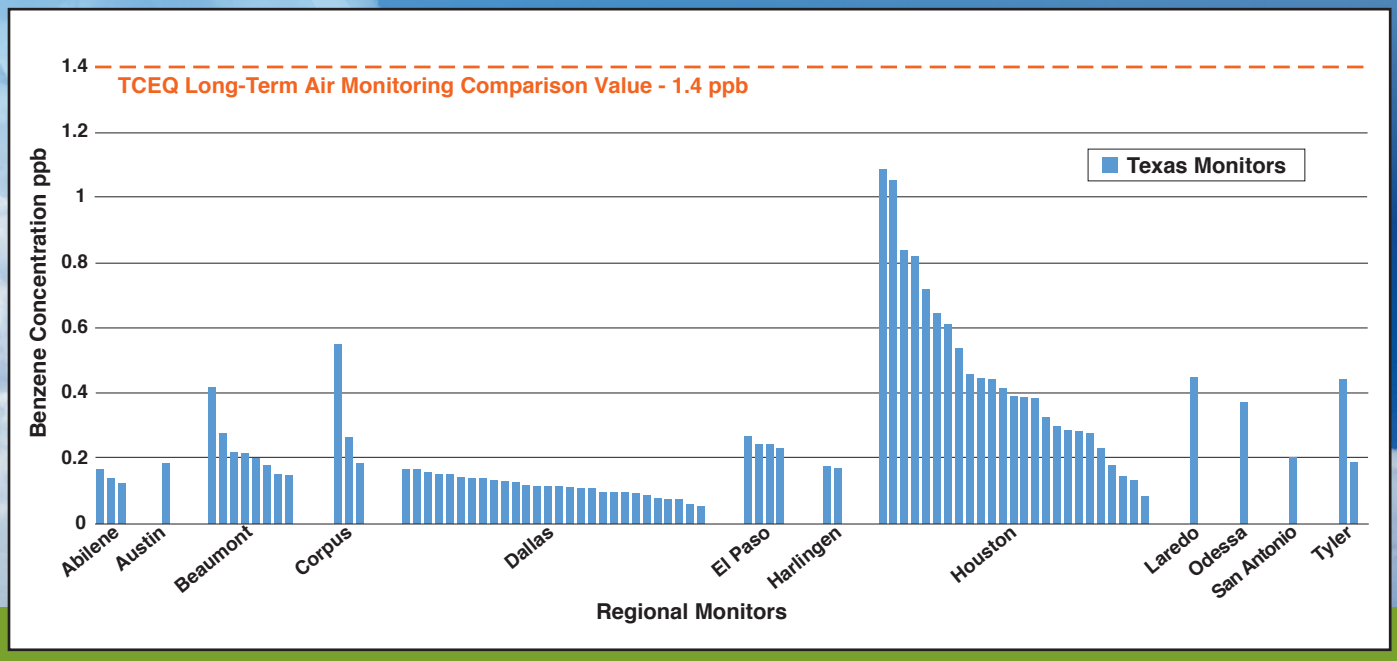


FIGURE 1
Average Benzene Concentrations at Monitoring Sites in Texas in 2018



Air Pollutant Watch List (APWL)

- The APWL is a TCEQ program designed to address areas in Texas where data show persistent, elevated concentrations of air toxics.
- More information regarding the TCEQ APWL program can be accessed at www.tceq.texas.gov/toxicology/apwl

Active Air Pollutant Watch List Areas

Currently there are four active APWL areas (Table 1).

Four Regions:	Five Pollutants:
Tyler, El Paso, Beaumont, Houston	Hydrogen sulfide Metals: nickel, arsenic, cobalt, vanadium

Air Pollutant Watch List Successes

The TCEQ has used the APWL process to address areas of concern and delist pollutants and/or areas from the APWL. The following table shows the pollutants and/or areas where ambient chemical concentrations have been successfully reduced to levels that are no longer of potential concern (Table 2).

FIGURE 3
APWL Areas

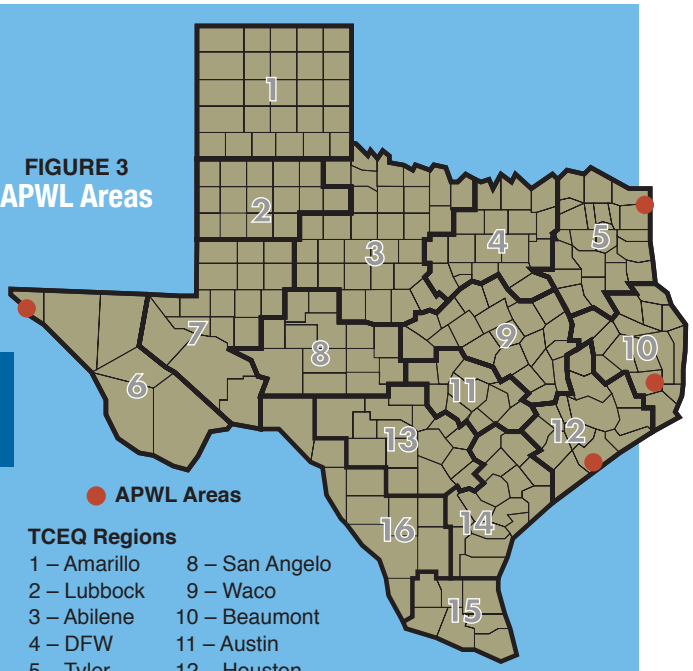


TABLE 1
Active Air Pollutant Watch List Areas

APWL	City	County	Pollutant(s)	Added
0501	N/A	Bowie and Cass	Hydrogen sulfide	1999
0601	El Paso	El Paso	Hydrogen sulfide	2004
1001	Evadale	Jasper	Hydrogen sulfide	2003
1201	Freeport	Brazoria	Arsenic, cobalt, nickel, vanadium	2005

TABLE 2
Air Pollutant Watch List Successes

APWL	City	County	Pollutant(s)	Added	Removed
0401	Dallas	Dallas	Nickel	2004	2016
0701	Odessa	Ector	Ethylene	2001	2007
1002	Beaumont	Jefferson	Hydrogen sulfide	2002	2009
			Benzene	2004	2010
			Sulfur Dioxide	2003	2016
1003	Port Arthur	Jefferson	Benzene	2001	2014
1004	Port Neches	Jefferson	1,3-Butadiene	1996	2009
1101	Bastrop	Bastrop	Hydrogen sulfide	2007	2012
1202	Texas City	Galveston	Acrolein, butyraldehyde, valeraldehyde	2001	2010
			Benzene	2003	2014
			Hydrogen sulfide	2004	2014
			Propionaldehyde	2001	2016
1203	Texas City	Galveston	Benzene	2004	2007
1204	Lynchburg Ferry area	Harris	Benzene	2002	2010
			Styrene	2003	2014
1206	Galena Park	Harris	Benzene	2000	2017
1207	Milby Park area	Harris	1,3-Butadiene	1999	2009
1401	Point Comfort	Calhoun	Ethylene dichloride	2004	2007
1402	Corpus Christi	Nueces	Benzene	1998	2010

Drinking Water Notices

Passage of House Bill 3030, 78th Regular Legislative Session (2003), resulted in the new Texas Water Code, §26.408. The statute requires that when the TCEQ receives notice from another agency, or when the TCEQ independently documents a case of groundwater contamination, the TCEQ must make every effort to provide notice, via first class mail, to each owner of a private drinking water well that may be affected by the contamination. The notice must be provided within 30 days of the determination, or of the receipt of information from another agency.

Eighteen new cases of contamination during calendar year 2018 required notice to private drinking water well owners (Table 3).

TABLE 3
Cases of Groundwater Contamination Requiring Notice to Private Drinking Water Well Owners in 2018

TCEQ Region	Number of Cases
1 – Amarillo	1
2 – Lubbock	3
4 – Dallas	2
7 – Midland	1
9 – Waco	2
12 – Houston	8
14 – Corpus Christi	1

Health Indicators

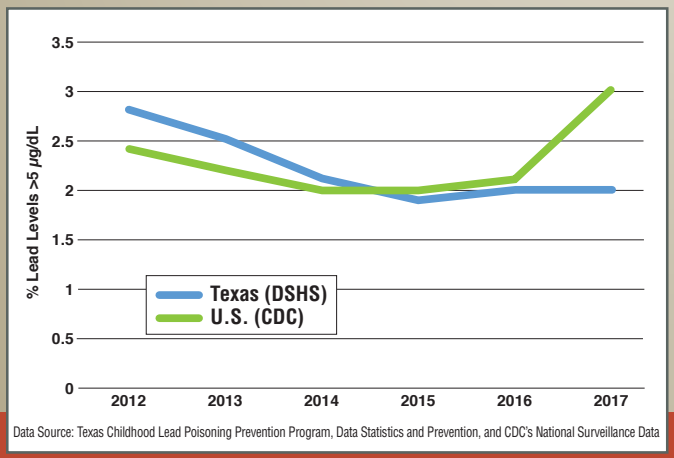
Health indicators are quantitative or qualitative measures that can be used to assess the health of a given population. In epidemiology studies, air quality is often linked to premature death, cancer, and damage to the respiratory and cardiovascular systems. In order to gain a better understanding of the health of Texans in the various regions of the state, the TCEQ Toxicology, Risk Assessment, and Research Division began routinely reviewing health data collected by the Texas Department of State Health Services (DSHS) and the Centers for Disease Control and Prevention (CDC). All data presented on the following pages are estimates, because it may only include a sample of the population. Self-reported and under-reported cases of disease and illness are also limitations of the data sets. Differences in results from various reporting agencies may also occur.

Lead Data

In 1995, the 74th Texas legislature passed a law requiring the reporting of elevated blood lead levels in children under age 15. DSHS maintains the registry of blood lead results.

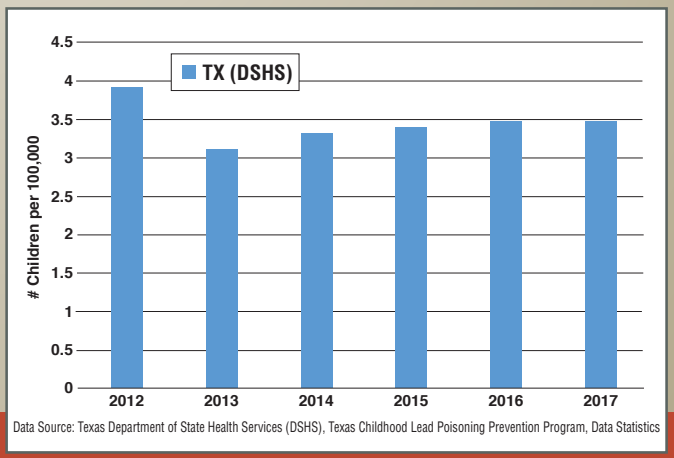
- According to the Texas Childhood Lead Poisoning Prevention Program (TX CLPPP) statewide elevated blood lead levels (>5 µg/dL) in children have demonstrated a decreasing trend from 2012 to 2017 (Figure 4).
- The number of children tested for elevated blood lead levels has been consistent from 2012 to 2017 (Figure 5).

FIGURE 4
Percent Elevated Blood Lead Levels in Children (<6 years of age)



Data Source: Texas Childhood Lead Poisoning Prevention Program, Data Statistics and Prevention, and CDC's National Surveillance Data

FIGURE 5
Number of Children Tested for Elevated Blood Lead Levels in Texas



Data Source: Texas Department of State Health Services (DSHS), Texas Childhood Lead Poisoning Prevention Program, Data Statistics

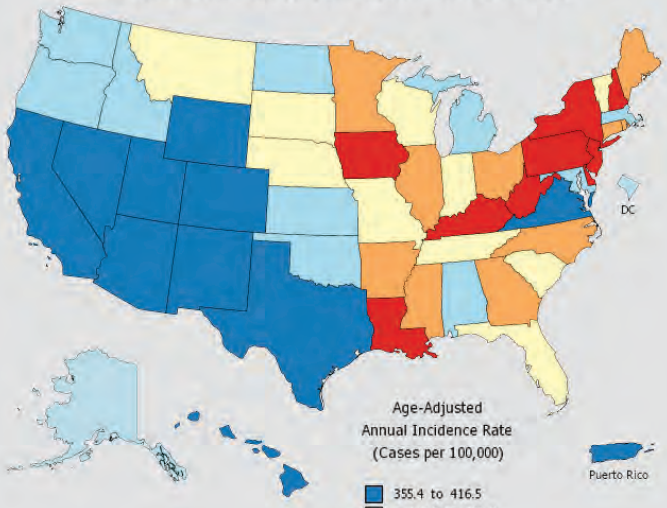
Cancer Data

- According to the United States Surveillance, Epidemiology, and End Results Program (SEER), statewide cancer incidence rates (all cancers) in Texas from 2013 to 2017 are among the lowest in the United States (Figure 6).
- Available data indicate that Texans have no more, or less, cancer than many other states and the nation as a whole, even though Texas has more industry than any other state. It is important to note that the environment is only one factor that may contribute to adverse health outcomes such as cancer.

Region-specific cancer rates are presented in subsequent sections.

FIGURE 6

Cancer Incidence Rates for the United States, 2013–2017



Notes:

Note: Alaska, DC, Hawaii and Puerto Rico are not drawn to scale.

State Cancer Registries may provide more current or more local data.

Data presented on the State Cancer Profiles Web Site may differ from statistics reported by the State Cancer Registries (for more information).

† Incidence rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Rates are for invasive cancer only (except for bladder which is invasive and in situ) or unless otherwise specified. Rates calculated using SEER*Stat. Population counts for denominators are based on Census populations as modified by NCI. The 1969–2017 US Population Data File is used for SEER and NPCR incidence rates.

Rates are computed using cancers classified as malignant based on ICD-O-3. For more information see malignant.html

Data not available for this combination of geography, statistic, age and race/ethnicity.

Data for the United States does not include data from Puerto Rico

Interactive Map:
https://statecancerprofiles.cancer.gov/map/map.noimage.php

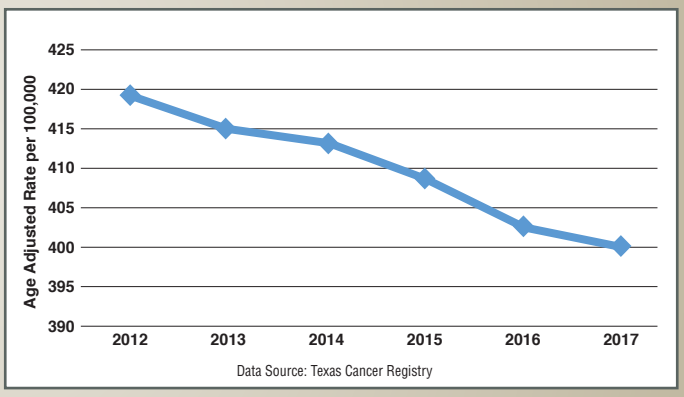
- **General risk factors for cancer include:**
  - Personal or family history of cancer
  - Tobacco use/smoking
  - Obesity
  - Alcohol consumption
  - Some types of viral infections, such as human papillomavirus (HPV)
  - Exposure to carcinogenic chemicals
  - Exposure to radiation, including ultraviolet radiation from the sun
  - Older age

Source: Division of Cancer Prevention and Control, CDC

- According to the Texas Cancer Registry, statewide cancer incidence rates in Texas have demonstrated a decreasing trend from 2012 to 2017 (the most recent rates currently available) (Figure 7).
- From 2013 to 2017, Texas average age-adjusted cancer rates per 100,000 for leukemias, lung and bronchus cancers (not adjusted for smoking), and non-Hodgkin's lymphoma were similar to California and the overall United States rates (Figure 8).

FIGURE 7

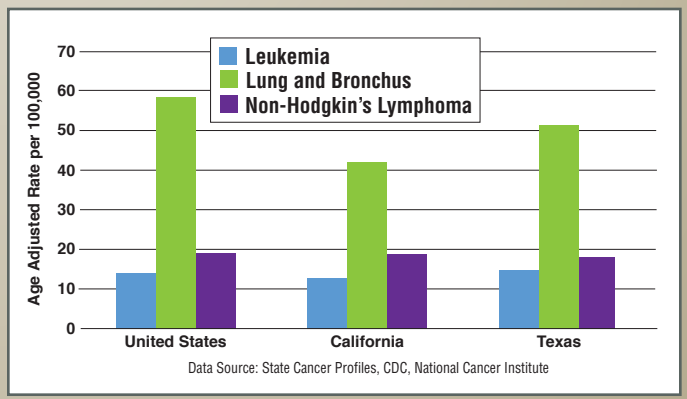
Cancer Incidence Rates in Texas, 2012–2017



Data Source: Texas Cancer Registry

FIGURE 8

Average Age-Adjusted Cancer Incidence Rates for Leukemias, Lung and Bronchus Cancers, and Non-Hodgkin's Lymphoma, 2013–2017



Data Source: State Cancer Profiles, CDC, National Cancer Institute

Asthma Data

Asthma is a complex disease that is difficult to measure. As reported by the Texas Asthma Control Program (TACP) for the DSHS, the burden of asthma disproportionately affects people with certain demographic characteristics, socioeconomic status, and those living in particular geographic locations. To understand the entire burden of asthma in a community, all asthma indicators should be considered.

Region-specific asthma data are presented in subsequent sections.

Risk factors for asthma include:

- Family history of asthma
- Viral respiratory infection in infancy or childhood
- Atopy/allergies
- Occupational exposure to dust or chemical fumes
- Tobacco smoking, maternal smoking during pregnancy, or exposure to secondhand smoke
- Exposure to air pollution
- Obesity

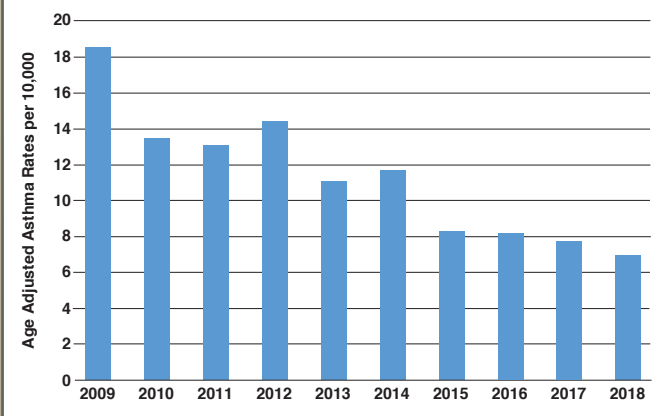
Sources: National Center for Environmental Health and CDC's National Asthma Control Program.

Asthma Hospitalizations (2009–2018)

- In 2018, for every 10,000 children, 7.1 asthma hospitalizations occurred annually in Texas. This represents a decrease of more than 2-fold compared to 2009, when the age-adjusted asthma hospitalization rate was 18.6 per 10,000 (Figure 9a).
- In 2017, the crude national asthma hospitalization rate for children under 18 was 10.3 per 10,000 compared to the crude rate of 7.8 per 10,000 for children under 18 in Texas (Figure 9b).

FIGURE 9A

Age-Adjusted Asthma Hospital Discharge Rates in Texas, 2009–2018



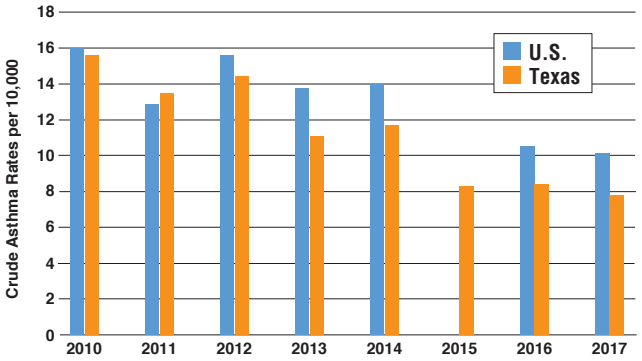
Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2009-2018

Asthma Mortality (2008–2017)

- In Texas, the age-adjusted asthma mortality rate decreased from 9.7 per 1 million people in 2008 to 8.3 per 1 million people in 2017, a reduction of approximately 15% (Figure 10a).
- Crude asthma mortality rates per 1 million people for Texas were lower than the national rates from 2008 to 2017 (Figure 10b).

FIGURE 9B

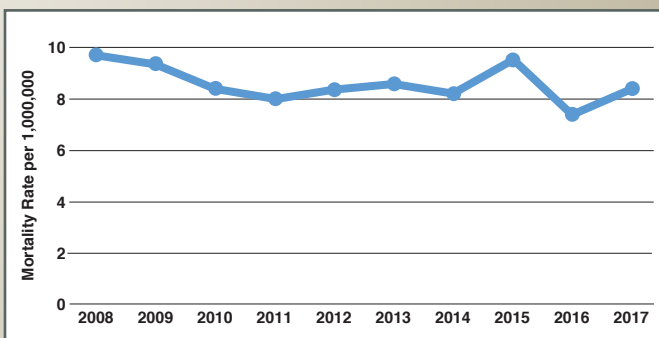
Crude Asthma Hospital Discharge Rates, 2010–2017



Data Source: Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, CDC, National Center for Environmental Health.
Note: In 2015, national asthma hospitalization statistics was not reported due to a change in reporting codes for asthma hospitalizations.

FIGURE 10A

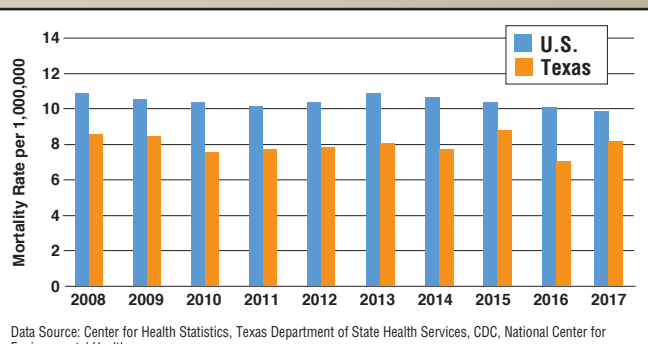
Texas Age-Adjusted Asthma Mortality Rates, All Ages, 2008–2017



Data Source: Center for Health Statistics, Texas Department of State Health Services

FIGURE 10B

Crude Asthma Mortality Rates, All Ages, 2008–2017



Data Source: Center for Health Statistics, Texas Department of State Health Services, CDC, National Center for Environmental Health

Mortality in Texas

- In 2018, the top 10 leading causes of death in Texas were: diseases of the heart; malignant neoplasms; cerebrovascular diseases; chronic lower respiratory tract diseases; accidents; Alzheimer's disease; diabetes mellitus; septicemia; kidney disease; and chronic liver disease.
- From 2012 to 2018, Texas mortality rates for all causes (Figure 11), diseases of the circulatory system (Figure 12), and diseases of the respiratory system per 100,000 (Figure 13) were similar to the overall United States rates.

FIGURE 11

Mortality Rates for All Causes, 2012–2018

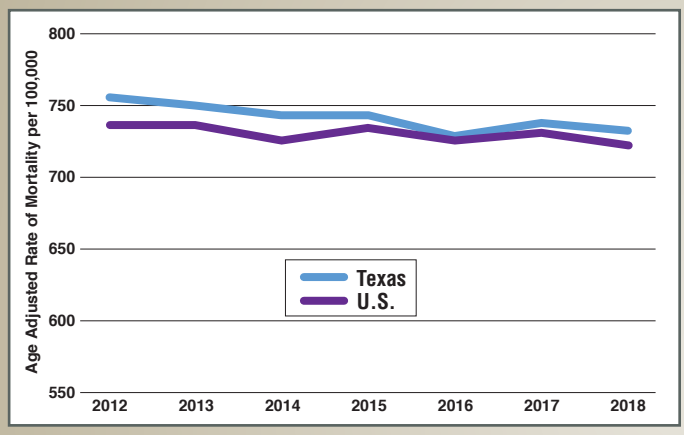


FIGURE 12

Mortality from Diseases of the Circulatory System, 2012–2018

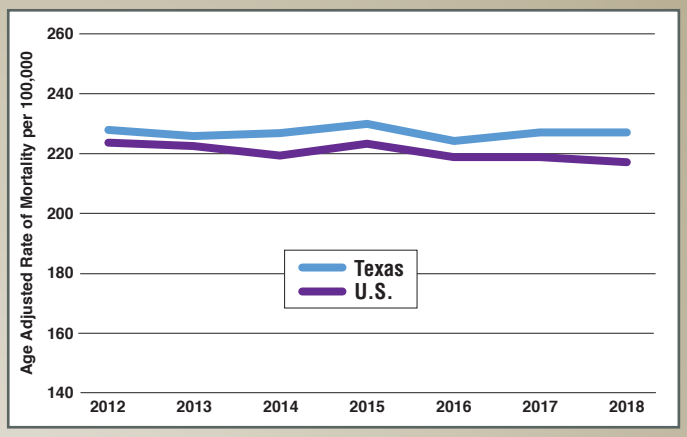
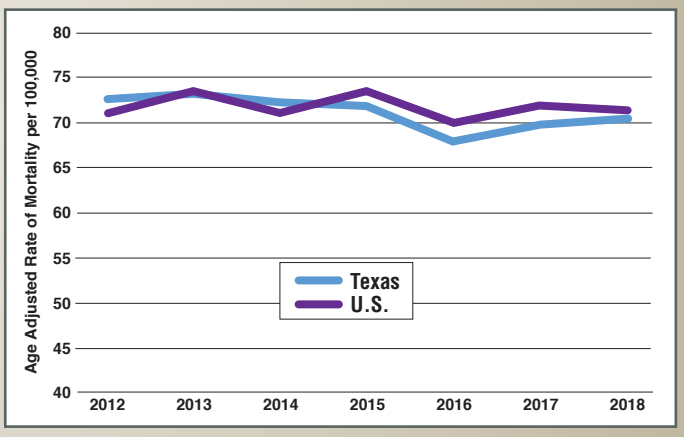


FIGURE 13

Mortality from Diseases of the Respiratory System, 2012–2018



Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Underlying Cause of Death

Regional Updates

- Regional updates on asthma hospitalization rates per 10,000 among children under 18 years of age, as well as cancer incidence per 100,000 among people of all ages are reported in subsequent sections. Regional data were compared to those of the state of Texas and the United States. Asthma hospitalization results do not include HIV and drug/alcohol-use patients and are based on hospital records listing ICD-10 code J45-J46 as the principal diagnosis.
- Asthma hospitalization rate per 10,000 people for the United States are not age-adjusted. Thus, crude (non-age-adjusted) asthma hospitalization rates per 10,000 were used when regional and Texas data were compared to national values. In 2015, national asthma hospitalization statistics were not reported due to a change in reporting codes for asthma hospitalizations.

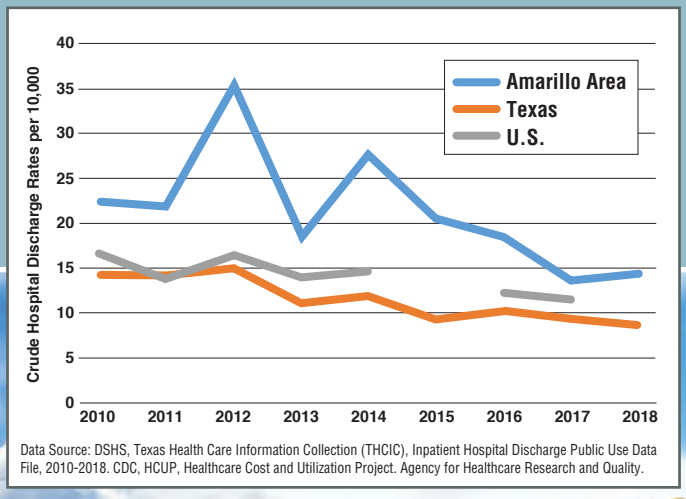
Region 1: Amarillo Area

(Armstrong, Carson, Oldham, Potter, and Randall Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Amarillo area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 14) were higher than the overall Texas, and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, Amarillo area average cancer incidence rates for all cancers per 100,000 (Figure 15) were slightly above Texas rates for all ages in Potter and Randall counties but were similar for Armstrong, and were lower than Texas rates for Carson and Oldham counties. Cancer incidence rates for all the counties were similar to or lower than United States rates.

FIGURE 14

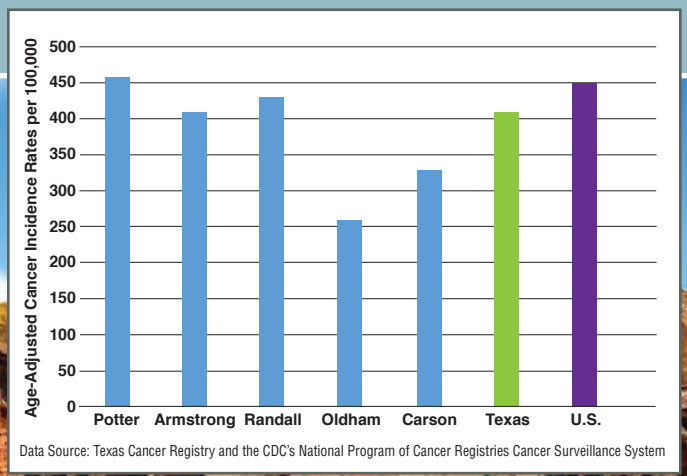
Amarillo Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 15

Amarillo Area: 2013–2017 Average Cancer Incidence Rates per 100,000

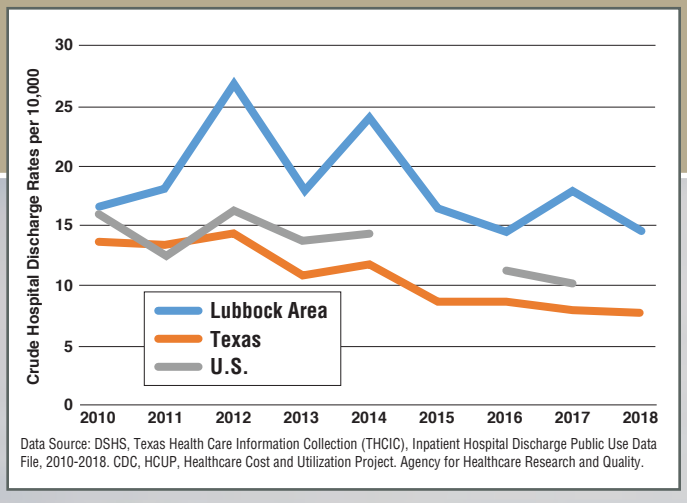


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 2: Lubbock Area
(Crosby, Lubbock, and Lynn Counties)

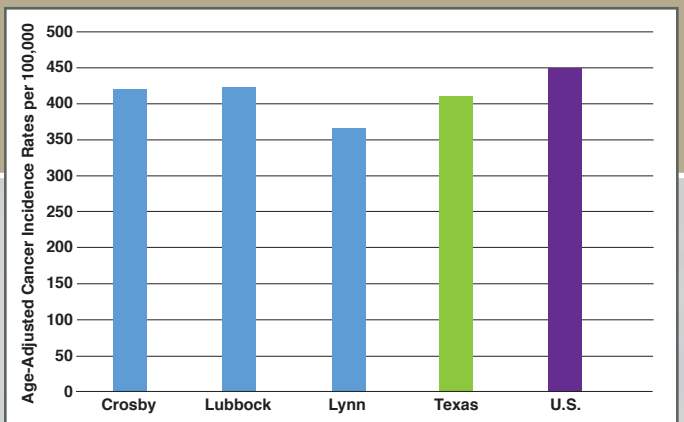
- From 2010 to 2018, Lubbock area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 16) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, Lubbock area average cancer incidence rates for all cancers per 100,000 (Figure 17) were similar to the Texas rates for all ages and were similar to or lower than the rates in the United States as a whole.

FIGURE 16
Lubbock Area:
Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 17
Lubbock Area:
2013–2017 Average Cancer Incidence Rates per 100,000

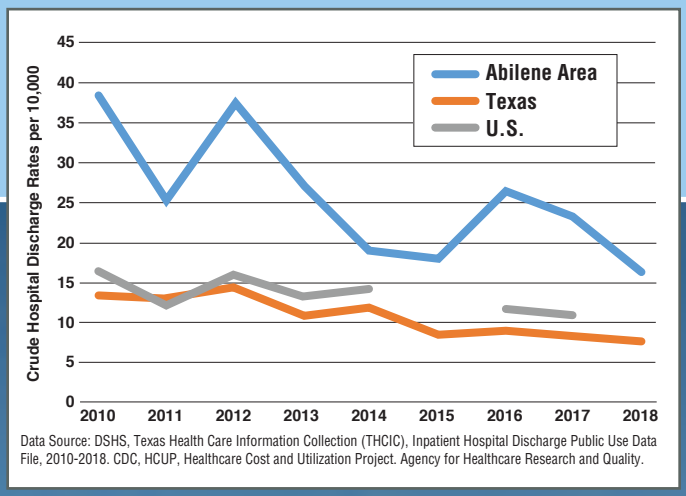


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 3: Abilene Area
(Taylor, Callahan, and Jones Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Abilene area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 18) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.

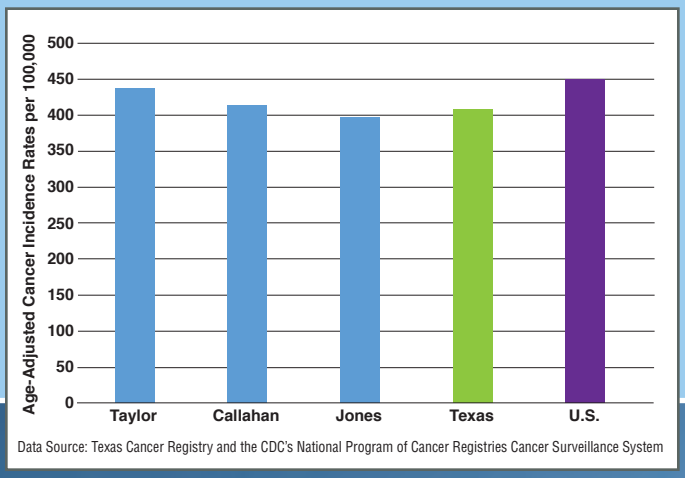
FIGURE 18
Abilene Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

- From 2013 to 2017, Abilene area average cancer incidence rates for all cancers per 100,000 (Figure 19) were similar to the overall Texas rates for all ages and were similar to or lower than the rates in the United States as a whole.

FIGURE 19
Abilene Area: 2013–2017 Average Cancer Incidence Rates per 100,000



Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

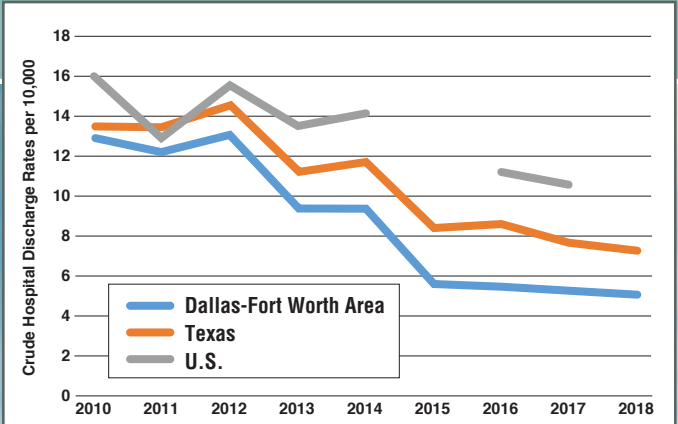
Region 4: Dallas-Fort Worth Area

(Dallas, Hunt, Parker, Kaufman, Johnson, Tarrant, Ellis, Hood, Denton, Rockwall, Collin, and Wise Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Dallas-Fort Worth area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 20) were lower than the overall Texas and United States (2010–2017) rates for children under 18 years of age.

FIGURE 20

Dallas-Fort Worth Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018

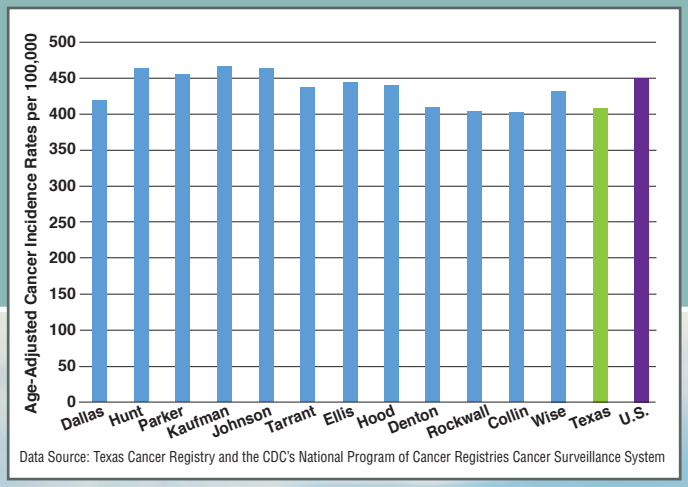


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

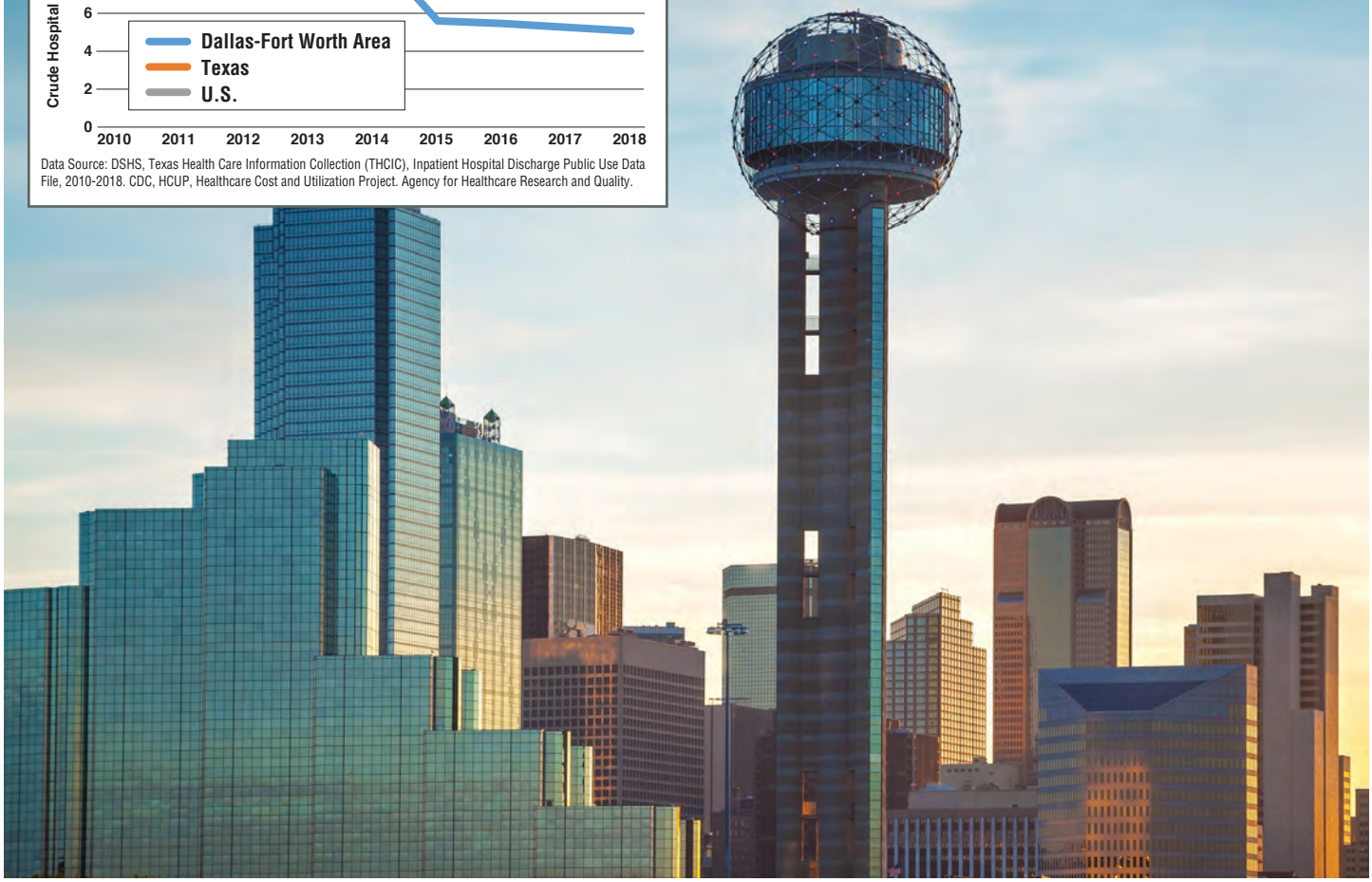
- From 2013 to 2017, average cancer incidence rates for all cancers per 100,000 (Figure 21) in the majority of the counties in the Dallas-Fort Worth area were similar to the overall Texas and United States rates for all ages.

FIGURE 21

Dallas-Fort Worth Area: 2013–2017 Average Cancer Incidence Rates per 100,000



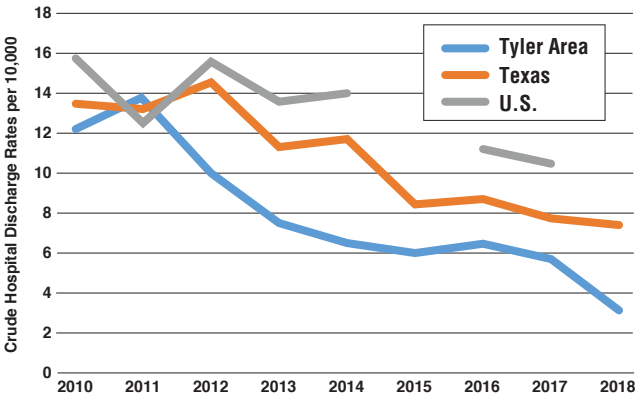
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System



Region 5: Tyler Area
(Smith County)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Tyler area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 22) were lower than the overall Texas and United States (2010–2017) rates for children under 18 years of age.

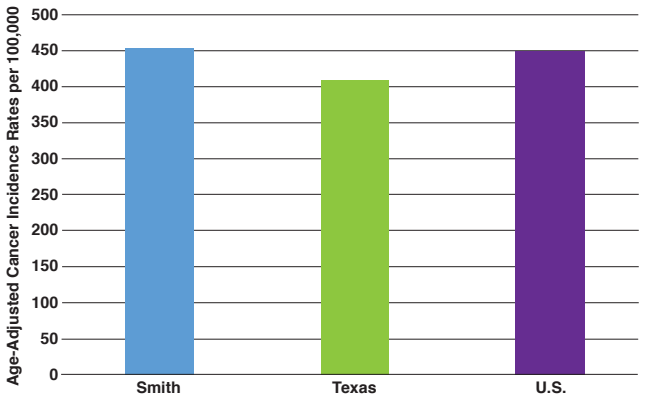
FIGURE 22
Tyler Area:
Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

- From 2013 to 2017, Tyler area average cancer incidence rates for all cancers per 100,000 (Figure 23) were higher than the overall Texas rates for all ages, but were similar to the United States average.

FIGURE 23
Tyler Area:
2013–2017 Average Cancer Incidence Rates per 100,000



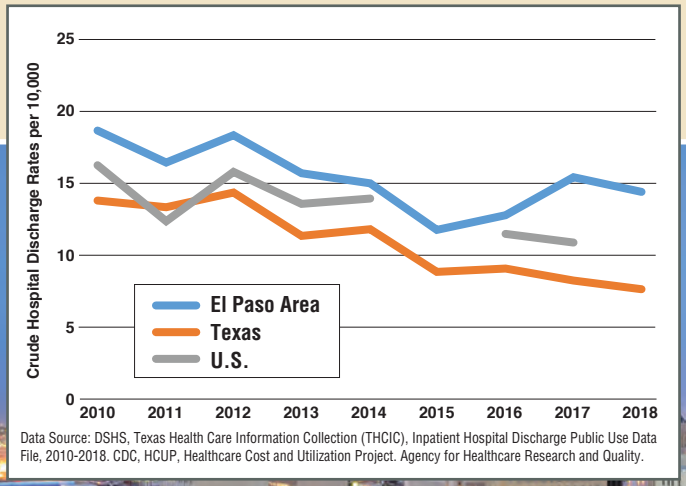
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 6: El Paso Area
(El Paso and Hudspeth Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- Reported concentrations of hydrogen sulfide (H_2S) collected at the El Paso Lower Valley monitor in 2018 exceeded the state 30-min H_2S standard 157 times; thus, it is likely that conditions would have been odorous at times, although direct health effects from exposure to H_2S are not expected to occur. This area of El Paso is currently on the APWL (APWL0601) for H_2S.
- From 2010 to 2018, El Paso area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 24) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, El Paso area average cancer incidence rates for all cancers per 100,000 (Figure 25) were similar to or lower than both the United States and overall Texas rates for all ages.

FIGURE 24

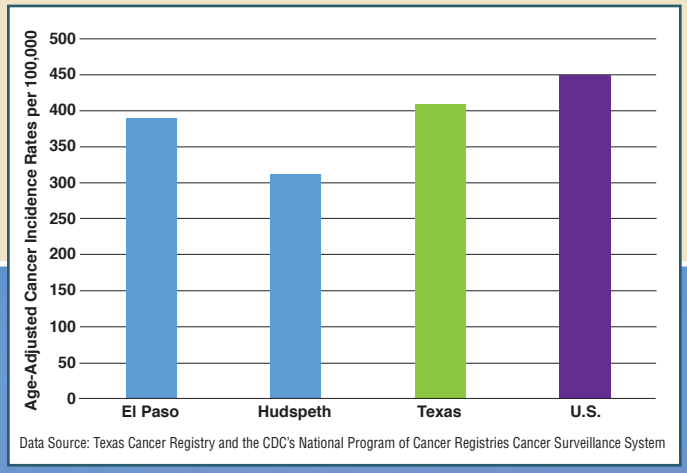
El Paso Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 25

El Paso Area: 2013–2017 Average Cancer Incidence Rates per 100,000

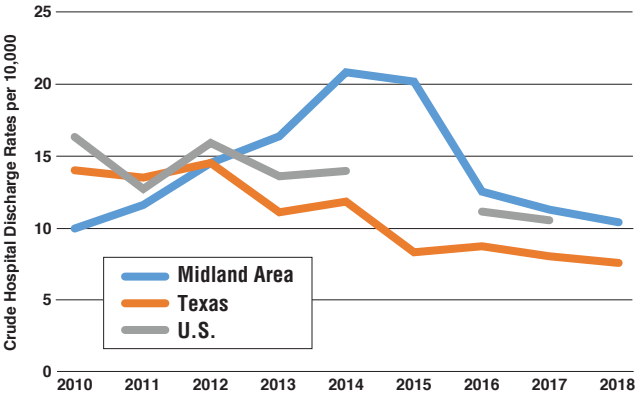


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 7: Midland Area
(Midland and Martin Counties)

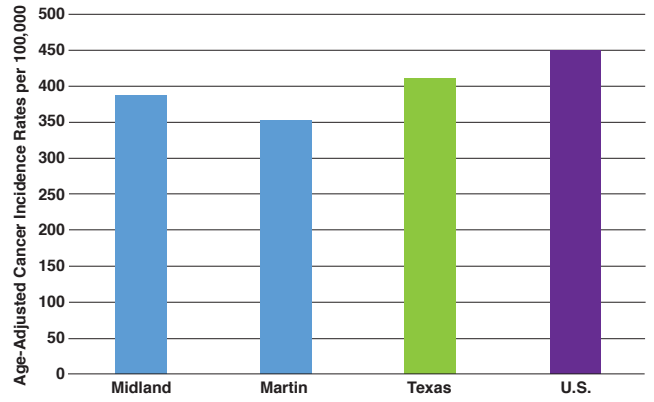
- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Midland area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 26) were similar to the overall Texas and United States (2010–2017) rates for children under 18 years of age. The rates in the Midland area increased from 2013 to 2016, but decreased in 2017 to levels that were again similar to the Texas and United States rates.
- From 2013 to 2017, Midland area average cancer incidence rates for all cancers per 100,000 (Figure 27) were similar to the overall Texas rates for all ages and were lower than the United States rates.

FIGURE 26
Midland Area:
Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 27
Midland Area:
2013–2017 Average Cancer Incidence Rates per 100,000

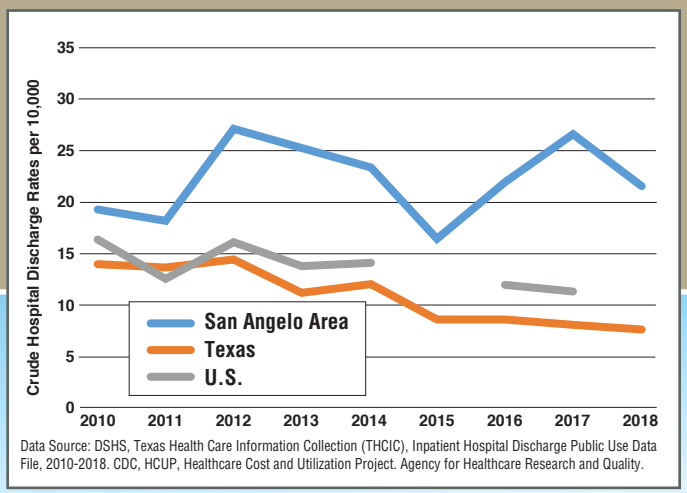


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 8: San Angelo Area
(Irion and Tom Green Counties)

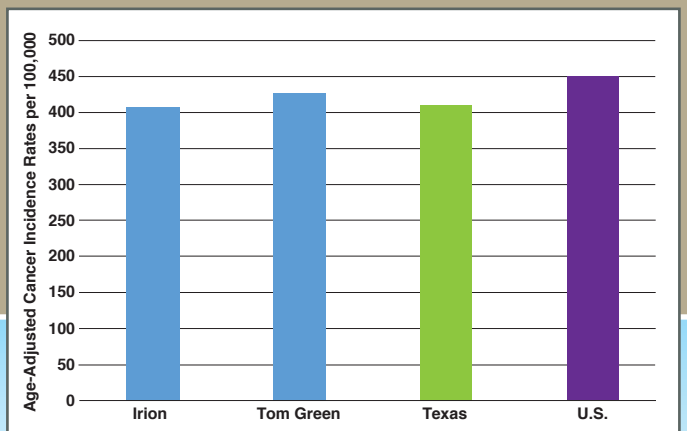
- From 2010 to 2018, San Angelo area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 28) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, San Angelo area average cancer incidence rates for all cancers per 100,000 (Figure 29) were similar to the overall Texas and United States rates for all ages.

FIGURE 28
San Angelo Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 29
San Angelo Area: 2013–2017 Average Cancer Incidence Rates per 100,000

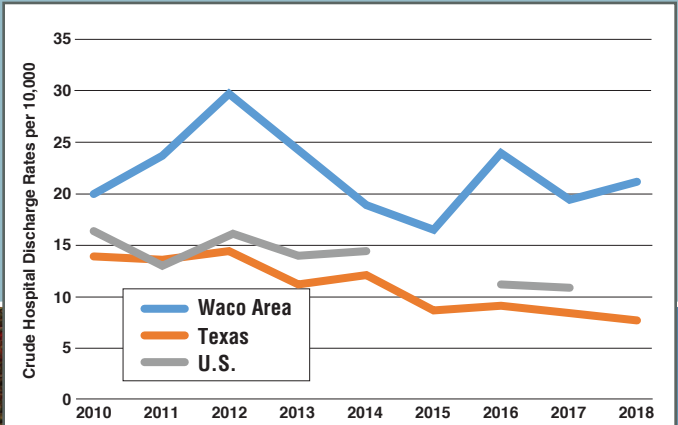


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 9: Waco Area
(McLennan and Falls Counties)

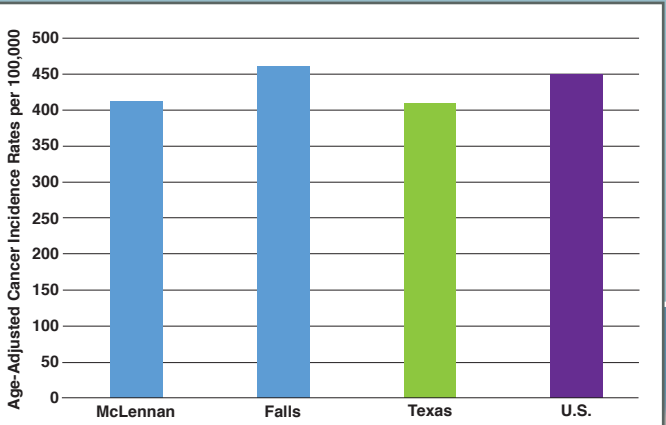
- From 2010 to 2018, Waco area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 30) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, Waco area average cancer incidence rates for all cancers per 100,000 (Figure 31) were similar to the overall Texas and United States rates for all ages.

FIGURE 30
Waco Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 31
Waco Area: 2013–2017 Average Cancer Incidence Rates per 100,000



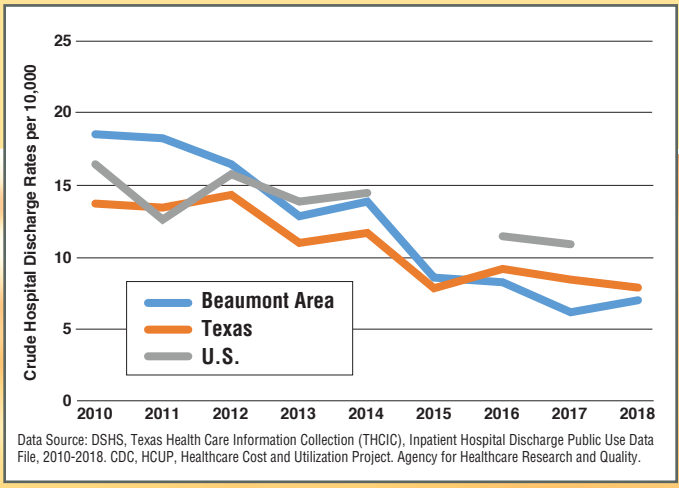
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 10: Beaumont Area
(Hardin, Jefferson, Newton, and Orange Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Beaumont area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 32) were similar to the overall Texas and United States (2010–2017) rates for children under 18 years of age.

FIGURE 32

Beaumont Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018

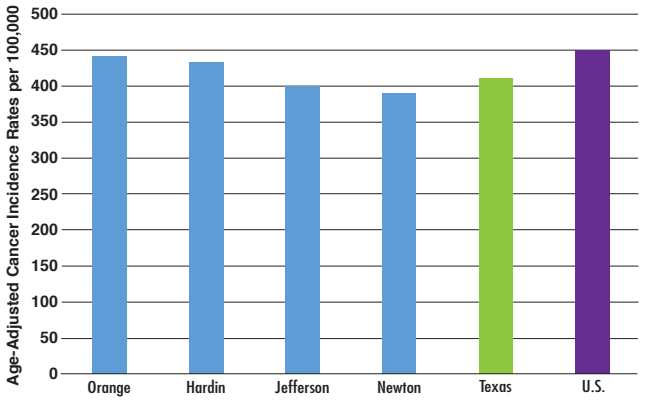


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

- From 2013 to 2017, Beaumont area average cancer incidence rates for all cancers per 100,000 (Figure 33) were similar to the overall Texas and United States rates for all ages.

FIGURE 33

Beaumont Area: 2013–2017 Average Cancer Incidence Rates per 100,000



Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

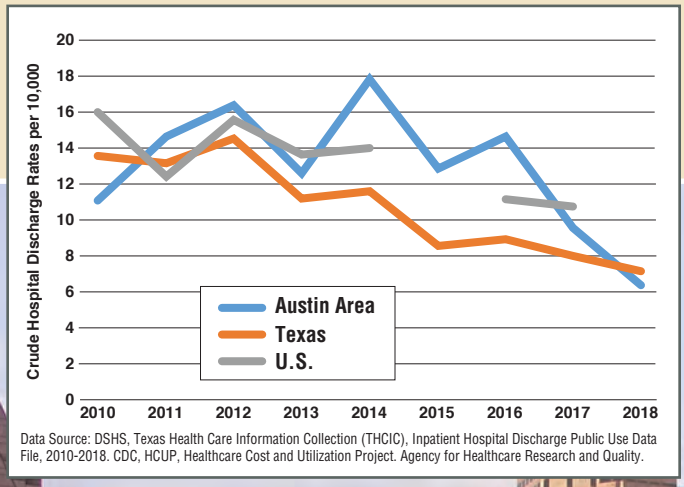
Region 11: Austin Area

(Bastrop, Caldwell, Hays, Travis, and Williamson Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Austin area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 34) were similar to, and for 2014 and 2016 were slightly higher than, the overall Texas and United States (2010–2017) rates for children under 18 years of age.

FIGURE 34

Austin Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018

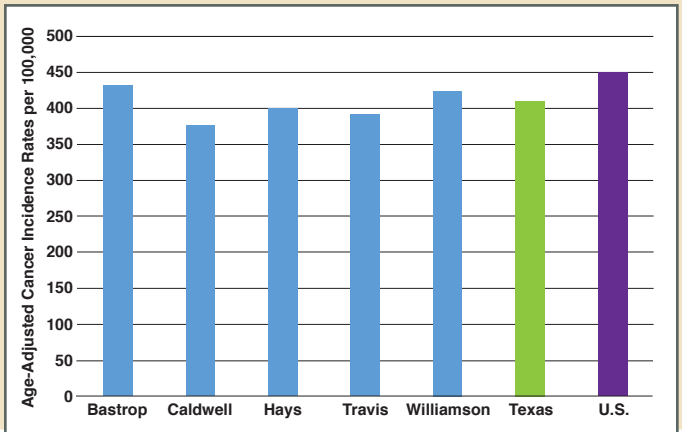


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

- From 2013 to 2017, Austin area average cancer incidence rates for all cancers per 100,000 (Figure 35) were similar to or lower than the overall Texas and United States rates for all ages.

FIGURE 35

Austin Area: 2013–2017 Average Cancer Incidence Rates per 100,000



Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

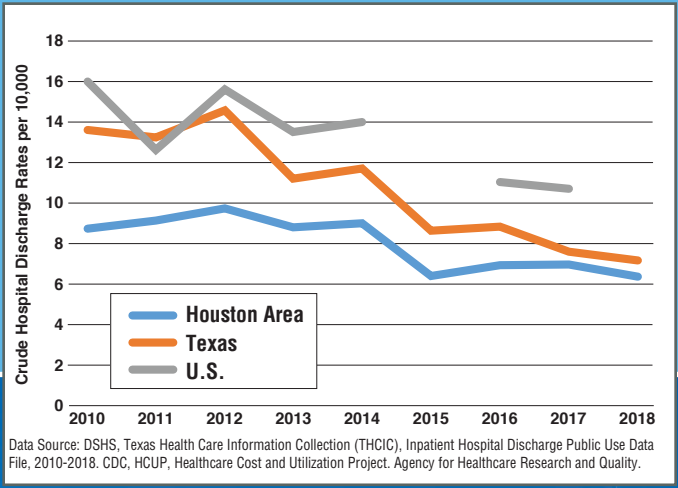
Region 12: Houston Area

(Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs. Measured short-term concentrations of VOCs were below their respective AMCVs, except for a single one-hour concentration of benzene, which was 1.02 times higher than the one-hour AMCV, but was still well below concentrations where health effects would be expected to occur. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Houston area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 36) were lower than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, Houston area average cancer incidence rates for all cancers per 100,000 (Figure 37) were similar to the overall Texas rates for all ages and were similar to or lower than the rates in the United States as a whole.

FIGURE 36

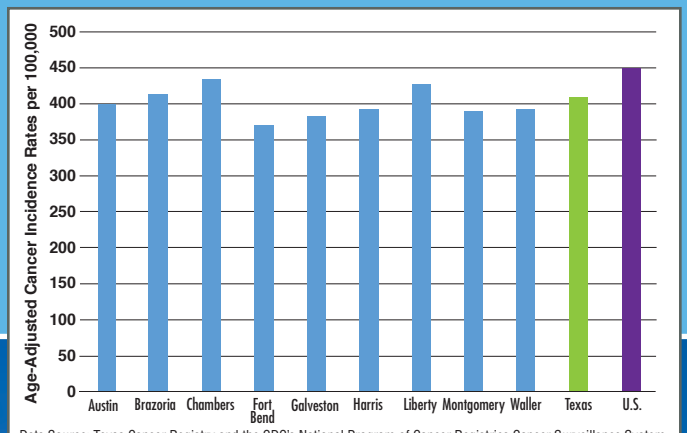
Houston Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 37

Houston Area: 2013–2017 Average Cancer Incidence Rates per 100,000



Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

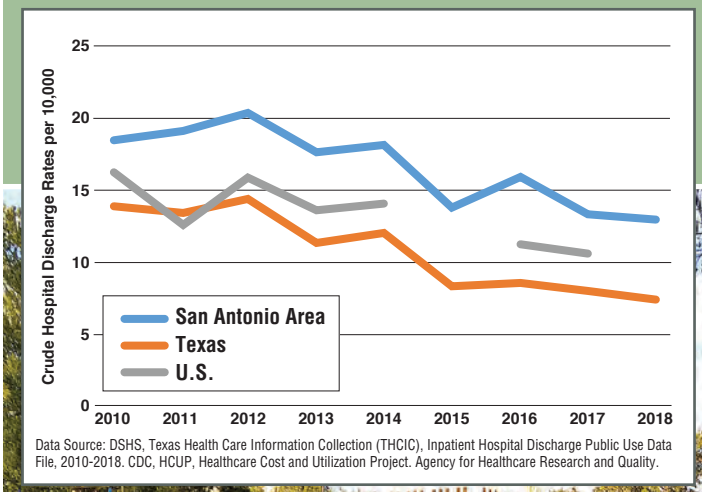
Region 13: San Antonio Area

(Guadalupe, Comal, Kendall, Bexar, Bandera, Atascosa, Wilson, and Medina Counties)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, San Antonio area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 38) were higher than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, San Antonio area average cancer incidence rates for all cancers per 100,000 (Figure 39) were similar to or lower than the overall Texas and United States rates for all ages.

FIGURE 38

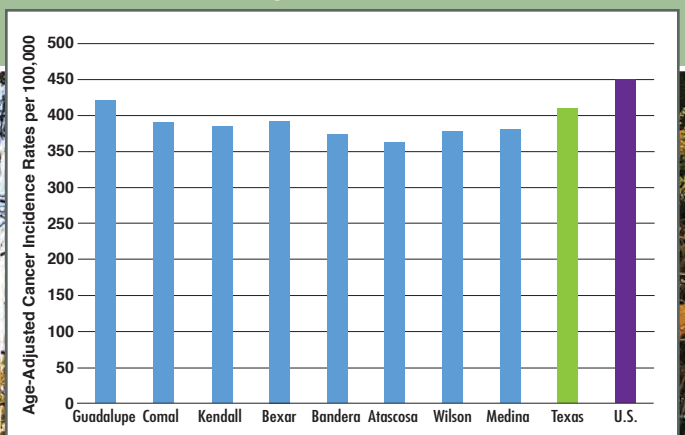
San Antonio Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 39

San Antonio Area: 2013–2017 Average Cancer Incidence Rates per 100,000

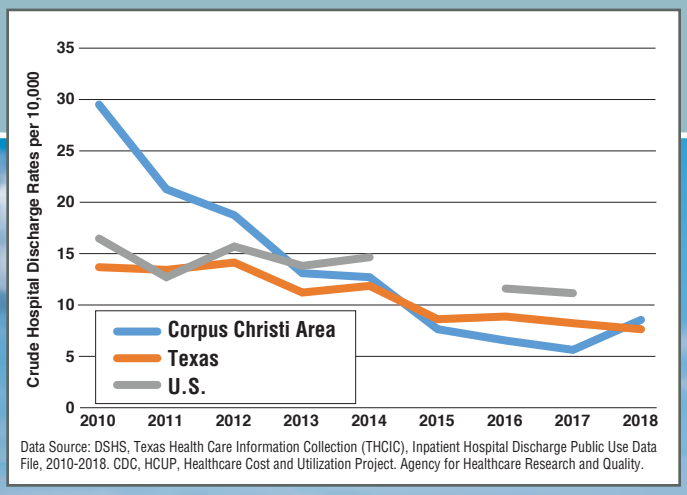


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 14: Corpus Christi Area
(Aransas, Nueces, and San Patricio Counties)

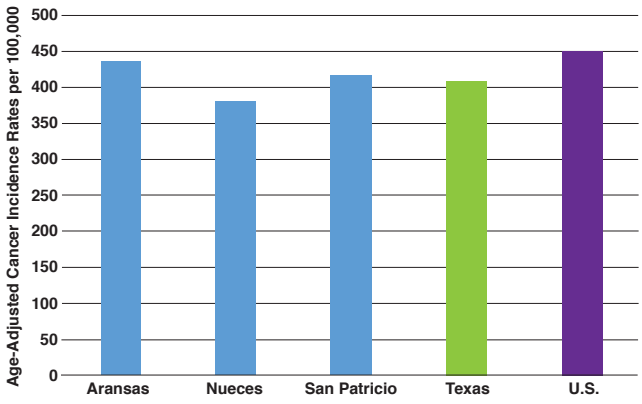
- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, with the exception of annual concentrations of vinyl chloride reported at one of five industrial monitoring locations in Point Comfort. All short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs (including levels of vinyl chloride at Point Comfort) would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2013, Corpus Christi area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 40) were higher than the overall Texas and United States rates for children under 18 years of age. Starting in 2014 the asthma rates in Corpus Christi were similar to the overall Texas and United States rates. Asthma hospitalization rates in this area decreased from 29.7 per 10,000 people in 2010 to 8.6 per 10,000 people in 2018, more than a 3-fold reduction.
- From 2013 to 2017, Corpus Christi area average cancer incidence rates for all cancers per 100,000 (Figure 41) were similar to the overall Texas and United States rates for all ages.

FIGURE 40
Corpus Christi Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 41
Corpus Christi Area: 2013–2017 Average Cancer Incidence Rates per 100,000

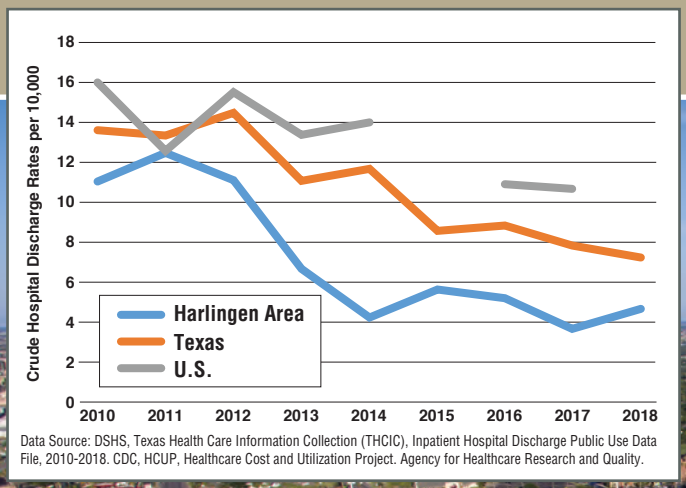


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 15: Harlingen Area
(Cameron County)

- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Harlingen area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 42) were lower than the overall Texas and United States (2010–2017) rates for children under 18 years of age.

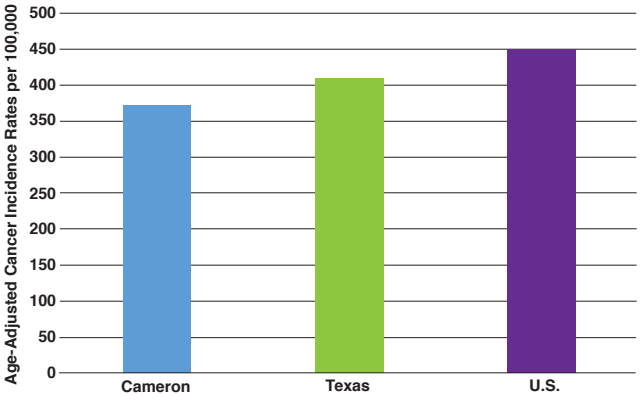
FIGURE 42
Harlingen Area: Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

- From 2013 to 2017, Harlingen area average cancer incidence rates for all cancers per 100,000 (Figure 43) was somewhat lower than the overall Texas and United States rates for all ages.

FIGURE 43
Harlingen Area: 2013–2017 Average Cancer Incidence Rates per 100,000

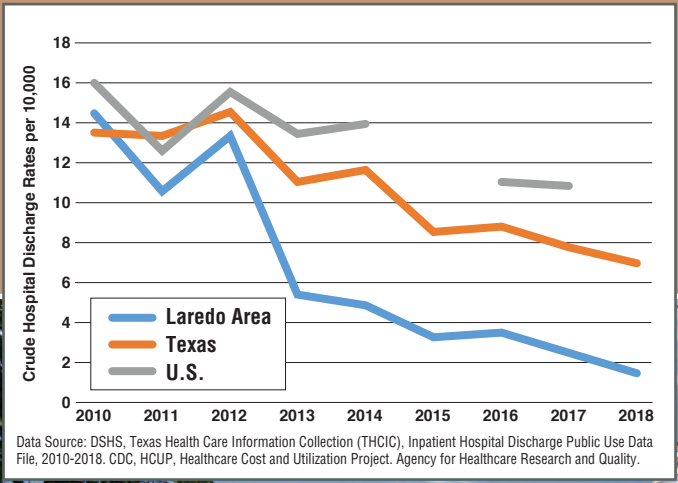


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 16: Laredo Area
(Webb County)

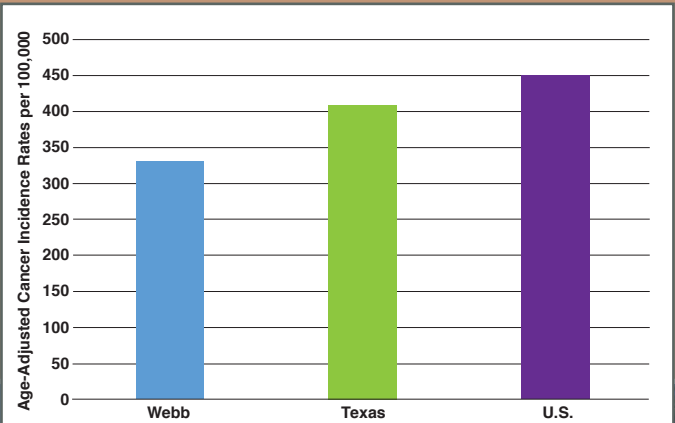
- In 2018 annual averages for all monitored VOCs were below their respective long-term AMCVs, and short-term concentrations of VOCs were below their respective AMCVs. Measured concentrations of VOCs would not be expected to cause adverse acute or chronic health or vegetation effects.
- From 2010 to 2018, Laredo area crude (non-age-adjusted) asthma hospitalization rates per 10,000 (Figure 44) were lower than the overall Texas and United States (2010–2017) rates for children under 18 years of age.
- From 2013 to 2017, Laredo area average cancer incidence rates for all cancers per 100,000 (Figure 45) were lower than the overall Texas and United States rates for all ages.

FIGURE 44
Laredo Area:
Crude Child Asthma Hospital Discharge Rates (per 10,000), 2010–2018

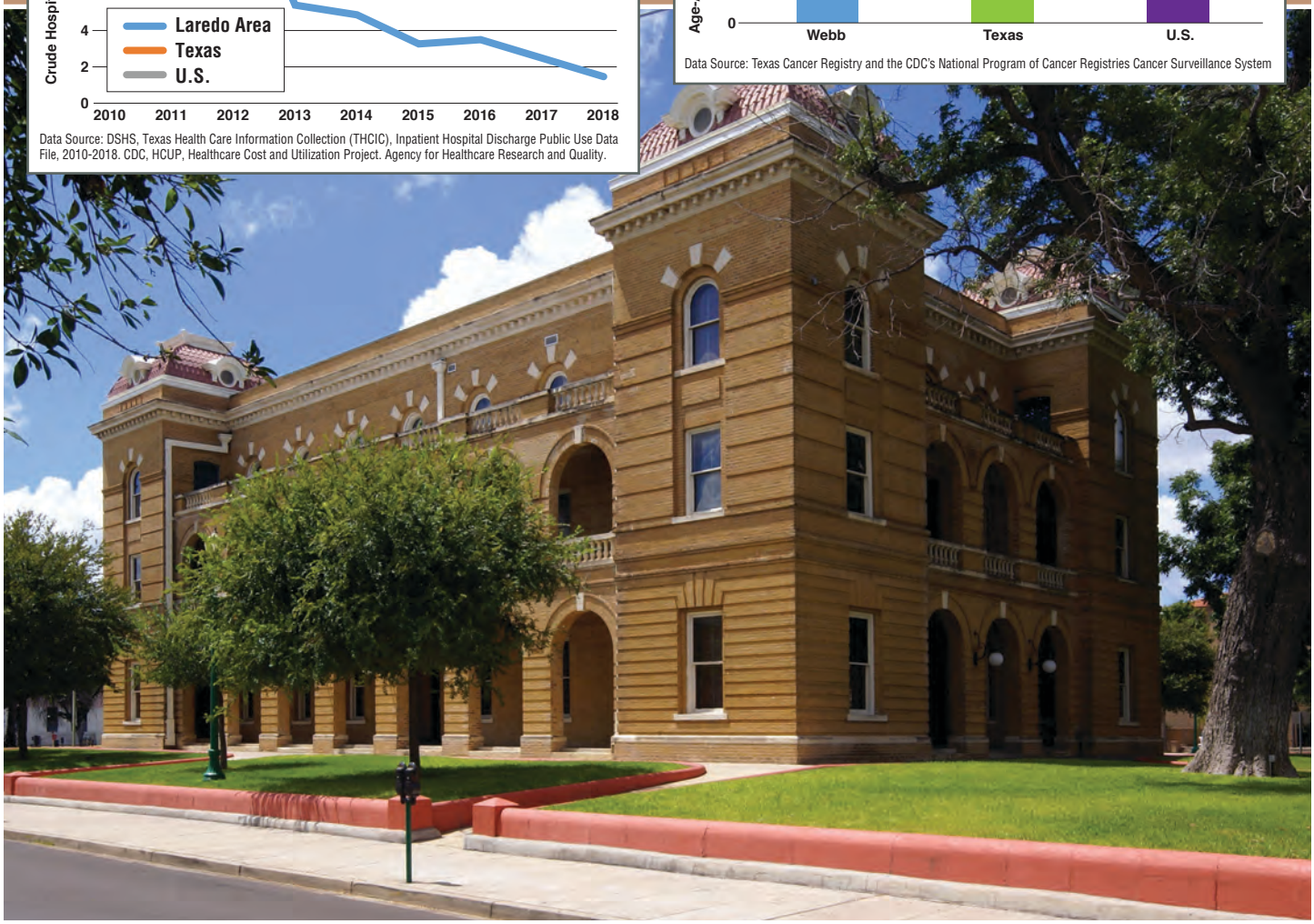


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010-2018. CDC, HCUP, Healthcare Cost and Utilization Project. Agency for Healthcare Research and Quality.

FIGURE 45
Laredo Area:
2013–2017 Average Cancer Incidence Rates per 100,000



Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System



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