TCEQ Environmental Health Update

FROM 2015 DATA, THE LATEST AVAILABLE

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.

Metropolitan Statistical Areas (MSAs) are geographic areas defined by the Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing statistics.

Total Suspended Particulates (TSP), PM_{10} and $PM_{2.5}$ filter samplers monitor for metal air toxics. Twenty-four-hour samples are collected every sixth or third day. TSP are all particles 50 microns and smaller; PM_{10} are all particles 10 microns and smaller (and is a subset of TSP); $PM_{2.5}$ are all particles 2.5 microns and smaller (and is a subset of both TSP and PM_{10}).

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).

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About the Texas Commission on Environmental Quality (TCEQ) Toxicology 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.
- TCEQ toxicologists identify chemical hazards, evaluate potential exposures, assess human health risks, and communicate risk to the general public and stakeholders.

GI-450 (1/17)

TCEQ

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY TOXICOLOGY DIVISION

Statewide Environmental Health Updates

Air Quality

- 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 cause odors. Benzene is of particular focus because it is the chemical that is measured closest to its AMCV.
- In 2015, all monitors in Texas had annual average benzene concentrations below the state's long-term AMCV (Figure 1).
- In addition to benzene, of the approximately 130 chemicals monitored for in the state in 2015, all were below their AMCVs except for ethylene dichloride in Point Comfort. In 2016, the first three quarters of data have indicated that ethylene dichloride levels in Point Comfort are declining although one of the five sites still reports a level above the long-term AMCV of 0.71 ppb. Continued efforts are being made to decrease emissions in this area.

Figure 1. Average Benzene Concentrations at Monitoring Sites in Texas in 2015

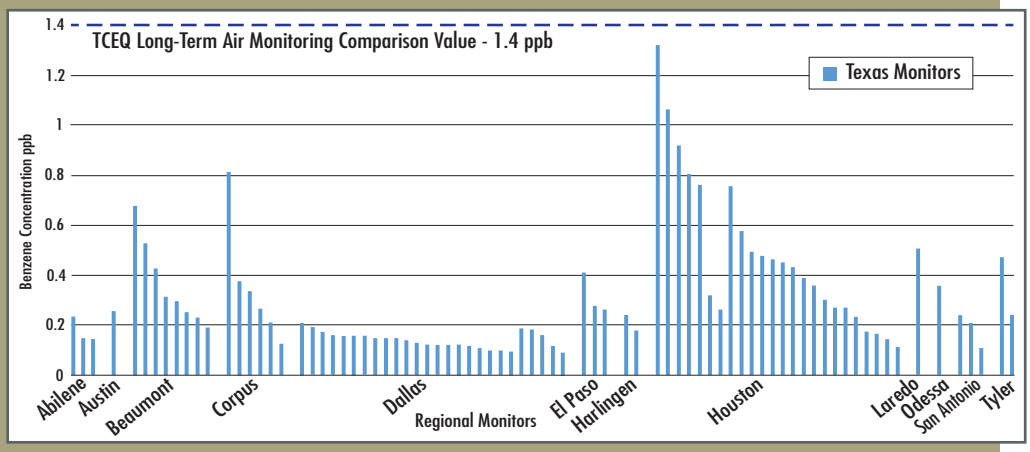


Figure 2. Programs to Decrease Ambient Air Toxics

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.
- The TCEQ uses air permitting, ambient air monitoring, and the APWL to ensure that air toxic concentrations are at levels that are protective of public health and welfare.

Figure 3. APWL Sites

Active APWL Areas

Currently there are 4 active APWL areas

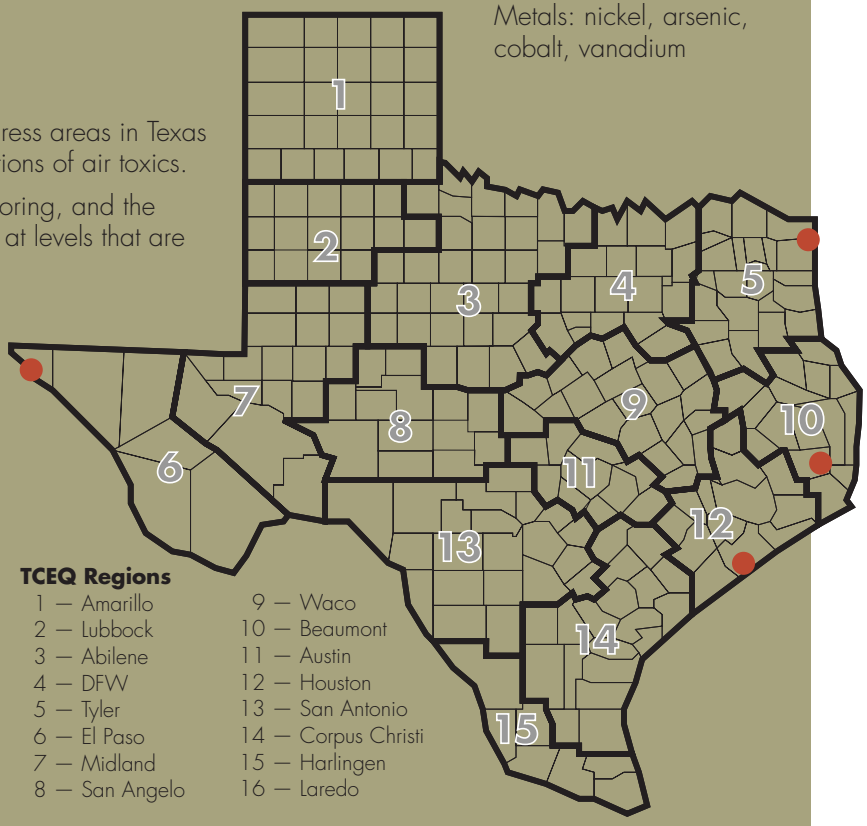
Four Regions:

Tyler, El Paso, Beaumont, Houston

Five Pollutants:

Hydrogen sulfide

Metals: nickel, arsenic, cobalt, vanadium



TCEQ Regions

1 — Amarillo
2 — Lubbock
3 — Abilene
4 — DFW
5 — Tyler
6 — El Paso
7 — Midland
8 — San Angelo
9 — Waco
10 — Beaumont
11 — Austin
12 — Houston
13 — San Antonio
14 — Corpus Christi
15 — Harlingen
16 — Laredo

Air Quality Tables

Table 1. Active APWL Sites

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. APWL 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.

- Twenty-two new cases of contamination during calendar year 2015 required notice to private drinking water well owners.

Table 3. Cases of Drinking Water Well Contamination in 2015

TCEQ Region	Number of Cases 2015
2, Lubbock	2
4, Dallas	1
7, Midland	6
8, San Angelo	1
9, Waco	1
12, Houston	6
13, San Antonio	2
14, Corpus Christi	3

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 Toxicology 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 (>10 µg/dL) in children have demonstrated a decreasing trend from 2005-2011 (the most recent data TX CLPPP currently has available).
- The number of children tested for elevated blood levels has increased nearly 50% from 2005 to 2011.

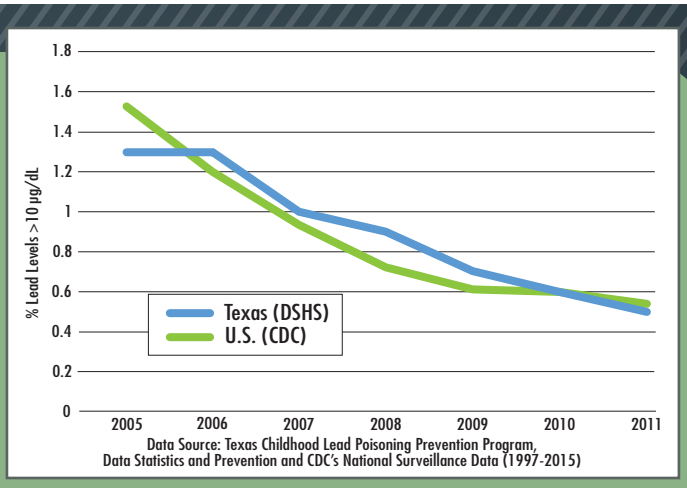
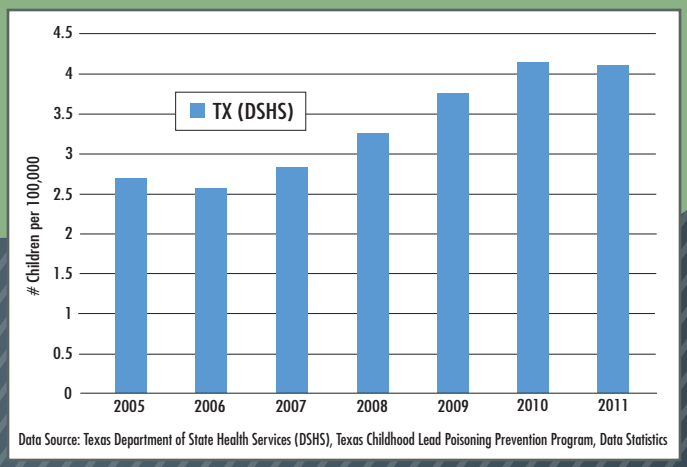


Figure 4. Percent Elevated Blood Lead Levels in Children (<6 years of age)

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

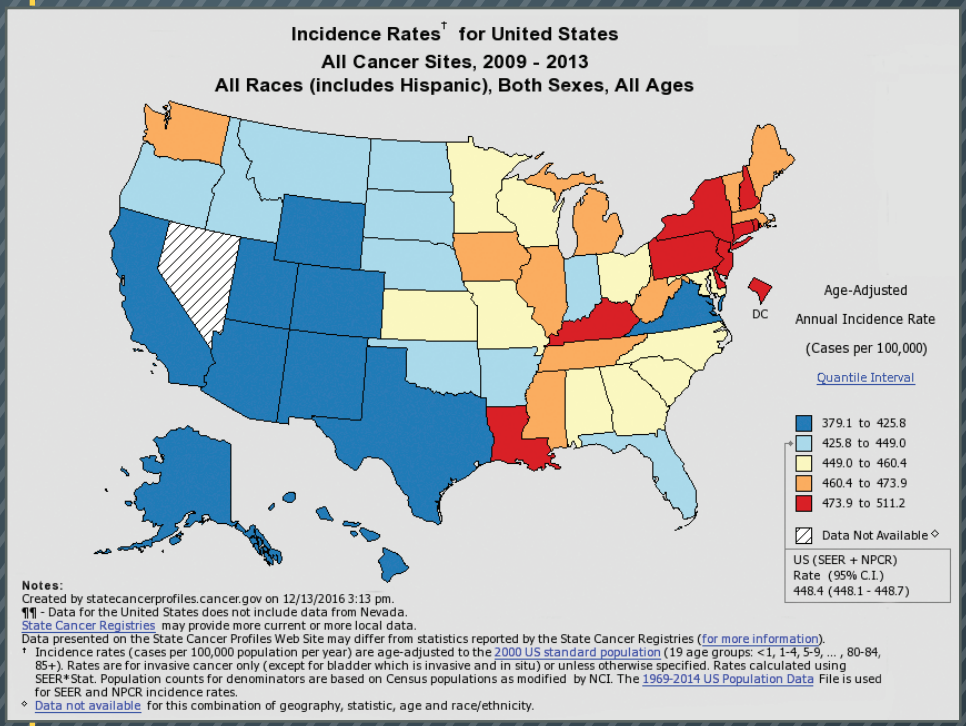


CANCER DATA

- According to the Surveillance, Epidemiology, and End Results Program (SEER), statewide cancer incidence rates (all cancers) in Texas from 2007-2013 are amongst the lowest in the United States.

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, the environment is only one factor that may contribute to adverse health outcomes. Regional Data is presented in subsequent sections.

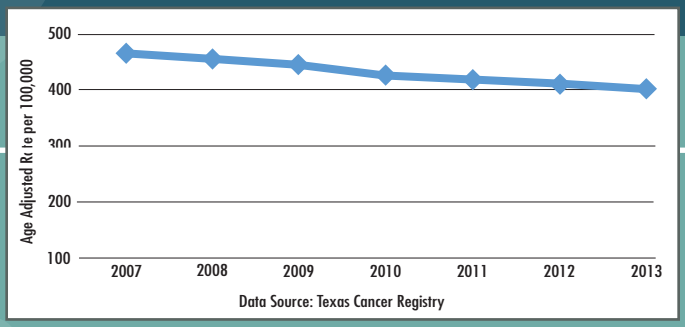
Figure 6. Cancer Incidence Rates for US 2009-2013



Cancer Data *continued*

- According to the Texas Cancer Registry, statewide cancer incidence rates in Texas have demonstrated a slight decreasing trend from 2007-2013 (the most recent rates currently available).

Figure 7. Cancer Incidence in Texas 2007-2013



- From 2009-2013, Texas combined age-adjusted cancer rates per 100,000 for leukemia, lung and bronchus (not adjusted for smoking), and non-Hodgkin's lymphoma were similar to California and the overall United States rates.

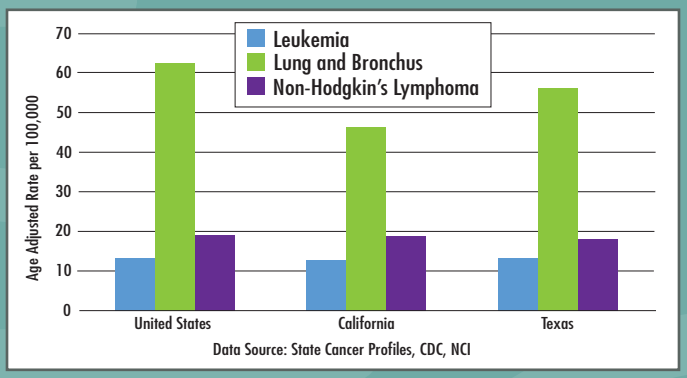


Figure 8. Age-Adjusted Cancer Incidence Rates for Leukemia, Lung and Bronchus, Lymphoma

Asthma

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 in particular geographic locations. To understand the entire burden of asthma in a community, all asthma indicators should be considered. **Regional data is presented in subsequent sections.*

Asthma Hospitalizations (2005-2013)

- In 2013, for every 10,000 children, nearly 11 asthma hospitalizations occurred annually in Texas. In 2010, the crude national asthma hospitalization rate for children under 18 was 18.3 per 10,000 compared to the crude rate of 13.6 per 10,000 for children under 18 in Texas.

Figure 9. Asthma Hospital Discharge Rates

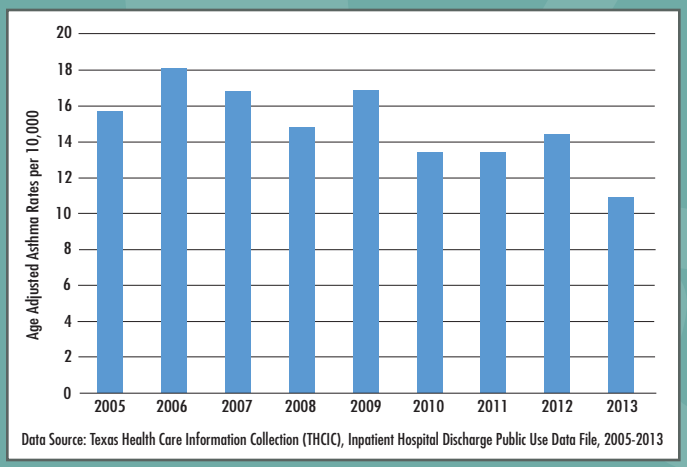
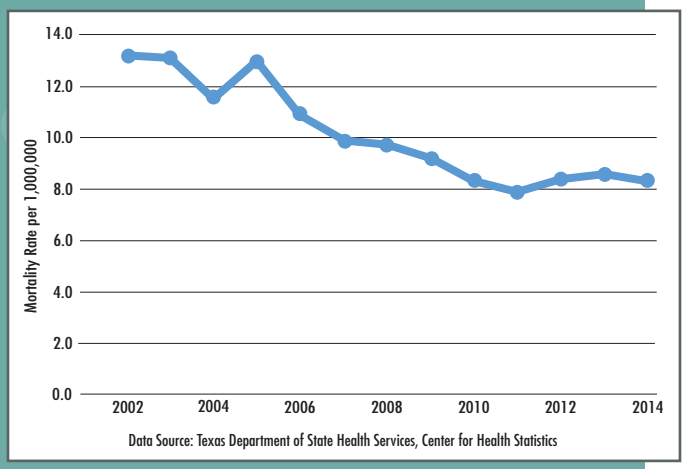


Figure 10. Texas Asthma Mortality Rates



Asthma Mortality (2002 to 2014)

- In Texas, the asthma mortality rate decreased from 13.2 per 1 million people in 2002 to 8.3 per 1 million people in 2014, a reduction of approximately 35%. The national asthma mortality rate for 2014 was 10.6 per 1 million people.

- In 2014, the top 10 leading causes of death in Texas were: diseases of heart; malignant neoplasms; cerebrovascular diseases; chronic lower respiratory diseases; accidents (unintentional injuries); Alzheimer's disease; diabetes mellitus; septicemia; nephritis, nephrotic syndrome and nephrosis; and chronic liver disease.
- From 2009-2015, 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.

Mortality in Texas

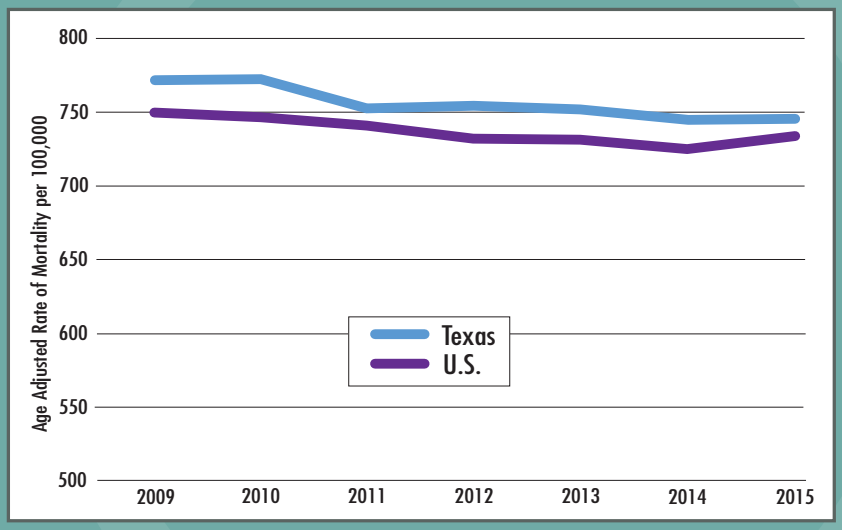


Figure 11. Mortality Rates for All Causes

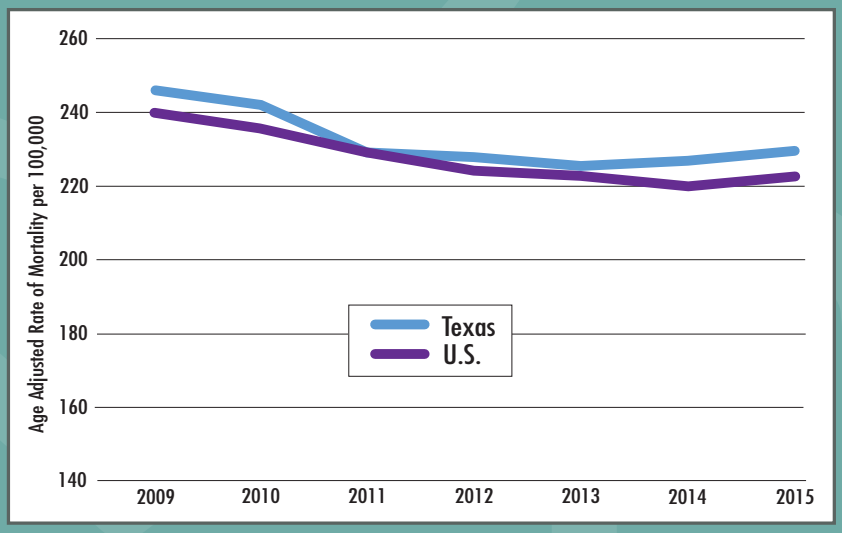


Figure 12. Mortality from Diseases of the Circulatory System

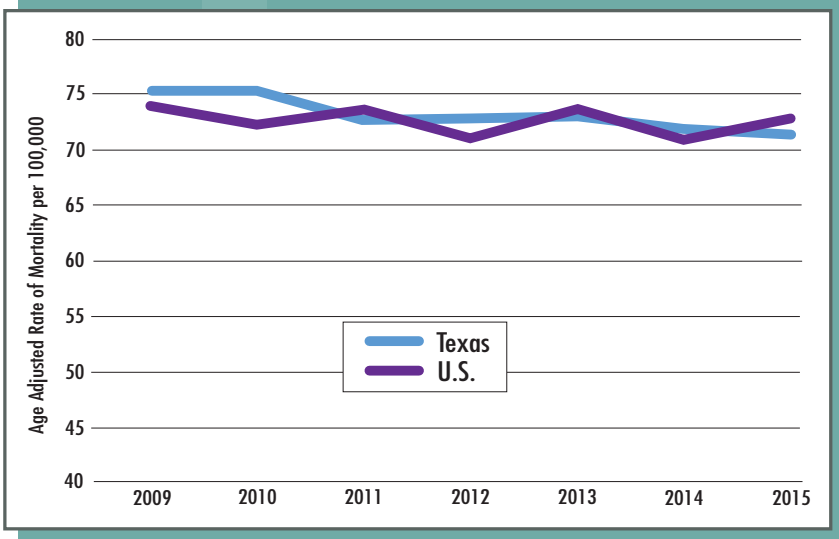


Figure 13. Mortality from Diseases of the Respiratory System

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

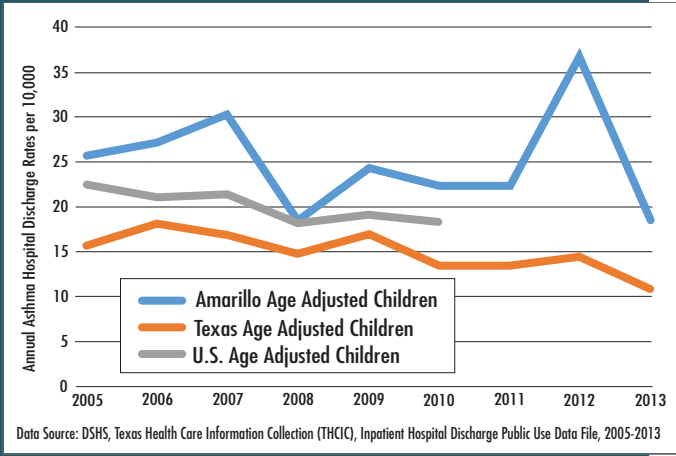
Regional Updates

2015

Region 1 Amarillo

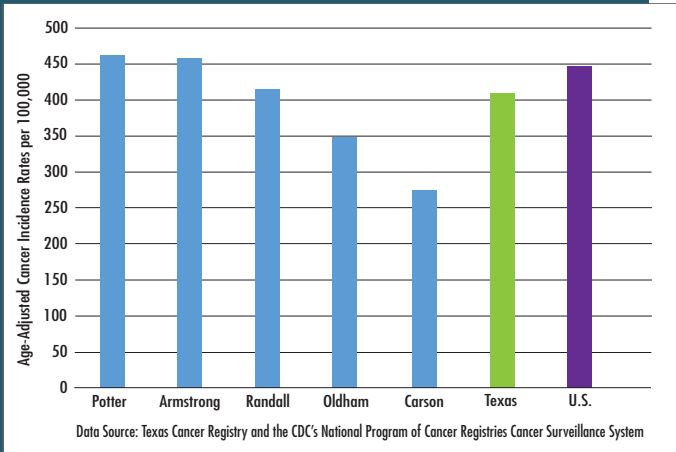
- In 2015, annual average concentrations of all reported VOCs were below their long-term AMCVs and would not be expected to cause adverse health effects.
- Rolling three-month and annual average concentrations of lead measured as TSP were below the appropriate health comparison value in 2015 and would not be expected to cause chronic adverse health effects.
- From 2005-2013, Amarillo MSA annual asthma hospitalization rates per 10,000 (Figure 14) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Armstrong, Carson and Oldham counties for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Amarillo MSA cancer incidence rates per 100,000 (Figure 15) were slightly above Texas rates for all ages in Armstrong and Potter counties but similar and below for Carson, Oldham, and Randall counties.

Figure 14. Amarillo MSA Annual Asthma Hospitalization Rates



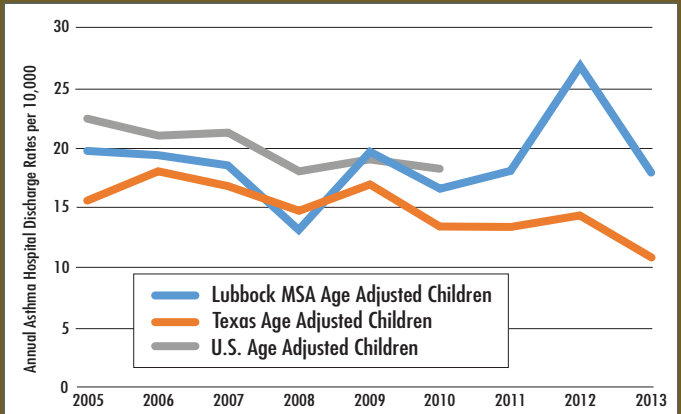
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 15. Amarillo MSA – 2009-2013 Cancer Incidence per 100,000



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

Figure 16. Lubbock MSA Annual Asthma Hospitalization Rates

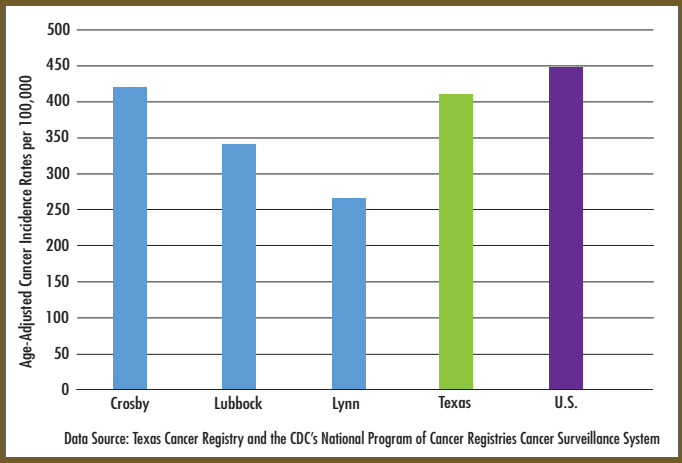


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Region 2 Lubbock

- From 2005-2013, Abilene MSA annual asthma hospitalization rates per 10,000 (Figure 16) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Crosby and Lynn counties for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Lubbock MSA cancer incidence rates per 100,000 (Figure 17) were similar to the overall Texas rates for all ages.

Figure 17. Lubbock MSA – 2009-2013 Cancer Incidence per 100,000

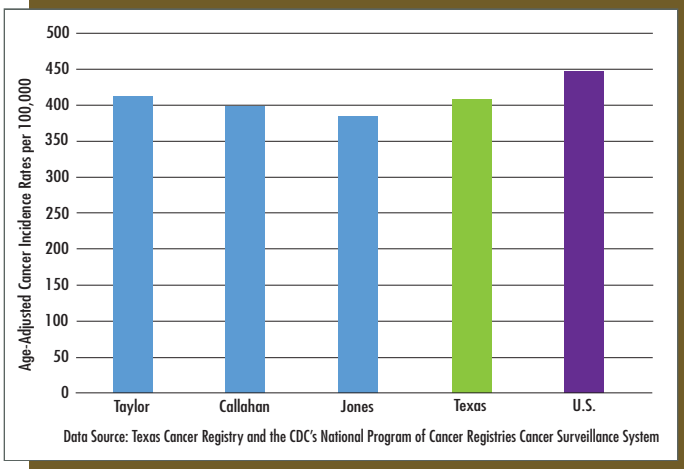


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 3 Abilene

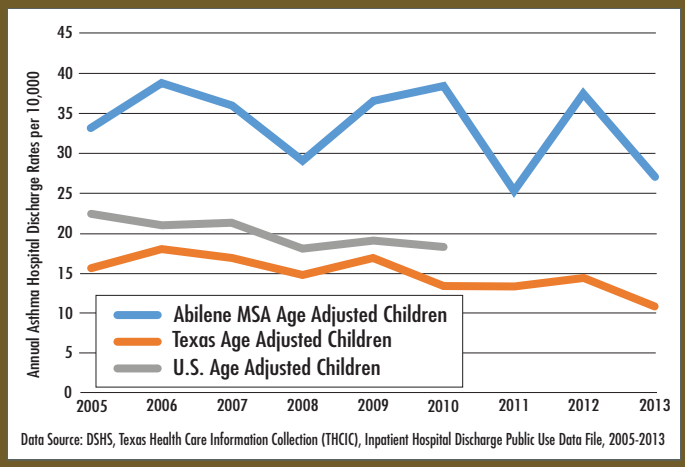
- In 2015, all 24-hour average and annual average concentrations of 84 VOCs were below their respective AMCVs and would not be expected to cause adverse health effects or vegetation effects.
- From 2005-2013, Abilene MSA annual asthma hospitalization rates per 10,000 (Figure 18) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Jones and Callahan counties for one or more years because fewer than 12 asthma hospitalizations were reported.

Figure 19. Abilene MSA – 2009-2013 Cancer Incidence per 100,000



- From 2009-2013, Abilene MSA cancer incidence rates per 100,000 (Figure 19) were similar to the overall Texas rates for all ages.

Figure 18. Abilene MSA Annual Asthma Hospitalization Rates



Region 4 Dallas-Ft. Worth

- In 2015, all hourly and annual average concentrations of VOCs reported at autoGC monitoring sites were below their respective short-term and long-term AMCVs, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- Annual average concentrations of all speciated metal, for example, arsenic, chromium, etc., were less than their respective TCEQ long-term AMCVs and would not be expected to cause chronic adverse health effects.
- From 2005-2013, Dallas-Fort Worth MSA annual asthma hospitalization rates per 10,000 (Figure 20) were lower than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Somerville County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, cancer incidence rates per 100,000 (Figure 21) in the majority of counties in the Dallas-Fort Worth MSA were similar to the overall Texas rates for all ages.

Figure 20. Dallas-Fort Worth MSA Annual Asthma Hospitalization Rates

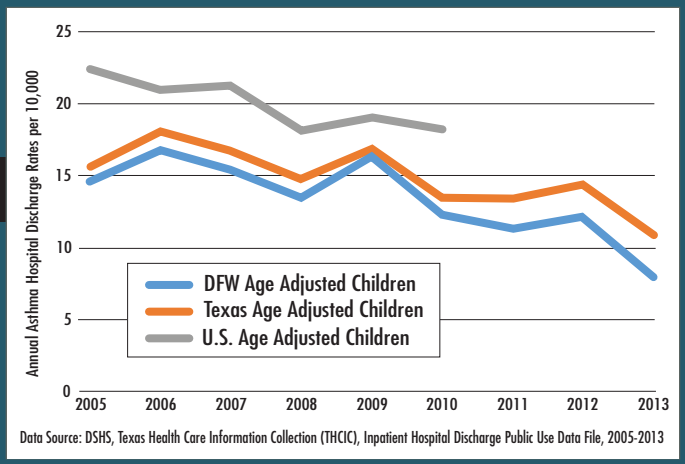
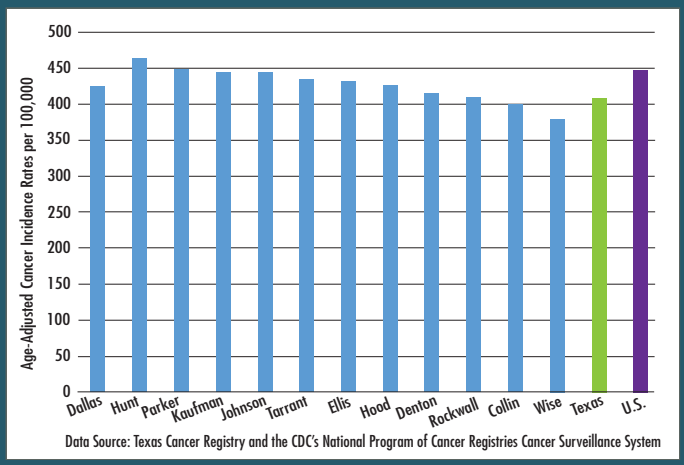


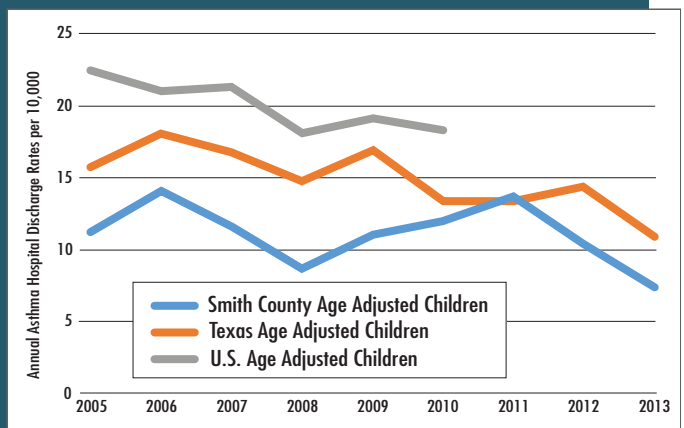
Figure 21. Dallas-Fort Worth MSA – 2009-2013 Cancer Incidence per 100,000



Region 5 Tyler

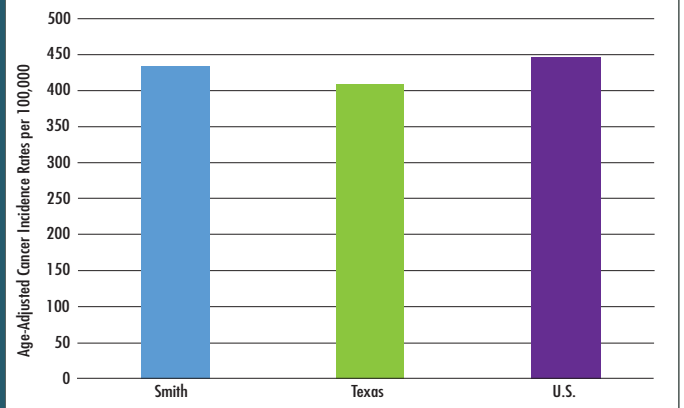
- In 2015, all 24-hour average and annual average concentrations of VOCs at the Longview and Karnack monitoring locations in Region 5 were below their respective AMCVs, and would not be expected to cause adverse health effects or vegetation effects.
- In 2015, speciated metals from particulate matter less than 2.5 and 10 microns in diameter (PM2.5 & PM10), at the Karnack monitoring location were below their respective TCEQ AMCVs, and would not be expected to cause adverse health or vegetation effects.
- From 2005-2013, Tyler MSA annual asthma hospitalization rates per 10,000 (Figure 22) were lower than the overall Texas rates for children under 18 years of age.
- From 2009-2013, Tyler MSA cancer incidence rates per 100,000 (Figure 23) were higher than the overall Texas rates for all ages, although the rate was still below the national average. Smith County is the sole county in the Tyler MSA.

Figure 22. Tyler MSA Annual Asthma Hospitalization Rates



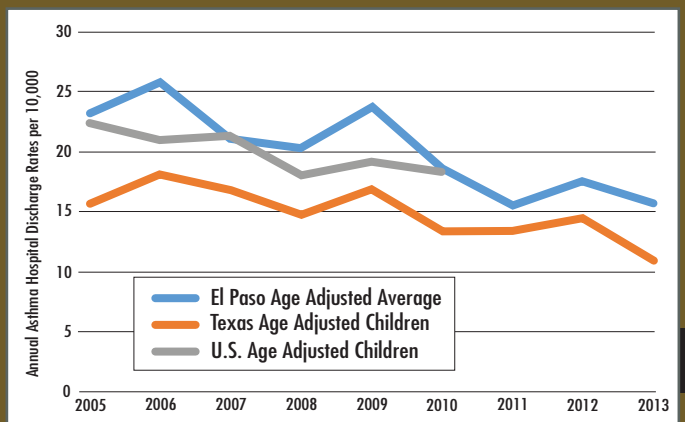
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 23. Tyler MSA – 2009-2013 Cancer Incidence per 100,000



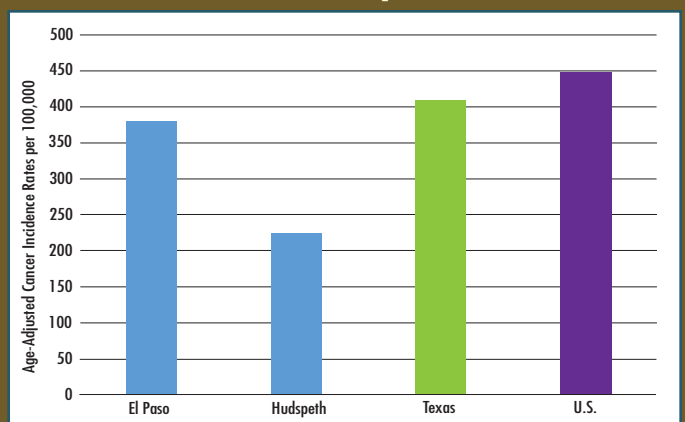
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Figure 24. El Paso MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 25. El Paso MSA – 2009-2013 Cancer Incidence per 100,000



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

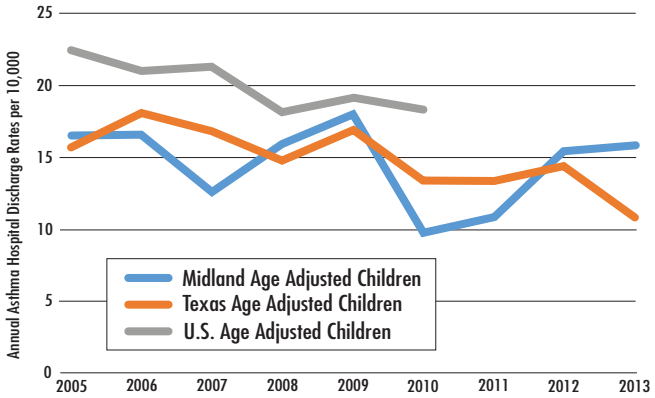
Region 6 El Paso

- In 2015, reported short and long-term concentrations of VOCs were below their respective AMCVs, and would not be expected to cause adverse acute health effects, vegetation effects, or odors.
- Reported concentrations of lead and PM2.5 were below respective comparison values.
- Reported concentrations of hydrogen sulfide (H2S) collected at the El Paso Lower Valley monitor exceeded the state 30-min H2S standard 450 times (based upon rolling averages of 5 minute samples); thus, it is likely that conditions would have been odorous at times. This area of El Paso is currently on the APWL (APWL0601) for H2S.
- From 2005-2013, El Paso MSA annual asthma hospitalization rates per 10,000 (Figure 24) were higher than the overall Texas rates for children under 18 years of age. However, the asthma hospitalization rate decreased from 23.2 per 10,000 people in 2005 to 15.7 per 10,000 people in 2013, a reduction of approximately 32%. Hospital discharge data was not included for Hudspeth County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, El Paso MSA cancer incidence rates per 100,000 (Figure 25) were lower than the overall Texas rates for all ages.

Region 7 Midland

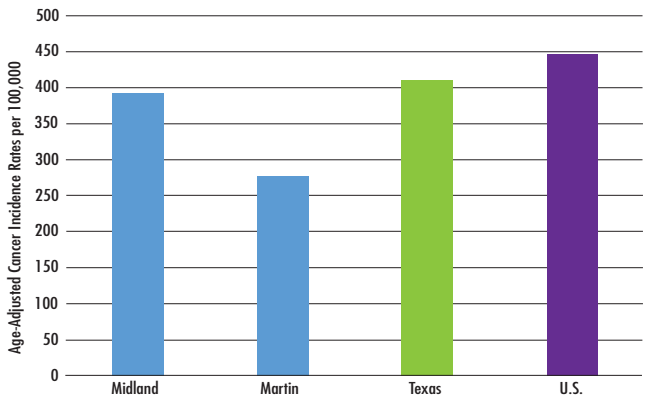
- In 2015, a canister sampler replaced the autoGC present at the Odessa-Hays monitoring site in Region 7. This caused a 7-month gap in VOC data at this site. Lacking a full year's worth of data prevents the assessment of long-term human health and vegetation effects for the monitored chemicals. However, based on the available data, we would not expect to see short-term health effects from the measured VOCs.
- From 2005-2013, Midland MSA annual asthma hospitalization rates per 10,000 (Figure 26) were similar to the overall Texas rates for children under 18 years of age.
- From 2009-2013, Midland MSA cancer incidence rates for all cancers per 100,000 (Figure 27) were similar to the overall Texas rates for all ages.

Figure 26. Midland MSA Annual Asthma Hospitalization Rates



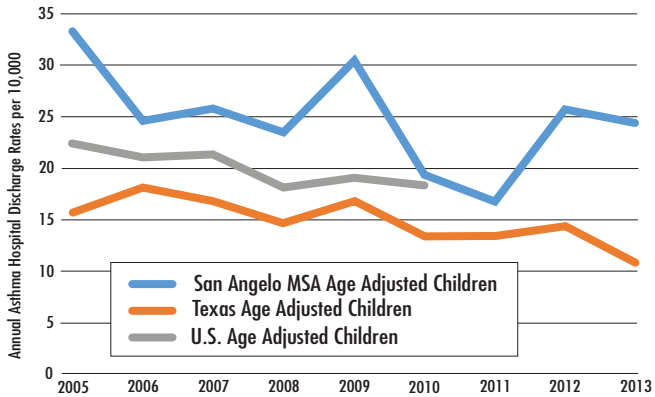
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 27. Midland MSA – 2009-2013 Cancer Incidence per 100,000



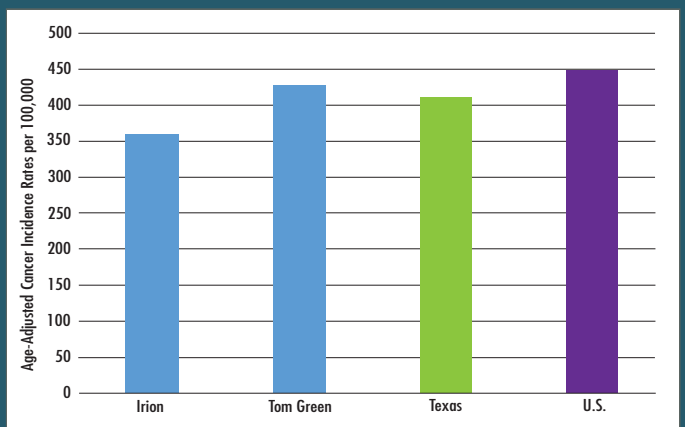
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Figure 28. San Angelo MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 29. San Angelo MSA – 2009-2013 Cancer Incidence per 100,000



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

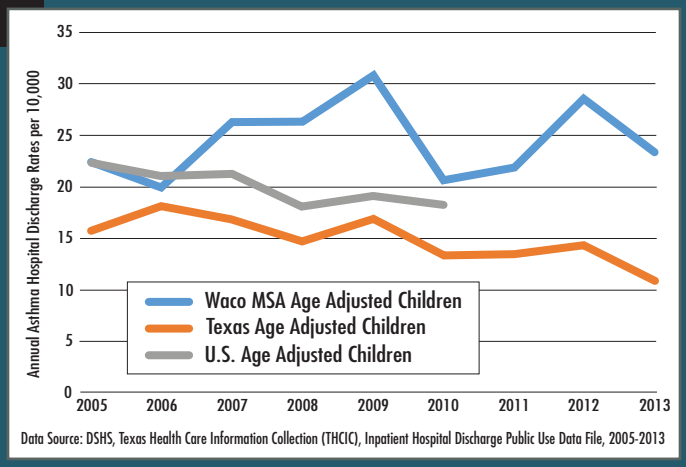
Region 8 San Angelo

- From 2005-2013, San Angelo MSA annual asthma hospitalization rates per 10,000 (Figure 28) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Irion County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, San Angelo MSA cancer incidence rates for all cancers per 100,000 (Figure 29) were similar to the overall Texas rates for all ages.

Region 9 Waco

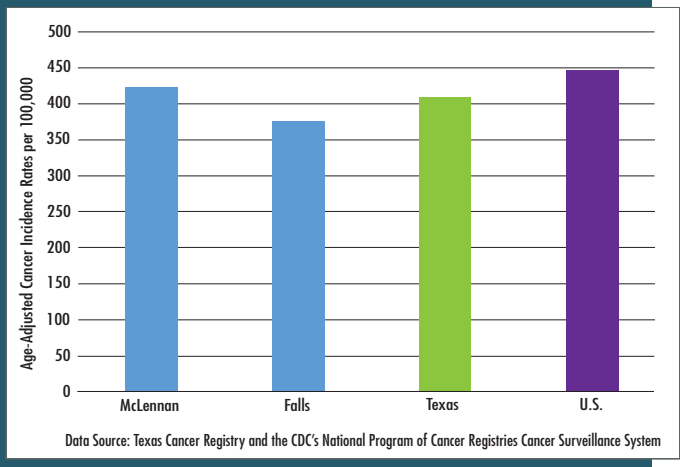
- From 2005-2013, San Angelo MSA annual asthma hospitalization rates per 10,000 (Figure 30) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Falls County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Waco MSA cancer incidence rates for all cancers per 100,000 (Figure 29) were similar to the overall Texas rates for all ages.

Figure 30. Waco MSA Annual Asthma Hospitalization Rates



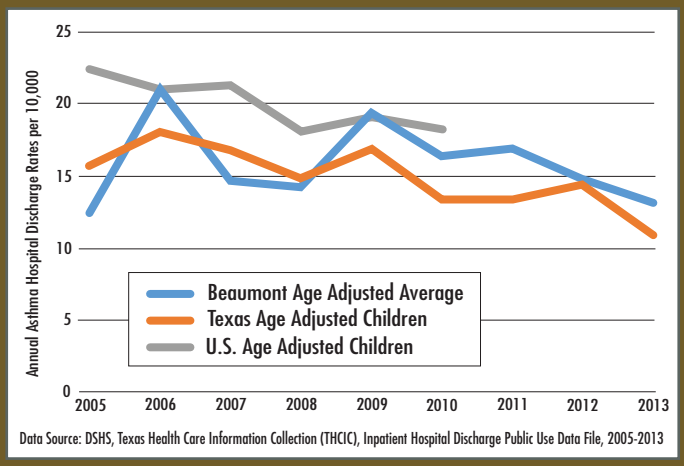
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 31. Waco MSA – 2009-2013 Cancer Incidence per 100,000



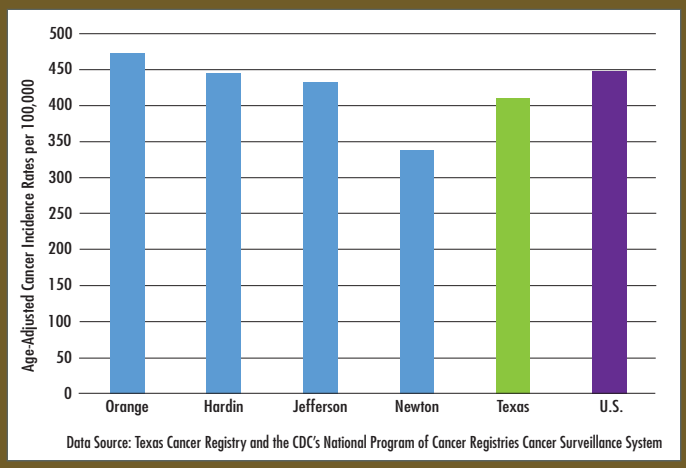
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Figure 32. Beaumont MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 33. Beaumont MSA – 2009-2013 Cancer Incidence per 100,000



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

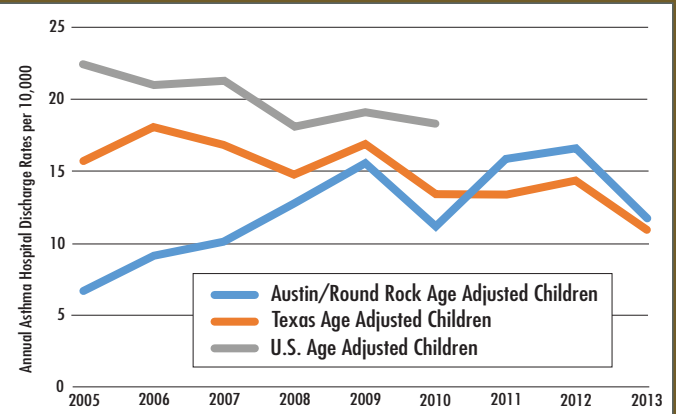
Region 10 Beaumont

- In 2015, all reported annual average concentrations for all monitored VOCs were below their air AMCVs and would not be expected to cause long-term adverse human health or vegetation effects.
- From 2005-2013, Beaumont MSA annual asthma hospitalization rates per 10,000 (Figure 32) were similar to the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Newton County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Beaumont MSA cancer incidence rates for all cancers per 100,000 (Figure 33) were slightly higher than the overall Texas rates for all ages.

Region 11 Austin

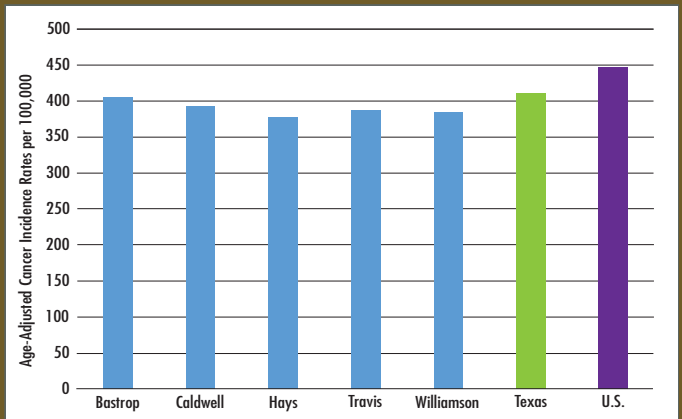
- In 2015, all 24-hour and annual average concentrations of 84 VOCs from canister samples collected in Region 11 were below their respective AMCVs and would not be expected to cause adverse health effects or vegetation effects.
- From 2005-2013, Austin-Round Rock MSA annual asthma hospitalization rates per 10,000 (Figure 34) were similar to the overall Texas rates for children under 18 years of age in 2013. Hospital discharge data was not included for Caldwell County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Austin-Round Rock MSA cancer incidence rates for all cancers per 100,000 (Figure 35) were lower than the overall Texas rates for all ages.

Figure 34. Austin-Round Rock MSA Annual Asthma Hospitalization Rates



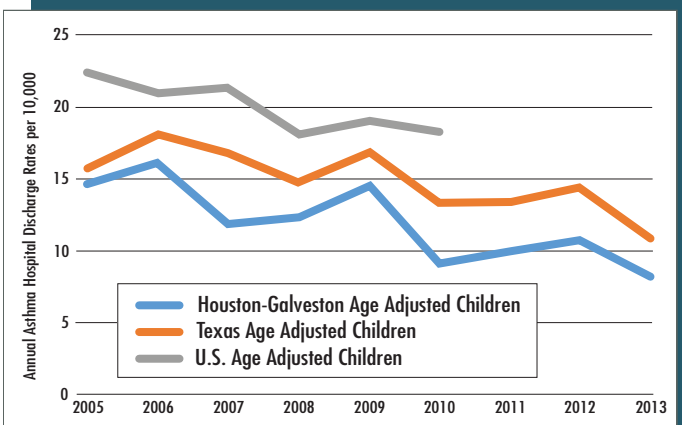
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 35. Austin-Round Rock MSA – 2009-2013 Cancer Incidence per 100,000



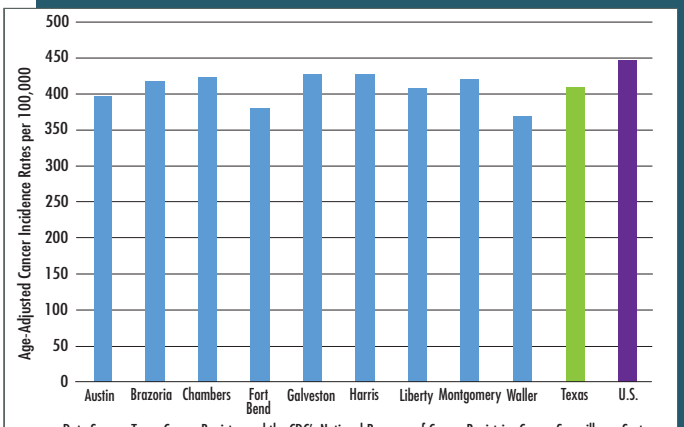
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Figure 36. Houston-Galveston MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 37. Houston-Galveston MSA – 2009-2013 Cancer Incidence per 100,000

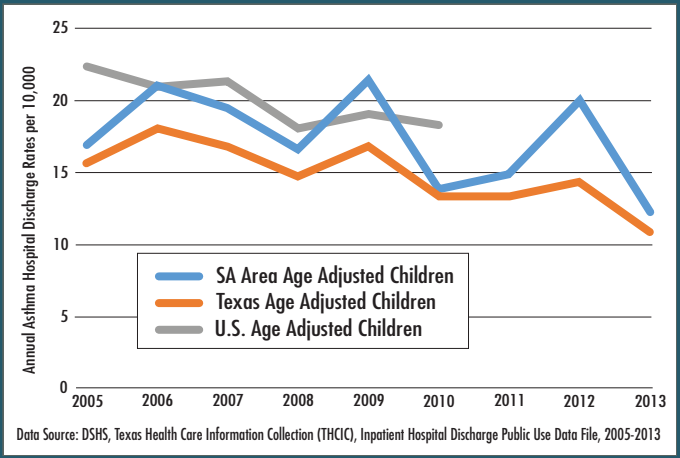


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 12 Houston

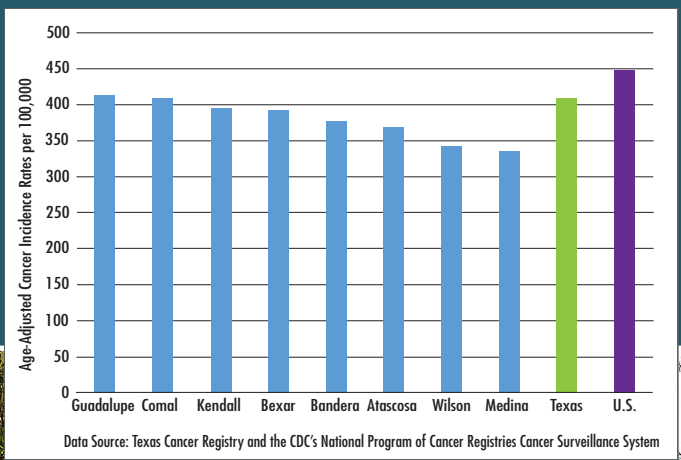
- In 2015, annual averages for all chemicals and metals were below their respective long-term AMCVs.
- All of the 24-hour measurements, for which there are 24-hour AMCVs available, were below their health-based AMCVs in Region 12 in 2015.
- From 2005-2013, Houston-Galveston MSA annual asthma hospitalization rates per 10,000 (Figure 36) were lower than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Austin and Colorado counties for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Houston-Galveston MSA cancer incidence rates for all cancers per 100,000 (Figure 37) were similar to the overall Texas rates for all ages.

Figure 38. San Antonio-New Braunfels MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

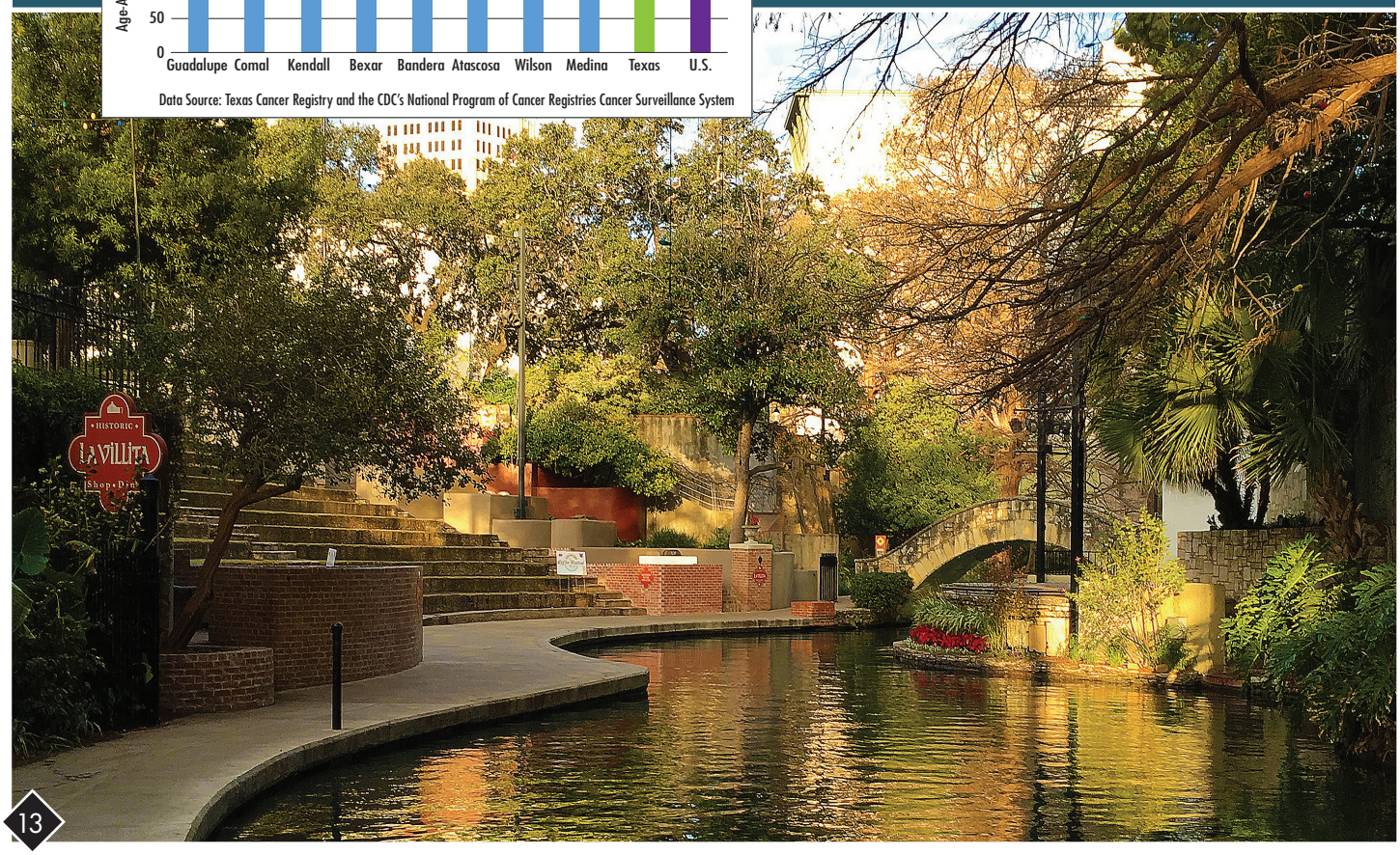
Figure 39. San Antonio-New Braunfels MSA – 2009-2013 Cancer Incidence per 100,000



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

Region 13 San Antonio

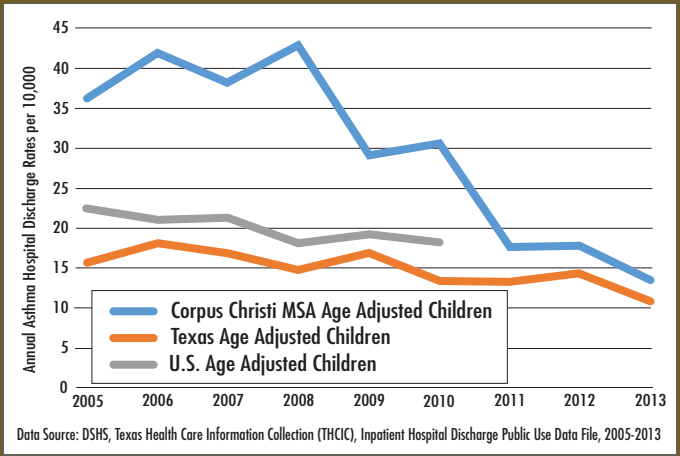
- In 2015, all hourly average and annual average concentrations of the 46 VOCs reported at the Floresville Hospital Boulevard and Karnes County Courthouse autoGC monitoring sites were below their respective short-term and long-term AMCVs, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- All 24-hour and annual average concentrations of the 84 VOCs from canister samples reported at the Old Highway 90 monitoring site were below their respective short-term and long-term AMCVs, and would not be expected to cause adverse health effects, vegetation effects, or odor concerns.
- From 2005-2013, San Antonio-New Braunfels MSA annual asthma hospitalization rates per 10,000 (Figure 38) were higher than the overall Texas rates for children under 18 years of age. Hospital discharge data was not included for Bandera County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, San Antonio-New Braunfels MSA cancer incidence rates for all cancers per 100,000 (Figure 39) were similar to the overall Texas rates for all ages.



Region 14 Corpus Christi

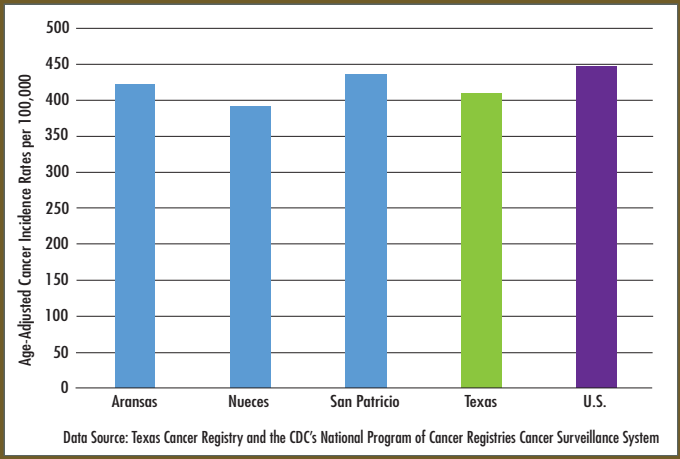
- In 2015, all hourly and annual average concentrations of VOCs reported at autoGC monitoring sites were below their short-term and long-term AMCVs, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- All reported 30-minute rolling averages of hydrogen sulfide (H2S) at the six reporting monitoring sites did not exceed the 30-minute state H2S standard.
- In 2015, all 24-hour and annual average concentrations of VOCs and speciated metals reported at Region 14 canister samples, with the exception of annual concentrations of ethylene dichloride in Point Comfort, were below their respective AMCVs, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns. Ethylene dichloride annual concentrations in Point Comfort were slightly more than the AMCV in 2015, but have improved in 2016.
- From 2005-2013, Corpus Christi MSA annual asthma hospitalization rates per 10,000 (Figure 40) were higher than the overall Texas rates for children under 18 years of age. However, the asthma hospitalization rate decreased from 36.15 per 10,000 people in 2005 to 13.6 per 10,000 people in 2013, a 2.5-fold reduction. Hospital discharge data was not included for Aransas County for one or more years because fewer than 12 asthma hospitalizations were reported.
- From 2009-2013, Corpus Christi MSA cancer incidence rates for all cancers per 100,000 (Figure 41) were higher than the overall Texas rates for all ages in San Patricio and Aransas counties, but lower than the overall state rate in Nueces County. The rates for all counties were lower than the national average.

Figure 40. Corpus Christi MSA Annual Asthma Hospitalization Rates



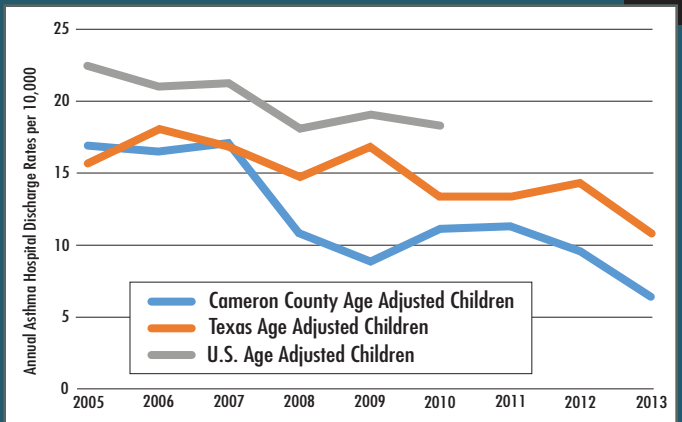
Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 41. Corpus Christi MSA – 2009-2013 Cancer Incidence per 100,000



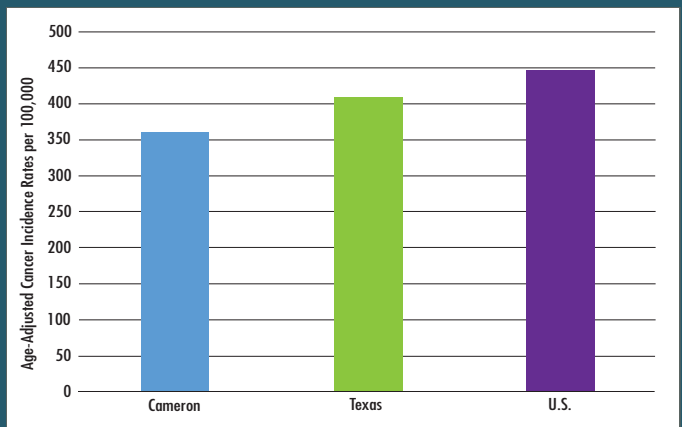
Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Figure 42. Harlingen MSA Annual Asthma Hospitalization Rates



Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Figure 43. Harlingen MSA – 2009-2013 Cancer Incidence per 100,000

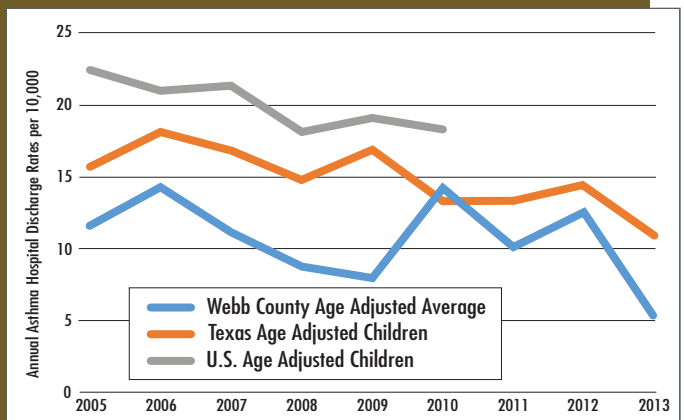


Data Source: Texas Cancer Registry and the CDC's National Program of Cancer Registries Cancer Surveillance System

Region 15 Harlingen

- All 24-hour average and annual average concentrations of the 84 VOCs, 16 PAHs, and two metals measured in TSP were below their respective AMCVs and would not be expected to cause adverse health effects or vegetation effects.
- From 2005-2013, Harlingen MSA annual asthma hospitalization rates per 10,000 (Figure 42) were lower than the overall Texas rates for children under 18 years of age. Cameron County is the sole county in the Brownsville-Harlingen MSA.
- From 2009-2013, Harlingen MSA cancer incidence rates for all cancers per 100,000 (Figure 43) was lower than the overall Texas rates for all ages.

Figure 44. Laredo MSA Annual Asthma Hospitalization Rates

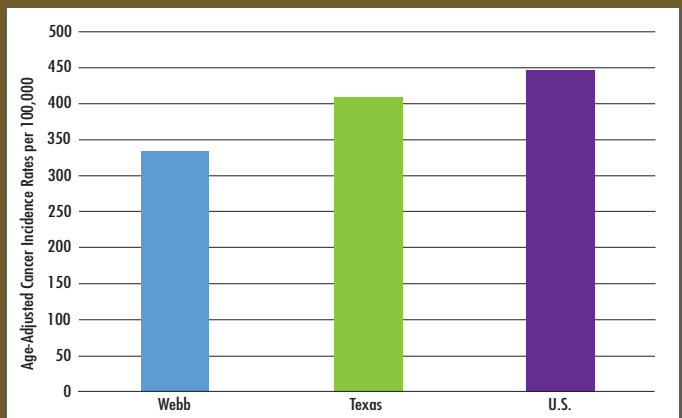


Data Source: DSHS, Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2005-2013

Region 16 Laredo

- In 2015, all 24-hour and annual average concentrations of VOCs from canister samples were below their respective AMCVs, and would not be expected to cause acute or chronic adverse health effects, vegetation effects, or odor concerns.
- Annual average concentrations of all metals measured as TSP were less than their respective long-term AMCVs, and would not be expected to cause chronic adverse health effects.
- From 2005-2013, Laredo MSA annual asthma hospitalization rates per 10,000 (Figure 44) were lower than the overall Texas rates for children under 18 years of age. Webb County is the sole county in the Laredo MSA.
- From 2009-2013, Laredo MSA cancer incidence rates for all cancers per 100,000 (Figure 45) were below the overall Texas rates for all ages.

Figure 45. Laredo MSA – 2009-2013 Cancer Incidence per 100,000



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