

# Texas Asthma Plan

A Strategic Framework for Breathing Easier

2011-2014



April 2012

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## Executive Summary

Asthma is a significant public health problem in the United States and in Texas. In 2009, an estimated 40 million Americans of all ages had lifetime asthma, of which 24.5 million had current asthma.<sup>1</sup> National healthcare costs associated with asthma reached \$56 billion in 2009.<sup>2</sup>

In Texas, an estimated 2.2 million adults, age 18 and older, had lifetime asthma and 1.2 million adults had current asthma in 2009. In the same year, an estimated 872,000 Texas children had lifetime asthma and 538,000 children had current asthma.<sup>3</sup> Asthma affects more children than any other chronic disease and is one of the most frequent reasons for hospital admissions among children.

The hospitalization rate for Texans of all ages in 2009 was 11.6 per 10,000 residents, accounting for more than 28,000 hospital admissions at a cost of \$694.4 million.<sup>4</sup> Of the 28,000 hospitalizations in 2009, more than 16,000 admissions at a cost of approximately \$400 million were considered to be preventable.<sup>5</sup>

Asthma is a chronic respiratory disease characterized by periodic attacks of impaired breathing due to inflammation, narrowing, and irritation of the airways. While there is currently no cure for asthma, it can be controlled through proper disease management and avoidance of environmental triggers. Effective clinical care and self-management can avert asthma exacerbations, reduce emergency department visits and hospital admissions, reduce associated healthcare expenditures, and help people with asthma lead active, productive lives.

Many individuals and organizations in Texas are committed to ensuring proper asthma care and management for its population, and have worked for many years to mitigate its adverse outcomes and improve patient quality of life. The first state plan to address issues affecting Texans with asthma was developed in 2000 by the Asthma Coalition of Texas (ACT) and the Texas Department of Health (TDH). Since that time, the plan has gone through a number of revisions to reflect the most current surveillance, advances in asthma knowledge and best practices, and the inclusion of new partners and resources.

The 2011-2014 Texas Asthma Plan (TAP) is data driven and designed to create a sustained and resourced public health approach to reduce the burden of asthma in Texas. The plan serves as a strategic blueprint, outlining priority goals, objectives, and suggested activities, along with a call to action for increased and coordinated asthma activities among all partners and stakeholders.

Priority 1: Build and maintain a network of asthma partners and stakeholders to plan, implement and evaluate asthma activities at the state, regional and local levels to effectively address the burden of asthma in Texas.

Priority 2: Maintain, enhance, and expand asthma surveillance in Texas, including the identification of health disparities and under-diagnosed populations.

Priority 3: Improve systems and quality of asthma clinical care in Texas.

Priority 4: Expand asthma awareness and patient education initiatives in Texas, resulting in an informed and proactive public.

Priority 5: Promote community and public health policy that will improve asthma management in schools, the workplace, and home setting, and address environmental issues related to asthma.

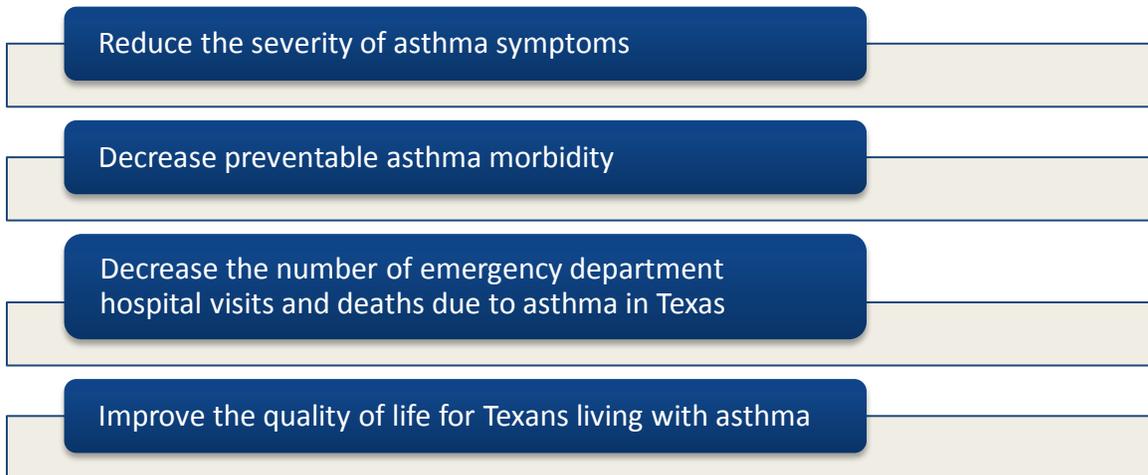
Priority 6: Identify and implement strategies to address access to and use of healthcare services among disparate populations with asthma.

By coordinating efforts among its partners and stakeholders, the Texas Asthma Control Program (TACP) will address these six priority areas designed to reduce the burden of this disease and improve the quality of life for Texans with asthma. The TAP is a living document that will be updated and modified as needed.

## About the Texas Asthma Control Program

The Texas Asthma Control Program (TACP) is located within the Chronic Disease Branch, Health Promotion and Chronic Disease Prevention Section at the Texas Department of State Health Services (DSHS). It is supported by a Cooperative Agreement, *Addressing Asthma from a Public Health Perspective* with the Centers for Disease Control and Prevention (CDC), Air Pollution and Respiratory Health Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health. In collaboration with other state organizations and community partners, the TACP strives to improve the quality of life for Texans living with asthma. Activities include conducting asthma surveillance, supporting and promoting state and local partnerships, promoting policies that address and improve asthma outcomes, funding effective interventions that increase asthma self-management and reduce the burden of asthma in Texas, and evaluating activities to guide the use of program resources and interventions.

### TACP Mission



# Introduction: Road to Action

## Background

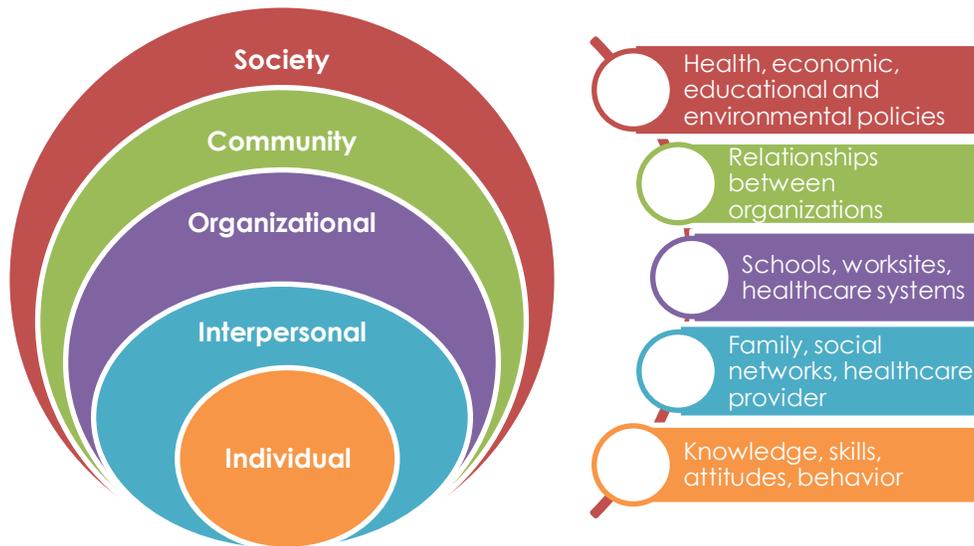
The first Texas Asthma Plan (TAP) was developed in 2000 by the Asthma Coalition of Texas (ACT) and the Texas Department of Health (TDH). The plan provided a set of goals and actions to address the burden of asthma in Texas. In 2005, ACT hosted a series of workshops across Texas, bringing together diverse individuals from multiple professions and disciplines. These collaborative efforts resulted in the second revision of the plan, containing a new set of strategically refocused activities for years 2005-2007. In 2007, the plan underwent its third revision by ACT and the Department of State Health Services (DSHS), and activities shifted to a more regional approach of targeted interventions to populations with the highest asthma burden. Updated goals and strategies were developed with the help of a broad group of experts contributing a wide variety of local and organizational perspectives.

Most recently, the Texas Asthma Plan (TAP) was updated in 2011 to reflect advances in asthma knowledge, the inclusion of new partners and resources, and the most current surveillance. This fourth edition outlines priority goals and objectives to be implemented over three years, along with a call to action for increased and coordinated asthma activities among all partners and stakeholders. Grounded in a social ecological model, the plan provides guidance for individuals and organizations throughout Texas who work toward asthma control.

## The Texas Asthma Control Program Framework

Recognizing that individual behavior is influenced by a range of personal, relational and social factors, the CDC recommends that prevention and control strategies involve interventions that reduce risk factors and enhance protective factors across all levels of the social ecological model (SEM).<sup>6</sup> Figure 1 illustrates the levels of society, which are interactive and reinforcing sources of influence on behavior. The TACP understands that a collaborative public health approach needs to act at multiple levels (individual, interpersonal, organizational, community and society) and in multiple settings (healthcare, schools, work, homes, environment) to comprehensively address the burden of asthma in Texas.

**Figure 1: Social Ecological Framework for Asthma Control**



Source: Adapted from Koplan JP et al. Preventing childhood obesity: health in the balance. IOM, NAP, 2005.

The CDC provides further guidance by structuring state asthma programs to work through three core components: surveillance, partnerships and interventions. Surveillance, which is a primary activity of the DSHS, informs all aspects of the TACP. The TACP, in addition to producing surveillance data, serves as the facilitator of information use and interpretation, through proper dissemination and translation of data to stakeholder groups. Surveillance data are vital to ‘make the case’ for the burden of asthma in Texas.

Partnerships are a critical component of the TAP by their provision of a) communication of information (based on surveillance data), b) leadership development in the community, and c) facilitation of local surveillance, advocacy, asthma management, and policy.<sup>7</sup> Partnerships are characterized by individuals and networks that champion an asthma-free population, and are often geographically established by high rates of asthma prevalence, severity, and healthcare utilization. Partnerships inform and educate state and local policymakers and the general public on the burden of asthma and ways to reduce the burden through, for example, policies governing indoor and outdoor air quality control, and proper medical and self-management.

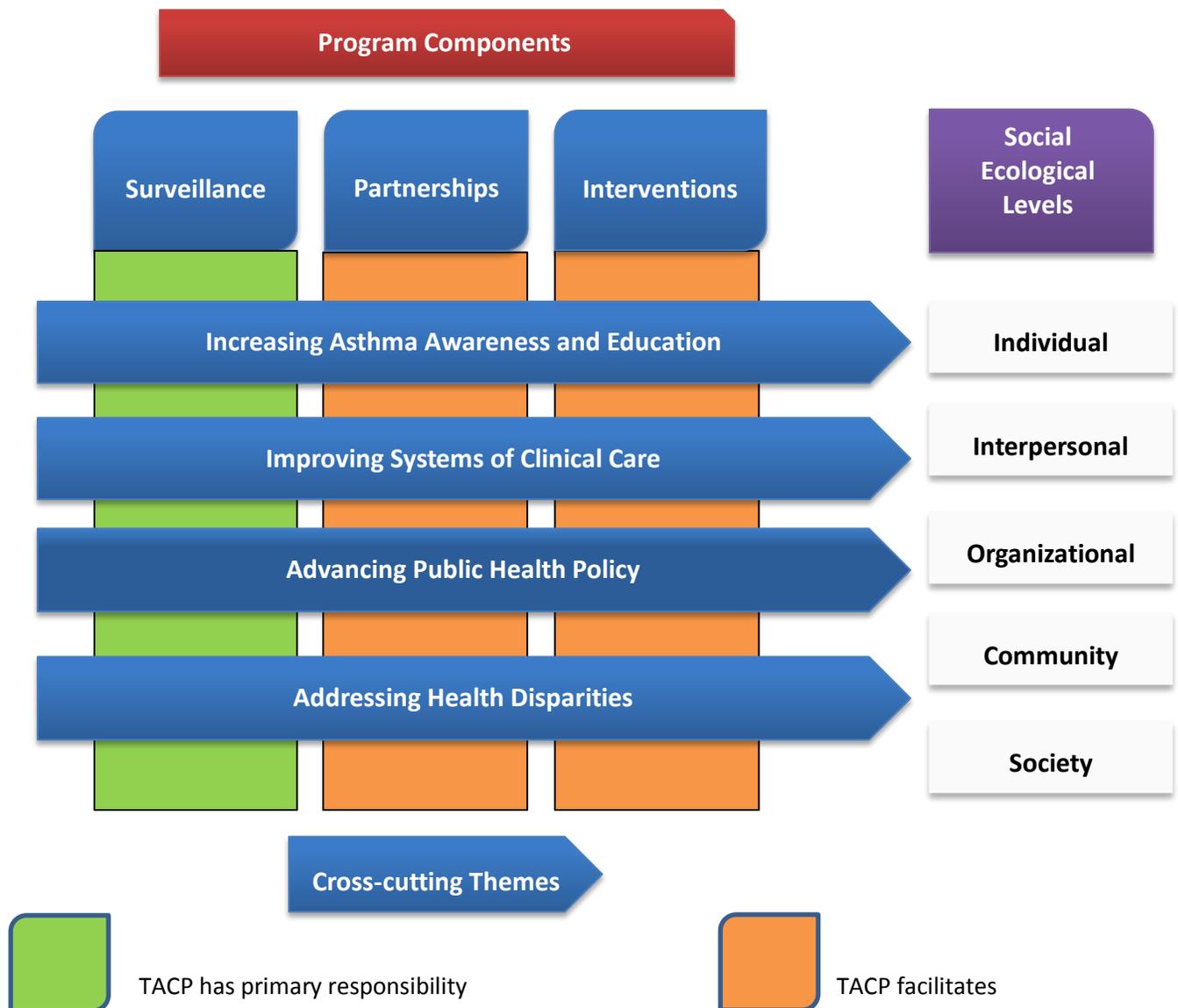
Interventions are data driven and implemented through partners and stakeholders. Interventions are the actions that take place at all levels of the social ecological model to control asthma and mitigate the burden of this chronic disease. These intervention initiatives can be categorized as educational, environmental and clinical management actions.<sup>8</sup>

Educational activities are focused at the individual, interpersonal (family and healthcare provider), organizational (school district, workplace), and community levels. Interventions that

include environmental actions work at the organizational and community levels to target indoor air quality, outdoor air quality, and environmental asthma triggers<sup>9</sup> (e.g., asthma interventions in the workplace, public places, transportation). Clinical management initiatives focus on both provider-based and self-care models of disease management. These activities include physician interventions driven by accepted asthma management clinical guidelines, health education interventions, case management interventions, and data tracking for specific at-risk populations.<sup>10</sup>

The TACP has developed a framework which incorporates the social ecological model and CDC asthma program components (figure 2).

**Figure 2: Framework for Texas Asthma Plan**



Beyond these focus areas are cross-cutting/guiding principles to ensure that asthma and its measures of inequality are appropriately addressed. The themes include the importance of increasing awareness and education at all levels and sectors of society; improving the quality and systems of asthma clinical care; advancing public health policy to improve indoor and outdoor air quality and issues related to access to healthcare; and addressing health disparities that are evidenced across demographic, socio-economic, and geographic areas in Texas.

# Asthma in Texas

## Defining Asthma

Asthma is a chronic respiratory disease characterized by periodic attacks of impaired breathing due to inflammation, narrowing, and irritation of the airways. Symptoms may vary but often include wheezing, coughing, and chest tightness. Asthma attacks may be mild and infrequent or severe and persistent, affecting one's quality of life.<sup>11</sup>

Asthma appears to be caused by an interaction of genetic and environmental factors, but little is known about its prevention. There is currently no cure for asthma, but exacerbations may be eased and controlled through proper management, education, and avoidance of allergens and environmental triggers. Effective self-management and use of prescribed medications to avert attacks can reduce the many complications associated with asthma attacks, including visits to the emergency department, hospitalizations, and associated healthcare system expenditures.<sup>12</sup>

## Managing Asthma

The National Asthma Education and Prevention Program (NAEPP) Expert Panel Report 3 (EPR-3): Guidelines for the Diagnosis and Management of Asthma recommends a comprehensive approach to asthma management and control to include:

- Self-management education;
- Avoidance of environmental triggers;
- Appropriate use of daily medications to prevent attacks;
- A partnership between the individual with asthma, family and healthcare provider; and
- Use of a written asthma action plan (AAP) to include instructions for managing asthma on a daily basis and in cases of worsening symptoms.<sup>13</sup>

Two key goals of asthma management are to reduce risk and reduce impairment.<sup>10</sup>

<b>Reduce Risk</b>	<b>Reduce Impairment</b>
<ul style="list-style-type: none"><li>• Prevent recurrent asthma exacerbations to reduce the need for emergency department visits or hospitalizations</li><li>• Prevent loss of lung function; and</li><li>• Provide optimal pharmacotherapy with minimal adverse effects.</li></ul>	<ul style="list-style-type: none"><li>• Prevent chronic and troublesome symptoms;</li><li>• Require infrequent use of short acting beta agents for quick symptom relief;</li><li>• Maintain normal pulmonary function; and</li><li>• Maintain normal activity levels and attendance at school or work.</li></ul>

## Making the Case – The Data

In 2009, an estimated 2.2 million (12.2 percent) Texas adults, aged 18 years and older, had self-reported lifetime asthma, and 1.2 million (6.5 percent) adults had self-reported current asthma. In the same year, there were an estimated 872,000 (13.3 percent) Texas children, age 0 to 17, with self-reported lifetime asthma, and 538,000 (8.2 percent) children with self-reported current asthma.<sup>3</sup>

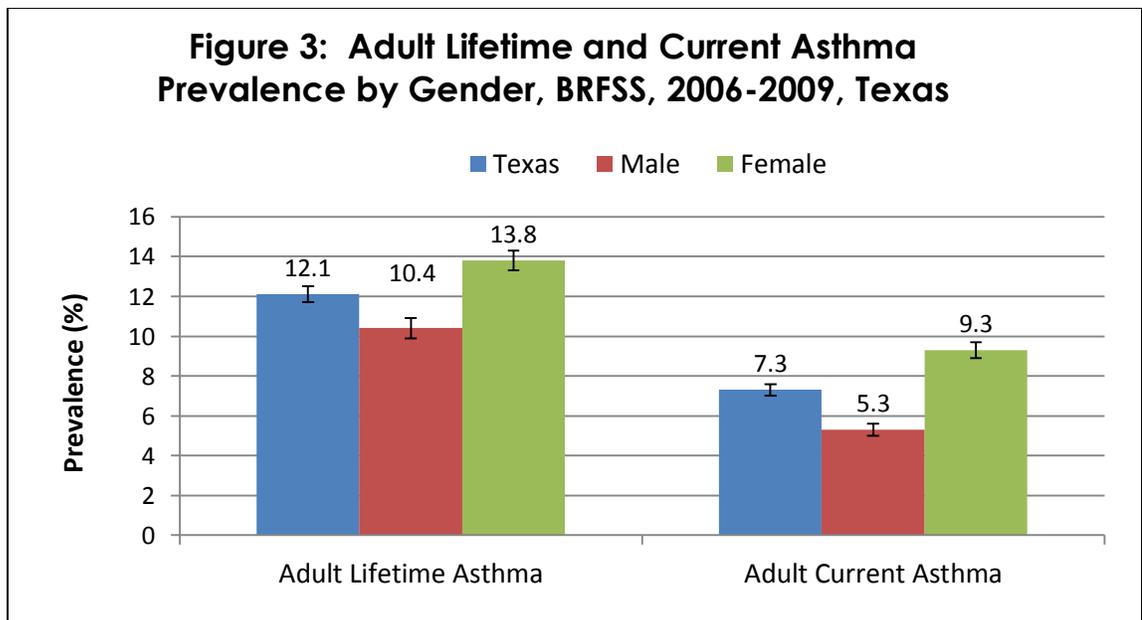
The 2010 Texas Asthma Burden Report<sup>15</sup> provides a comprehensive assessment of the state's asthma prevalence, hospitalizations, mortality, and healthcare expenditures. Included below are key findings and trends to help direct program efforts.

## Asthma Prevalence in Texas by Population Groups

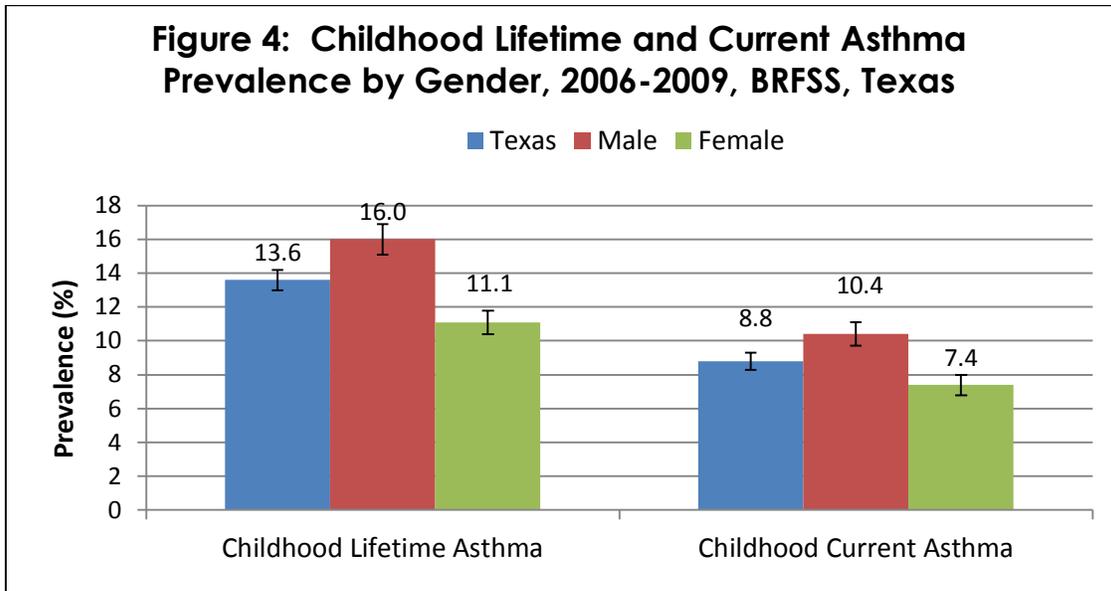
Texas Behavioral Risk Factor Surveillance System (BRFSS) data were analyzed to estimate asthma prevalence among Texas adults (18 years and older) and children (0 to 17 years of age). Disparities in asthma prevalence are observed by gender, race/ethnicity, age and geographic regions of the state.

### Gender

- According to 2006-2009 Texas BRFSS data, both adult lifetime and adult current asthma are significantly higher among females than males.



- In contrast, both childhood lifetime and current asthma are significantly higher among males than females.



- Hospitalization rates follow the same gender-related trends. In 2009, the age-adjusted asthma hospitalization rate for adult females at 13.96 per 10,000 was significantly higher than the rate for adult males at 4.99 per 10,000.<sup>4</sup>
- In 2009, the age-adjusted asthma hospitalization rate for male children (21.35 per 10,000) was significantly higher than the rate for female children (12.36 per 10,000).<sup>4</sup>

### Race/Ethnicity

- According to 2006-2009 Texas BRFSS data, adult lifetime asthma prevalence is highest among the Other Non-Hispanic (NH) race/ethnicity group at 15.0 percent.
- Adult current asthma is highest among White NH and Black NH at 8.8 percent and 8.8 percent, respectively, which is double the adult current asthma prevalence for Hispanics.

<i>Lifetime Asthma Prevalence by Race/Ethnicity Texas Adults, BRFSS, 2006-2009</i>		
		<b>95% CI</b>
White NH:	14.1%	(13.0-15.1%)
Black NH:	13.2%	(11.1-15.3%)
Hispanic:	7.9%	(6.7-9.0%)
Other NH:	15.0%	(11.1-18.8%)
<i>Current Asthma Prevalence by Race/Ethnicity Texas Adults, BRFSS, 2006-2009</i>		
White NH:	8.8%	(7.9-9.6%)
Black NH:	8.8%	(7.1-10.6%)
Hispanic:	4.2%	(3.6-4.8%)
Other NH:	7.6%	(5.2-10.2%)

- Among children, both lifetime and current asthma are highest among the Black NH race/ethnicity at 18.1 percent and 12.6 percent, respectively.
- In contrast to the adult population, current asthma among children is lowest in the Other NH population at 5.5 percent, compared to Other NH adult current asthma at 7.6 percent.

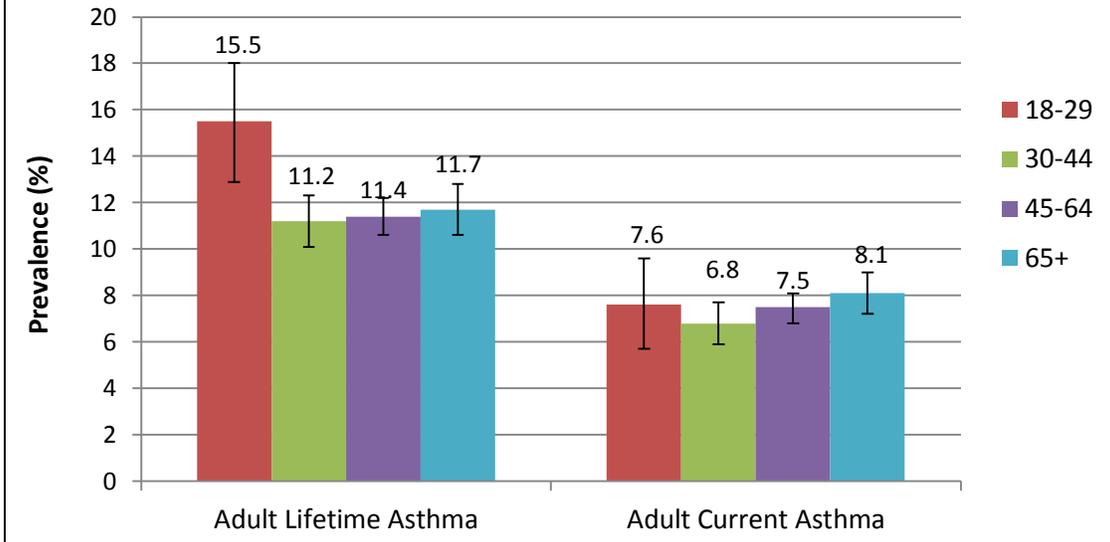
<i>Lifetime Asthma Prevalence by Race/Ethnicity Texas Children, BRFSS, 2006-2009</i>		
		<b>95% CI</b>
White NH:	13.9%	(12.3-15.5%)
Black NH:	18.1%	(14.2-22.1%)
Hispanic:	11.8%	(10.0-13.5%)
Other NH:	11.8%	(6.0-17.6%)
<i>Current Asthma Prevalence by Race/Ethnicity Texas Children, BRFSS, 2006-2009</i>		
White NH:	9.4%	(8.0-10.8%)
Black NH:	12.6%	(9.1-16.1%)
Hispanic:	7.4%	(5.9-8.8%)
Other NH:	5.5%	(2.5-8.5%)

- Hospitalization rates among children with asthma follow the same race/ethnicity-related trends. Childhood age-adjusted hospitalization rates among Black NH (35.9 per 10,000) were significantly higher than hospitalization rates for White NH and Hispanics at 13.7 and 13.5 per 10,000.<sup>4</sup>
- The age-adjusted asthma mortality rate for Black NH (26.7 per 1,000,000) was more than double the age-adjusted asthma mortality rates for White NH and Other NH (11.0 per 1,000,000; 10.8 per 1,000,000), and more than triple the age-adjusted asthma mortality rate for Hispanics at 7.1 per 1,000,000.<sup>16</sup>

## **Age**

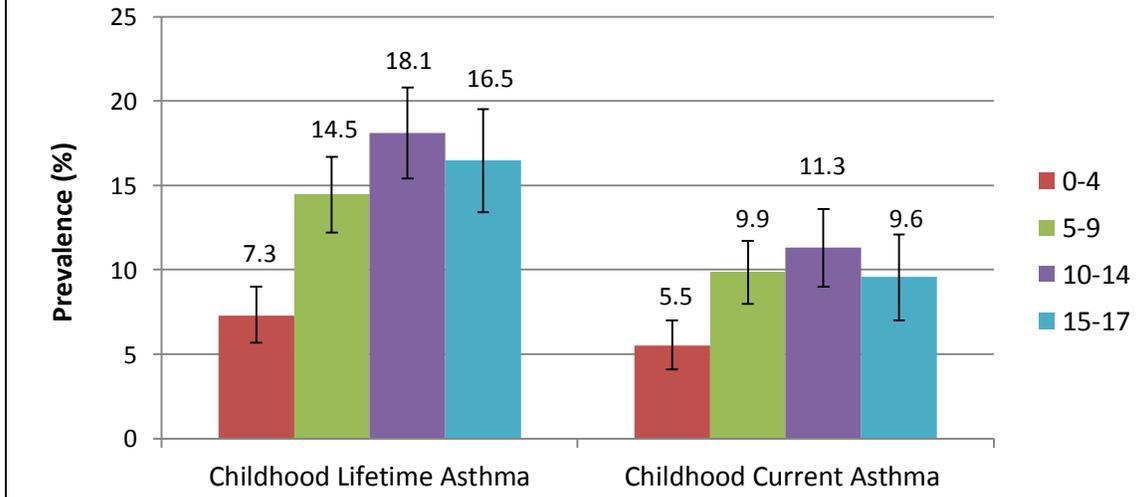
- According to 2006-2009 Texas BRFSS data, adult lifetime asthma is highest for those 18-29 years of age at 15.5 percent (95% CI: 12.9-18.0).
- Adult current asthma is highest among the 65+ population; however, it is not significantly different than current asthma prevalence for any other adult age group.

**Figure 5: Adult Lifetime and Current Asthma Prevalence by Age Group, BRFSS, 2006-2009, Texas**



- Childhood lifetime and current asthma are highest among the 10-14 age group at 18.1 percent (95% CI: 15.4-20.8) and 11.3 percent (95% CI: 9.0-13.6) respectively.

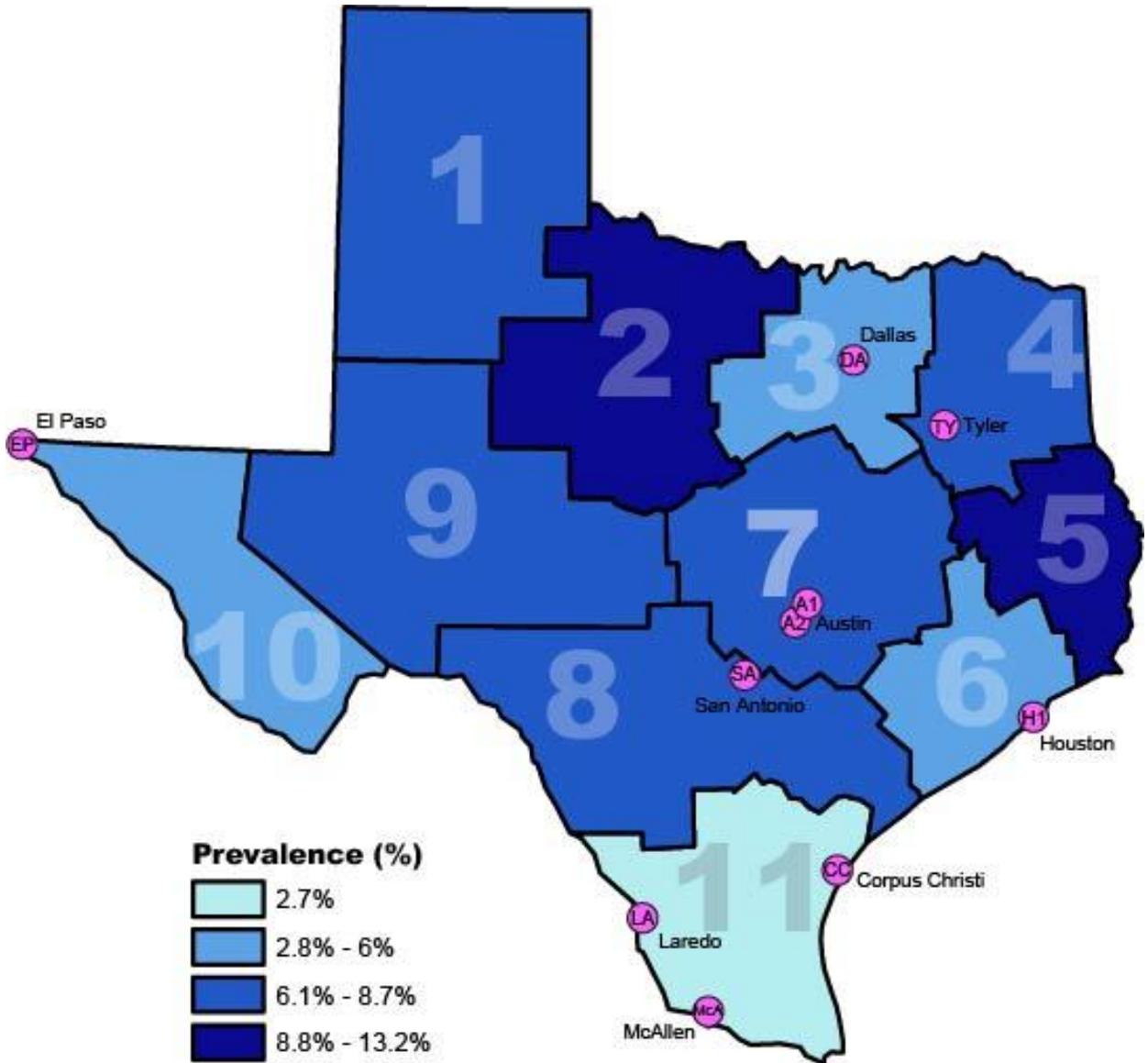
**Figure 6: Childhood Lifetime and Current Asthma Prevalence by Age Group, BRFSS, 2006-2009, Texas**



## **Public Health Region (PHR)**

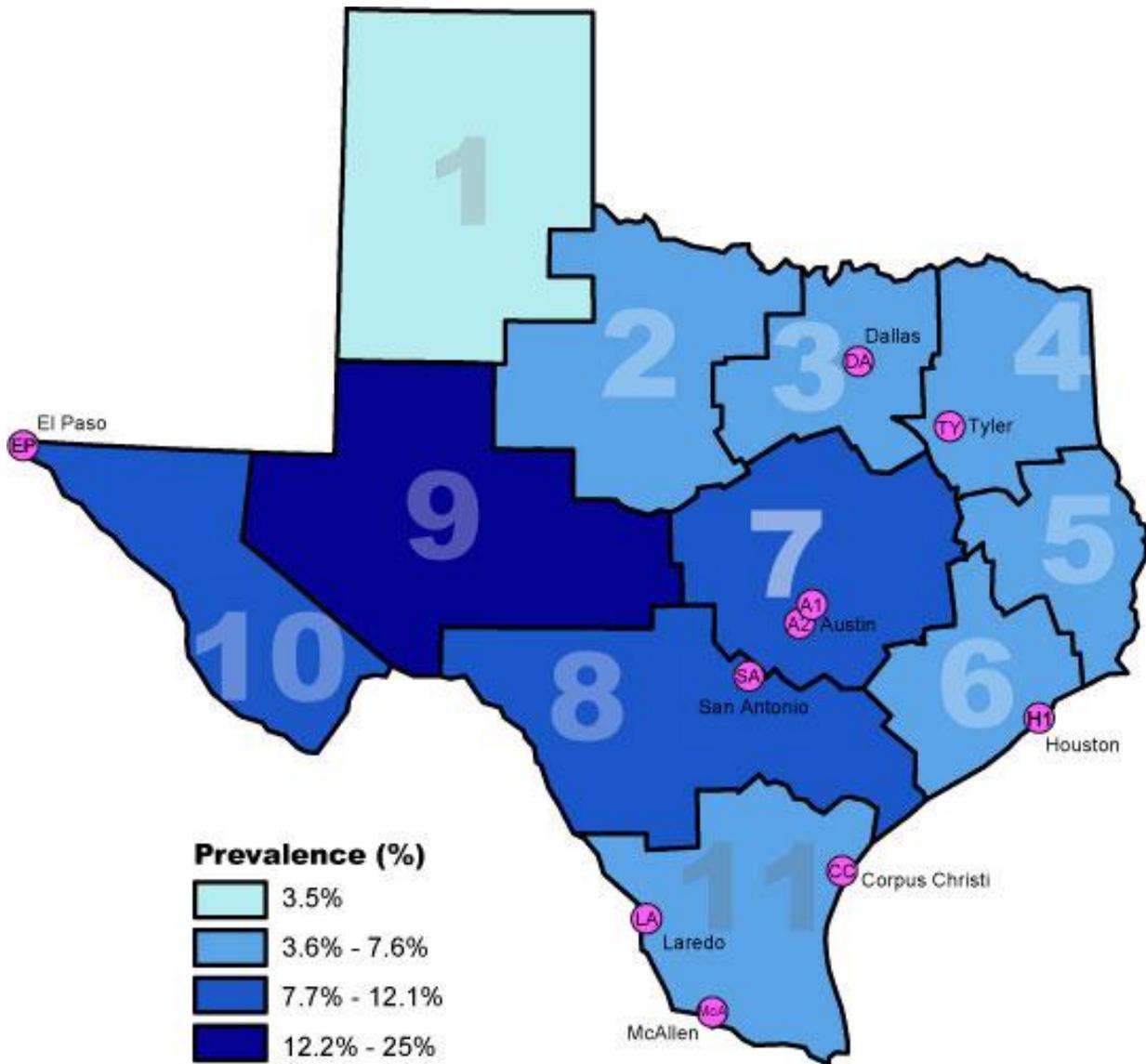
- There are 10 asthma coalitions in Texas, yet Public Health Region's (PHR) with the highest burden of asthma are not represented. Most notably, PHR 2 and 9 do not currently have coalitions. The TACP is working to establish partnerships or coalitions in these high need areas.
- In 2009, the prevalence of both adult lifetime and current asthma were highest in PHR 2 (14.2 percent; 11.6 percent) and PHR 5 (20.8 percent; 13.2 percent).
- PHR 2 had the highest age-adjusted asthma mortality rate (16.0 per 1,000,000) from 2002-2008 among all ages. The age-adjusted asthma mortality rate in PHR 2 was significantly higher than the state asthma mortality rate of 11.6 per 1,000,000.
- In 2009, the prevalence of both childhood lifetime and current asthma were highest in PHR 9 at 28.1 and 25.0 percent respectively.
- In the same year, asthma hospitalization rates among all ages were highest in PHR 9 at 13.9 per 10,000.
- Figures 7 and 8 show Texas asthma prevalence rates for adult and childhood current asthma by PHR. Also shown are the locations of the 10 asthma coalitions.

**Figure 7: Adult Current Asthma Prevalence and Locations of Asthma Coalitions by PHR, BRFSS, 2009, Texas**



- |   |  |
|---|--|
| (EP) El Paso Asthma & Allergy Coalition | (SA) South Texas Asthma Coalition                  |
| (DA) North Texas Asthma Consortium      | (H2) Texas Gulf Coast Asthma Coalition             |
| (TY) East Texas Asthma Coalition        | (CC) Coastal Bend Asthma Initiative                |
| (A1) Central Texas Asthma Coalition     | (LA) Mid-Rio Grande Border Health Education Center |
| (A2) Asthma Coalition of Texas          | (McA) McAllen Asthma Coalition                     |

**Figure 8: Childhood Current Asthma Prevalence and Location of Asthma Coalitions by PHR, BRFSS, 2009, Texas**

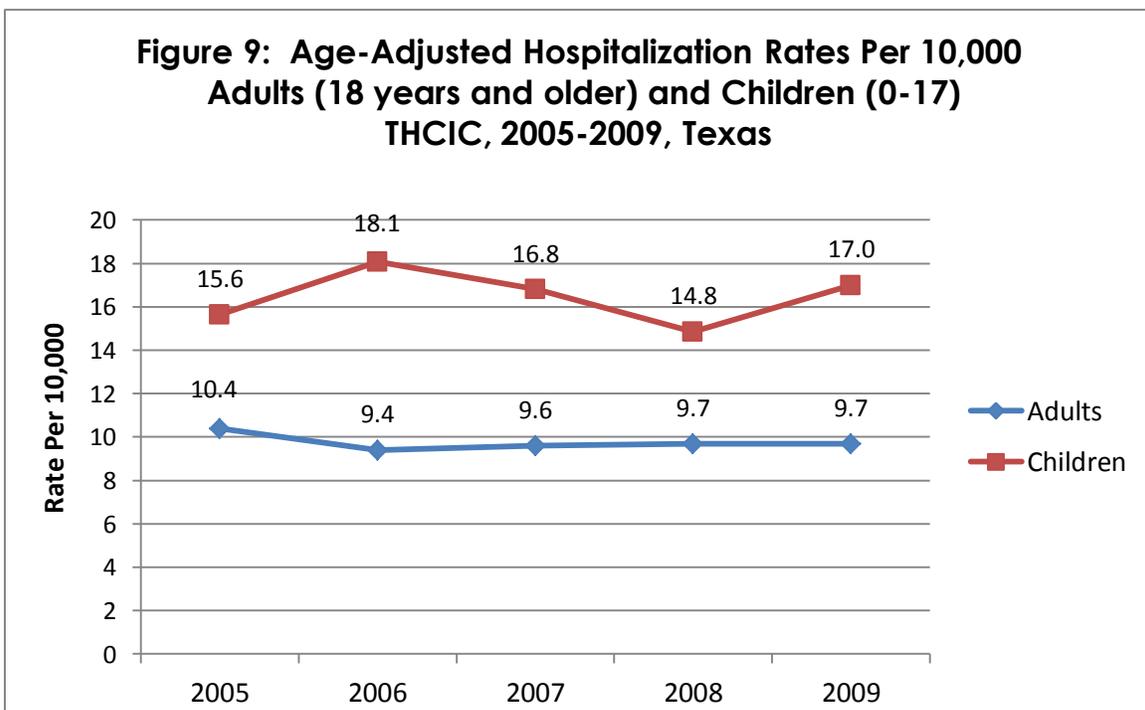


- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>EP El Paso Asthma &amp; Allergy Coalition</li> <li>DA North Texas Asthma Consortium</li> <li>TY East Texas Asthma Coalition</li> <li>A1 Central Texas Asthma Coalition</li> <li>A2 Asthma Coalition of Texas</li> </ul> | <ul style="list-style-type: none"> <li>SA South Texas Asthma Coalition</li> <li>H2 Texas Gulf Coast Asthma Coalition</li> <li>CC Coastal Bend Asthma Initiative</li> <li>LA Mid-Rio Grande Border Health Education Center</li> <li>McA McAllen Asthma Coalition</li> </ul> |
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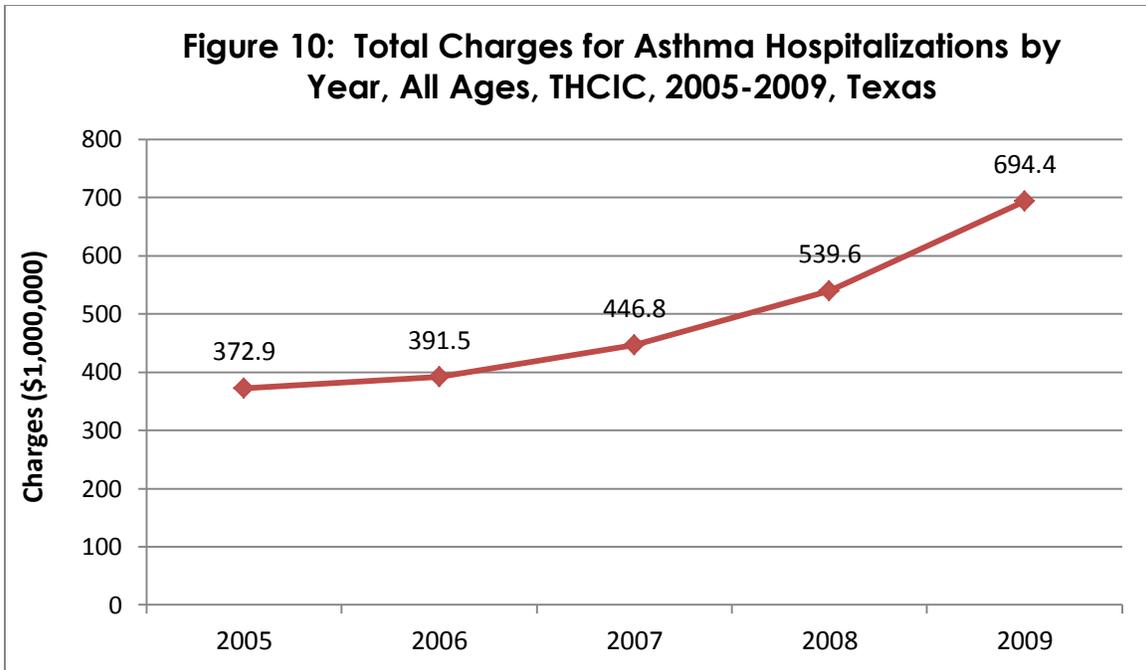
## Texas Asthma Healthcare Utilization and Costs

Hospitalization data for asthma are obtained from the Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File.

- According to the 2005-2009 THCIC Public Use Data File, age-adjusted asthma hospitalization rates for adults aged 18 and older have decreased from 10.4 per 10,000 population in 2005 to 9.7 per 10,000 population in 2009.
- Asthma hospitalization rates for children peaked at 18.1 per 10,000 population in 2006, then dropped significantly to 14.8 per 10,000 population in 2008. In 2009, hospitalization rates for children with asthma climbed to 17.0, but remained below the peak rate in 2008.



- While there has been a leveling of adult asthma hospitalization rates, and fluctuation among hospitalization rates for children, an inverse trend is demonstrated in healthcare expenditures for asthma hospitalizations among all age groups.
- According to the 2005-2009 THCIC, costs for asthma hospitalizations have risen dramatically from \$372.9 million in 2005 to \$694.4 million in 2009. This represents an 80 percent increase in total costs for asthma hospitalizations for all ages over a period of four years.



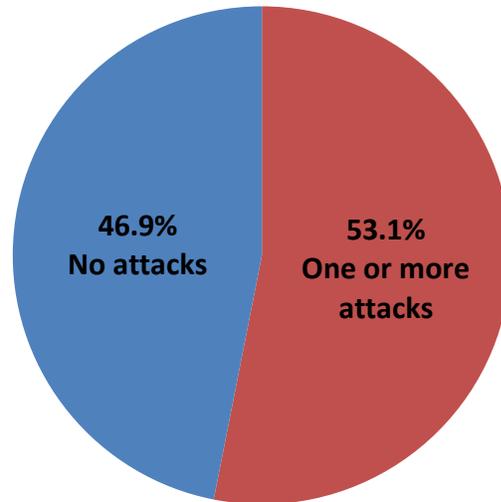
- In 2009, the asthma hospitalization rate for all ages in Texas was 11.6 per 10,000 residents, accounting for more than 28,000 hospitalizations and \$694.4 million in total hospital charges.<sup>4</sup>
- More than 16,000 of the hospitalizations in 2009 were considered to be preventable. This means that approximately \$400 million of the \$694.4 million in total hospital charges were preventable.<sup>5</sup>

## Quality of Life

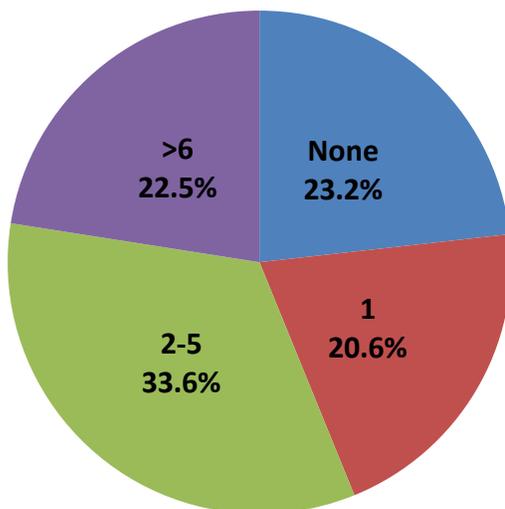
Indicators of quality of life for individuals with asthma are derived from the BRFSS Asthma Call-Back Survey Data.

**Figure 11: Percentage of Adult Respondents Reporting at Least One Asthma Attack in Past 12 Months, Asthma Call-Back Survey 2006-2009, Texas**

Within the 2006-2009 data collection period, more than half of adult respondents with current asthma reported having at least one asthma episode or attack within a 12 month period.



**Figure 12: Percentage of Adult Respondents Reporting Number of Asthma Attacks in Past Three Months, Asthma Call-Back Survey, 2006-2009, Texas**



Of the adults who experienced an asthma attack in the past 12 months, 56 percent reported having two or more asthma attacks in the past three months. Twenty-three (23) percent of respondents had six or more asthma attacks in the past three months.

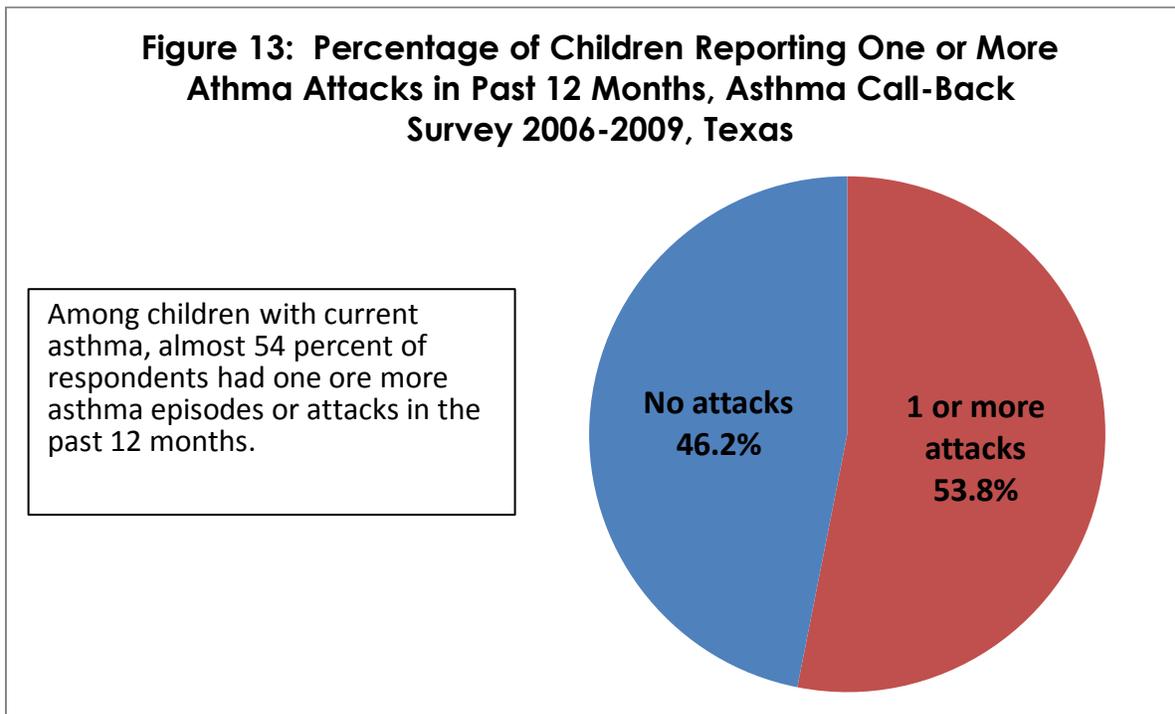
- About 24 percent of adults with current asthma reported being unable to work or carry out normal activities for up to 13 days within the last 12 months.
- Twenty-seven (27) percent of employed adults with current asthma reported having to change or quit their job because of work-related exposures that exacerbated their asthma.

**Table 2: Percentage of Adults Reporting Their Job Caused or Exacerbated Their Asthma, Asthma Call-Back Survey, 2006-2009, Texas**

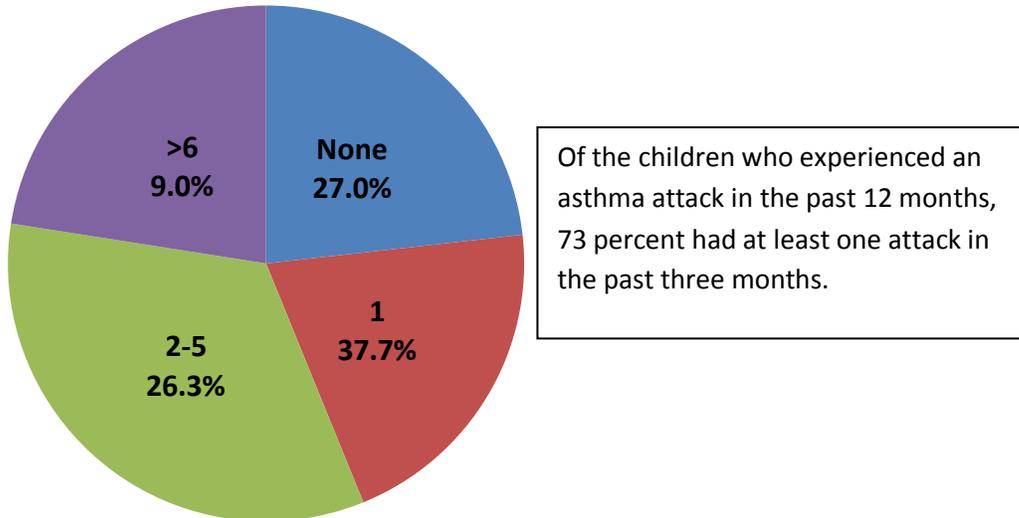
	Prevalence (%)	95% CI
Asthma caused by work	18.2%	(9.9-26.5%)
Asthma exacerbated by work	34.4%	(26.3-42.4%)
Forced to quit job due to asthma	27.0%	(18.9-35.1%)

- Among children with current asthma, 53.8 percent of respondents had one or more asthma episodes or attacks in the last 12 months.

**Figure 13: Percentage of Children Reporting One or More Asthma Attacks in Past 12 Months, Asthma Call-Back Survey 2006-2009, Texas**



**Figure 14: Percentage of Children Reporting Number of Asthma Attacks in Past Three Months, Asthma Call-Back Survey, 2006-2009, Texas**



- Eighty-two (82) percent of children with current asthma reported being taught what to do during an asthma attack by a health professional. However, less than half (44.1 percent) had been taught how to use a peak flow meter, and less than half (44.5 percent) had received an AAP from a healthcare professional.
- Just over 37 percent of children with current asthma, who were enrolled in school, missed between two and five days of school due to their asthma during the last 12 months.
- More than 59 percent of children with current asthma did not have an AAP on file at their school.

# Texas Asthma Plan

The 2011-2014 Texas Asthma Plan focuses on six priority areas designed to address the statewide burden of asthma. Developed in collaboration with its many partners and stakeholders, the TACP presents this plan as a strategic blueprint to increase and expand coordinated asthma control initiatives in Texas.

Asthma partners, coalitions and stakeholders at the community, regional and state levels are called upon to adopt and incorporate the priority area goals and objectives outlined in this plan into their programmatic activities, wherever possible. By working together on a unified set of ambitious yet realistic and achievable goals, the quality of life for Texas with asthma and the systems that support them can be improved.

## Priority 1: Infrastructure and Collaborations

Improving and strengthening Texas' capacity to comprehensively address asthma is critical to improving the health and quality of life for individuals living with asthma. State health departments play a pivotal role by establishing the infrastructure necessary to address asthma at the state, regional and community levels by coordinating activities across multiple organizations and agencies, tracking progress, and evaluating the impact of program efforts. Collaborative partnerships provide the capacity to build and sustain communities that support health environments for people with asthma and other chronic diseases.

**Goal 1:** Build and maintain a network of asthma partners and stakeholders to plan, implement and evaluate asthma activities at the state, regional and local levels to effectively address the burden of asthma in Texas.

**Objective 1:** Establish partnerships in regions of the state with a high burden of asthma.

**Strategy 1:** Using the TACP surveillance system, identify regions of the state with high asthma prevalence rates.

**Strategy 2:** Work with asthma coalitions, partners, local health departments, and Health Service Regions to identify and recruit asthma champions in high need areas.

**Strategy 3:** Provide technical assistance to partners and stakeholders on program implementation and evaluation, and surveillance data.

**Objective 2:** Develop partnerships with organizations and groups throughout Texas who address issues related to asthma, (e.g., Environmental Protection Agency, American

Lung Association, healthcare systems, universities, non-profit agencies) to leverage shared goals, and expand the reach and impact of asthma control efforts.

**Strategy 1:** Identify and partner with organizations performing asthma-related activities.

**Strategy 2:** Strengthen and support community-based initiatives by seeking funds to implement evidence-based asthma activities by asthma coalitions and partners, particularly in high need areas.

**Strategy 3:** Empower local, public, and private organizations to implement the Texas Asthma Plan.

**Goal 2:** Provide a forum for asthma partners and stakeholders to discuss the burden of asthma in Texas, evidence-based strategies to address the burden, and best practices being conducted at the national, state and community levels.

**Objective 1:** Strengthen communication and resource sharing among asthma partners in the state.

**Strategy 1:** Use the TACP website as a portal for the sharing of asthma educational resources, data, and best practices activities implemented by coalitions and stakeholder groups.

**Strategy 2:** Promote attendance at the ACT's annual meeting.

## **Priority 2: Surveillance**

The continuing and systematic collection, analysis, and interpretation of population data are essential to prioritizing and directing public health activities. Accurate and timely surveillance data allow states to assess disease burden, identify disparate populations, guide interventions, inform policy making, and measure program effectiveness. Surveillance data can also help identify emerging health problems, and is essential to effectively and efficiently allocate resources.

The TACP utilizes the following data sets to estimate prevalence and demographic trends, healthcare utilization, and quality of life indicators:

- Behavioral Risk Factor Surveillance System (BRFSS)
- Youth Risk Behavior Surveillance System (YRBSS)
- Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File

- Vital Statistics Mortality Data
- Medicaid Reimbursement Claims
- Texas Emergency Department Asthma Surveillance (TEDAS)
- Healthcare Effectiveness Data and Information Set (HEDIS)
- Real-Time Outbreak Disease Surveillance System (RODS)
- Center for Health Statistics (CHS) Population Data

**Goal 1:** Maintain, enhance, and expand asthma surveillance in Texas, including the identification and monitoring of health disparities and under-diagnosed, at-risk populations.

**Objective 1:** Maintain and enhance current data collection and analyses.

**Strategy 1:** Increase the number of data sources and years of data reported to determine asthma trends in the state.

**Strategy 2:** Assess stakeholder surveillance needs through a gap analysis.

**Strategy 3:** Collaborate with local health departments throughout the state to collect and analyze regional and community-based data and strengthen local-state surveillance activities.

**Objective 2:** Inform local coalitions and stakeholders of asthma surveillance data to increase awareness and guide the planning, implementation and evaluation of asthma interventions.

**Strategy 1:** Include data presentations at state, regional and local meetings of asthma stakeholders.

**Strategy 2:** Provide access to the most current asthma data to coalitions, partners, stakeholders, health departments, and the general community through the TACP website and the TACP epidemiologist.

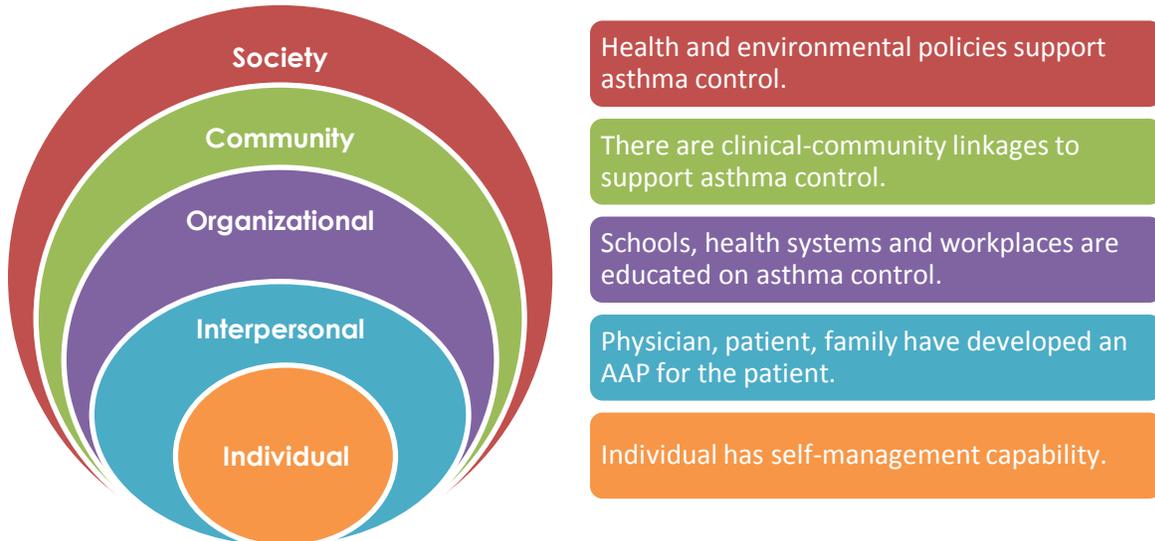
**Objective 3:** Enhance surveillance in disparate population segments by analyzing data and disseminating the results to asthma stakeholders, coalitions, and community members.

**Strategy 1:** Analyze most current years of data to identify and target disparate and high-risk populations.

**Strategy 2:** Provide data to local coalitions, partners and stakeholders to assist with planning, implementation and evaluation of asthma interventions.

### Priority 3: Clinical Management of Asthma

The goal of clinical management of asthma is to prevent and reduce asthma exacerbations and reach a level of optimal control for each patient. Looking back at the social ecological model, there are outcomes that must occur at all levels to create and sustain an environment that promotes and facilitates asthma control.



**Goal 1:** Improve systems and quality of asthma care in Texas.

**Objective 1:** Improve asthma knowledge and competency of healthcare providers, with a high priority on those serving disparate populations.

**Strategy 1:** Partner with professional associations and health benefit plans to promote the use of evidence-based asthma clinical management guidelines by healthcare providers and systems.

**Strategy 2:** Provide continuing professional education on the diagnosis and management of asthma to include the importance of self-management and the reduction of environmental triggers.

**Strategy 3:** Inventory asthma continuing education opportunities and post on the TACP website.

**Strategy 4:** Partner with Texas medical schools and residency programs to incorporate best practices for asthma management and interventions into curriculum for students (e.g., primary care, nursing, emergency).

**Strategy 5:** Incorporate occupational asthma education identification and management in professional education training.

**Goal 2:** Improve clinical-community linkages for the successful management and control of asthma.

**Objective 1:** Establish a comprehensive AAP for children ages 0 – 18 through seamless integration of their AAP at the clinic, at home, and at their schools or daycare.

**Strategy 1:** Inform family physicians to develop written individualized AAP's for their patients with asthma.

**Strategy 2:** Assure that individual AAPs are accessible at all times to the patient, family, school and/or worksite.

**Strategy 3:** Provide school site and occupational asthma training to school health professionals and administrators and company managers, to include the identification and reduction of environmental asthma triggers.

**Objective 2:** Support evidence-based medical practice guidelines for emergency department and in-hospital care, including discharge instructions and access to case management.

**Strategy 1:** Provide asthma patients with an AAP and referral to case management upon release from the hospital.

**Strategy 2:** Implement case management and asthma education interventions to reduce the state asthma hospitalization rate, as required by the Government Performance Results Act (GRPA), including the identification and reduction of environmental triggers that cause and/or exacerbate asthma.

**Objective 3:** Improve access to care for individuals with asthma.

**Strategy 1:** Provide a list of medical assistance programs and resources for patients with asthma on the TACP website.

**Strategy 2:** Fund agencies and healthcare systems that treat low income populations with asthma to provide case management and asthma education interventions.

**Objective 4:** Increase access to asthma case management for at-risk patients, including in-home visits, with an emphasis on low-income populations.

#### **Priority 4: Asthma Awareness and Education**

Asthma can be controlled and outcomes can be improved through a coordinated and multi-pronged approach involving the patient, family, and healthcare provider. It is important to increase healthcare provider, patient and public awareness that asthma is a serious, sometimes fatal, chronic disease which can be managed through a combination of proper diagnosis and treatment, avoidance of environmental triggers, and self-management. Several activities within this plan emphasize the importance of self-management education and the development of individualized AAPs.

Educating individuals on strategies to minimize exposures and adjusting treatments to improve asthma control are key objectives of both medical care and patient self-management. Adherence to AAPs and quick response to asthma symptoms and exacerbations can help prevent and reduce urgent care visits and hospitalizations and their associated costs, improve individual health status and quality of life, and reduce morbidity and functional limitations. Elevating awareness and education on a statewide basis requires coordinated efforts of multiple partners and stakeholders working collectively to reach large numbers of individuals.

**Goal 1:** Provide education to individuals with asthma at multiple points of care and daily living to result in effective asthma self-management.

**Objective 1:** Educate healthcare providers to develop written AAPs for patients with asthma, and equip patients and families with copies for home, school, after school programs, and work settings.

**Strategy 1:** Provide healthcare providers with written and electronic sample AAPs and instructions.

**Objective 2:** Increase the capacity of school health professionals to provide asthma management and education in the school setting.

**Strategy 1:** Conduct asthma education training for school health professionals and administrators to increase awareness and actions to take in the event that a student has an asthma exacerbation.

**Strategy 2:** Train school health professionals to train school children, school staff, and parents on asthma control and management to include the identification and reduction of asthma triggers.

**Objective 3:** Promote uniform methods of managing asthma in schools, the workplace, and home settings, consistent with national guidelines.

**Strategy 1:** Provide curricula and streamlined asthma control protocols to schools, workplaces and families.

## **Priority 5: Community and Public Health Policy**

Addressing asthma from a public health framework focuses on decreasing asthma burden and improving health outcomes at the population level. This involves the collection and analyses of data, surveillance, and applied research to develop education programs and interventions, as well as policies to support environmental changes to protect individuals with asthma. The research and data should support recommended policy changes.

As part of a coordinated, multi-pronged approach to addressing the burden of asthma in Texas, it is important to reach individuals in a variety of settings. Interventions and policy recommendations should focus on schools, workplaces, health systems, and the environment.

In schools, it is important that staff are prepared to address asthma episodes, have an AAP on file for all students with asthma, and comply with Texas laws related to asthma in schools. Employees with asthma should be located/protected from exposures to dust, fumes, gases, and other workplace irritants. Clinical practice guidelines for the diagnosis, treatment and management of asthma should be used across physician practices and health systems. Policies protecting people from environmental pollutants should be in place.

**Goal 1:** Identify and reduce environmental factors that contribute to asthma prevalence and morbidity.

**Objective 1:** Work with school district personnel and community organizations to increase the number of schools that work toward creating asthma friendly school environments.

**Strategy 1:** Survey Texas schools with the highest urgent care visits to determine if they are in compliance with the Texas Inhaler Law.

**Strategy 2:** Target school districts to promote and implement education programs and policies to create an asthma friendly school environment.

**Strategy 3:** Identify asthma champions within schools and communities to form indoor air quality teams to address air quality improvement needs in their school districts.

**Strategy 4:** Assist school district indoor air quality teams to develop a plan to include a needs assessment, identification of asthma triggers, school walkthrough checklist, strategies and actions to address identified needs, and methods to evaluate air quality improvements.

**Objective 2:** Increase awareness of occupational asthma and work-related asthma, its impact, and available treatment and prevention strategies to include the identification and abatement of environmental triggers that cause and/or exacerbate asthma.

**Strategy 1:** Identify businesses/industries in Texas reporting high occupational hazards attributable to environmental factors.

**Strategy 2:** Identify best practices to prevent the development of occupational asthma and to reduce work-related asthma exacerbations.

**Strategy 3:** Identify and implement reasonable accommodations for employees with asthma to avoid and reduce exposure to environmental triggers.

**Objective 3:** Increase public awareness of asthma, its impact, and available treatment and prevention strategies to include the identification and mitigation of environmental triggers that cause and/or exacerbate asthma.

**Strategy 1:** Support policies and community plans that improve indoor and outdoor environmental conditions for people with asthma and other respiratory diseases.

**Strategy 2:** Develop and promote standards, guidelines, and model policies for asthma safe housing that minimize environmental risk factors that contribute to asthma.

**Objective 4:** Promote sustainable health systems changes around asthma in Texas.

**Strategy 1:** Conduct a comprehensive asthma-related policy assessment in one Texas healthcare system where asthma prevalence and morbidity are highest when compared to other health systems in the state.

**Strategy 2:** Develop a resource guide for health system policy change for use by Texas healthcare systems where prevalence and morbidity rates are high when compared to other health systems in the state.

**Objective 5:** Encourage implementation of policies to advance a comprehensive health system, reduce the cost and disparities of asthma care, and increase asthma-friendly indoor and outdoor environments.

**Strategy 1:** Identify and evaluate environmental interventions that are effective in reducing preventable hospitalizations.

**Strategy 2:** Evaluate the feasibility of implementing medication assistance programs to increase access to medication therapy for asthma patients in Texas.

**Strategy 3:** Facilitate public health/medical preparedness recommendations to address asthma management in natural and man-made disasters.

### **Priority 6: Health Disparities and Access to Care**

Asthma disproportionately affects certain racial and ethnic groups, as well as different regions of the state. The 2010 Texas Asthma Burden Report demonstrates the following disparities:

- In children, the Black NH population has the highest rates of lifetime and current asthma, and hospitalizations due to asthma.
- Adult asthma hospitalization rates are highest for Black NH.
- Asthma-related mortality among Black NH is highest for all ages.
- PHR 2 and 5 have the highest rates of adult lifetime and current asthma in the state.
- PHR 2 has the highest mortality rates for all ages in the state.
- PHR 9 has the highest rates of childhood lifetime and current asthma in Texas.
- PHR 9 has the highest asthma-related hospitalization rates for all ages.

Many disparities may be attributed to reduced access to healthcare and socioeconomic inequalities, but the underlying causes of these differences are not always evident. Childhood lifetime and current asthma, for example, are higher among males than females, yet adult lifetime and current asthma are higher among females. As research unfolds, we may have a better understanding of this gender-related issue. We do know that populations with the highest burden of asthma in Texas have been identified, and that is where we need to focus our efforts.

**Goal 1:** Implement asthma education and case management interventions to reduce asthma disparities among populations disproportionately affected by asthma as compared to the general population with asthma.

**Objective 1:** Expand existing case management capability to provide in-home self-management education to individuals with asthma and their families.

**Strategy 1:** Identify and enroll individuals with poor asthma control in case management programs.

**Objective 2:** Increase asthma education opportunities for parents and families of children with asthma who live in low income neighborhoods.

**Strategy 1:** Target community centers, faith-based organizations, and neighborhood locations to provide education on proper asthma management and control, on days and times that are most accessible for participants.

**Strategy 2:** Provide asthma education and referral to case management for school children with asthma who are receiving Medicaid.

**Objective 3:** identify and promote culturally competent patient education resources targeted to populations with the highest burden of asthma.

**Strategy 1:** Work with community-based organizations and focus groups to develop culturally competent awareness activities and resources.

**Strategy 2:** Develop and focus group test low literacy educational materials for individuals with asthma with a focus on work related asthma and reduction of asthma triggers in the work environment.

**Goal 2:** Identify and promote strategies that address access to and use of healthcare services among disparate populations with asthma.

**Objective 1:** Decrease access to care barriers for individuals with asthma.

**Strategy 1:** Develop a list of programs and agencies that provide medical assistance to low income patients and post on TACP website.

**Strategy 2:** Target asthma educational and funding opportunities to healthcare providers and systems serving low income populations.

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## **Appendices**

## Appendix A: Acronyms

AAP	Asthma Action Plan
ACT	Asthma Coalition of Texas
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CHS	Center for Health Statistics
CI	Confidence Interval
DSHS	Department of State Health Services
ED	Emergency Department
EPR-3	Expert Panel Report-3: Guidelines for the Diagnosis and Management of Asthma
ICU	Intensive Care Unit
NACP	National Asthma Control Program
NAEPP	National Asthma Education and Prevention Program
PHR	Public Health Region
TACP	Texas Asthma Control Program
TAP	Texas Asthma Plan
TCEQ	Texas Commission on Environmental Quality
TDH	Texas Department of Health
THCIC	Texas Health Care Information Collection

## Appendix B: Glossary of Terms

Asthma Action Plan	Written instructions developed by a healthcare provider for patient self-management of asthma.
Current Asthma	Having symptoms of asthma or asthma attacks within the last 12 months.
Exacerbations	Acute episodes of worsening symptoms, (e.g., wheezing, shortness of breath).
Evidence-based	Based on scientific research that is reliable, valid, and dependable.
Health Disparities	Differences in prevalence, mortality, disease burden, and access to care among different populations, which often occur across race/ethnicity and socioeconomic status.
Impairment	Level of reduced function based on symptom frequency and lung function.
Incidence	The number of new cases of a disease occurring during a certain period of time within a population.
Intervention	An activity undertaken to improve the health status of a population.
Lifetime Asthma	Having been diagnosed with asthma at any point in one's lifespan.
Morbidity	A disease or the incidence of a disease in a population.
Mortality	Death or the ratio of deaths in an area to the population of that area.
Pharmacology	The science of drugs or medications and their use and effects.
Prevalence	The total number of cases of a disease at a certain time within a population.
Peak Flow Meter	A portable instrument used by individuals with asthma to monitor small changes in breathing capacity.
Risk	The likelihood of either asthma exacerbations, progressive decline in lung function, or adverse effects from medication.
Self-management	Learning and applying skills to monitor and control symptoms; practice healthy behaviors; and know when to seek medical help.
Spirometry	A test that measures the amount of air entering and leaving the lungs.
Surveillance	The ongoing systematic collection, analysis, and dissemination of data.
Trigger	An irritant (e.g., allergen; environmental exposure) that brings on symptoms.

# Appendix C: Texas Asthma Control Program Logic Model

Inputs	Activities	Outcomes		
		Short-Term	Intermediate	Long-Term
<b>Surveillance</b> BRFS YRBSS THCIC VSU Medicaid Claims TEDAS HEDIS RODS CHS TACP Epidemiologist CDC Funding, Leadership and Expertise	Maintain, expand and improve meaningful asthma surveillance activities at the local, regional and state level  Provide surveillance data to local coalitions and stakeholders in order to assist in guiding statewide intervention strategies  Provide ongoing and enhanced surveillance of pediatric emergency department asthma visits  Create and respond to specific and unique requests for data from internal and external stakeholders	Most current data readily available for asthma stakeholders, partners and coalitions  Increased knowledge of asthma data and factors contributing to asthma disparities  Increased knowledge of population subsets with the greatest burden of asthma symptoms  Increased use of asthma surveillance data by partners for planning, implementation and evaluation of interventions	Data-driven asthma initiatives and interventions targeted towards those with significant asthma burden  Asthma trends established for the state and health regions  Improved asthma awareness and increased educational activities	Comprehensive asthma surveillance system to guide intervention strategies and initiatives throughout the state  Improved quality of life for people with asthma  Reduced asthma disparities among populations disproportionately affected by asthma  Reduced asthma morbidity and mortality
<b>Partnerships</b> Asthma Coalitions TAP Partners and Stakeholders TACP Staff CDC Funding, Leadership and Expertise	Develop, support and strengthen state and local asthma coalitions  Establish partnerships with healthcare providers, school health nurses, pediatric emergency departments and schools of public health  Update, disseminate and increase use of State Asthma Plan  Provide collaboration/ communication/ networking activities for staff, partners and stakeholders  Conduct evaluation activities	Increased communication with stakeholders about asthma issues/resources  Plans and activities developed in collaboration with partners  Coordinated implementation of TAP	Increased asthma awareness and education activities in Texas  Improved program implementation and evaluation capacity	Increased communication network among asthma partners and stakeholders  Increased use of policy and regulation change  Strengthened asthma partnerships and coalitions
<b>Interventions</b> Seton Family of Hospitals Baylor College of Medicine Texas A&M Health Science Center, School of Rural Public Health American Lung Association of Texas Other stakeholders/new partners CDC Funding, Leadership and Expertise TACP Staff	Conduct asthma-related training for school health professionals and personnel, community health workers and healthcare providers  Provide self-management education for families and children at high risk of asthma  Refer emergency department (ED) asthma patients for self-management education	Increased awareness of environmental asthma triggers  Increased use of Asthma Action Plans  Increased identification of families and children at high risk for adverse asthma outcomes due to lack of self-management education  Improved patient referral for asthma self-management education	Increased proportion of individuals with asthma who receive self-management education  Improved asthma management and control at schools and workplaces  Increased access to asthma care and services  Reduced exposure to indoor/outdoor, asthma triggers	Reduced asthma disparities  Reduced asthma-related hospitalizations  Improved indoor/outdoor air quality  Improved quality of life for individuals with asthma  Reduced asthma-related school and work absenteeism  Improved strategies to sustain asthma activities



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