

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH



**A Collaborative Approach for Addressing
Asthma in Connecticut
2009 - 2014**

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

J. Robert Galvin, M.D., M.P.H., M.B.A.
Commissioner



M. Jodi Rell
Governor

February 28, 2009

Dear CDC Asthma Program Director:

The Connecticut Department of Public Health (DPH) is pleased to present the 2009 *Connecticut Statewide Asthma Plan: A Collaborative Effort for Addressing Asthma in Connecticut 2009-2014*. According to a recently released *Asthma in Connecticut 2008 Surveillance Report*, asthma is a disease that affects the lives of more than 380,000 individuals in Connecticut. No segment of society is unaffected; children are disproportionately impacted by the disease.

The Connecticut Statewide Asthma Plan is an important step in the mobilization of individuals, communities and organizations throughout Connecticut to improve the prevention, diagnosis, and management of asthma and its many burdens. Over fifty organizations and individuals have joined the DPH to form the Statewide Asthma Advisory Council. Due to the expansion of partnerships and the ever-changing needs of asthma, the State Plan was updated and revised to better reflect the needs of Connecticut's residents.

Connecticut's State Asthma Plan represents a coordinated call to action that challenges us to address the overarching goal to reduce the asthma morbidity and mortality in Connecticut through a public health approach. The Plan identifies six priority areas addressing areas of clinical management, professional education, patient education, the environment, surveillance, and public awareness. Moreover it targets those populations that bear the highest asthma burden. This Plan is designed to guide state agencies, community partners and healthcare providers on implementing interventions and initiatives recommended by the Asthma Advisory Council. The dissemination of the Plan to our key stakeholders throughout the state will combat asthma and will be utilized as a framework for action and collaboration.

The Connecticut Department of Public Health extends its appreciation to those who served on the Asthma Advisory Council and contributed their time and expertise to the development of this Plan. I also want to acknowledge those who will be involved in the future as we work to put the strategies in action. Together, we can reduce the asthma morbidity and mortality in Connecticut and ensure a better quality of life for all residents who live with asthma. As Commissioner of the Department of Public Health, I am proud to move forward asthma public health initiatives in our state.

Sincerely,

A handwritten signature in cursive script that reads "Robert Galvin".

J. Robert Galvin, M.D., M.P.H., M.B.A.
Commissioner



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We gratefully acknowledge the members of the work groups and the Statewide Asthma Task Force for their time and effort spent revising the plan, as well as the following individuals for their detailed review and contributions.

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STATEWIDE ASTHMA PLAN 2009 - 2014

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The members of the Statewide Asthma revision work groups are health experts representing a diverse group of individuals from the medical, pharmacy, public health, and consumer sectors involved in asthma care, prevention, and management.

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Northeast Health Districts Coalition
Region Seven Coalition
New Haven Asthma Coalition

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To Whom It May Concern,

The Asthma Advisory Council (AAC) of Connecticut is a collaborative group that involves multiple partners from public and private sectors. The AAC members and workgroup members that were brought together to revise the statewide asthma plan have knowledge, expertise, and an interest in decreasing the asthma burden and improving health outcomes for individuals with asthma in Connecticut.

The Plan revision workgroup members and the AAC have defined Plan priorities based on the new NAEPP Guidelines for asthma care, current data and proven interventions along with available resources in Connecticut.

The AAC members will again take a leadership role in conjunction with the Connecticut Department of Public Health's Asthma Program to support and guide Plan implementation.

The AAC and the Asthma Program staff extend a sincere thank you to all individuals who contributed their time and expertise to revise the Connecticut Statewide Asthma Plan. Together, our collaborative efforts defined in this new Plan can decrease hospitalization and emergency department visits and improve the daily lives of patients and their families in Connecticut.

Sincerely,

Stephen Updegrove, MD, MPH
Revision Committee Co-chair
Asthma Advisory Council

Eileen Boulay, RN
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"YOUR HEALTH IS OUR COMMUNITY'S WEALTH"

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Mayor John DeStefano, Jr.

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Executive Summary

The mission of the Connecticut Department of Public Health's Asthma Program is to reduce asthma associated morbidity and mortality to improve the quality of life for Connecticut residents living with asthma.

Asthma is a chronic disease of the respiratory system that is characterized by reversible obstruction of the airways and airway hyper-responsiveness to a variety of stimuli. Nationally, asthma is one of the most common chronic diseases and a leading cause of disability in children. In 2006, 8.5% (19.2 million) of adults in the United States reported that they have asthma (Behavioral Risk Factor Surveillance System).¹⁶ According to *Asthma in Connecticut 2008: A Surveillance Report*, the prevalence of asthma among adults is higher in Connecticut than in the U.S. as a whole, and appears to be increasing, 9.3% in 2006, up from 7.8% in 2000. Approximately 248,000 adults (9.3%) and 86,000 children (10.5%) in Connecticut reported that they currently have asthma.

Asthma affects people of both sexes and all ages, races and ethnicities; however, certain population subgroups are disproportionately affected. Based on asthma prevalence, hospitalization, ED visit, and mortality data, the following population subgroups have been identified as a priority for asthma intervention in Connecticut: 1) children, 2) adult women, 3) the elderly (65+ years of age), 4) Hispanics of any race, 5) non-Hispanic blacks, 6) residents of low socioeconomic status, and 7) residents of urban areas.

The revised Plan builds on successful 2003 Plan implementation efforts over the last five years. The Plan will be a guide for other state agencies, healthcare providers, community partners, and stakeholders in implementing strategies to achieve the mission of the Asthma Program.

The 2003 Plan was an effective roadmap to guide the Program to a mature, experienced level. The current Plan capitalizes on resources and knowledge not available when the earlier Plan was written. The Asthma Program now has statewide recognition, access to numerous data sources and an asthma surveillance system with evidenced-based interventions in place at the local, regional and statewide level. Our data identifies what populations bear the highest asthma burden and helps us to focus interventions and limited resources on those populations at highest risk in a cost-effective manner.

Past Outcomes Guide Our Direction

The evaluation activities that were most influential is assisting the work groups in developing plan goals are as follows:

Our preliminary Putting on Airs findings identified the following: patients were not receiving self-management education, lack of an Asthma Action Plan (AAP) was the norm rather than the exception and there was a lack of patient understanding regarding their asthma treatment and asthma triggers in the home environment.

Our most recent surveillance report in 2008 indicated although asthma affects people of all ages, races and genders, certain population subgroups are disproportionately affected. Based on asthma prevalence, hospitalization, emergency department visits, and mortality indicators, the following population subgroups have been identified as priority for asthma intervention in Connecticut: 1) children, 2) adult women, 3) elderly, 4) Hispanics, 5) non-Hispanic blacks, 6) residents of low socioeconomic status, and 7) residents of urban areas. These data guided the plan revision groups to identify what interventions needed to continue to address the above populations.

Both Pediatric and Adult Easy Breathing results showed improved clinical adherence by providers and supported some form of patient education.

The Coalition for Environmental Justice's work with our target population in urban areas has been very successful reaching individuals in our three largest cities through community centers, churches and neighborhood civic organizations. Their peer-to-peer Speaker's Bureaus offer patient education in a variety of community venues and their media campaigns promote awareness of symptoms for residents that may have undiagnosed asthma. Billboards, radio spots and bus placards are written at the fifth grade level and are offered in Spanish and English in appropriate neighborhoods.

Our BRFSS data clearly showed us that 60% of adult respondents with asthma experienced some asthma symptoms in the last 30 days on the day of the interview. The lack of asthma control is an issue that we must address.

The Revised Plan identifies seven goals:

1. Assess Connecticut's asthma burden to identify disparities, high-risk populations, and trends
2. Implement the State Asthma Plan by incorporating plan goals into an organized work plan that monitors progress toward meeting State Asthma Plan goals
3. Increase the number of partners with expertise in advocacy and systems change that can identify and act on opportunities for systems or policy change that improve asthma outcomes
4. Conduct interventions to promote patient self-management, adherence to NAEPP guidelines, a decrease in hospitalizations, especially for disparate populations
5. Evaluate programmatic activities, such as those defined under program management, interventions, partnership, and surveillance objectives
6. Create an environment that supports effective and comprehensive care through the engagement of consumers, providers and partners
7. Develop a Program Evaluation Plan to assess the effectiveness of all aspects of the Program

Background

Introduction

Asthma is a chronic respiratory disease characterized by intermittent airway narrowing and airflow obstruction that causes repeated episodes of wheezing, coughing, and shortness of breath. The exact cause of asthma is not known, but both genetic and environmental factors are thought to play a role in its development and expression. These factors include:¹

- Atopy (an inherited tendency to develop allergies)
- Parents who have asthma
- Certain respiratory infections during childhood
- Contact with certain airborne allergens or exposure to certain viral infections in infancy or in early childhood when the immune system is developing

If asthma or atopy runs in a family, exposure to airborne allergens (e.g., dust mites, cockroaches, and animal dander) and irritants (e.g., tobacco smoke) may make an individual's airways more reactive. Still in its infancy, the identification of genes associated with asthma and understanding of their interaction with environmental triggers involved in disease pathogenesis may lead to the development of effective strategies that promote awareness for those at increased risk of developing asthma.

Demographics

Connecticut is characterized by high social and economic contrast and racial and ethnic diversity. It is the third smallest state in the U.S. in terms of area, but it has the 29th highest population and is the fourth most

densely populated.² Approximately 88% of Connecticut's population lives in urban areas.

Whether in terms of health status, income, poverty, racial composition, or almost any other factor, statewide averages for Connecticut often are misleading. Striking disparities exist across town lines, among racial and ethnic groups, and between urban and rural populations. These differences have engendered the concept of "two Connecticut,"³ one comprising people who live in the wealthiest state in the nation, and the other consisting of those who live in some of the most severe and concentrated pockets of poverty in the U.S. The notion of "five Connecticut" has even been proposed, based on disparate social and economic factors. The overall health of Connecticut's people varies dramatically between its wealthiest and poorest communities.

Connecticut's population is changing, and the demographic changes are reflected in both numbers and patterns of inpatient hospitalization and ED visits. Disparities in asthma control in relation to incidence, mortality, and treatment were fundamental considerations in the revision of Connecticut's Statewide Asthma Plan.

Shift in Racial and Ethnic Composition

Asthma rates and patterns vary across demographic groups, including racial and ethnic groups. From 1990 to 2000, the number and proportion of persons of white race in Connecticut decreased, whereas minority populations increased, in some cases by 50% or more. Connecticut's population is predominately white (81.6%) and non-Hispanic (90.6%); however, the racial and ethnic composition is dramatically different in the state's largest towns. Non-

whites account for 72% of the population in Hartford, 57% in New Haven, and 55% in Bridgeport, and Hispanics (of any race) represent 41%, 21%, and 32%, respectively, of the population in these three cities.⁴ Hispanics are the largest minority group in Connecticut.

Social and Economic Characteristics

Language Spoken at Home

The percentages of Connecticut residents who speak a language other than English and who do not speak English well have been increasing. In 2000, nearly one in five Connecticut residents over 5 years of age spoke a language other than English, and more than 7% did not speak English “very well”. In Hartford and Bridgeport, more than 40% of the population spoke a language other than English, and more than one in five spoke English less than “very well.”

People with a poor ability to read, write and speak English often have a poor understanding of medical information and advice. As a result, they are less likely to access preventive health services, and they end up with poor health outcomes, compared to people with high English literacy.⁵

Income and Poverty

Connecticut is the wealthiest state in the nation, but a great and growing gap exists between its rich and its poor. Between 1990 and 2000 the per capita income⁶ of Connecticut residents rose by 42.5% to \$28,766. This figure was more than double the income defined by the federal government as “poverty level” for a family of three (\$3,740).⁷ During the same period, the poverty rate declined nationally, while the number of people living below the poverty level in Connecticut rose from

217,347 to 259,514--an increase of nearly 20%--representing 7.6% of the state’s population.

No disparities among Connecticut’s 169 towns are more glaring than those for income and poverty. In 2000, *per capita* income ranged from \$15,000 in Hartford to nearly \$94,000 in New Canaan, and poverty rates ranged from 0.7% in Killingworth to 30.6% in Hartford. Hartford, the capital of the wealthiest state in the nation, had the second highest poverty rate of all U.S. cities.⁸

Connecticut residents of white race had the highest *per capita* income of any racial or ethnic group (\$31,505). *Per capita* income was 58% lower for Hispanics and 47% lower for African Americans.⁹ Connecticut’s poverty rates were 7% for whites, 28% for African Americans, and 32% for Hispanics in 2002-2003.¹⁰

The U.S. Census Bureau may be undercounting actual poverty in Connecticut. The cost of living in Connecticut is higher than the national average. Accordingly, although an individual’s or family’s income may be above the national threshold for poverty, they might still be living in stressed financial conditions by Connecticut standards.¹¹

Health Insurance

Connecticut has one of the lowest percentages in the U.S. of people lacking health insurance.¹² In 2004, 5.8% of the state’s population had no health insurance at the time they were surveyed, and 9.4% said they had been uninsured at some time during the prior year. Among racial and ethnic groups, 21% of Hispanics, 7% of African Americans, and 3% of whites were uninsured; these disparities were found to be related to low income and lack of

permanent, full-time employment. Young adults are least likely to have insurance. By age group, 2% of persons less than 19 years, 16.8% of persons 19-29 years, 9.6% of persons 30-44 years, 4.8% of persons 45-64 years and 0.4% of persons age 65 and over were uninsured.¹³

Compared to people with health insurance coverage, those without health insurance have more difficulty accessing personal health services, use less medical services, receive less outpatient and inpatient care, and, as a result, tend to have worse health.¹⁴ Individuals without health insurance often seek care at a later or more advanced stage of disease, leading to higher death rates.¹⁵

Framework for Planning

Historical Perspective

The first *Statewide Asthma Plan* was published in 2003. The DPH Commissioner appointed the Statewide Asthma Task Force as an appropriate vehicle to develop the first Plan, and in October 2003, the DPH Deputy Commissioner supported the establishment of the 15-member Asthma Advisory Council (AAC) to guide implementation of the Statewide Asthma Plan.

Members of the AAC Plan revision work groups were selected based on the following criteria: a former member of the Asthma Task Force; a representative with expertise on asthma issues from each of the Asthma Workgroups (clinical management, public education, professional education, and the environment); individuals that bring statewide geographic representation and diversity to the Council.

The roles and responsibilities of the AAC are to advise and make recommendations on asthma-related matters, assist DPH in working with local communities in implementing the recommendations of the *Statewide Asthma Plan*, review and evaluate the implementation of the Plan, and serve on the council for at least one 1-year term, with potential for reappointment

The current AAC includes partners from several DPH programs, other State agencies, community-based organizations, local health departments, health care providers, schools, insurance providers, local asthma coalitions, academic and health care institutions, consumers, and others with environmental expertise.

This current Plan was developed using data from DPH (deaths, hospitalizations, school-

based asthma surveillance, and work-related disease), Connecticut Hospital Association - CHIME (hospitalization and emergency department data), the Behavioral Risk Factor Surveillance System, Medicaid managed care data from the Connecticut Voices for Children, expertise of the Asthma Program, the AAC members, Plan revision work group members, and others. The revised goals, objectives and strategies were established using data, trends, and the best available information through the Program, the AAC, plan revision work group members and other partners.

The Department of Public Health's Asthma Program has been working collaboratively with state, regional and local partners on asthma control issues for many years. The Centers for Disease Control and Prevention (CDC) Cooperative Agreement, *Addressing Asthma from a Public Health Perspective*, enabled the Program to strengthen relationships with existing partners and work with new partners toward the common goal of decreasing the number of hospitalizations and ED visits for asthma. The current Plan builds on components of the 2003 plan by refining objectives to focus on populations at highest risk for asthma exacerbations and/or death, and to incorporate current initiatives, data, and methods of education and outreach that were not available when the 2003 Plan was written. The Plan's priority focus will be disparate populations in urban settings. Our goals to increase awareness, to plan, implement and evaluate evidenced-based interventions in this population will address the needs of this high-risk population first. In addition, and the Program will continue analysis of surveillance data to develop fact sheets for special populations, to assist our partners/advocates.

The Planning Process

To build on the important work accomplished through the 2003 Asthma Plan, the DPH Asthma Program invited former partners and work group members to assist in the revision process. New members were recruited to ensure diverse representation and expertise. Leaders and decision makers from a variety of DPH programs and other organizations were asked to participate; many sent a designee if they could not regularly participate. The Program vigorously sought involvement of key stakeholders from the areas of clinical management, the environment, policy, education, evaluation, and local health. The Program was not always successful, despite numerous attempts to seek representatives from the business community and the Connecticut Occupational Safety and Health Administration (CONNOSHA).

The major key stakeholders actively participated throughout the planning process and drafting of the revised Plan. The Asthma Program identified the need to revise the 2003 *Statewide Asthma Plan* to better serve those who still use hospitals and emergency departments to treat their asthma exacerbations, because they are not in control. Several years of data from multiple sources, evidenced-based interventions, and State-supported financial resources that did not exist to the extent they do today were not in place when the 2003 plan was written. The Asthma Program began discussing revising the 2003 Plan and received support to proceed during an AAC quarterly meeting in January 2006.

The current Plan is ambitious, but the work group members believed that the Program's current initiatives and interventions must be continued. To this end, many of the short-term objectives are already in process and

will serve as the foundation to build on over the next 5 years.

Current Asthma Initiatives in Connecticut

Several interventions already in progress are included in the present Plan because they meet one or more key criteria:

- there is scientific evidence of their effectiveness,
- they follow NAEPP Guidelines, and/or
- they show potentially effective results that need further study.

These interventions, summarized below, are funded by various sources, are being implemented both regionally and statewide, and reach the target populations in a variety of settings.

The interventions will be promoted for inclusion into standard policies and practices within local health departments. They will be sustained through curricula and training provided by the Asthma Program, a train-the-trainer program, and collaboration with environmental health, local health and healthcare providers.

Programs for Clinicians and Professionals:

Pediatric Easy Breathing – A statewide program that trains pediatric providers in asthma diagnosis and management; “Best Practices” based on the NAEPP guidelines. (Partner: Connecticut Children’s Medical Center)

Adult Easy Breathing – Provides training for medical residents in asthma diagnosis and management; “Best Practices” based on the NAEPP guidelines. (Partners: Norwalk Hospital, Bridgeport Hospital, and the Hospital of St. Raphael in New Haven)

Asthma and Allergy Essentials for Day Care Providers – An asthma and allergy education program for childcare workers, daycare providers, “Head Start” and after school programs. The Program, taught by a certified nurse instructor from the Asthma and Allergy Foundation of America trains daycare providers to identify asthma triggers and feel more comfortable caring for children with asthma in their facility. (Partners: Naugatuck Valley Health District, Stratford Health Department)

Programs for Patients and Families:

Putting on Airs – An in-home asthma education and environmental assessment program provided by an asthma educator/nurse and a sanitarian. (Partners: Northeast District Department of Health, Naugatuck Valley Health District, Milford Health Department, Ledge Light Health District, Bridgeport Health Department, Meriden Health Department, and the Waterbury Health Department)

Asthma Awareness and Education Program - Educates the public on the signs and symptoms of asthma and environmental factors that may contribute to the disease. The program targets disparate populations in large urban areas with high rates of hospitalization and emergency department visits. The program trains individuals from urban communities to conduct outreach and offer presentations through an asthma speakers’ bureau and three urban asthma

coalitions. (Partner: Connecticut Coalition for Environmental Justice – Bridgeport, Hartford, and New Haven)

Programs in School Settings:

Open Airways for Schools – A statewide asthma education program on self-management during school hours for children aged 8-11 who have asthma. The program is taught by the American Lung Association’s certified school nurses to train school nurses. (Partners: Connecticut schools, Central Connecticut Health District)

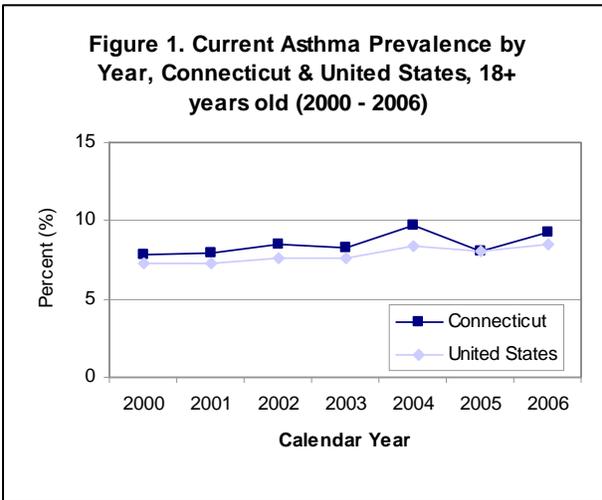
Tools for Schools (TfS) – The TfS program was designed by the Environmental Protection Agency (EPA) to improve the indoor environment in school settings. The Program educates school teaching, custodial, and maintenance staff to identify indoor air quality (IAQ) problems in their schools and to take correction action to address the problems and improve IAQ. This program has been successfully implemented statewide.

Tools for Office Buildings (TfO) – The program educates employees, custodial and maintenance staff to identify and address IAQ problems in office buildings as in the *Tools for Schools program*.

Tools for Technical Schools (TfT) – Employs the TfS concept to technical schools and addresses secondary exposures associated with emissions from the trades.

The Burden of Asthma in CT

Prevalence

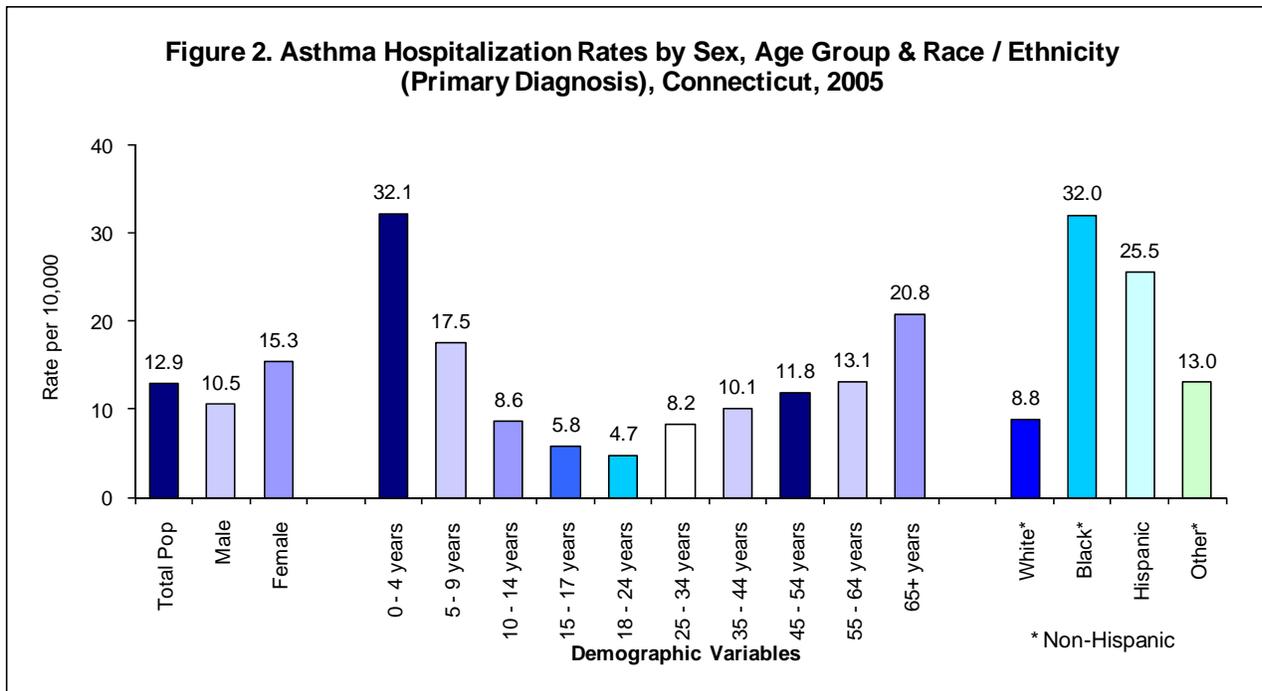


The prevalence of asthma among adults is higher in Connecticut than in the U.S. as a whole and appears to be on the rise (9.3% in 2006 from 7.8% in 2000) (Figure 1).¹⁶ Approximately 248,000 (9.3%) Connecticut adults and 86,000 (10.5%) children reported that they currently have asthma.¹⁶ Asthma prevalence is higher in adult females and male children. Hispanics of all races and

non-Hispanic blacks tend to experience higher rates of asthma than do non-Hispanic whites, and the prevalence decreases with age.

Hospitalizations

Although there is no known cure for asthma, it can be managed through proper medical treatment and the avoidance of triggers (A trigger is a substance or event that sets off asthma symptoms). With proper management, patients should not have to seek emergency care or be admitted to the hospital because of their asthma. Still, each year thousands of patients seek hospital care. In Connecticut in 2005, there were a total of 4,500 hospitalizations (12.9 per 10,000) among CT residents with a primary diagnosis of asthma (Figure 2)¹⁶. The rate for women was 38% higher than that for men. Children 0-9 years of age and adults 65+ years of age and older had the highest rates of asthma hospitalization (32.1 and 19.6 per 10,000 population, respectively), and compared to non-Hispanic whites, the

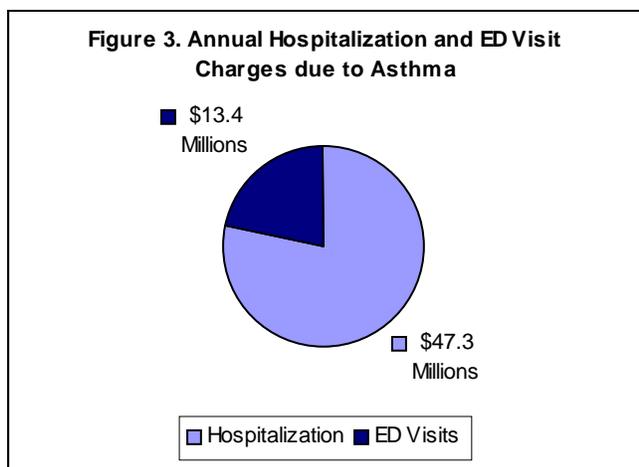


rates among non-Hispanic blacks and Hispanics were about 3 times higher (8.5, 33.8, and 35.2 per 10,000, respectively).

Similar disparities by sex, age group, and race/ethnicity were observed for asthma ED visits and deaths. Asthma morbidity and mortality also were higher among residents of urban areas. Compared to residents of smaller towns, residents of the five largest Connecticut towns (Bridgeport, Hartford, New Haven, Stamford, and Waterbury) were nearly 3 times more likely to be hospitalized (27.0 per 10,000 population vs. 9.9 per 10,000 population) or to visit an ED (136.6 per 10,000 population vs. 48.7 per 10,000 population) for their asthma and twice as likely to die (24.3 per 1,000,000 population vs. 12.3 per 1,000,000 population) due to asthma when compared to residents from the rest of CT.¹⁷

Economic Burden

Each year in Connecticut, \$47.3 million in hospitalization charges and \$13.4 million in emergency department (ED) charges are attributable to a primary diagnosis of asthma (Figure 3).¹⁶ Over half of these charges were covered by public funds, such as Medicaid and Medicare. While the rates of hospitalizations and ED visits with a primary diagnosis of asthma, and asthma



deaths have not increased during the most recent 5-year period, Connecticut still falls short of its targets in reducing asthma burden based on the *Healthy People 2010* objectives. Hospitalizations and ED visits with asthma as a *secondary* diagnosis, however, have steadily increased during the past decade, and research is needed to explain the significance of asthma comorbidity with other conditions.

Management and Control

In 2005, of adults who reported currently having asthma, more than 60% reported had some asthma symptoms in the past 30 days, 47.7% experienced an asthma attack in the past 12 months, and 21.7% reported difficulty sleeping due to asthma on at least one of the past 30 days.¹⁶ In addition, 29.1% reported activity limitation in the past 12 months because of their asthma. Although this represents a decrease from 35% in 2003, it is still well above the *Healthy People 2010* target of 6%.

In 2005, 21.7% of adults with current asthma reported difficulty sleeping due to asthma on at least one of the past 30 days.¹⁶

Barriers to Care

Nature of the Disease

Asthma is a difficult disease to manage in that its causes are not clear and it has symptoms that recur unpredictably and are of irregular duration and severity..

Patient Education

Barriers related to patient education range from self-efficacy to lack of provider understanding of the level of the patient's comprehension. The lack of education may hinder the ability of the person with asthma to understand and successfully adhere to the prescribed asthma treatment regimen.

Low Provider Adherence to National Asthma Education and Prevention Program (NAEPP) Guidelines
Low provider adherence to the NAEPP Guidelines may be due to a lack of knowledge of the guidelines or reluctance to change practice patterns. The Guidelines are a best-practice standard established and updated in 2008 by the NAEPP.

Systems Issues and Disparities in Care
The lack of coordination of health care across providers impedes the effective delivery of appropriate services to persons with asthma. In addition, because asthma care varies by health plans, individuals with asthma do not have access to the same quality of care.

Lack of Insurance
Rising medical costs make care prohibitive for some of Connecticut's most vulnerable populations. Many workers do not have employer-provided insurance, do not qualify for Medicaid, or cannot afford to purchase their own insurance. Many more residents are underinsured or have coverage that does not include the full cost of effective asthma treatments.

Low-Income
One of the barriers to receiving diagnostic care and appropriate treatment is low socio-economic status and its attendants such as homelessness and level of educational development.

Priority Populations for Intervention

Asthma affects people of both sexes and all ages, races and ethnicities; however, certain population subgroups are disproportionately affected. Based on asthma prevalence, hospitalizations, ED visits, and mortality, the following population subgroups have been identified as priority populations for

asthma interventions in Connecticut: 1) children, 2) adult women, 3) the elderly (65+ years of age), 4) Hispanics of all races, 5) non-Hispanic blacks, 6) residents of low income, and 7) residents of urban areas.¹⁵

1. **Children**: Compared to adults, children under 18 years of age, and especially those under 5 years of age, are more likely to be hospitalized or to have gone to the ED because of their asthma.
2. **Adult Females**: Women are more likely than men to have asthma and are also more likely to be hospitalized, to have visited an ED, and to die because of their asthma.
3. **Elderly**: Adults 65 years of age and older have the highest asthma hospitalization and mortality rates among adults.
4. **Hispanics**: When compared to non-Hispanic whites, Hispanics are over 3 times more likely to be hospitalized, over 4 times more likely to have gone to the ED, and more than 1.5 times more likely to die because of their asthma.
5. **Non-Hispanic Blacks**: Compared to non-Hispanic whites, non-Hispanic blacks are over 3 times more likely to be hospitalized or to have gone to the ED, and are more than twice as likely to die because of their asthma.
6. **Low Income**: Adults and children in lower-income households are more likely to have asthma. About half of all asthma hospitalization and ED visits were covered by public funds, such as Medicaid or Medicare.
7. **Residents of Urban Areas**: Residents of some of Connecticut's largest cities are more likely to experience asthma and have higher rates of asthma hospitalizations and ED visits, compared to residents of smaller towns.

Program Response

Surveillance of asthma prevalence, hospitalizations, and ED visits has identified the need for the Program to focus education and intervention efforts on the largest towns where the highest rates of hospitalization and ED visits are documented for minority populations with lower income levels.

The effect of the current economic climate on implementation of the present Asthma Plan cannot be predicted with certainty. The Plan's objectives and strategies will be prioritized such that those that do not require additional funding will be implemented first. If necessary, the Program will also focus on the planning phase of strategies that require funding, seeking alternative funding sources, and preparing to act rapidly when funds become available.

Currently, \$1.5 million in State funds are dedicated annually to asthma interventions. Because of the economic downturn, State funds for existing contracts may be reduced or eliminated. Although no one can predict if support will continue, key interventions such as the *Easy Breathing* initiative are strongly supported by State legislators. The Asthma Advisory Council (AAC) plans to work with insurance payers towards systems change to support quality improvement initiatives and reimbursement that can

sustain comprehensive best practice standards for asthma care.

The AAC will be reconvened, comprising the original 15 members and new members. With support from the DPH Asthma Program, it will guide implementation of the Plan. The AAC will meet quarterly to review time lines for work plan implementation and evaluation.

Next Steps

Plan implementation will begin with identifying an Asthma Evaluation Team to develop a Program Evaluation Plan in year one. Key partners from the AAC with expertise in evaluation will be invited to join the evaluation team. In conjunction with assistance from our CDC Project Officer and CDC Evaluation Technical Advisor, the team will identify evaluation activities that align the evaluation plan with programmatic activities and mechanisms.

Review of current outcomes and measures for Program Activities, interventions and surveillance data will be a starting point for framing and prioritizing evaluation questions. Outcome measures will be revised based on our review and evaluation plan components. The logic model that follows is an initial attempt that may be revised following development of the program Evaluation Plan to outline the short term, intermediate, and long-term steps the program will take to reach the to reduce the asthma burden in Connecticut, especially to desperate populations by 2014.

NEXT STEPS: FRAMEWORK FOR PLANNING

Activities

Improve Clinical Systems of Care

Provide most current "best practice" NAEPF clinical guidelines to health care providers.

Promote professional education and integration of care among providers, physicians, AE-Cs, nurses, pharmacists.

Identify need for uniform reimbursement for asthma comprehensive care.

Provide curricula and tools to assist and document appropriate care.

Self-management in Schools, Day Cares and the Community

Develop asthma-friendly guidelines and policies for asthma management in these settings.

Develop asthma training curriculum for all personnel.

Assess the electronic needs and capabilities of schools to report, get training and access resources.

Environment

Identify opportunities to reduce diesel, ozone and particulate matter pollution from vehicles.

Develop strategies/interventions to identify, reduce and/or avoid indoor environmental triggers in homes, schools, childcare settings, work places and residential facilities.

Improve capacity of health professionals to include environmental trigger assessment and reduction and to identify and report work-related asthma.

Identify ways and opportunities to reduce the exposures of people with asthma and all children to environmental tobacco smoke.

Public Awareness

Develop multiple outreach avenues to make asthma into widely available.

Provide asthma educational opportunities to the public and professional non-clinical community.

Create and disseminate educational materials for all audiences.

Systems Change

Educate key partners on policy development and provide facts and best practice standards to assist in determining policy needs.

Adequate funding maintained to implement the Plan

Seek out additional funding sources and maintain compliance with current funding requirements.

Surveillance

Surveillance for prevalence, incidence, management, health outcomes, and mortality characteristics.

Outputs

NAEPF Guidelines disseminated and provided for use to all health care providers.

Easy Breathing Programs offered to train health care providers to deliver comprehensive care based on NAEPF guidelines.

All necessary asthma services identified for reimbursement to provide comprehensive care.

Curricula and tools available and disseminated.

Model guidelines and policies developed.

Curriculum developed for all personnel.

Identify a school that has existing capabilities for electronic reporting, training and accessing resources.

Establish partnerships with local, state and federal agencies with identified programs/initiatives that address environmental issues that impact asthma.

Develop interventions that address indoor and outdoor environments to reduce asthma triggers and support environmental regulations that limit exposure to environmental triggers.

Programs to reduce exposure to environmental tobacco smoke are identified.

Multiple outreach avenues are in place.

A variety of education opportunities offered to many audiences.

Educational materials developed and disseminated.

Partners identify areas needing systems and policy changes.

Partners understand need for change, are in possession of facts and are willing to act.

Possible additional funding sources are identified and monitored for available funds.

Enhance the existing asthma surveillance system.

Increase the accurate and appropriate utilization of asthma surveillance data by interpreting and disseminating the data to local, state and federal partners.

Outcomes

Short-term

Health care providers participate in Easy Breathing and Programs increase statewide.

Increase the number and quality of continuing education opportunities for all persons providing asthma care, e.g. certified asthma educators.

Promote patient education for self-management and reducing environmental triggers as priorities for reimbursement to ensure comprehensive care.

Promote the continuity and coordination of care for persons with asthma through the use of AAPs.

Train ancillary and non-medical professionals who encounter patients with asthma on the disease process, the use of Asthma Action Plans, and the reinforcement of self-management in various settings.

Guidelines, policies, and curricula disseminated statewide.

Provide educational opportunities that increase personnel and patient awareness of the signs, symptoms and seriousness of asthma and that asthma can be effectively controlled and self-managed.

Pilot electronic reporting, training and provide support in a selected school setting.

Increase the number of programs that address environmental risk factors in the home, school, and work settings.

Template for workplace indoor air quality management programs developed and disseminated.

Promote programs to reduce exposure to environmental tobacco smoke.

Outreach efforts, educational opportunities and educational material use is evaluated to identify effectiveness and/or need for change.

Prioritize advocacy recommendations as identified in the Plan.

Determine appropriate strategies to mobilize support to implement priority advocacy recommendations.

Funds to implement the Plan are received, components of plan are sustained into practice.

Inform implementation of the Plan by collecting and analyzing currently available data as well as identifying data gaps that need to be filled.

Intermediate

Increase provider adherence to NAEPF Guidelines through the appropriate diagnosis and management of asthma by health professionals.

Increase the number of health care providers educated in the treatment and self-management of asthma in accordance with NAEPF Guidelines.

Increase the number of trained ancillary and non-medical healthcare personnel providing appropriate patient education.

Personnel in school and community settings understand their role to safely respond to the person with asthma.

Increase each patient's knowledge of his/her disease and its management.

Reduce exposure to asthma risk factors through the improvement and management of outdoor and indoor environments including homes, schools and workplaces.

Increase the awareness among the general public of asthma, its risk factors and symptoms and that it can be controlled.

Increase the awareness of the seriousness of asthma among key institutions, businesses and community organizations.

Policy changes are submitted through appropriate agencies and approved.

Policies are implemented to support improved asthma care and management efforts and ongoing continuous quality improvement.

Funds to implement the Plan are received, components of plan are sustained into practice.

Inform implementation of the Plan by collecting and analyzing currently available data as well as identifying data gaps that need to be filled.

Long-term

Improve the quality of life for persons with asthma.

Reduce:

- asthma-related morbidity
- mortality
- ED visits hospitalizations and lengths of stay
- direct and indirect costs
- socio-economic and racial disparities in the above health indicators

Reduce or modify environmental triggers that contribute to asthma symptoms.

Decrease:

- Number of school and work days lost
- Prevalence of asthma in CT

Increase patient self-management knowledge and provider adherence to NAEPF Guidelines.

Institutionalize and sustain the changes made as a result of the Plan.

Impact

Reduce the burden of asthma in CT, especially for disparate populations.

The Plan

Goal 1: Improve Connecticut's surveillance system to identify asthma burden for disparities, high-risk populations, and trends

Connecticut's asthma surveillance system has been used successfully to describe the burden of asthma with respect to estimated prevalence, certain aspects of disease management, and incidence of the most severe events, such as deaths, hospitalizations, and emergency department visits. However, gaps persist in our understanding of how asthma affects Connecticut's population. Although certain racial, socioeconomic, and geographic disparities in asthma burden have been identified, the underlying causes of these disparities are not understood. These deficits challenge our ability to effectively develop, target, and evaluate program activities.

Connecticut's goal is to further develop our surveillance to include data on quality of life, ED utilization, disease management, insurance benefits and policies related to asthma care, and other chronic lung disease. In addition, the reasons behind disparities in asthma will be explored. Conduct further regional and city level data analysis to establish a baseline of comparison for surveillance differences in urban areas. With a comprehensive asthma surveillance program, we expect to more fully characterize asthma in CT, direct program activities so that disparities in its burden are reduced, and measure the impact of our efforts.

Objective 1.1: Assess the prevalence and incidence of asthma in Connecticut and identify additional data sources to improve surveillance

Current and Potential Partners: CT DPH Office of Planning, CT DPH Environmental and Occupational Health Assessment Program, CT DPH Asthma Program, CT State Department of Education, Local Board of Education, School Nurse Supervisors, School Nurses

The abbreviations "Short-term" (ST) – Years 1 & 2, "Intermediate-term" (IT) - Years 3 & 4, and "Long-term" (LT) - Year 5 and beyond will be used to denote timing of implementation:

Strategies:

- 1.1.1 Conduct surveillance of asthma prevalence for all persons in CT **ST**
Performance Indicator:
 - Asthma prevalence estimated, interpreted, and disseminated
- 1.1.2 Continue analysis and surveillance of the prevalence and incidence of work-related asthma for all persons in CT **ST**
Performance Indicator:
 - Trends and risk areas identified of work-related asthma estimated, interpreted, and disseminated
- 1.1.3 Conduct surveillance of school-based asthma prevalence for all CT public school students in grades that require Health Assessment Records **ST**
Performance Indicators:
 - School-based asthma prevalence estimated, interpreted, and disseminated

- CT School Health Survey results
- 1.1.4 Improve the accuracy and validity of data collected for school-based asthma **ST**
Performance Indicators:
- Accuracy and validity of data collected for school-based asthma estimated, interpreted, and disseminated
 - Program guided by or action taken from data
 - Improved accuracy and validity of data collected for school-based asthma
- 1.1.5 Conduct surveillance of asthma prevalence among high and middle school children using data from the CT School Health Survey **ST**
Performance Indicator:
- Asthma prevalence estimated, interpreted, and disseminated

Objective 1.2: Assess the health outcomes and impact of asthma, especially to high-risk, disparate populations and improve asthma surveillance in CT at the statewide and local levels

Current and Potential Partners: CT DPH Office of Vital Records, CT DPH Office of Planning, CT DPH Family Health Section, CT DPH Office of Planning, CT DPH Asthma Program, Office of Health Care Access, CT Hospital Association, CT Voices for Children, Asthma Advisory Council (AAC)

Strategies:

- 1.2.1 Conduct surveillance of asthma mortality for all persons in CT **ST**
Performance Indicators:
- Rate of asthma mortality estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- 1.2.2 Conduct surveillance of asthma hospitalizations for all persons in CT **ST**
Performance Indicators:
- Rate of asthma hospitalization estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- 1.2.3 Conduct surveillance of asthma ED visits for all persons in CT **ST**
Performance Indicators:
- Rate of asthma ED visit estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- 1.2.4 Conduct surveillance of asthma hospitalizations and ED visits in the Medicaid population, and other populations as identified **ST**
Performance Indicators:
- Incidence of asthma ED visits and hospitalizations for the Medicaid population estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- 1.2.5 Improve the timeliness and completeness of data collected for available data sets. **ST**
Performance Indicator:
- Improved timeliness and completeness of data for available data sets
- 1.2.6 Explore reasons for disparities in the health outcomes, differences in asthma control, and impact of asthma in CT to identify effective strategies to reduce disparities **ST**
Performance Indicators:

- An understanding among AAC members of potential reasons for disparities in CT's asthma burden
 - Program guided or action taken based on this activity
- 1.2.7 Explore methods that will allow the CT Department of Public Health (CT DPH) to receive hospitalization and ED visit data directly from the CHA and also allow the sharing of data with Local Health Departments (LHDs) **IT**
Performance Indicator:
- CHA submitted hospitalization and ED visit data directly to CT DPH
- 1.2.8 Conduct and expand surveillance of the quality of life of persons in CT with asthma **IT**
Performance Indicators:
- Quality of life indicators for persons with asthma in CT estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- 1.2.9 Design and initiate a pilot surveillance project of chronic obstructive pulmonary disease (COPD) co-morbidity for all persons in CT **LT**
Performance Indicators:
- Feasible surveillance protocol for COPD devised
 - Available outcomes related to COPD estimated, interpreted, and disseminated

Objective 1.3: Assess asthma management in CT

Current and Potential Partners: CT DPH Office of Planning, CT DPH Asthma Program, Insurance Industry, CT Voices for Children, AAC, University of CT Health Center (UCHC), CT Health Information Network (CHIN), CT Department of Education, LHDs

Strategies:

- 1.3.1 Conduct surveillance of self-management of persons in CT with asthma **ST**
Performance Indicators:
- Self-management indicators for persons with asthma in CT estimated, interpreted, and disseminated
 - Program guided by or action taken from data
- Identify existing asthma-related policies and insurance benefit coverage in CT and design and initiate a surveillance protocol to guide systems change for access to insurance payer data **IT**
Performance Indicators:
- Feasible surveillance protocol for asthma-related policies developed and implemented with results estimated, interpreted and disseminated
 - Feasible surveillance protocol for asthma-related health insurance benefits developed and implemented with results estimated, interpreted and disseminated
 - Program guided by or action taken from data available and data gaps identified
 - Mechanisms and steps identified and followed to mandate insurance provider data to DPH
- 1.3.3 Design consistent language and initiate surveillance of quality of care received by persons with asthma through Program interventions in addition to Medicaid **LT**
Performance Indicators:
- Quality of care for Medicaid population with asthma in CT estimated, interpreted, and disseminated
 - Program guided by or action taken from data

Objective 1.4: Explore feasibility of epidemiological review of asthma deaths case by case

Current and Potential Partners: CT DPH Office of Vital Records, CT DPH Asthma Program, CT DPH Infectious Disease Unit (reports), CT Medical Association, CT Office of Chief Medical Examiner, Insurance Industry, CT Hospital Association, Hospitals and EDs, Department of Social Services

Strategies:

1.4.1 Investigate and evaluate characteristics of asthma cases for all persons in Connecticut that die due to asthma **LT**

Performance Indicators:

- Report of the Review Panel's findings written and disseminated
- Action taken based on recommendations of Review Panel

Goal 2: Increase awareness and knowledge in the general public and among key asthma stakeholders in the professional community of the signs, symptoms and seriousness of asthma and that asthma can be managed

Patient education barriers are numerous, including the social stigma of being diagnosed with asthma, inadequate provider efforts, and lack of adherence to treatment. Factors that exacerbate the problem are poverty and lack of resources, homelessness, medical illiteracy, low educational achievement and cultural issues. These factors become barriers to receiving a diagnosis and appropriate care, thus leading to inadequate asthma management and increased asthma exacerbations and healthcare utilization.

The Asthma Program plans to take a comprehensive approach to educating the public on proper asthma management. Existing asthma resources and tools go under-utilized because of the public's unawareness of these assets. The creation and maintenance of a statewide asthma resource inventory on the Program website will provide a central location for the public to learn what resources and tools are available to them. Certified asthma educators are a key resource not being utilized by the community and/or health care providers. Finding a mechanism to adequately compensate these educators for their services will also serve to establish them as a key educational resource.

The Program will continue to provide funding as available to community partners in local health departments to implement evidence-based educational programs and public awareness programs. These programs educate school staff, day care provider staff and health educators regarding proper diagnoses and management of asthma, as well as identification and avoidance of environmental asthma triggers.

Asthma is a complex genetic disorder with a heterogeneous manifestation, largely attributed to the interactions among many genes and between these genes and the environment. As a result of the Human Genome Project and subsequent genetic discoveries, gene variants are being found that increase susceptibility to asthma, but which require an environmental stimulus to activate. In addition, asthma has been found to run in families.¹⁸ This raises the possibility of targeting disease prevention and health promotion efforts to individuals at high risk because of their genetic makeup and family health history.

Family health history efforts have already begun. Following outreach efforts at the end of 2007 by the Connecticut DPH Genomics Office regarding the importance of family health history as a risk factor for chronic diseases, the Asthma Program and other DPH chronic disease programs along with the DPH Genomics Office developed a set of family health history materials to incorporate into community outreach efforts. Inserts were developed for each participating chronic disease program so that the materials could be tailored to their specific programs. Recently completed in 2008, these outreach materials have been disseminated by the Asthma Program at health fairs, meetings, trainings, and other venues and have been very well received.

Objective 2.1: Increase multiple outreach avenues to make asthma information widely available

Current and Potential Partners: Asthma Planning Region Coordinators, American Lung Association (ALA), CT Coalition for Environmental Justice, State Department of Education, School Nurses, CT Association of Directors of Health, LHDs

Strategies:

2.1.1 Enhance and maintain the Asthma Program's website **ST**

Performance Indicators:

- Website evaluation consisting of assessment of site usefulness and number of hits
- Site effectiveness can be evaluated via survey

2.1.2 Identify all current asthma patient education/public awareness resources and asthma management programs available in the state of Connecticut and make information available to the public **ST**

Performance Indicators:

- Survey Results
- Resources/ program clearinghouse on website

2.1.3 Promote asthma awareness via public awareness campaigns to support early diagnoses, symptoms, and treatment of asthma **ST**

Performance Indicators:

- Number of public awareness campaigns implemented
- Number of speaker's bureaus created
- Numbers of community presentations made

2.1.4 Publicize asthma help-lines available to the public **ST**

Performance Indicators:

- Creation of help-line
- Number of Calls to the helpline
- Evaluation of helpline effectiveness derived from caller satisfaction inquiries

Objective 2.2: Increase the number and types of asthma education opportunities offered to the public that promotes proper asthma management in the home, clinical, daycare, and school settings

Current and Potential Partners: Asthma Planning Region Coordinators, *Easy Breathing* and Adult *Easy Breathing* Coordinators, ALA, Asthma and Allergy Foundation of America (AAFA)

Strategies:

2.2.1 Implement, promote and expand asthma initiatives that support patient education **ST**

Performance Indicators:

- Number of and evaluation results of all regional asthma initiatives
- Number of sites implementing *Easy Breathing*; program outcome data
- Number of sites implementing programs geared towards adults; program outcome data

2.2.2 Assess patient education programs/opportunities that provide asthma education in the clinical settings to standardize and align with best practice guidelines **IT**

Performance Indicator:

- Number of and evaluation results of patient education programs/opportunities in clinical settings

Objective 2.3: Increase the number of certified asthma educators developed by professional education efforts and connect them to settings without asthma education programs

Current and Potential Partners: ALA, Certified Asthma Educators, Asthma Planning Region Coordinators

Strategies:

- 2.3.1 Promote the existence and activities of the certified asthma educators to key stakeholders
ST

Performance Indicators:

- Placement of the contact list on the Asthma Program website; promotion of certified asthma educator engagements on the Asthma Program website
- Increase in the number of certified asthma educator engagements using the number of engagements at the creation of the contact list as the baseline

- 2.3.2 Identify and maintain communication and current contact information with certified asthma educators throughout the state **IT**

Performance Indicator:

- Contact List

Objective 2.4: Increase asthma education opportunities to the professional non-clinical community

Current and Potential Partners: Asthma Planning Region Coordinators, *Easy Breathing* and *Adult Easy Breathing* Coordinators, school staff, LHDs, day care providers, insurers, coaches associations, academic units, e.g. Yale, UCHC, CT Children's Medical Center (CCMC)

Strategies:

- 2.4.1 Conduct asthma education/public awareness presentations to professionals. Professionals include but are not limited to school staff, LHDs staff, HMOs, pharmacists, legislators, childcare providers, coaches, and professionals responsible for the indoor air quality of workplaces **ST**

Performance Indicators:

- Presentation curriculums
- Number of presentations held
- Number of funded asthma patient education initiatives
- Outcome data of asthma patient education initiatives

Objective 2.5: Increase the availability of and disseminate educational materials for patients with asthma in the school, day care and community settings to enable patients and their families to better understand their asthma, its triggers and its optimal self- management

Current and Potential Partners: DPH Day Care Provider Licensing Unit, State Department of Education, CT Association of Public School Superintendents, CT Association of Boards of Education, Coaches Associations, School Nurses

Strategies:

2.5.1 Identify, develop and utilize asthma patient information that is user-friendly, in appropriate languages and reading levels that are culturally relevant **ST**

Performance Indicator:

- By 2009 DPH will have identified and made available printed and electronic resources for patients and their families including improvements in their web site

2.5.2 Promote self-management strategies that empower patients and their families to better manage their asthma with special emphasis on populations at greatest risk in day care, schools, and community settings **ST**

Performance Indicator:

- Patients have an individualized written treatment plan called an Asthma Action Plan (AAP) based on NAEPP Guidelines that is shared with others members of the asthma management team as appropriate, i.e.: other health care providers, school nurse, coach, family, and day care staff

Objective 2.6: Increase awareness of genetics and family health history as predictors of asthma risk

Current and Potential Partners: Healthcare Provider Professional Organizations, School Nurses, DPH Genomics Team, Local Health Departments, *Easy Breathing* Contractors

Strategies:

2.6.1 Continue use and widen distribution of new family health history tools and resources. Maintain and provide annual statistical update of the asthma portion of the family health history brochure
Incorporate the importance of family health history into all asthma educational activities and link asthma initiatives with other chronic disease, genomics, and environmental initiatives and build on existing projects

Performance Indicators:

- Current information is maintained on Connecticut DPH Asthma website.
- Asthma statistics are updated annually for inclusion in the CT family health history brochure
- Further strengthen linkages with the Connecticut DPH Genomics Office via work with the internal Gene Team and participation in the Genomics Office's collaborative efforts with chronic disease and family health history promotion

Goal 3: Improve systems of asthma care

Asthma management requires the expertise and input from a variety of individuals including primary care clinicians, patients, parents, employers, asthma specialists and government. The current system, however, is based upon treatment of acute disease symptoms and is not focused on disease prevention or chronic disease management. Improving current systems of asthma care begins with the primary care clinician who must create a partnership and be an active advocate with the patient and family. Clinicians need to educate the patient and family on self-management of their asthma to promote medication compliance and trigger avoidance.

Approaches to asthma management can be streamlined for clinicians to guide NAEPP adherence in a user-friendly form with clear steps to diagnose severity, provide stepwise treatment and management asthma. One program that has been successfully implemented in Connecticut and is currently being used by more than 300 pediatric clinicians in the state is the *Easy Breathing*®.

Successful asthma management should integrate quality care between all health care providers such as ED physicians, school nurses, school-based health centers, employers and primary care clinicians.

Currently, insurance payers do not provide coverage for patient self management education with the exception of some school-based health centers. Patient self-management education is a key component of comprehensive care. The Program will address reimbursement for self-management patient education as a cornerstone of comprehensive asthma care.

Objective 3.1: Decrease the inpatient hospitalizations and emergency department visits with a primary diagnosis of asthma, especially among racial and ethnic minorities.

Current and Potential Partners: Community Health Centers, School Based Health Centers, CT American Academy of Pediatrics (CT AAP), CT College of Emergency Physicians, CT State Medical Society, CT Academy of Family Physicians, and the CT Nurses Association, CT Pharmacists' Association, CT Children's Medical Center, Norwalk Hospital, St Raphael's Hospital, Bridgeport Hospital, National Asthma Education Prevention Program (NAEPP), CT Managed Care Council, DPH Tobacco Cessation Program, American College of Allergy, Asthma, and Immunology, American Academy of Physicians Assistants, CT Thoracic Society, American Association of Physicians Assistants, CT Primary Care Association, American Association of Respiratory Care, National Asthma Educator Certification Board, DPH Licensing Unit, AHEC, UCHC, Yale

Strategies:

3.1.1 Provide up-to-date asthma information on diagnosis, medications, environmental risk factors, best practices and patient management plans to providers and asthma management partners

ST

Performance Indicator:

- Current knowledge and adherence to NAEPP Guidelines is disseminated and surveys identify level of provider knowledge, adherence to guidelines and best ways to reach providers

- 3.1.2 Promote and encourage the early and appropriate diagnosis and treatment of asthma **ST**
Performance Indicators:
- The number of clinicians using an asthma management program that promotes adherence to NAEPP Guidelines such as *Easy Breathing* shows an annual increase, especially in urban areas where hospitalization and ED visits are highest to meet the needs of disparate populations
 - The number of health care clinicians using written asthma treatment (action) plans increases
 - The number of clinicians who assess environmental asthma triggers routinely and implement environmental allergen reduction strategies including smoking prevention and cessation will increase
 - Insurance Payers assist and support patient education reimbursement and pay-for-performance integration
- 3.1.3 Promote use of certified asthma educators in Connecticut **IT**
Performance Indicators:
- Number of certified asthma educators in the state increases
 - Asthma education by certified asthma educators becomes reimbursable
 - Cost effectiveness of Certified Asthma Educators in various settings such as urban clinics and private practice evaluated
 - Database to track AE-C educator activity in Connecticut is created
- 3.1.4 Link individuals with poorly controlled asthma despite appropriate asthma therapy to a medical home with an emphasis on low-income populations and individuals at greatest risk for death from asthma **IT**
Performance Indicators:
- Barriers to care are identified and targeted interventions and service providers link high-risk populations to a medical home
 - The number of individuals who have primary care providers and appropriate ongoing medical care increases

Objective 3.2: Establish a baseline and then increase the number of persons treated for asthma in acute care settings who receive appropriate medications and comprehensive discharge instructions.

Current and Potential Partners: CT College of Emergency Physicians, American Association of Physicians Assistants, CT Children’s Medical center, Norwalk Hospital, St Raphael’s Hospital, Bridgeport Hospital, CT Primary Care Association

Strategies:

- 3.2.1 Identify resources to provide access to appropriate asthma medications for those patients who are uninsured or under-insured **ST**
Performance Indicator:
- Medication access options identified, disseminated and publicized
- 3.2.2 Provide and promote comprehensive discharge instructions to assist Emergency Departments (ED) in adhering to NAEPP Asthma Guidelines for acute asthma management **IT**
Performance Indicators:
- Current ED discharge instructions identified statewide

- Additional discharge instructions identified that have been evaluated for effectiveness from other sources
- Effective discharge instructions are identified, disseminated and promoted statewide

3.2.3 Promote an ED/Provider notification system that provides communication with primary care providers within 24 hours of a patient's ED visit **LT**

Performance Indicators:

- Number of EDs using acute asthma management care pathways
- Number of EDs adhering to acute asthma management care pathways for: Template-driven, consistent and complete discharge instructions; Oral steroid use; Follow up with the primary care clinician

Objective 3.3: Develop a comprehensive, integrated system of asthma care across all healthcare settings.

Current and Potential Partners: Community Health Centers, School Based Health Centers, CT AAP, CT College of Emergency Physicians, CT State Medical Society, CT Academy of Family Physicians, CT Nurses Association, CT Pharmacists Association, CT Children's Medical Center, Norwalk Hospital, St Raphael's Hospital, Bridgeport Hospital, CT Managed Care Council, American College of Allergy, Asthma, and Immunology, American Academy of Physicians Assistants, CT Thoracic Society, American Association of Physicians Assistants, CT Primary Care Association, American Association of Respiratory Care, National Asthma Educator Certification Board, CT Medicaid HUSKY Health Insurance, Private Insurers: Aetna, Anthem, United Health Care, Connecticare, Cigna, Pharmacy Management Plans

Strategies:

3.3.1 Link physician/payer/pharmacy utilization/patient and patient into care information **LT**

Performance Indicators:

- The number of appropriate medication prescription/dispensing events for those with persistent asthma based on HEDIS standards
- High-risk individuals with persistent asthma are identified and receive appropriate care/referrals

3.3.2 Improve patient tracking and education information dissemination throughout the health care system **LT**

Performance Indicators:

- The number of children who have written asthma treatment plans in the schools is increased
- Electronic records systems are identified and expanded to other venues

Objective 3.4: Increase the number of medical students, nursing students, and health care students who are trained in asthma management consistent with national asthma guidelines

Current and Potential Partners: LHDs, DPH, State Coalitions, AAC, EPA, DEP

Strategies:

- 3.4.1 Support local asthma coalitions with whom DPH can effectively partner to achieve the State Asthma Plan’s objectives better manage asthma in communities and in the home **ST**
Performance Indicator:
- DPH will promote regular communication between the regional coalitions for the sharing of best practices, the coordination of educational and other activities, and the partnering of coalitions for grant funding opportunities
- 3.4.2 Identify gaps and needed resources to provide support to individuals and families to identify and manage asthma to reach all geographic and demographic sectors of the state **IT**
Performance Indicators:
- Municipalities in the state will be taking an active part in a regional asthma coalition
 - Regional asthma coalitions will be composed of a diverse group of members who represent the populations and the stakeholders in their region
- 3.4.3 Develop and commit key resources to support regional asthma coalitions **IT**
Performance Indicators:
- Regional asthma coalitions are integrated with regional contractors to conduct evidence-based asthma activities
 - DPH will take the lead in developing and providing additional resources that support regional coalition

Objective 3.5: Advocate for uniform reimbursement of comprehensive asthma care in Connecticut

Current and Potential Partners: CT AAP, CT State Medical Society, CT Academy of Family Physicians, and the CT Nurses Association, CT Pharmacists Association, CT Children’s Medical Center, Norwalk Hospital, St Raphael’s Hospital, Bridgeport Hospital, CT Managed Care Council, American College of Allergy, Asthma, and Immunology, American Academy of Physicians Assistants, CT Thoracic Society, CT Primary Care Association, American Association of Respiratory Care, National Asthma Educator Certification Board, CT Medicaid (HUSKY) Health Insurance, Private Insurers: Aetna, Anthem, United Health Care, Connecticut, Cigna, Ledge Light Health District, Environmental Protection Association (EPA) Asthma Unit, Asthma Regional Council, CT Hospital Association

Strategies:

- 3.5.1 Facilitate insurance reimbursement for patient education by certified asthma educators in all settings **IT**
Performance Indicator:
- Reimbursement sources are identified and utilized for patient education by certified asthma educators in all settings and environmental home assessment as part of effective asthma control and management
- 3.5.2 Facilitate reimbursement for appropriate asthma case management for at-risk patients including in-home environmental assessment and asthma case management services for high-risk patients **LT**
Performance Indicator:

- Increase the number of public/private third party payers that reimburse for appropriate asthma case management for at risk patients, including in home asthma case management services for high-risk patients

Objective 3.6: Train future health care providers in establishing and implementing a system of asthma management consistent with national asthma guidelines

Current and Potential Partners: CT Children’s Medical Center, Norwalk Hospital, St Raphael’s Hospital, Bridgeport Hospital, Academic Institutions for Medical and Health Care
Provider Education: Nursing, Physician Assistants, Respiratory Therapists, Pharmacists, APRNs

Strategies:

3.6.1 Introduce NAEPP Guidelines as the standard for asthma management in medical schools; nursing schools; schools of pharmacy, respiratory therapy programs, and physician’s assistant’s school curricula **ST**

Performance Indicator:

- Professional education curricula adhere to NAEPP Guidelines

Goal 4: Reduce exposure to environmental conditions that cause and/or exacerbate asthma

Environmental factors play a significant role in the health of people with asthma. Biological and chemical exposures found in indoor home, school and work environments can affect those with existing asthma; knowledge of and avoidance of individual environmental asthma triggers is an accepted part of asthma prevention and treatment.

The importance of addressing the environment is underscored by research reported since Connecticut's Statewide Asthma Plan was issued in 2003. Early reports from the Children's Health Study in California strongly correlated lower respiratory symptoms with increasing exposure to outdoor pollutants in children with asthma.²⁰ Continuing information from this study note that outdoor pollutants affect lung development in children 10- 18 years old²¹ and further reports suggest that this reduced respiratory function is a factor in new onset of asthma.²² Attention to outdoor sources-especially from diesel emissions associated with traffic is an important aspect of this plan.

The plan aggressively addresses indoor environmental exposures. Respiratory and asthma related outcomes are strongly associated with building dampness.²³ A home intervention study notes that building renovation directed at moisture problems combined with medical and behavioral intervention reduced symptom days significantly for some children with asthma.²⁴ The American Academy of Pediatrics Committee on Environmental Health issued a policy statement in December 2006 recommending that the presence of mold should be part of a "healthy-home inventory". Chemical emissions in non-industrial environments are also of concern and may be an important respiratory symptom risk factor.²⁵ Additionally, chemical exposure is especially important in certain occupational settings where there is potential for exposure to specific asthmagens such as isocyanates in automotive body shops. Recently published reviews identify that exposures in work environments commonly promote asthma exacerbations²⁶ and that occupational exposures are indicated in incidence of new onset asthma in adults.²⁷ In Connecticut, the most frequently reported cause of occupational asthma is indoor air exposures.

It is clear that attention to environment has a role in asthma management. This plan recognizes the significant challenges to environmental intervention, especially in addressing the indoor environment. There are minimal resources and accountability to remediate indoor environments. Healthcare providers in clinical settings have limited time to fully explore home, work, and school environments with patients. Healthcare Providers are not always knowledgeable about the relationship of building conditions to asthma. Collaboration among Managed Care Organizations (MCOs), providers, municipalities and the state have been limited to individual programs to address environmental issues.

The strategies put forth in this section address these challenges and resource limitations. Building on environmental and public health initiatives and programs currently in place in Connecticut the plan can focus attention on home environmental exposures.

Objective 4.1: Reduce the number of children who are exposed to diesel and particulate matter pollution in schools, consistent with the Connecticut Clean Diesel Plan.

Current and Potential Partners: CT Department of Environmental Protection, CT Department of Transportation, Local Boards of Education, State Department of Education, Private Bus Companies, CT Resource Recovery Authority, Private Trash Hauling Industry, CT Department of Motor Vehicles

Strategies:

4.1.1 Promote diesel and particulate matter reduction technologies for school buses by use of environmental technologies **IT**

Performance Indicator:

- Completion of school bus retrofits in identified communities

4.1.2 Promote diesel and particulate matter reduction technologies for off-road equipment, trucks and solid waste collection vehicles by use of environmental technologies **IT**

Performance Indicators:

- Completion of retrofitting of off-road diesel equipment used at the Hartford Solid Waste facility and solid waste collection vehicles used in Hartford
- Completion of retrofitting and use of ultra low sulfur diesel fuel for off-road diesel equipment in volume reduction solid waste facility permits
- Implementation of retrofitting of off-road construction equipment and vehicles used in Connecticut Department of Transportation projects requiring an Indirect Source Permit, pursuant to Regulation of Connecticut State Agencies Section 22a-174-100
- Truck stop electrification project established

4.1.3 Promote enforcement of emissions reduction from motor vehicle use by state residents **LT**

Performance Indicator:

- Effective enforcement of the California Low Emission Vehicle Program

Objective 4.2: Reduce by 5% of current DEP baseline the ozone precursor and particulate matter emissions from stationary sources including electric generators, boilers, turbines and industrial processes

Current and Potential Partners: CT Department of Environmental Protection, EPA Region I, UCONN –Center for Environmental Science and Engineering (CCESE)

Current and Potential Partners: CT Department of Environmental Protection, EPA Region I, UCONN –Center for Environmental Science and Engineering (CCESE)

Strategies:

4.2.1 Implement the eight-hour Ozone State Implementation Plan (SIP) and the strategies contained within this SIP. For information on this SIP please refer to the following website: http://www.ct.gov/dep/cwp/view.asp?a=2684&q=385886&depNav_GID=1619

LT

Performance Indicator:

- Monitored reductions in diesel particulate matter

Objective 4.3: Maintain and increase infrastructure and programs to develop the capacity of people with asthma, especially people experiencing disparate risk of asthma burden, to identify, avoid, and reduce exposure to indoor environmental asthma triggers

Current and Potential Partners: New England Asthma Regional Council, State/Public Housing Authorities, Department of Social Services (DSS), Department of Economic and Community Development (DECD), CT Housing Finance Authority (CHFA), CTDPH Asthma Program, LHDs, Center for Indoor Environments and Health at UCHC

Strategies:

4.3.1 Encourage providers to recommend in-home visits when appropriate and to address environmental factors in the development of patient AAPs using programs such as *Putting on AIRS IT*

Performance Indicators:

- LHDs to take leadership role with data on reduction in intervention and visits
- Establish training sessions for in-home environment assessments
- Funding available to LHDs for in-home assessments
- Assessment if providers are completing AAPs
- LHDs enforce existing public health codes

4.3.2 Establish a program in LHDs to address “asthma healthy homes” **IT**

Performance Indicators:

- LHDs participate in the program
- Training seminars in IPM and collect data on successes with implementing integrated pest management process are established
- Number of IPM packets distributed and attendance at training sessions
- Number of IPM trainings conducted

4.3.3 Encourage environmental intervention including in-home assessment as well as procurement and distribution of supplies for reducing exposure to indoor environmental triggers **IT**

Performance Indicators:

- Number of health insurance companies encouraged to provide reimbursement
- Number of vendors contacted
- Number of vendors supplying materials

4.3.4 Establish policies that require new and rehabilitated (federal and state) housing to comply with standards that promote good indoor air quality, using regional HUD initiatives such as the Asthma Regional Council’s model **LT**

Performance Indicators:

- Collaborations with DSS, DECD and CHFA for distribution of resource information to LHDs, Housing Authorities and other housing organizations established
- Training in the assessment and treatment of housing related health hazards associated with asthma triggers established
- Number of packets distributed and attendance at training sessions

- Legislation introduced specific to provide funding for repairs and improvements to state housing units

Objective 4.4: Increase the capacity of schools and childcare settings, including other congregate care settings such as group homes, residential facilities and detention settings, to identify, avoid and reduce exposure to environmental asthma triggers

Current and Potential Partners: CT Indoor Environment Resource Team, CT DPH Indoor Environments Unit, CT DPH Asthma Program, ALA, Department of Children and Families, Department of Mental Retardation, JJ/CSSD, CT Department of Social Services, and CT Department of Education

Strategies:

4.4.1 Address indoor environment in schools, daycares, and other group child care settings **ST**

Performance Indicators:

- Schools will implement and/or plan to implement TfS and/or other similar programs
- Day Care facilities will take steps to reduce environmental hazards in their setting
- State run/state licensed child caring facilities will begin addressing indoor air quality in their facilities and provide training to employees managing those settings

4.4.2 Promote best practices that encompass environmental impact of school construction on the health of the staff and children from exposure to potential asthma triggers **LT**

Performance Indicators:

- Number of schools rated “High Performance Schools” through their healthy design and construction
- Reference materials on SMACNA guidelines distributed to school districts and boards of education
- SMACNA guidelines included in the specs for school construction bids
- Construction contracts with SMACNA incorporated into specifications

Objective 4.5: Increase the capacity of health care professionals to identify and report work-related asthma

Current and Potential Partners: CT DPH Occupational Health Unit, CT DPH Asthma Program, Occupational Safety and Health Administration (Conn-OSHA), Yale Occupational Medicine Program, UCHC Occupational and Environmental Health Center

Strategies:

4.5.1 Encourage healthcare providers to ask adults with asthma or asthma-related symptoms about their workplaces **IT**

Performance Indicators:

- Number of primary care physicians and sub-specialists in the state receiving outreach contact
- Development of DPH web content for guidance on taking an appropriate work history

- 4.5.2 Promote awareness among health care providers about the process for reporting work-related asthma to the Connecticut DPH and the Department of Labor, and the importance of doing so **IT**

Performance Indicators:

- Number of primary care physicians and sub-specialists in the state receiving outreach contact
- Development of DPH web content for guidance on reporting work-related asthma
- More individual practitioners reporting cases of work-related asthma to Connecticut DPH/DOL
- Number of physician reports to Departments of Public Health and Labor

Objective 4.6: Increase the capacity of employees, employers, unions, Connecticut State agencies including Connecticut DPH and Conn-OSHA safety and health officers to identify and reduce exposures to work and building-related asthma agents and respiratory irritants

Current and Potential Partners: CT DPH Occupational Health Unit, CT DPH Asthma Program, University of CT Health Center, Yale University, Conn-OSHA, CT Schools Indoor Environment Resource Team, Local Municipalities, Department of Labor, OSHA, Federal OSHA, UCHC, DCF

Strategies:

- 4.6.1 Provide resources and promote awareness regarding exposures to chemicals in occupational settings of concern for asthma, especially latex, isocyanates, metal-working fluids, and cleaning chemicals **LT**

Performance Indicators:

- Fact sheets on latex use produced and disseminated to childcare, food and health service businesses
- Information on reducing exposure to asthmagens disseminated to auto body repair shops.
- Developed and implemented an outreach program targeting the metal working industry in Connecticut to encourage appropriate management of metal working fluids.
- Occupational illnesses and asthma in employer newsletters, programs, TV and print media education/training programs provided to targeted audiences above are promoted

Objective 4.7: Increase awareness and resources to improve the indoor environment in non-industrial work places to promote asthma healthy environments

Current and Potential Partners: CT DPH Indoor Environments Unit, CT DPH Occupational Health Unit, CT DPH Asthma Program, CT Department of Public Works, CT Department Administrative Services, UCHC Center for Indoor Environments and Health, Department of Labor, CT Business and Industry Association (CBIA)

Strategies:

4.7.1 Provide work-related asthma resources and other support to appropriate stakeholders interested in improving indoor air quality in workplaces **ST**

Performance Indicators:

- Development of a formal report on work-related asthma in Connecticut
- Number of requests for work-related asthma data from stakeholders
- Development of Connecticut DPH web content containing the work-related asthma report
- Number of requests from stakeholders to have Connecticut DPH staff participate in workplace air quality initiatives

4.7.2 Identify existing or develop new web-based resources with information for improving indoor air quality available to non-industrial employers **ST**

Performance Indicators:

- Develop and post additional web-based indoor air quality resources on the Connecticut DPH website
- Number of business groups and insurers made aware of the increased availability of indoor air quality educational and guidance documents on the Connecticut DPH website

4.7.3 Participate in activities to increase the number of state agencies, municipalities, and private-sector non-industrial employers utilizing the Tools for Offices (TfO) program developed by the Connecticut DPH Indoor Environments Unit **IT**

Performance Indicators:

- Completion of full implementation and evaluation of the TfOB program at Connecticut DPH
- Number of state agencies implementing the TfOB program
- Number of municipalities and private-sector non-industrial employers requesting the TfO Toolkit
- Number of municipalities and private-sector non-industrial employers implementing the TfO program

4.7.4 Identify methods and resources necessary and produce a comprehensive report on work-related asthma in public buildings as well as in private office settings and other non-industrial buildings **LT**

Performance Indicators:

- Completed report summarizing Connecticut DPH/DOL physician reports for work-related asthma
- Number of health care providers receiving educational materials and other tools, such as the UCONN Health Center's "Guidance for Clinicians on the Recognition and Management of Health Effects related to Mold Exposure and Moisture Indoors" document, through outreach programs
- Number of worker's compensation cases among state workers with respiratory disease secondary to Indoor Air Quality (IAQ), moisture, or mold identified in Connecticut Comptrollers annual report

Objective 4.8: Reduce the number of people with asthma and all children who are exposed to environmental tobacco smoke

Current and Potential Partners: CT DPH Tobacco Program, CT DPH Asthma Program, CT State Department of Education, CT Business and Industry Association, Housing Authority, Mashantucket Pequot Tribal Nation, Mohegan Tribal Nation

Strategies:

4.8.1 Promote smoking bans for both indoor and outdoor public areas **ST**

Performance Indicators:

- Number of educational programs conducted to educate the public on second hand smoke
- Number of schools having comprehensive tobacco-free school policies
- Number of work place, including restaurants and bars, compliant with state smoking ban
- Number of small businesses and private clubs who adopt smoking ban
- Number of public venues that are smoke-free
- Signage with the message to move smokers away from doorways developed and the template made available on Connecticut DPH web site

4.8.2 Make tobacco products less accessible to minors to discourage smoking initiation. **ST**

Performance Indicators:

- Decreased sale of tobacco products to minors
- Policy introduced to make tobacco products less accessible and affordable

4.8.3 Encourage tobacco cessation programs and making tobacco cessation programs accessible, financially, culturally, and geographically, to all tobacco users **ST**

Performance Indicators:

- Number of schools having comprehensive tobacco-free school policies that include tobacco cessation services to all students, families and staff
- Number of insurance companies, including Medicaid, to cover smoking cessation services and medications as part of their basic plans, especially for parents/guardians of asthmatic children, teens and pregnant women
- Adequate funding for Connecticut Quitline to support nicotine replacement therapy and counseling services

4.8.4 Establish a pilot program for Housing Authority to provide smoke-free housing **LT**

Performance Indicators:

- A policy established to implement tobacco-free housing units within Housing Authority
- Number of Housing Authority units adapting tobacco-free housing policy

Goal 5: Increase the awareness and use of standardized guidelines for asthma self- management in educational and community settings

People with asthma in Connecticut, especially children in day cares and schools, do not currently have standardized support systems and policies in place in these settings to effectively self-manage children with asthma in these settings. Without uniform day care and school policies, some children encounter difficulty in accessing inhalers and nebulizers when they need them thereby putting them at risk for more severe asthma exacerbations.

Improvement of environmental settings to reduce or eliminate asthma triggers and promote a healthier indoor environment is necessary to reduce the number of missed school and work days. Meeting the needs of all individuals with asthma requires improved environments in all settings.

The Program will continue implementation of the EPA Tools for Schools Program, and add our recently developed and initiated Tools for Technical Schools and Tools for Offices Programs to provide additional environmental interventions in these settings.

The use of written AAPs that are individualized and physician-directed to support self-management of asthma by the patient and/ or parent is needed to enable people with asthma to adequately control their asthma symptoms. When people with asthma know what to do when asthma symptoms start it can reduce hospitalization and ED visits and lead to appropriate treatment by other health care providers in day care, school, institutions of higher education, and community settings.

Objective 5.1: Increase the number of Asthma-friendly policies and guidelines for appropriate asthma management in schools and the community

Current and Potential Partners: AAC, State Department of Education (SDE), CT AAP, Allergy & Asthma Network Mothers of Asthmatics, CT Association of Public School Superintendents, CT Association of Boards of Education, School Nurses, ALA, CT Nurses Association, The Association of School Nurses in CT, CT Charts a Course

Strategies:

5.1.1 Partner with other concerned agencies and entities to survey entities statewide for existing policies and guidelines in effect in schools and communities **ST**

Performance Indicators:

- Partnerships will be formed and functioning
- Survey(s) conducted

5.1.2 Identify new resources and update existing Guidelines for the Management of Asthma in Schools and provide training on asthma management for school nurses and other staff **ST**

Performance Indicators:

- All schools in Connecticut will have guidelines for asthma management and will conduct periodic training of school personnel
- All schools in Connecticut will receive periodic assistance from the AAC in the form of best practices and guideline updates
- Use of guidelines and staff trainings conducted are evaluated

- Number of AAPs
- 5.1.3 Revitalize and empower the school medical advisor role and develop a model for roles and responsibilities that can be adopted by local schools boards and required through regulatory changes **ST**
Performance Indicators:
- School Medical Advisor roles and responsibilities model developed
 - Regulatory changes made that require school boards to adopt a comprehensive model that defines roles and responsibilities of the school medical advisor
- 5.1.4 Facilitate statewide implementation of asthma inhaler law and other asthma-related regulations in all Connecticut schools **IT**
Performance Indicator:
- All schools in Connecticut will have systems and policies in place to support implementation of the inhaler law and other asthma-related regulations
- 5.1.5 Standardize school nurse software for data collection for asthma reporting **LT**
Performance Indicators:
- Most common school electronic medical record software identified that can be modified for use statewide
 - Electronic capability gaps identified and resources provided
 - School nurse training curriculum developed, pilot-tested, evaluated and rolled out statewide to all school districts

Objective 5.2: Increase awareness of asthma-friendly policies and guidelines for asthma management available for implementation in daycare and other pre-school settings

Current and Potential Partners: AAC, SDE, CT DPH Day Care Licensing Unit, CT AAP, Allergy & Asthma Network Mothers of Asthmatics, CT Association of Public School Superintendents, CT Association of Boards of Education, ALA of CT, CT Nurses Association

Strategies:

- 5.2.1 Promote Guidelines for the Management of Asthma in the Day Care/Pre-School Setting and promote training on asthma management for personnel in such programs **ST**
Performance Indicators:
- All licensed daycare/pre-school settings in Connecticut will have guidelines for asthma management and will conduct periodic training of program personnel
 - All licensed -daycare and pre-school settings will receive periodic assistance from the AAC in the form of best practices and guideline updates
 - Use of guidelines and staff trainings conducted are evaluated
 - Use of AAPs is quantifiable
 - Quick relief medications policy in place

Objective 5.3: Increase dissemination of asthma guidelines to institutions of higher learning concerning best practices for the management of asthma in such settings

Current and Potential Partners: AAC, American College Health Association, CT Institutions of Higher Learning

Strategies:

5.3.1 Identify existing asthma management guidelines in Institutional health services settings
ST

Performance Indicator:

- Best Practices for asthma management are identified and/or developed and provided to College Health offices statewide

5.3.2 Provide guidelines and educational materials appropriate for students of higher education for use by colleges and similar institutions **IT**

Performance Indicator:

- Appropriate asthma educational materials will be disseminated to institutions of higher education and via the Connecticut DPH web site

Objective 5.4: Increase awareness and dissemination of asthma guidelines for optimal asthma care to be available for the management of children and adults in organized activities outside of school such as camp, after-school programs and town Park and Recreation events

Current and Potential Partners: CT High School Coaches Association, CT Association of Schools, CT Interscholastic Athletic Conference, CT AAP, CT AAP, State Department of Education, CT DPH Camp Licensing Unit, Municipal Recreation Programs

Strategies:

5.4.1 Recommendations will be developed and disseminated to programs that operate outside of regular school hours concerning best practices for the management of asthma in such settings **IT**

Performance Indicator:

- Guidelines and associated resources in place

Goal 6: To create an environment that supports effective and comprehensive care through the engagement of consumers, providers and asthma-related agencies

The Asthma Program can provide surveillance data and promote facts to community partners for systems change. Systems change can happen through collaborative partnerships to improve the delivery of appropriate clinical services, asthma education, and the maintenance of an environment free of air pollutants and asthma triggers.

Objective 6.1: Increase the number of partners with expertise in advocacy and systems change that can identify and act on opportunities for systems or policy changes that improve asthma outcomes

Current and Potential Partners: Regional and statewide asthma coalition members, AAC, Professional Organizations, Legislators, People with Asthma, Insurance Providers

Strategies:

6.1.1 Identify individuals with knowledge of systems change and policy development that are invested in promoting systems change related to asthma through the AAC **ST**

Performance Indicator:

- Individuals with expertise are on the AAC and invested in need for system's change

6.1.2 Support key individuals and provide facts such as data and best practice standards to AAC members and partners to inform them on need for change during the process **IT**

Performance Indicator:

- Statewide partners understanding of the need for change, are in possession of necessary facts, and take action on next steps needed for system's change

Policy Considerations:

Surveillance:

Seek legislative change that will require submission hospitalization and ED visit data directly to Connecticut DPH

Patient Education/Public Awareness:

- Mandate asthma education and smoking cessation education in the schools to faculty and students
- Put policy in place to develop and/or enforce housing codes that make dwellings more asthma friendly
- Set up a mechanism through the insurance companies to get asthma educators reimbursed for their services

Clinical Management:

- Insurance payers assist and support patient self-management education reimbursement and pay-for-performance integration

Schools and Communities:

- Amend the school statute for self-administration of medications in schools to **require** a self-administration policy be in place in every school district for asthma inhalers and anaphylactic medications

Environment:

- Include retrofitting requirements and use of ultra low sulfur diesel fuel for off-road equipment in volume reduction solid waste facility permits during renewal
- Require retrofitting of off-road construction equipment and vehicles used in CT Department of Transportation projects requiring an Indirect Source Permit, pursuant to Regulation of CT State Agencies Section 22a-174-100
- Work with state housing coalitions and organizations for legislation to provide funding for repairs and improvements to state housing units to reduce the presents of asthma triggers and promote healthy housing
- Support legislation on green building construction
- Promote smoking ban in public venues such as playgrounds, beaches, and parks
- Collaborate with other state agencies to explore establishing a policy to implement tobacco-free housing units within Housing Authority
- Support legislation to make policy that would make tobacco products less accessible and affordable

Goal 7: Develop a Program Evaluation Plan to assess the effectiveness of all aspects of the Program.

Evaluation is a key component of developing and measuring the effectiveness of a state Asthma Program. Evaluation planning must be included at the beginning and end of Program components and results must be incorporated to guide the direction of Program activities, we see and acknowledge the importance of evaluation.

We have evaluated our AAC members to determine what the members feel their roles are on this council, to understand what we as a program can do better to communicate as a team and to establish a baseline for the existing AAC that revised the plan so that we can improve upon this collaboration as we reform the AAC with new members.

We have also surveyed partners on their impressions, usefulness, what they felt was most useful, and what additional components they feel should be included in our 2008 surveillance report.

To date, the CT Asthma Program has not had a strong overall program evaluation component. Evaluation concepts when they were presented as examples seemed very clear to us until we attempted to apply them to our Program. The Program looks forward to developing an evaluation plan because we see how useful and important it is to the Program. We have evaluated portions of the Program but they don't measure all aspects of our Program's effectiveness so we look forward to developing the Evaluation Plan.

Objective 7.1: Form an evaluation team

Current and Potential Partners: CDC Evaluation Technical Advisor, DPH Executive Leadership, CT Voices for Children (Mary Alice Lee), Key AAC members with evaluation expertise, University of CT

Strategies:

7.1.1 Hire an evaluator or identify and train existing DPH staff to be part of an evaluation team. **ST**

Performance Indicator:

- Evaluator hired or DPH Evaluation Team identified and trained

7.1.2 Identify partners that are appropriate to include in the evaluation planning process and develop consensus on appropriate number of partners to involve so the process is completed in a timely manner. **ST**

Performance Indicator:

- DPH Evaluation Team identified, trained and key partners join the team

Objective 7.2: Clarify expectations regarding the development process and how to align our evaluation plan with programmatic activities and mechanisms to measure our accomplishments

Current of Potential Partners: CDC Evaluation Technical Advisor, DPH Executive Leadership, CT Voices for Children (Mary Alice Lee), Key AAC members with evaluation expertise, University of CT

Strategies:

7.2.1. Provide evaluation guidance documents and an overview of evaluation to the evaluation team members to unify concepts as the planning process is initiated **ST**

Performance Indicator:

- Guidance documents and evaluation overview provided to team members

7.2.2. Identify methods for generating and prioritizing evaluation questions **ST**

Performance Indicator:

- Methods specified for generating and prioritizing evaluation questions

7.2.3. Review, revise and/or establish State Asthma Plan objectives and match appropriate evaluation methods to specific objectives **ST, IT, & LT**

Performance Indicator:

- Evaluation methods selected are appropriate for State Plan Objectives

Objective 7.3: Evaluation Team develops evaluation questions and a timeline on when the questions will be asked, how they will be asked and who will ask the questions for what audience to revise or establish baselines for all objectives in the State Asthma Plan

Current and Potential Partners: Asthma Program, DPH Family Health Section, DPH Vital Records Section, funded Asthma Regions, CT Voices for Children (Medicaid data)

Strategies:

7.3.1. DPH epidemiologists and program staff collect data **ST, IT, & LT**

Performance Indicator:

- Data collected

7.3.2. DPH epidemiologists analyze data or outcome measures and report results to the Program and Evaluation Team **ST, IT, & LT**

Performance Indicator:

- Data analyzed and reported

7.3.3. Evaluation results will be fed back into program planning and implementation processes to improve the program's effectiveness or to guide the Program in making changes when needed **ST, IT, & LT**

Performance Indicator:

- Evaluation results are incorporated into the Program's work plan to improve Program effectiveness

Conclusion

This revised Plan is a continuation of work completed over the last five years and the addition of new goals and objectives that will be undertaken over the next five years. The Plan's priority focus is disparate populations in urban settings. A Program Evaluation Plan will be developed to define outcomes that will measure our success and effectiveness across all aspects of the Program. Our evaluation efforts will help us to focus our limited resources and where they will do the most good. Better defined outcomes and evaluation measures will help us quantify that we have made a difference and can provide factual information and surveillance data to partners/advocates that propose systems change policies.

Current interventions will be promoted for inclusion into standard policies and practices within LHDs, including the Pediatric *Easy Breathing* Program, *Putting on AIRS* Program, Asthma and Allergy Essentials for Day Care Providers Program, Open Airways for Schools Program, Adult *Easy Breathing* Program, Asthma Awareness and Education Program, Tools for Schools Program, Tools for Office Buildings Program, and Tools for Technical Schools Program.

The Revised Plan also identifies six goals, each with specific objectives and strategies that link partners and collaborators. These goals include:

- Assessing Connecticut's asthma burden to identify disparities, high-risk populations, and trends,
- Increasing awareness and knowledge in the general public and among key asthma stakeholders in the professional community of the signs, symptoms and seriousness of asthma and that asthma can be managed,
- Improving systems of asthma care
- Reducing exposure to environmental factors that cause and/or exacerbate asthma
- Reducing barriers to self-management in people with asthma in the community and schools, and
- Creating an environment that supports effective and comprehensive care through the engagement of consumers, providers and asthma-related agencies

Key stakeholders and partners will work together over the next five years to implement the plan, monitor implementation progress and evaluate effectiveness and impact of the Plan's goals through membership in the Asthma Advisory Council (AAC) and participation in quarterly meetings each year. The Plan will address the needs of people in the state with the highest burden by targeting these populations to implement interventions focusing on the environment, clinical management and professional education, as well as patient education and public awareness.

Appendix A

Definitions

Patients classified as having "**high risk asthma**" are likely to suffer a fatal event related to their asthma. The following are indicators that a patient may be high risk and the term "high risk asthma" is used to describe patients with the greatest need for appropriate medical management and intervention.

- History of intubation's for asthma
- History of an intensive care unit (ICU) stay for asthma
- 2 or more hospitalizations for asthma in the past year
- 3 or more ED visits for asthma in the past year
- Use of 2 or more canisters of short acting beta agonist in the past month
- Hospitalization or ED visit for asthma in the past month
- Current use of systemic corticosteroids to manage asthma symptoms
- "Poor perceiver" of airflow limitation - poor perceivers are those who cannot recognize their asthma symptoms
- Low socioeconomic status
- Sensitivity to *Alternaria*. *Alternaria* is a mold that can be found on organic debris. The relationship between *alternaria* sensitivity and high-risk asthma is unknown.

Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)

- The voluntary technical standards and manuals developed by SMACNA Contractors have found worldwide acceptance by the construction community, as well as foreign government agencies. ANSI, the American National Standards Institute, has accredited SMACNA as a standards-setting organization. SMACNA does not seek to enforce its standards or provide accreditation for compliance.
- SMACNA standards and manuals address all facets of the sheet metal industry, from duct construction and installation to air pollution control, from energy recovery to roofing. SMACNA's Technical Resources Department fields several thousand technical questions annually from architects, engineers, manufacturers and government personnel.

Appendix B

Abbreviations

AAC	Asthma Advisory Council
AAFA	Asthma and Allergy Foundation of America
AANMA	Allergy & Asthma Network Mothers of Asthmatics
AAP	Asthma Action Plan
AE-C	Asthma Educator-Certified
AHEC	Area Health Education Council
AIRS	<i>Putting on AIRS</i> Program
ALA	American Lung Association
ARC	Asthma Regional Council of New England
CBIA	CT Business & Industry Association
CDC	Centers for Disease Control and Prevention
CHA	CT Hospital Association
CHFA	CT Housing Finance Authority
COPD	Chronic Obstructive Pulmonary Disease
CSIERT	CT School Indoor Environmental Resource Team
CT	Connecticut
CT AAP	CT American Academy of Pediatrics
DCF	Department of Children and Families
DECD	Department of Economic and Community Development
DOL	Department of Labor
DPH	Department of Public Health
DSS	Department of Social Services
ED	Emergency Department
EPA	Environmental Protection Agency
HUD	Housing & Urban Development
IT	Intermediate-term
IPM	Integrated Pest Management
CSSD/JJ	Court Support Services Depart./Juvenile Justice
LHD	Local Health Department
LT	Long Term
NAECB	National Asthma Education Certification Board
NAEPP	National Asthma Education Prevention Program
OSHA	Occupational Safety & Health Administration
SDE	State Department of Education
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
ST	Short Term
TfO	Tools for Offices
TfS	Tools for Schools
TfTs	Tools for Tech Schools

UHC	University of Connecticut Health Center
UCONN	University of Connecticut

Appendix C

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