Asthma in Iowa

A Plan to Improve the Health
of Iowans with Asthma
2010-2015

May 2010

IDPH
Iowa Department
of Public Health

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What is Asthma?

Asthma is a chronic inflammatory disorder of the airways that causes three primary changes in the lungs:

- Inflammation (swelling) of the lining of the airways
- Bronchoconstriction (tightening of the bands of smooth muscles surrounding the airways) which reduces the width of the airways
- Excess mucus production that further narrows the airways

Asthma is an obstructive disease that may cause permanent changes (remodeling) if not properly treated. Asthma is a disease that cannot be cured but can be controlled.

Normal Lung Tissue

Asthma

DIAGNOSIS OF ASTHMA

A diagnosis of asthma can be made by a health care professional through assessment of symptoms, medical history, physical examination and spirometry—a simple breathing test.

Diagnosing asthma in infants is often difficult, yet under-diagnosis and under-treatment are key problems in this age group. A detailed history of symptoms and a physical exam is a vital and important part of diagnosing asthma at any age.

Symptoms

Although symptoms may vary for each person with asthma, the primary symptoms of an asthma episode may include:

- Wheeze
- Cough
- Shortness of breath
- Chest tightness
- Retractions

Remember, all symptoms should be taken seriously. Please note that cough may be the only symptom. Some people with asthma may never wheeze.

CLASSIFICATION OF ASTHMA

Part of managing asthma includes assessing the severity of a person's asthma. This includes assessing night and daytime symptoms, plus a breathing test (spirometry). A person with asthma may be assessed at one of several different levels. The severity level then determines the type, dosage, and frequency of medications prescribed. Health care providers can step-up or step-down therapy based on the response to medications.

GOALS OF MEDICATION THERAPY

- Control chronic and nighttime symptoms.
- Maintain normal activity levels, including exercise.
- Maintain near-normal pulmonary function.
- Prevent acute episodes of asthma.
- Minimize emergency department visits and hospitalizations.
- Reduce school or work absenses due to asthma.
- Avoid adverse effects of asthma medications.

Medications

Asthma medications are essential to asthma management. They are important in both preventing an asthma episode from occurring and in treating an asthma episode already underway. A variety of medications are prescribed in the management of asthma.

Some medications reduce inflammation and prevent episodes. These are **controller medications**. They are taken on a daily basis, even when felling well. Side effects can include a hoarse voice and yeast infection in the mouth but can be prevented by using a holding chamber and rinsing your mouth after medication use. Controller medications will not help during an asthma episode or in emergencies.

Other medications relieve bronchoconstriction (narrowing of the airways) and are designed for quick relief during an asthma episode. These are called **quick relief medications**. Quick relief medications relax the airway muscles and should be used when asthma symptoms first appear and/or before exercise, as indicated by a health care provider. Quick relief medications are taken on an as-needed basis to relieve symptoms.

Oral steroids (taken in pill or liquid form by mouth) are taken short-term (3 to 10 days) to treat severe asthma episodes. An oral steroid (like prednisone) begins to work in 6 to 24 hours to decrease swelling in the lungs. This oral steroid is safe when taken short-term. It is not the same medication that athletes take to increase their muscle mass.

Purpose and Use of the Plan

The Iowa Asthma Plan is a tool that will allow organizations across Iowa and the region to identify the top priorities and strategies for asthma management in Iowa. This plan can:

- Be used as a tool by a variety of organizations across Iowa to guide asthma-related activities
- Be referenced for legislative and policy decisions related to asthma in Iowa
- Be used as a recruitment tool of new members/organizations to the Iowa Asthma Coalition
- Be used by the Iowa Health Care Reform Prevention and Chronic Care Management Advisory Council as a reference tool for key priorities and strategies for addressing asthma in Iowa
- Be used for reference by organizations applying for funding showing the need, priority, and justification for the activities
- Accompany a competitive, federal application process to show that Iowa has developed a statewide asthma plan and that priorities have been identified should asthma-related funding be granted
- Show the asthma-related accomplishments and need for additional resources, if the Iowa Asthma Plan priorities are reported upon on an annual basis.

History of Asthma Programming in Iowa

Asthma management and control formally began in Iowa in 2000 with a grant from the Centers for Disease Prevention and Control (CDC) to the Iowa Department of Public Health (IDPH). Through this CDC funding, IDPH was able to establish an asthma surveillance system, statewide asthma plan, and several interventions. In 2003, IDPH provided a grant to the American Lung Association in Iowa (ALA) to lead the Iowa Asthma Coalition.

The role of the Iowa Asthma Coalition (IAC) is to develop a partnership of agencies, academic institutions, health care and insurance providers, and consumers to build awareness and education around asthma. Goals of the coalition include: facilitate communication and networking among persons and organizations, update the Iowa State Plan every five years, and implement interventions.

The following highlights are examples of asthma programs that have been implemented since 2007 in Iowa.

1. The University of Iowa Asthma Center launched their "University of Iowa Asthma Center Conference" in 2005. This annual conference educates practicing healthcare professionals on the newest developments in the diagnosis and treatment of asthma.
2. Linn County Asthma Reduction Coalition had the opportunity, through a grant with the Environmental Protection Agency (EPA) to conduct in-home asthma education and assessments. *Children's Home Asthma Management Program (CHAMP)* delivered in-home asthma education to over 50 Linn County families with asthma between October 1, 2007 and September 30, 2008. Through additional funding, September 1, 2008 and August 30, 2009, another 15 children with asthma participated in a multi-visit educational curriculum. Linn County Public Health staff also used the Iowa Asthma Control Program's Asthma Action Plan and *Using Your Asthma Action Plan* brochure in the program.
3. The *Asthma Outcomes Project* trained physicians and nurses on the updated National Heart, Lung, and Blood Institute's Asthma Guidelines. Over 50 health care professionals were reached at a respiratory therapist conference and three primary care medical clinics across Iowa between September 1, 2008 and August 31, 2009.

4. *One Life to Breathe* was developed and implemented, between September 1, 2008 and August 31, 2009, with the Senior Education Program (SE*ED) and Grinnell Regional Medical Center (GRMC). Programs were provided to senior adults who had been referred to the program by their physician. More than 75 seniors were provided the education they needed to manage their asthma.

5. Organizations including IDPH, Visiting Nurse Services (VNS), ALA, Child Care Resource and Referral Agency (CCR&R), GlaxcoSmithKline and the IAC developed an asthma management training curriculum for child care providers, school nurses, and health care consultants. Between September 1, 2008 and March 31, 2010, train-the-trainer courses were held for 236 nursing students, school nurses, and school health assistants representing 90 of Iowa's 99 counties to implement the *Young and the Breathless* Program in their own communities. A documented 1,162 childcare providers have received training using the *Young and the Breathless* curriculum.

6. Between September 1, 2008 and August 31, 2009, *Athletes & Asthma*, a two-hour training for coaches, athletic trainers, school personnel, and nurses was delivered to 18 individuals. A second training was given to over 70 coaches and athletic personnel at a Coaches Training Physiotherapy Associates Conference.

7. IDPH Tobacco Use Prevention and Control Division and the Iowa Asthma Control Program partnered to implement a secondhand smoke and asthma media campaign using billboards and bus advertisements in major Iowa cities (Des Moines, Cedar Rapids, Sioux City, and Waterloo). Between November 2008 and February 2009, this campaign resulted in over 13 million impressions on Iowans.

8. ALA holds an annual week-long, residential camp for children, 8-14 year of age, with persistent asthma. This asthma camp provides intensive asthma education in a fun and medical safe camp setting.

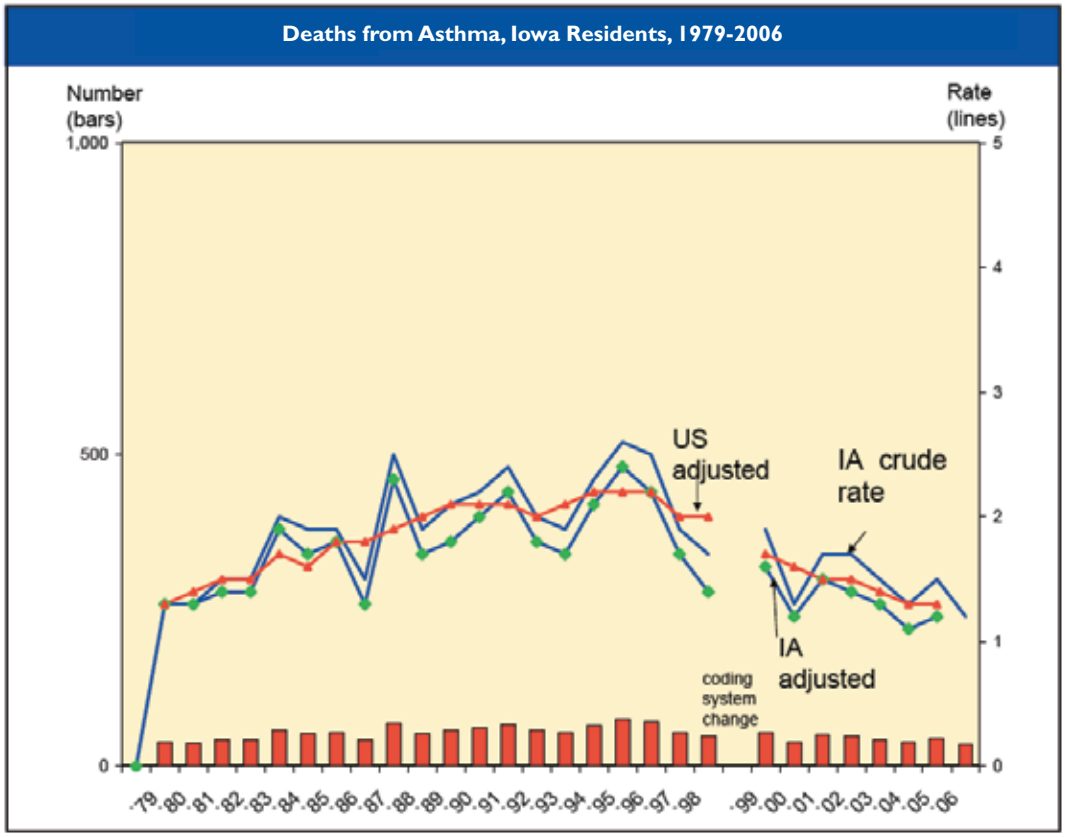
9. Beginning in 2008, ALA has trained facilitators and implemented training sessions using their *Asthma 101: What You Need to Know* curriculum for childcare provider, coaches, school personnel, and others.

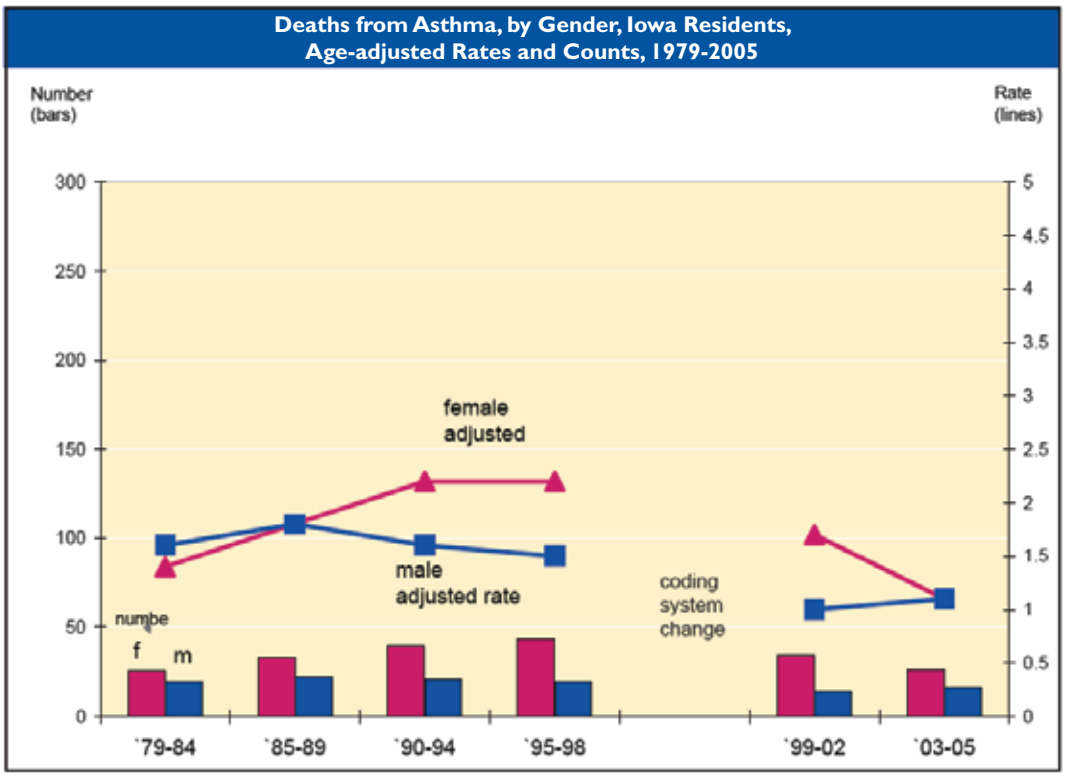
The Scope of Asthma in Iowa

There is a variety of data that describes the scope of asthma in Iowa. The Iowa Department of Public Health released several asthma surveillance reports, which can be accessed via the web at www.idph.state.ia.us/hpcdp/asthma.asp. The following summary highlights the mortality, prevalence, and health care utilization of asthma in Iowa and asthma's connection to tobacco use.

MORTALITY DATA[1]

While asthma is not a leading cause of death in Iowa, it is a prevalent chronic condition, with a rate of around 10% in adults. For each year between 1979 and 2006, asthma was the primary cause of death for fewer than 80 Iowans. During the 28 years shown below, the number of deaths from asthma peaked during the 1980s and 1990s (N=35 deaths in 2006).





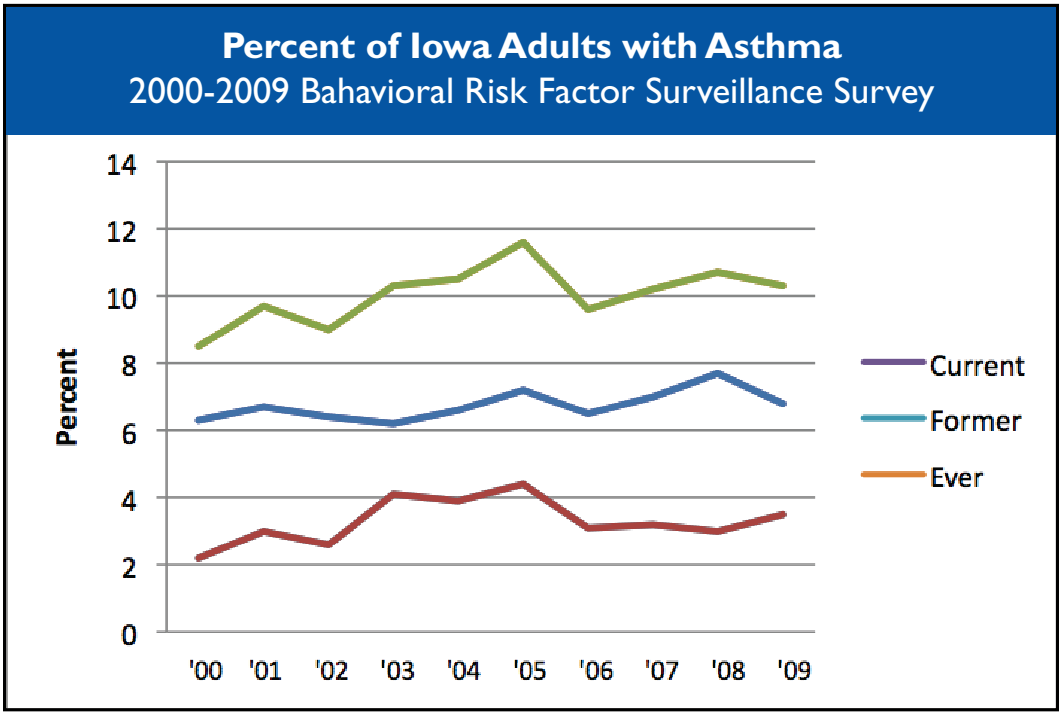
Females account for the majority of asthma deaths in Iowa—around 60% of asthma deaths during the period from 2003-2005. During this time, 5% of asthma deaths occurred among children and youth; 60% among Iowans age 65 years and older. On average, Iowans who die from asthma are younger than Iowans who die from other causes.

Between 1999 and 2005, 94% of asthma-related deaths occurred among Caucasians, 5% among African-Americans, and 1% among Iowans of other races.

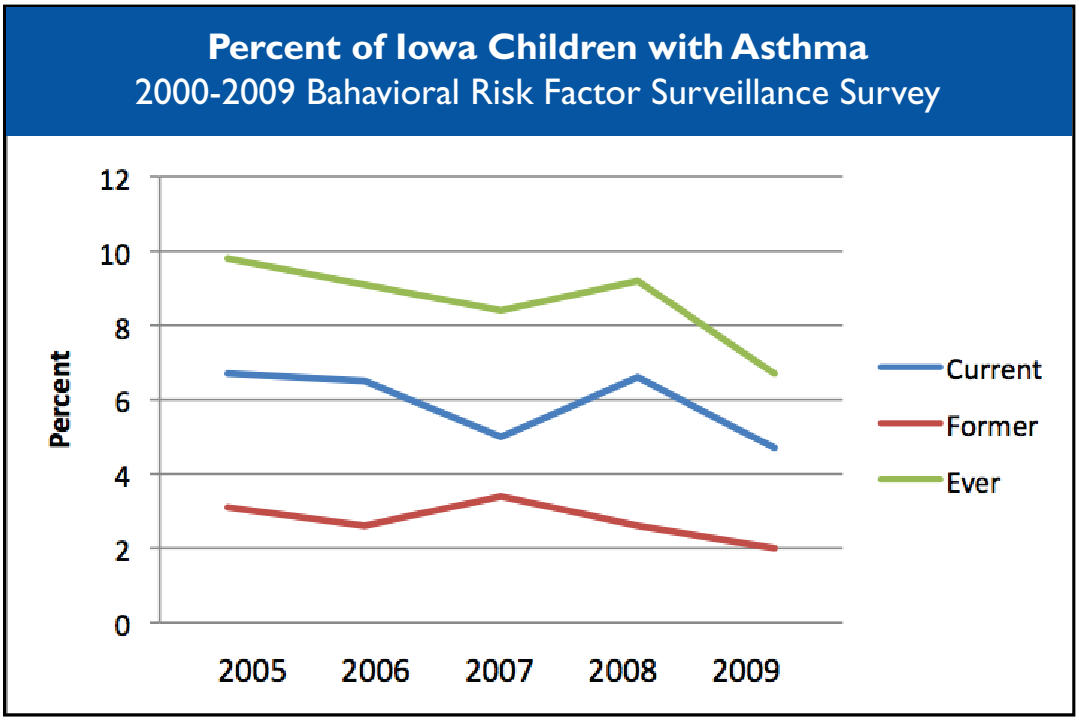
PREVALENCE DATA

According to the 2009 Iowa Behavioral Risk Factor Surveillance Survey[2], an annual telephone survey of Iowans to help monitor the prevalence of health conditions and behaviors, 10.3% of adult Iowans reported they had ever been told that they had asthma by a doctor. This percentage increased 1.8% since 2000 (8.5%).

10.3% of Iowa adults report they have asthma.



In 2009, 6.7% reported that their child had ever been told they had asthma by their doctor. This was down 3.1% from 2005 (9.8%).



The Youth Risk Behavior Surveillance System is an epidemiologic system established by the U.S. Centers for Disease Control and Prevention (CDC) to monitor the prevalence of behaviors that put youth at risk for health and social conditions. This survey is used by the State of Iowa to monitor these behaviors among youth who were attending high schools (Grades 9 through 12, traditional and alternative schools) in Iowa during 2006-07.[3]

- 15.4% of students who had ever been told by a doctor or nurse that they had asthma. (1,437)
- 8.8% of students who had ever been told by a doctor or nurse that they had asthma and still have asthma (i.e., current asthma). (1,430)

There were no statistically significant differences by gender or grade level on the questions relating to asthma.

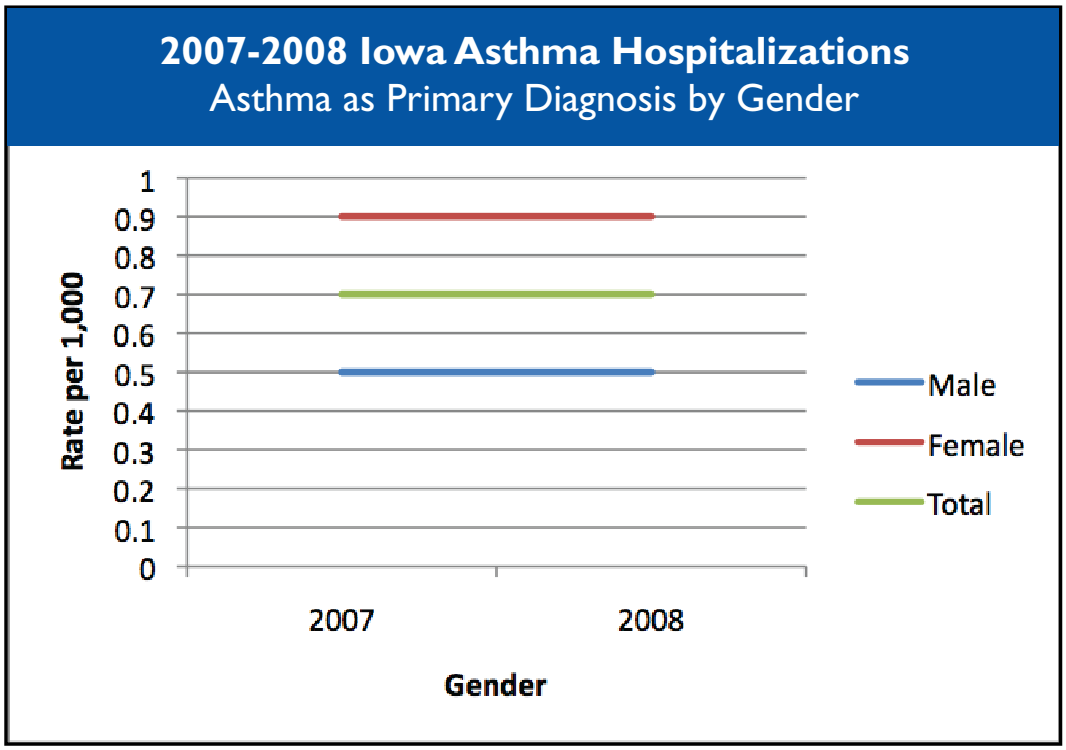
8.8% of Iowa students report they currently have asthma.

PREVALENCE AMONG FARM CHILDREN

A cohort of rural Southeast Iowa (Keokuk County) children was studied to determine the association between farm and other environmental risk factors with four asthma outcomes: doctor-diagnosed asthma, doctor-diagnosed asthma/medication for wheeze, current wheeze, and cough with exercise. Doctor-diagnosed asthma prevalence was 12%, but at least one of these four health outcomes was found in more than a third of the children. There was a high prevalence of asthma health outcomes among children living on farms that raise swine (44.1%, $p = 0.01$) and raise swine and add antibiotics to feed (55.8%, $p = 0.013$).[4]

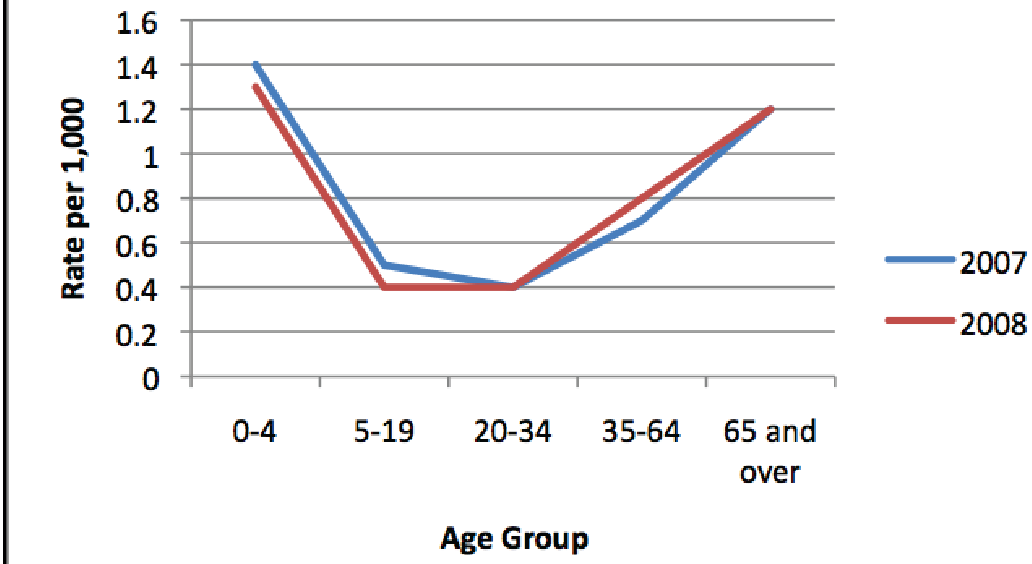
HOSPITALIZATIONS FOR ASTHMA

According to data from the Iowa Hospital Association, every year, approximately 2200 Iowans are hospitalized for asthma (ICD 493.xx) (2007 N=2188; 2008 N=2190). Females consistently have a higher rate of asthma hospitalizations than males.[5]



The highest rates of hospitalization for asthma occur in the very young children and older Iowans.

2007-2008 Iowa Asthma Hospitalizations
Asthma as Primary Diagnosis by Age Group



EMERGENCY DEPARTMENT VISITS (ED) FOR ASTHMA

Iowa asthma-related ED visits showed a much lower rate than national and Midwest region rates. See table below.

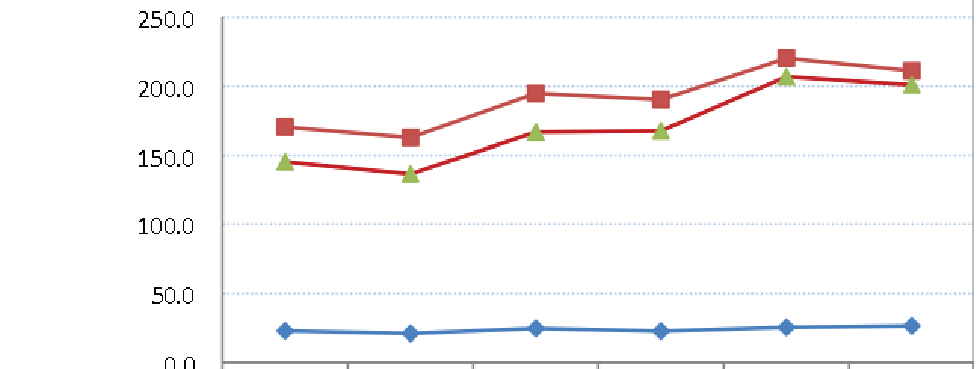
National, Midwest, and Iowa Emergency Department Visits
Age-adjusted rates per 10,000

	2003	2004
National	61.5	63.4
Midwest	47.2	73.8
Iowa	33.6	30.5

ED data also showed that children under age 15 had the highest ED visit rates due to asthma, especially for boys under age 5, while the elderly had the lowest rate. Overall, females had 1.3 times higher rate than that of males. Age groups showed wide differences between gender ratios. Among them, females aged 35-44, 45-54 and 55-64 had more than two times higher rates than that of males.[6]

The largest difference was found in Caucasians and African Americans. Overall, African Americans accounted for 14% of the total ED visits due to asthma, but comprise only 2.8% of Iowa's total population (2008). The average annual ED visit rate for African Americans (192 per 10,000) was 8 times higher than that for Caucasians (24 per 10,000). ED visit rate for African Americans increased from 170 in 2003 to 211 per 10,000 in 2008 (crude rate), with an average annual increase of 5%; while Caucasians increased from 23 to 26 per 10,000 (increased by 3.5% per year).[7]

Iowa Asthma Emergency Department Visit Rates
by Race, 2003-2008



	2003	2004	2005	2006	2007	2008
All Black	170.3	162.7	194.8	190.3	220.4	211.3
Black>17yrs	145.3	136.5	166.7	167.6	207.0	201.0
All White	22.8	20.9	24.5	22.5	25.3	26.3

The average annual rate of ED visits among African American children (220.7 per 10,000) was 6.6 times higher than that for Caucasian children (33.2 per 10,000). For adults, the rate for African American ED visits (170.7 per 10,000) was 8.3 times higher than Caucasians (20.5 per 10,000).

Out of the 17 Iowa counties defined as metropolitan areas (population >50,000), 3 counties had lower rates than the state average: Story County 18.7 (Ames), Johnson and Washington 24.1 (Iowa City). These two metropolitan areas are university cities.

Des Moines County had the highest ED visit rate due to asthma in 2008. Des Moines County's age-adjusted asthma rate (93 per 10,000) was 2.5 times higher than that of state average (36.5 per 10,000).

For more information about Iowa ED visits for asthma, see *Emergency Department Visits due to Asthma in Iowa, 2003-2008* in Appendix B.

Iowa ranks as having one of the lowest uninsured rates in the nation at 9%. This represents an improvement over the national average of 16%.[8]

HEALTH CARE DATA

The Healthcare Effectiveness Data and Information Set (HEDIS) is a measurement tool used by more than 90% of health plans in the US. HEDIS evaluates a health plan's performance for clinical quality and customer service. There is one HEDIS measure for asthma—the use of appropriate medications for asthma (controller medications for individuals with persistent asthma). The following chart shows the results for the Wellmark Health Plans of Iowa 2009 asthma HEDIS measure (Note: HEDIS results for other Iowa health plans was not accessible via the web).[9]

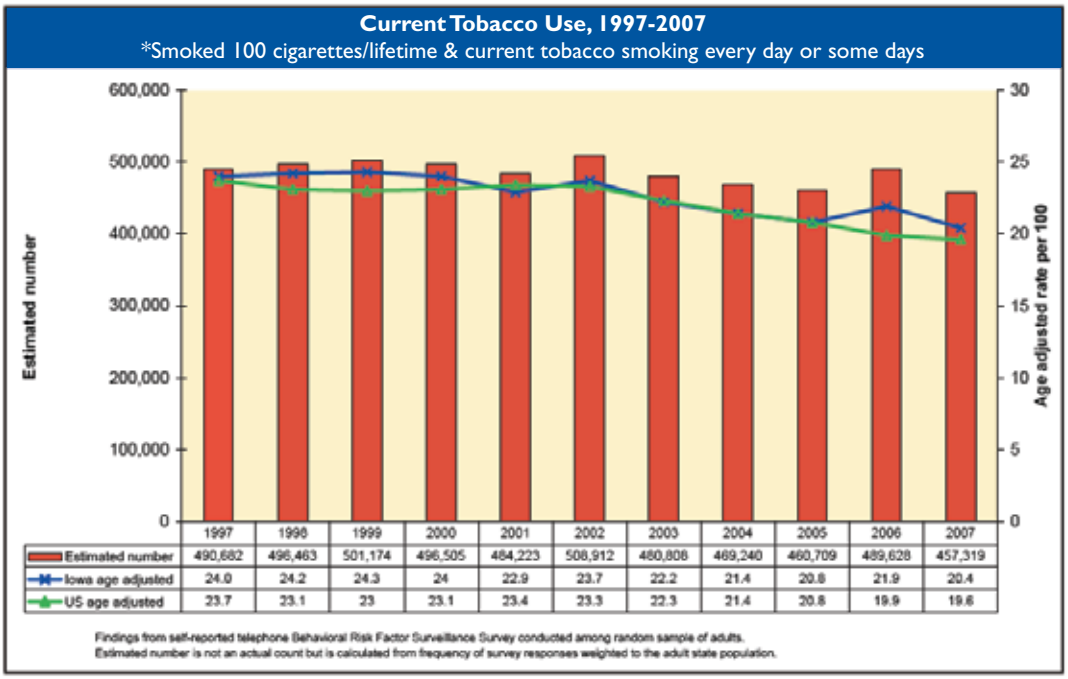
Use of Appropriate Meds for Asthma: 5- 9 years	95.74%
Use of Appropriate Meds for Asthma: 10-17 years	93.50%
Use of Appropriate Meds for Asthma: 18-56 years	89.21%
Use of Appropriate Meds for Asthma: 5-56 years	90.58%

TOBACCO USE AND ASTHMA

The Surgeon General report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke,* concludes "the evidence is sufficient to infer a causal relationship between parental smoking and ever having asthma among children of school age".[10]

Based on the Iowa Behavioral Risk Factor Surveillance Survey, tobacco use among Iowans has steady declined since 1997, in 2007, 20.4% of Iowans currently used tobacco; higher than the 19.6% national average.[11]

In 2007, Iowa increased their cigarette tax by $1.00. The 2008 Iowa Adult Tobacco Survey reported the prevalence of cigarette smoking among adult Iowans to be 14%. This continues the trend of a decrease in cigarette smoking prevalence from 23% in 2002 to 20% in 2004 and then to 18% in 2006.[12]



Starting in 2004, the Iowa Youth Tobacco Survey included survey questions about smoking and asthma. To assess whether students who smoked had higher rates of asthma or reported increased absence from school due to illness, students were asked whether they ever had asthma, currently had asthma, how many asthma episodes or attacks they had, and how many days of missed school they had due to illness.

While both smoking and having asthma are risk factors for having missed at least one day of school in the past month, middle and high school youth who both have asthma and smoke were at especially high risk of missing multiple days of school. Compared to students who do not smoke, middle school and high school students who smoke are more likely to have ever have had asthma, to have current asthma, to have had an asthma attack in the past year and to have missed multiple days of school in the past month. The following table and points are highlights of the 2009 Iowa Youth Tobacco Survey asthma-related data analysis.[13]

2009 Middle and High School Youth Who Report "Ever Had Asthma"			
	Grade Level	**Smokers**	**Non-Smokers**
Report ever had asthma	Middle School	29%	15%
	High School	21%	17%

1. Asthma prevalence rates were 24% higher among smoking high school students and 93% higher among smoking middle school students compared to non-smokers.

2. Among high school students with asthma, 55% reported being absent at least one day in the past 30 days, among middle school students, 43% reported being absent at least one of the past 30 days. Among students without asthma, 31% of middle school and 42% of high school students missed at least one of the past 30 days.

3. While both smoking and having asthma are risk factors for having missed at least one day of school in the past month, middle and high school youth who both have asthma and smoke were at especially high risk of missing multiple days of school.

4. About 46% of middle students with asthma and 64% of high students with asthma who smoked missed one or more day of school in the past 30 days.

5. Only about 43% of middle school and 52% of high school youth with asthma who were non-smokers missed any school in the past month.

6. About 15% of middle school and 17% high school students report having ever been diagnosed with asthma.

7. About 8% of middle school and 14% of high school students report having had an asthma attack in the past 12 months.

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The Planning Process

The Iowa Department of Public Health developed the first state asthma plan in 2003 and revised the plan in 2006. In January 2010, the Iowa Department of Public Health contracted with the American Lung Association in Iowa to facilitate and develop a new 2010-2015 Iowa Asthma Plan.

The following details the process the American Lung Association in Iowa followed to complete the 2010-2015 Iowa Asthma Plan.

1. Identify and review all available asthma documentation, including 2003 and 2006 Iowa State Plans, program evaluation summaries, and surveillance reports (January 2010).
2. Inventory past and current asthma programs in Iowa through an electronic survey (February 2010).
3. Gather and analyze additional asthma-related mortality, hospitalization, and emergency department data (February-April 2010).
4. Conduct key informant interviews with parents of children with asthma and health care professionals (March 2010).
5. Hold Iowa Asthma Summit (March 23, 2010).

    a. Prior to the Iowa Asthma Summit, participants were asked to review electronic versions of the agenda, 2006 Iowa Asthma Plan, and Emergency Department (ED) Visits Due to Asthma in Iowa, 2003-2008 report.

    b. During the Iowa Asthma Summit, participants self-selected into one of eight community setting discussion groups, including:
    - Advocacy
    - Data and surveillance
    - Environment
    - Health care delivery and professional education
    - Individuals with asthma and their caregivers (parents and childcare providers)
    - Infrastructure
    - Schools
    - Worksite/occupational

c. Each group was charged with creating recommendations for their topic/focus/target area. A facilitator documented recommendations that were developed by the topic area groups and walked each through a series of questions for each. Questions included:
   - What are the recommendations to improve health outcomes for Iowans with asthma through this topic?
   - What is the rationale/need for this recommendation?
   - What is the reach (in scope or specific population) of this recommendation?
     . What are the major barriers to this recommendation?
     . How could this recommendation be sustained?
     . What will indicate success/what are the indicators?
   - What is the timeframe required to implement this recommendation?
   - Who are the lead and supporting organizations for this recommendation?

d. After the topic area groups completed generating their recommendations and providing supporting information, participants switched discussion groups and responded to the draft recommendations, strengthening them with additional perspectives.

e. After all topic area groups occurred and additional input was provided, a brief summary of the recommendations was provided to all Iowa Asthma Summit participants.

f. Each recommendation was posted on flipchart sheets throughout the perimeter of the room.

g. Iowa Asthma Summit participants then prioritized recommendations by "dot method". Each participant was provided with 10 dots, used to designate the topic the participant deemed to be a priority. The dots could be allocated in any way, except no more than 5 dots could be used for any one specific recommendation. Participants were asked to consider the following criteria as they assessed each topic and prioritized recommendations:
   - Ability to have an impact
   - Ability to reach those at greatest risk or very large in scope
   - Affordability and/or cost-effectiveness
   - Ability to be linked to an ongoing effort or likelihood of being sustained
   - Evidence-based approach
   - Feasibility

- Realistic
- Can be implemented statewide versus a small geographic area
- Politically feasibility
- Potential to change systems at the highest level (public policy or organizational policy)
- Lead organization identified

h. Priorities were then ranked into three tiers. The top third ranked recommendations moved forward into the final 2010-2014 Iowa Asthma Plan. The middle and lowest ranked recommendations were discussed further by the participants. Many of these recommendations were adjusted, improved upon, and accepted by the participants and added to the plan. Four recommendations were completely eliminated, including indoor air quality monitoring at the county level, ban open air burning, statewide registry for individuals with asthma, and distributing educational games to individuals with asthma.

6. Draft Iowa Asthma Plan (April 2010).
7. Seek review and comment from key stakeholders across Iowa (April and May 2010).
8. Finalize Iowa Asthma Plan (May 2010).
9. Revive the Iowa Asthma Coalition to support and implement the 2010-2014 Iowa Asthma Plan (May 2010).

A number of potential recommendations were generated during the March 23, 2010 Iowa Asthma Summit, but were not elevated to a priority level. Rationale for not including them as a priority recommendation may include lack of political feasibility, lack of demonstrated effectiveness, groundwork not established to be able to accomplish by 2014. The following lists those potential recommendations that are not included in the final Iowa Asthma Plan:

1. Identify and distribute various games that children, parents, and childcare providers can use to increase their knowledge about asthma.
2. Develop a state electronic registry of people with asthma.
3. Pass a policy restricting open burning, such as garbage or backyard campfires.
4. Promote ambient air monitoring.
5. Change policy to monitor indoor air quality at the county or local level.
6. Develop a comprehensive asthma management in the emergency department program, including a protocol for asthma education, patient follow-up, and filling controller medications prior to discharge.

A Strategic Plan for Addressing Asthma in Iowa, 2010-2015

As this statewide strategic plan moves forward, it is vital that an evaluation and sustainability plan is developed and followed.

GOAL #1: AN INFRASTRUCTURE EXISTS TO IMPLEMENT THE IOWA ASTHMA PLAN.

Objective A: Integrate asthma management and control strategies into the existing efforts of the Iowa Department of Public Health.

1. Ensure Iowa Health Care Reform and the *Prevention and Chronic Care Management Advisory Council* is aware of and connected to the impact of asthma on Iowans. The purpose of the Prevention and Chronic Care Management Advisory Council is to advise and assist the Iowa Department of Public Health to develop a state initiative for prevention and chronic care management as outlined in Iowa House File 2539.
2. Ensure asthma, asthma triggers, and trigger reduction remain part of the Iowa Department of Public Health Healthy Homes Initiative.
3. Maintain the Iowa Department of Public Health's Iowa Asthma Program website with up-to-date resources and/or partner links.
4. Ensure Tobacco Community Partnerships, funded through Iowa Department of Public Health, and other tobacco prevention and control efforts understand the relationship between environmental tobacco smoke and asthma and are prepared to educate the public about environmental tobacco smoke as an asthma trigger for many individuals with asthma.
5. Collaborate with Iowa Health Care Reform and the Prevention and Chronic Care Management Advisory Council recommend that health care providers follow the National Heart, Lung, and Blood Institutes' 2007 Asthma Guidelines when providing care and education to individuals with asthma (also see Goal 4, Obj. A).

Partners: Iowa Department of Public Health, Iowa Health Care Reform, Prevention and Chronic Care Management Advisory Council, Iowa Department of Public Health Healthy Homes Initiative

Indicators:
- Recommendation developed by the Prevention and Chronic Care Management Advisory Council.
- Asthma education and trigger reduction is included in the Iowa Department of Public Health Healthy Homes Initiative.

Objective B: Revive the Iowa Asthma Coalition to support and implement the 2010-2015 Iowa Asthma Plan.

1. Develop a partnership between American Lung Association in Iowa, Iowa Department of Public Health, and University of Iowa Asthma Center to mobilize the Iowa Asthma Coalition.
2. Identify and recruit Iowa Asthma Coalition chair or co-chairs.
3. Develop a distribution list to provide timely communication, networking, and sharing among members of the Iowa Asthma Coalition.
4. Host quarterly, in-person Iowa Asthma Coalition meetings and provide a conference call/webinar option for Greater Iowa. Meetings should include an educational offering, networking/sharing time, policy updates, and Iowa Asthma Coalition business discussion.
5. Develop an annual summary of the Iowa Asthma Coalition's activities, goals, progress toward goals, successes/challenges, and the scope of asthma in Iowa that will be shared with policymakers, organizations working to decrease the effects of asthma in Iowa, and potential funding sources.
6. Invite the following groups to join the Iowa Asthma Coalition: physicians, physician assistants, all levels of nursing, respiratory therapists, pharmacists, health plans, industry, public health, school nurses, school administrators, academic educators and researchers, occupational health, parents, childcare providers, secondary educational programs, worksites, at-risk populations, housing/environmental services, professional associations, indoor air quality, and representation from various unions, including nurses and housekeeping/janitorial.

Partners: Iowa Department of Public Health, American Lung Association in Iowa, University of Iowa Asthma Center

Indicators:

- Co-chairs are identified for the Iowa Asthma Coalition.
- Iowa Asthma Coalition quarterly meetings are held.
- Annual summary of Coalition activity is prepared and disseminated.

GOAL #2: A STATEWIDE ASTHMA **SURVEILLANCE SYSTEM** MEETS THE NEEDS OF DIVERSE STAKEHOLDERS, IS MULTI-METHOD, AND INCREASES DATA UTILITY.

Objective A: Form an Iowa Asthma Coalition Data and Surveillance Workgroup to guide the statewide asthma surveillance system.

Objective B: Monitor trends in asthma mortality among Iowa residents utilizing Iowa death records for which the underlying cause of death was asthma.

Objective C: Monitor trends in asthma prevalence among Iowa residents.

1. Track asthma prevalence using the Behavioral Risk Factor Surveillance System (BRFSS) survey and Iowa Youth Tobacco Survey
2. Analyze asthma prevalence in subpopulations, such as Medicaid enrollees, migrant farm workers, and immigrant groups, and by race/ethnicity.
3. Monitor Iowa Youth Tobacco Survey to ensure asthma questions continue to be included.

Objective D: Monitor trends in asthma-related health care utilization among Iowa residents.

1. Analyze asthma-related hospitalization and emergency department data.
2. Gather HEDIS (Healthcare Effectiveness Data and Information Set) data.

Objective E: Make available and periodically update the Work-related Asthma in Iowa 2006-8 Behavioral Risk Factor Surveillance System Adult Asthma Call-Back Survey.

Objective F: Explore data sources to connect asthma to indoor and outdoor air pollutants.

Objective G: Monitor the impact of asthma on Iowans through reports showing asthma-related hospitalization rates and prevalence among the population.

1. Collaborate with the Iowa Department of Public Health Bureau of Chronic Disease Prevention on the development of asthma-specific reports.
2. Identify the type of reports to generate and a mechanism for publishing and disseminating report findings.

Objective H: Use asthma surveillance data to inform and respond to policymakers, local public health agencies, state agencies, and the general public.

1. Make data available through surveillance reports, fact sheets, Iowa Department of Public Health web site, Iowa Asthma Coalition web site, newsletters, and other formats.
2. Develop a "Snapshot of Asthma in Iowa" report every 3 years.
3. Utilize available data to better target asthma interventions to specific communities, age groups, populations, and those at greatest risk.

Partners: Iowa Department of Public Health, Iowa Asthma Coalition, American Lung Association in Iowa, Wellmark BlueCross BlueShield of Iowa, Principal Financial Group, United Healthcare, and other health plans that ensure Iowans

Indicators:

- Iowa Asthma Coalition Data and Surveillance Workgroup is formed.
- A "Snapshot of Asthma in Iowa" report, containing mortality, prevalence, health care utilization, and practice pattern data, is developed every three years.
- Outreach materials were created, disseminated or made available to stakeholders and the public

Supporting Evidence: Information reported by the University of Iowa College of Public Health indicates that "on-farm exposure to swine production is associated with asthma among children living on these farms and that swine production continues to the higher prevalence of asthma outcomes in this livestock-intensive rural community".[1] It is important to continue to gather surveillance data on children with asthma in rural Iowa and to identify communities at greatest-risk.

In addition, Chrischilles (2004) reports that using a standardized questionnaire with a high response rate in this large, rural, population-based study, asthma prevalence rivaled that in large Midwestern cities.[2]

GOAL #3: **PUBLIC POLICY** SUPPORTS ASTHMA PROGRAMMING AND INDIVIDUALS WITH ASTHMA.

Objective A: Request that the Iowa legislature appropriate funding for statewide asthma surveillance and programming.

Objective B: Expand Iowa's existing self-carry inhaler law (Iowa Code 280.16) for students to allow students to carry their reliever medication during all school-related activities on and off site.

1. Advocate for and educate individuals and groups on the need for the revised legislation.
2. Identify a legislator champion to author self-carry inhaler language.
3. Provide education about how to effectively implement this bill in school districts across Iowa.

Partners: Iowa Board of Health, Iowa Board of Education, Iowa School Nurse Association, Iowa Asthma Coalition

Indicators:

- Funding is appropriated to support asthma in Iowa.
- Iowa's self-carry inhaler law is expanded.

GOAL #4: ALL **HEALTH CARE PROFESSIONALS** WHO TREAT PEOPLE WITH ASTHMA UTILIZE THE NATIONAL ASTHMA EDUCATION PREVENTION PROGRAM ASTHMA GUIDELINES AND BEST PRACTICE METHODS.

Objective A: Collaborate with *Iowa Health Care Reform and Prevention* and the *Chronic Care Management Advisory Council* to recommend that all health care providers follow the National Heart, Lung, and Blood Institutes' 2007 Expert Review Panel 3 used for all education about asthma, including patients, parents/caregivers, health care professionals, and the public (also see Goal 1, Obj. A).

Objective B: Form an Iowa Asthma Coalition Health Care Delivery Workgroup to lead the work of healthcare professional education.

Objective C: All Iowa secondary institutions that train health care professionals will incorporate the National Asthma Education Prevention Program guidelines and best practice methods into their respiratory disease/asthma curriculum.

1. Develop an Iowa Asthma Coalition Health Care Delivery Workgroup to develop key components that should be included in asthma curriculum in secondary institutions. These key components should be consistent with NHLBI guidelines.
2. Assess current secondary education curricula around asthma.
3. Curriculum is incorporated into health care professional education training programs.

Partners: Iowa Asthma Coalition, American Lung Association in Iowa, Drake University College of Pharmacy, Des Moines Area Community College, Northeast Iowa Community College, Hawkeye Community College, Southeastern Community College, Kirkwood Community College, St. Luke's College, Des Moines University, University of Iowa College of Medicine, University of Iowa College of Pharmacy, Drake University College of Pharmacy, and Iowa's 28 nursing schools

Objective D: Increase health care providers' assessment of asthma control, use of controller medications, and completion of asthma action plans.

1. Incorporate asthma continuing medical education courses into existing professional venues.
2. Incorporate asthma continuing education courses through existing health care professional venues.
3. Incorporate asthma continuing pharmacy education courses through existing pharmacist professional venues.

Partners: Iowa Academy of Family Practice, Iowa Nurse Practitioner Conference, Iowa Physician Assistant Conference, Iowa Society of Respiratory Care Conference, Iowa Pharmacists Association, Iowa Nurse Conference, Iowa Public Health Association Conference, Iowa School Nurse Organization Conference, and other local and statewide organizations.

Objective E: Provide continuing medical education training for primary care providers and clinic staff within the setting where they practice.

1. Make the American Lung Association's *Asthma 101: for clinic staff* training available to clinics.
2. Identify and make available other appropriate standardized trainings, such as PACE (Provider Asthma Care Education) and the Asthma Educator Institute.
3. Deliver trainings to primary care providers statewide.

Objective F: Ensure health care professionals have the tools and resources to provide asthma education to patients and their families.

Partners: Iowa Asthma Coalition

Indicators:
- Iowa Asthma Coalition Health Care Delivery Workgroup is developed.
- A recommendation is developed by the Iowa Health Care Reform and Prevention and Chronic Care Management Advisory Council.
- An assessment of secondary institutions' asthma curriculum is conducted.
- Number of continuing medical education and continuing education programs offered.

Supporting Evidence: PACE (Provider Asthma Care Education) is a four-hour proven program developed by the University of Michigan Schools of Public Health and Medicine. PACE aims to improve physician awareness, attitudes, ability and application of communication and therapeutic skills for asthma care. The three objectives of the PACE program are to: 1) increase knowledge in diagnosing asthma, 2) improve skills in managing the condition, and 3) facilitate effective education and communication with patients and their families. [3,4,5,6]

The Asthma Educator Institute is a nationally standardized curriculum of the American Lung Association.

GOAL #5: IOWANS ARE AWARE OF AND UNDERSTAND **ENVIRONMENTAL TRIGGERS** AND DECREASE EXPOSURE TO ASTHMA ENVIRONMENTAL TRIGGERS FOR PEOPLE WITH ASTHMA.

Objective A: Expand upon the Iowa state law to include tobacco-free worksite and college campuses, which would discourage use of all forms of tobacco.

1. Promote initiatives that support tobacco-free environments, such as youth recreation facilities, community parks and other grounds, and rental housing.
2. Increase availability and awareness of health, property, and car insurance incentives offered to non-smokers.
3. Promote information that clearly states tobacco affects asthma.

Objective B: Prevent and reduce exposure to indoor environmental triggers.

1. Identify or develop materials about indoor environmental triggers.
2. Provide education to individuals with asthma and their caregivers about triggers (both allergens and irritants).
3. Assess the living environments of individuals with asthma for environmental triggers.
4. Provide education around low-cost modifications that can be made to the living environments to reduce environmental triggers.
5. Build the capacity of professionals who conduct home visits to understand asthma, assess the home environment for triggers, and provide education/assistance on low-cost modifications to reduce the triggers.
6. Work with Iowa-based health plans to provide coverage for environmental assessments for individuals with asthma.

Partners: American Lung Association in Iowa; Iowa Department of Public Health Healthy Homes Initiative; Linn County's existing asthma programming, including *Children's Home Asthma Management Program* (CHAMP); Visiting Nurse Service, Environmental Protection Agency

Indicators:
- Existence of tobacco-free policies.
- Inclusion of asthma education and trigger assessments in home visiting programs.

Supporting Evidence: Airborne allergens in the home environment have been implicated in the rise of asthma prevalence and exacerbation rates. These include biological sources (dust mite, cockroach, and other pest infestations; mold, mildew), mechanical sources (heating, ventilation), cooking practices, domestic pets, and chemical air pollutants (tobacco smoke, common household cleaning agents, volatile organic compounds found in room fresheners).[7,8]

Environmental factors have long been recognized as contributors to both pathogenesis and acute exacerbations of asthma. The National Heart, Lung, Blood Institute Expert Panel Report "Guidelines for the Diagnosis and Management of Asthma" gives equal weight to clinical management and the control of environmental factors that lead to asthma exacerbations.[9] Coordinated improvements in the social and physical environments, in conjunction with medical management, should benefit health most effectively, particularly among high-risk populations.[10]

The National Center for Healthy Housing and the Centers for Disease Control and Prevention (CDC) Task Force on Community Preventive Services have recommended multi-faceted, in-home asthma interventions tailored to the individual.[11] Numerous studies support these recommendations.[12,13,14,15]

GOAL #6: **PARENTS/GUARDIANS** ARE ABLE TO MANAGE THEIR CHILD'S ASTHMA.

Objective A: Provide a standardized curriculum and key messages for parents/guardians of children with asthma.

1. Train health care professionals, school health nurses, asthma educators, and others to implement the *Young and the Breathless*, American Lung Association's *Asthma 101: What You Need to Know* curriculum, or other standardized curriculum.
2. Ensure trained program facilitators have the curriculum and participant take-home materials to deliver asthma education in the community.
3. Ensure asthma education materials are available in multiple languages and are culturally appropriate.

Partners: Iowa Asthma Coalition, American Lung Association in Iowa, trained facilitators statewide, Proteus, Inc., Iowa/Nebraska Primary Care Association, Latino Service Provider Coalition, Urban Dreams

Indicators:
- Number of trained facilitators
- Number of asthma educational programs provided statewide
- Decrease in percentage/number of asthma-related hospitalizations

Supporting Evidence: The American Lung Association's *Asthma 101: What You Need to Know* curriculum is based on the Minneapolis/St. Paul's Controlling Asthma in American Cities Project, a seven-year CDC funded pediatric asthma management program, *Caring for Kids with Asthma*. This curriculum showed a statistically significant ($p > 0.05$) increase in retained asthma knowledge from baseline to eight weeks post-training.

Currently, 34% of Hispanics in Iowa speak English as their primary and only language.[16]

GOAL #7: **SCHOOLS** HAVE THE CAPACITY TO IDENTIFY, MANAGE, AND RESPOND TO STUDENTS WITH ASTHMA AND CREATE AN ASTHMA-FRIENDLY ENVIRONMENT.

Objective A: Enhance school health office staff capacity to manage students' asthma.

1. Train school personnel, such as teachers, maintenance, and other staff on basic training on asthma signs and symptoms, when to use reliever medications, how to recognize respiratory distress, and what to do in an emergency using *Asthma 101: What You Need to Know* or other standardized curriculum.
2. Train physical education teachers and coaches on basic training on asthma signs and symptoms, when to use reliever medications, how to recognize respiratory distress, what to do in an emergency, and how to help the performance of their athletes with asthma using *Asthma 101: What You Need to Know*, Coaches Clipboard, or other standardized curriculum.

Objective B: Build awareness of and access to the *Environmental Protection Agency's Tools for Schools* indoor air quality program.

Objective C: Expand Iowa's existing self-carry inhaler law for students to allow students to carry their reliever medication during all school-related activities on and off site. (Also see Goal #3, Obj. B).

Partners: Greater Des Moines Independent School District and other large school districts in Iowa, Iowa Department of Education, Iowa School Nurse Organization, Iowa Asthma Coalition, Childcare Resource and Referral Agency

Indicators:

- Iowa's self-carry inhaler law is expanded.
- Number of schools with an asthma-friendly schools initiative.
- Number of trainings for licensed school nurses, physical education teachers, coaches, and other school personnel.

Supporting Evidence: A framework for building the capacity of the school health office to address students' asthma is outlined by the Healthy Learners Asthma Initiative. [17,18,19]

GOAL #8: CHILDCARE PROVIDERS AND BEFORE AND AFTER SCHOOL CARE PROVIDERS DELIVER QUALITY CARE FOR CHILDREN WITH ASTHMA.

Objective A: Build the capacity of childcare providers in managing childhood asthma.

1. Utilize the Young and the Breathless, American Lung Association's *Asthma 101: What You Need to Know* curriculum, or other standardized curriculum for childcare providers.
2. Provide childcare providers with a checklist to identify environmental triggers in their childcare facility.
3. Provide educational tools on low-cost solutions to remove asthma triggers in childcare environments.
4. Provide childcare providers with an asthma resource packet which they can share with parents.

Partners: Iowa Asthma Coalition, Childcare Resource & Referral, Iowa Department of Public Health Childcare Nurse Consultants

Indicator:
• Number of childcare providers trained in asthma management.

Supporting Evidence: The American Lung Association's *Asthma 101: What You Need to Know* curriculum is based on the Minneapolis/St. Paul's Controlling Asthma in American Cities Project's, a seven-year CDC funded pediatric asthma management program, *Caring for Kids with Asthma*. The evaluation findings from *Caring for Kids with Asthma curriculum*, delivered to 237 childcare providers during 19 training sessions, indicated a statistically significant increase and retention of asthma knowledge from pre-training test to 8 week post-training follow-up test ($p > 0.05$).

GOAL #9: WORKSITES THROUGHOUT IOWA ARE FREE OF EXPOSURES THAT INCREASE SYMPTOMS FOR PEOPLE WITH ASTHMA.

Objective A: Increase awareness among health care professionals, employers, and the general public of work-related asthma.

1. Identify an occupational health representative to champion this effort.
2. Form an Iowa Asthma Coalition Worksite Workgroup to address this issue.
3. Continue to collect Behavioral Risk Factor Surveillance Survey data to identify the extent of the problem.
4. Identify standards and best practices for reducing aasthma exposures in the workplace.
5. Build awareness of work-related asthma among health care professionals.
6. Build awareness of work-related asthma among employers.
7. Build awareness of work-related asthma among general public.

Partners: Iowa Association of Occupational Nurses, Iowa Asthma Coalition, Iowa Department of Workforce Development Division of Labor Services, Iowa's 32 labor unions, Environmental Protection Agency, University of Iowa Occupational Medicine, Institute of Rural Environmental Medicine, Farm Bureau, Quaker Oats, Rockwell-Collins, and other larger employers

Indicators:
- Iowa Asthma Coalition Worksite Workgroup is formed.
- Work-related Asthma standards and best practices are identified.

Supporting Evidence: A survey of employees with asthma, conducted by the Iowa Department of Public Health, indicated that 22% reported their asthma was caused by or made worse by a current job and 12% of adults with asthma have discussed that there asthma was work-related with their primary care provider.[20]

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Appendices

A. 2006 Revised Iowa State Plan

B. Emergency Department (ED) Visits Due to Asthma in Iowa, 2003-2008

C. Work-related Asthma in Iowa: 2006-2008 BRFSS Adult Asthma Call-back Survey

A. 2006 Revised Iowa State Plan

Goals and Strategies

Goal 1. The health care workforce and other helping professions are a proactive and progressive impetus in enhancing the overall health and well-being of people who have asthma.		
Strategy	**Measure**	**Time Frame Required**
1.1 Educate healthcare providers about effective early intervention measures to reduce the number of asthma related exacerbations.	o Curriculum offered in degree programs and CME/CEU programs. o Number of health care professionals trained in *Young and the Breathless.* o Annual educational opportunity to update trained health care professionals. o Insurers to encourage physicians with high frequency of acute asthma care visits to attend educational program.	Three years
1.2 Promote the use of current National Institutes of Health guidelines for the diagnosis and management of asthma.	o Include information on guidelines in curriculum for degree programs and CME/CEU/other programs. o IAC to develop educational plan to target pediatricians and family practice. o Physicians involvement to promote to academy of physicians.	Three years
1.3 Training for health care professionals will include information on indoor triggers and what can be done to reduce the triggers. This should include homes, schools, workplaces, and other large buildings.	o Number of trainings that include information on indoor triggers. o Number of health care professionals trained.	Three years
1.4 Increase the accuracy of diagnosing asthma in the pediatric and adult population by educating physicians about methods and criteria for diagnosis.	o Education planning committee of IAC includes physicians from IAC, Blank's pediatric residency program, and UIHC. o Educational program to be delivered to participants of residency programs.	Three years
1.5 Promote and support cultural fluency and cultural competence among health care providers and students.	o Work with community advocacy groups in providing training to health care professionals, health care students, and occupational nurses.	Three years
1.6 Address professional barriers to access of treatment, i.e., information on medical professions, specialization, treatment options, financial assistance and insurance issues.	o IAC to create resource directory including information on insurance providers, Hawk-I, community clinics, etc.	Two years
1.7 Eliminate disparities in asthma diagnosis, management, and outcome among uninsured and racial/ethnic population subgroups by providing education and referral options to the traditional providers of these underserved subgroups	o Work with community advocacy groups in educating traditional providers (i.e., college campus nurses, occupational health nurses, school nurses, child care providers, etc.)	Three years

Goal 2. People who have asthma and their families are empowered, knowledgeable, and capable of taking responsibility for their own health outcomes.		
Strategy	**Measure**	**Time Frame Required**
2.1 Increase the number of formal outpatient asthma education programs within the state.	o Number of programs offered. o IAC to gather data on outpatient services bring provided. o Offer *Young and the Breathless* on DVD, as web-based training, or through ICN. o Evidence-based curriculum offered.	Three years
2.2 Educate and engage the media at state and local levels about asthma and its effects on Iowans.	o Educational materials targeted at media. o IAC to create media packets for members to distribute to media sources in their communities. o Media packets include information to use for open air spots. o IAC Surveillance Committee to include Iowa-specific stats in media packets.	Three years
2.3 Patients and families have more access to information on indoor asthma triggers and what can be done.	o Sources of information available and programs offered. o Incorporate allergy skin testing information in literature to ensure that families are made aware of what the child/person with asthma is allergic to. o Family resource packets distributed to families through child care provider and school trainings. o Women resource packets distributed to women through local Breast and Cervical Cancer programs.	Two years
2.4 Patient education materials are available to any individual with asthma that meets cultural expectations and literacy needs.	o Patient education materials available. o Cultural competence is demonstrated in the materials. o Family resource packets available. o Women resource packets available.	Two years
2.5 Families will be able to find and access adequate medical management for their asthma.	o Managed maintenance and urgent care use. o Provide information to clinics and urgent care.	Three years
2.6 Families will have access to evidence-based programs that will develop asthma self-management confidence and skills.	o Train the trainer, Young and the Breathless, offered in communities. o Family resource packets distributed through trainings.	Two years
2.7 Each individual with asthma will have a written asthma action plan that supports management of his/her disease.	o Plans in place. o Discuss with physicians on IAC. o Promoted through all trainings.	Two years

Goal 3. Community and interested organizations will focus on providing resources and education about asthma and its triggers.		
Strategy	**Measure**	**Time Frame Required**
3.1 Implement appropriate efforts in a collaborative approach of public, private, and nonprofit entities.	o Collaborative projects.	One year and ongoing
3.2 Develop and conduct ongoing education sessions for school administrators and staff relating to asthma management.	o Number of trainings provided statewide. o Encourage schools to adopt and implement efforts consistent with the CDC guide, Strategies for Addressing Asthma within a Coordinated School Health Program. o Provide information to school-based organizations through newsletters, mailings, etc.	Two years
3.3 Professional and community organizations will offer culturally appropriate programs to help individuals and families develop asthma self-management skills.	o Number of educational initiatives. o Work with community advocacy group to distribute culturally appropriate materials and educational opportunities in areas with diverse populations.	Two years
3.4 Raise community awareness of environmental exposure to particulate matter and toxins emitted from leaf, solid waste, and other forms of open burning.	o Advocacy with local Iowa communities to assist in setting policy. o Distribution of educational literature to community leaders and health professionals. o Educate media through press releases in Lung Health Month in October and Asthma Awareness Month and Clean Air Month in May.	Two years
3.5 Community organizations are provided with information on indoor asthma triggers and what can be done.	o Number of workshops/ presentations. o Number of people participating. o Information provided at exhibits, health fairs, conferences and trainings.	Two years
3.6 Ensure community education and resources include an emphasis on the impacts of secondhand smoke and how to eliminate this as a trigger.	o Materials provided to educate on impact of secondhand smoke.	Two years

Goal 4. Decisions and actions regarding asthma are based on needs and priorities that are measured and documented with sound methods. [*]		
Strategy	**Measure**	**Time Frame Required**
4.1 Establish an ongoing surveillance system for Iowa that will provide high quality and timely information to policy makers, practitioners, and the public, including people with asthma.	o The system will routinely look at: • Health outcomes and the burden of asthma (e.g. frequency, severity, ethnic and other socio-demographic variability, costs over time). • Common risk factors which are closely linked to asthma outcome (e.g. personal, health care, school and physical environment, social systems, environmental). o Data analyzed and published from sources listed below (See Appendix for more detail on relevant databases): • Work-related asthma • Adult population: urban/rural, low income, uninsured, smoking, etc. • Children age 0 – 4 yrs. • School-age children • Medical services • Deaths • Environmental data • Reportable diseases	Three years
4.2 Routinely update the Iowa strategic plan for asthma. Taking into account the limitation of funding sources and evidence for effectiveness, the strategic plan will define reasonable priorities for action. Priorities will be based on broad public input and examination of: • Iowa asthma surveillance system data • Peer-reviewed literature • State, local, and national level priorities, programs, and plans	o Published literature reviewed for effective interventions and policies: • Childhood YBRFSS • Tobacco • BRFSS Call-back • Iowa Child and Family Household Health o Local, state, and national programs and policies routinely reviewed.	Two years
4.3 Using Iowa asthma surveillance system data, priorities for asthma control found in the state plan, and other findings about program effectiveness and cost-reasonableness, systematically plan, implement, and evaluate asthma control interventions.	o Programs, policies, services implemented. o Evaluations of interventions completed.	One year and ongoing
4.4 Using Iowa asthma surveillance system and other sources, develop potential hypotheses for asthma research.	o Hypotheses generated, tested.	Three to five years

[*] See note in Appendix: Surveillance

Goal 5. Public policy at all levels supports a healthy citizenry and a reduction in the incidence and severity of asthma in Iowa.		
Strategy	**Measure**	**Time Frame Required**
5.1 Eliminate bias and discrimination that may be associated with the diagnosis of asthma.	o The percentage of asthma diagnoses per pediatric patient population.	Three years
5.2 Increase the number of communities that ban open-air burning, a known trigger of asthma.	o Collaborate with IDNR to distribute informational packets on open-air burning. Make available to 20 to 25 of the heaviest populated Iowa communities continuing to open-air burn. o Provide support to local communities in implementing open-air burn bans.	Three years
5.3 Increase actions taken by local, regional, or state public policy makers (e.g., city councils, school boards, boards of supervisors, state legislature) to address indoor air issues in the schools, workplaces, and public places.	o Recommendations made or requirements in place. o Number of public policy entities addressing school, workplaces, and public places indoor air issues. o Schools and workplaces to implement smoke free environments.	Three years
5.4 Increase the number of communities adopting smoke-free ordinances.	o Number of smoke free ordinances in force.	Three years
5.5 Children with asthma shall not be restricted from possessing and using prescribed asthma medications in school or day care or during school-related activities, provided basic documentation and safeguards are met.	o Continue to educate schools on inhaler legislation. o Legislation allowing school-aged children to carry and self-administer inhalers at before and after-school child care.	One year and ongoing

B. Emergency Department (ED) Visits due to Asthma in Iowa, 2003-2008

Outpatient/ED Visits Data

Outpatient/Emergency Department Visits (ED) database contains information on patient characteristics, the nature of the ED visits and geographic region. The database provides information on "treat-and-release" ED visits, as well as ED visits in which the patient was admitted to hospital for further care. Each year, about 13% of asthma-related ED visits in Iowa were admitted to hospital. All asthma-related ED visits were included in this report.

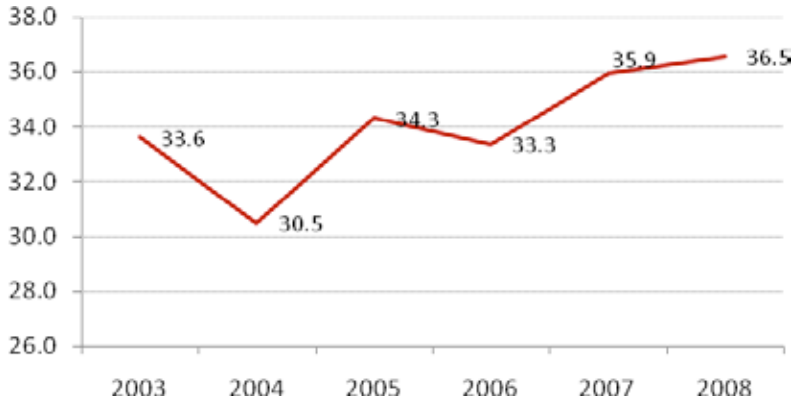
Since 2003 Iowa Hospital Association (IHA) started a new database for outpatients, the number before 2003 is not comparable to the years after 2003. In this asthma-related ED visits report, we used primary diagnosis to identify ED visits due to asthma (ICD-9-CM code 493). Patients who were treated in emergency room were included.

Only Iowa residents treated within the state were included in order to calculate state age-adjusted rate, which enables comparison to other states' rates with different age distributions in its population. All of the age-adjusted rates are per 10,000 Iowa population and are age adjusted to the 2000 US standard population using the direct method applied to 11 age groups.

ED Visits due to Asthma

On average, about 9,800 ED visits due to asthma incurred during 2003-2008, or 34 ED visits per 10,000 residents (age-adjusted rate). Like inpatient asthma data, Iowan ED visits due to asthma were much lower than the national average (62 per 10,000) and Midwest region (60 per 10,000)[1]. But, unlike inpatient data, the age-adjusted ED visit rate due to asthma was up from 33.6 in 2003 to 36.5 per 10,000 in 2008, with an average increase of 2% during the six years.

Fig. 1 Age-adjusted Rates of ED Visits due to Asthma in Iowa, 2003-2008



[1] Source: National Surveillance for Asthma – US, 1980-2004, MMWR, Oct. 19, 2007. The national and Midwest region average included in this report was the average of 2003-2004.

By Age and Gender

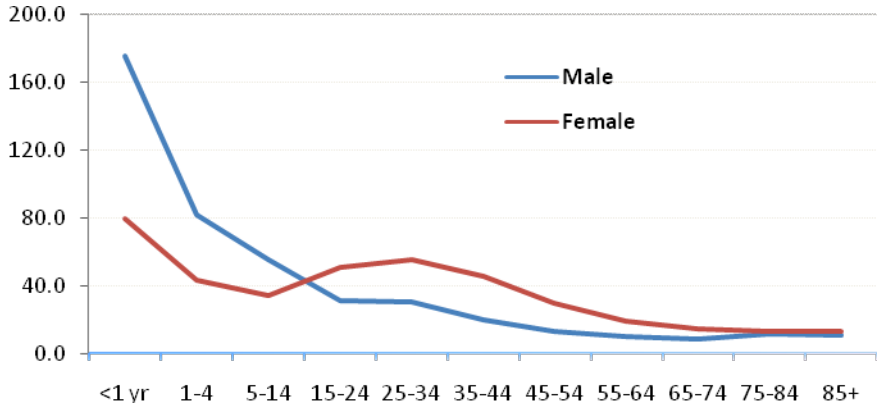
Also like inpatients, the total female ED visits rate (38 per 10,000) was higher than the male's (30 per 10,000, see the table below), but varied widely by age groups.

Females aged 35-44, 45-54 and 55-64 had more than two times higher rates than the males. In teens (15-24), young adults (25-34) and elderly group (65-74), the female/male ratio was 1.6, 1.8 and 1.8, respectively.

By contrast, children had an opposite gender ratio: males younger than 15 had the highest rates (70.3 per 10,000), nearly double that for females under age 15 (39.7 per 10,000). Male children at age 1-4 and 5-14 had 1.9 and 1.6 times higher rate than the female children, respectively.

Overall, children under 15 had the highest ED visit rates (55.4 per 10,000). Among them, newborn babies <1 year had the highest rate (128 per 10,000), followed by 1-4 (63 per 10,000) and 5-14 (45 per 10,000). ED rates due to asthma decreased quickly as people aged.

Fig. 2 Average Annual Age-Specific ED Visit Rate due to Asthma, 2003-2008



	Male Rate	Female Rate	Total	M/F ratio	F/M ratio
<1 yr	175.1	79.4	128.5	**2.2**	0.5
1-4	81.7	43.5	63.0	**1.9**	0.5
5-14	55.2	34.2	45.0	**1.6**	0.6
Subtotal <15	70.3	39.7	55.4	**1.8**	0.6
15-24	30.9	50.7	40.5	0.6	1.6
25-34	29.9	55.4	42.4	0.5	1.9
35-44	19.8	45.7	32.6	0.4	**2.3**
45-54	12.7	29.4	21.0	0.4	**2.3**
55-64	9.3	18.7	14.1	0.5	**2.0**
65-74	8.1	14.5	11.6	0.6	1.8
75-84	11.0	13.1	12.2	0.8	1.2
85+	10.6	12.9	12.2	0.8	1.2
Total[2]	**30.2**	**37.8**	**34.0**	**0.8**	**1.3**

[2] Age-adjusted rate

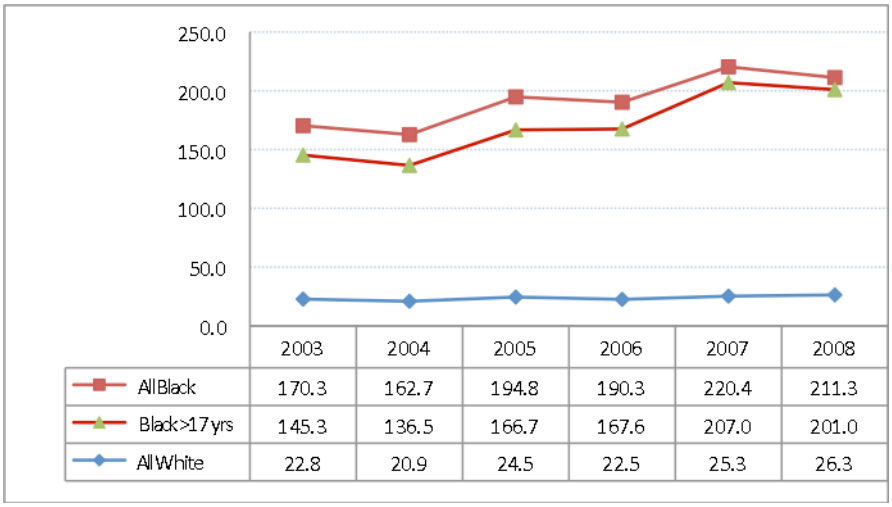
By Race

Like inpatient data, about 17% of ED visit data on race is missing. Among the remaining, 68% were Caucasian (annual number 6,600), 14% were African American (1,400). Native American and Asian/Pacific Islander were 0.4% and 0.5%, respectively.

The average annual ED visits rate for African Americans (crude rate 192 per 10,000) was 8 times higher than that for Caucasians (24 per 10,000). The rate for African Americans increased by 5% annually (average) vs. Caucasians by 3.5%.

African American adults (>17 years) had an average annual increase rate at 7.4% vs. Caucasian adults at 4.5% (not shown in the chart). The average annual changes for children (0-17) for both races were lower: Caucasian children increased by 2% and African American children by 1%.

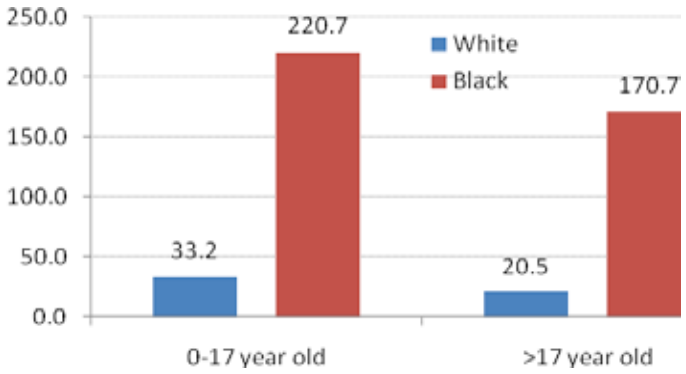
Fig. 3 ED Visit Rates (Crude Rate) due to Asthma by Race, 2003-2008



	2003	2004	2005	2006	2007	2008
AllBlack	170.3	162.7	194.8	190.3	220.4	211.3
Black>17yrs	145.3	136.5	166.7	167.6	207.0	201.0
AllWhite	22.8	20.9	24.5	22.5	25.3	26.3

The average annual rate of ED among African American children (220.7 per 10,000) was 6.6 times higher than that for Caucasian children (33.2). For adult group, rate for African American ED visits (170.7 per 10,000) was 8.3 times higher than Caucasians (20.5).

Fig. 4 Average Annual ED Visit Rate (Crude Rate) due to Asthma, by Race and Age, 2003-2008



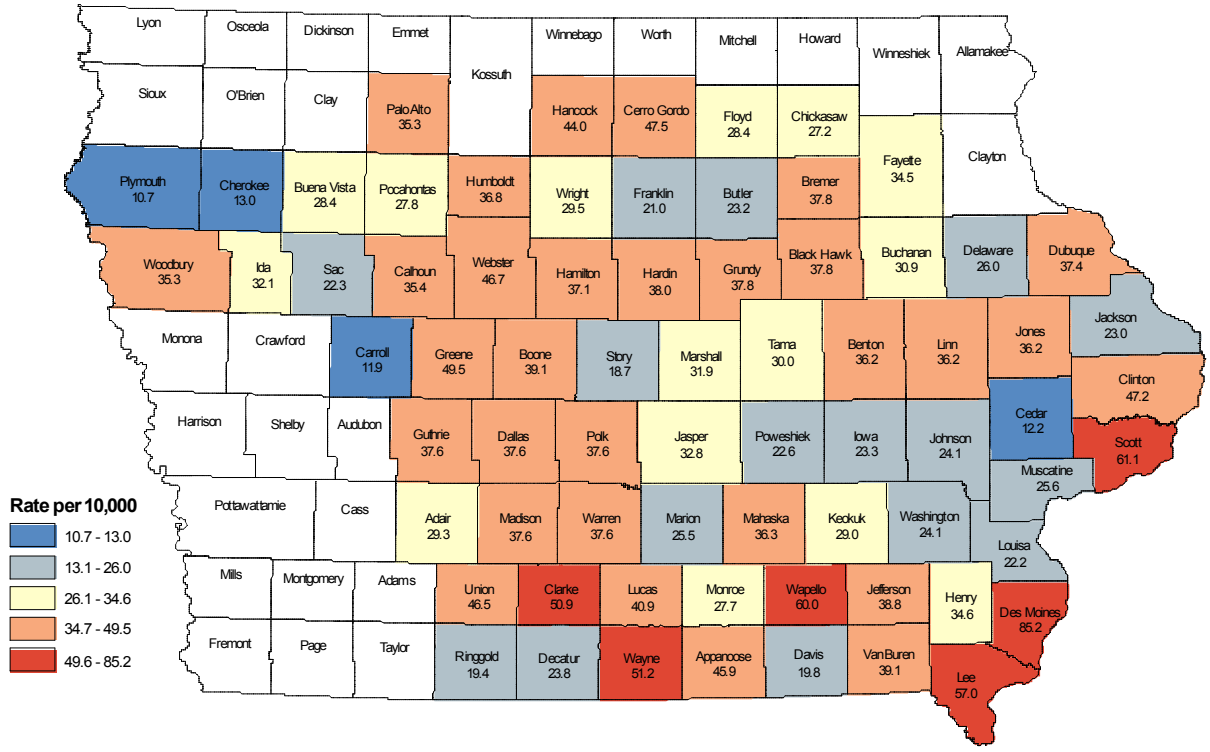
By County

Every year many Iowa residents seek medical treatments in other states, especially, for the residents on the bordering counties. Their medical records are not included in Iowa state hospital data. Therefore, we excluded these bordering counties in this section.

The ED visit rates due to asthma by county were not evenly distributed across the state. In 2008, the overall state ED rate due to asthma was 35 per 10,000 residents (crude rate). The average rate of the counties with population more than 20,000 was higher than the statewide, while the average rate of counties with population less than 20,000 was lower than the state average.

Among the counties with complete data, Des Moines County had the highest rate (85 per 10,000), followed by Scott (61), Wapello (60), and Lee[3] (57). Five of the top counties are all located at the south side of the state.

Fig. 5 ED Visit Rates (Crude Rate) due to Asthma by County, 2008



[3] State inpatient asthma report showed that Des Moines and Lee counties were all in the top 25% of the distribution of county rates (2000-2004).

Discussion

This report is the first state ED visits summary on the burden of asthma. As with inpatient report, this report includes counts and population-based rates for asthmas-related ED visits. The data in this report indicate that asthma–related ED visits increased in both counts and rate since year 2006, and the average annual increase rate was 2% during the six years (2003-2008).

There has been a small increase in ED visits while hospitalizations have decreased. The reason for the increase in ED visits is not clear. Outpatient/ED visits data could not provide real counts and rates of individual asthma-related ED visits, for there is a possibility that the same patient may be treated multiple times for the same asthma event. However, the stable asthma prevalence rate in Iowa, as documented by Behavioral Risk Factor Surveillance Survey (BRFSS) data, may be attributed to increased education and preventive care efforts.

Like inpatient asthma data, Iowa asthma-related ED visits showed a much lower rate than the national and Midwest region rates. The national average age-adjusted rate for ED visit due to asthma was 61.5 and 63.4 per 10,000 in 2003 and 2004, respectively (the latest data available); the rates were for the Midwest was 47.2 and 73.8 per 10,000. In Iowa, the rate was 33.6 and 30.5 per 10,000 in 2003 and 2004.

ED data also showed that children under age 15 had the highest ED visit rates due to asthma, especially for boys under age 5, while the elderly had the lowest rate. Overall, females had 1.3 times higher rate than that of male. Age groups showed wide differences between gender ratios. Among them, female aged 35-44, 45-54 and 55-64 had more than two times higher rates than that of males.

The most striking difference was found, like inpatient data, in races of Caucasians and African Americans. Overall, African Americans accounted for 14% of the total ED visits due to asthma, but comprise only 2.8% of Iowa's total population (2008). The average annual ED visits rate for African Americans (192 per 10,000) was 8 times higher than that for Caucasians (24 per 10,000).

ED visit rate for African Americans increased from 170 in 2003 to 211 per 10,000 in 2008 (crude rate), with an average annual increase 5%; while Caucasians increased from 23 to 26 per 10,000 (increased by 3.5% per year).

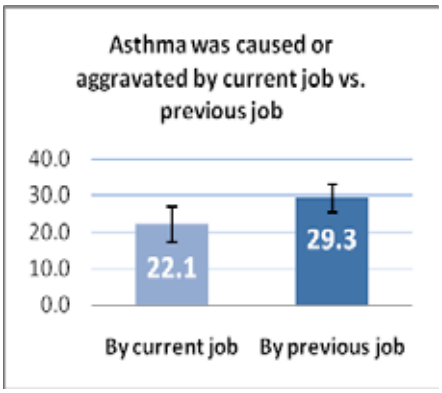
Out of the 17 counties defined as metropolitan areas (population >50,000), 3 counties had lower rates than the state average: Story county 18.7 (Ames), Johnson and Washington 24.1 (Iowa City). These two metropolitan areas are all university cities.

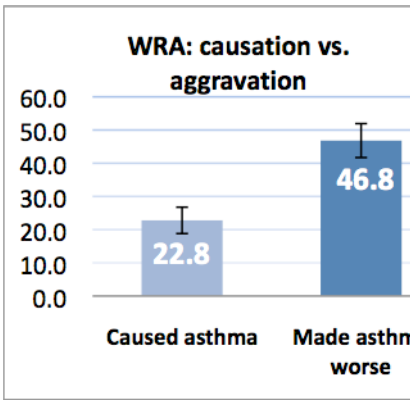
Since Des Moines County had the highest ED visit rate due to asthma in 2008, we compared its age-specific rates to that of statewide. All of its age-specific rates were higher than that of state's corresponding age groups. Its age-adjusted rate (93 per 10,000) was 2.5 times higher than that of state average (36.5 in 2008). In the future, we could look into other risk factors for asthma, like race/ethnicity.

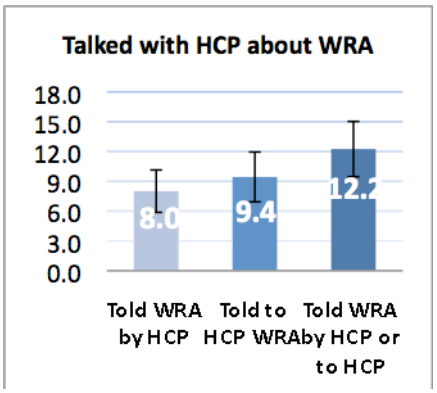
C. Work-related Asthma in Iowa: 2006-2008 BRFSS Adult Asthma Call-back Survey

Based on responses received from Iowans from 2006-2008, approximately 233,000 adults aged 18 and older reported having asthma at some time in their life, with 162,000 reporting they currently had asthma:

- 22% reported their asthma was caused by or made worse by a **current job** while 29% reported their asthma was caused by or made worse by a **prior job**;
- 23% of adults reported their asthma was **caused** by work, while 47% reported their asthma that was **made worse** by work;
- 8 % reported they were told by a healthcare provider (HCP) that their asthma was work-related while 9.4% said they told a HCP their asthma was work-related (self assessment); overall, 12% had talked to a healthcare provider about their asthma being work-related.
- 52% of the survey respondents (three year average) answered 'Yes' to one or more of the seven work-related asthma questions included in the call-back survey.







During 2006-2008, a total of 894 adults (aged 18 and older) with asthma in Iowa responded to the BRFSS Call-back survey, an average of 300 per year. Because of the expected small sample size, a complex survey design was used to get unbiased (or nearly unbiased) estimates for the asthma population. All percentages were weighted based on the probability that an individual would be selected to participate in the survey by age, gender and race.

Of the approximately 233,000 adults who had ever had asthma in Iowa, an annual average of 162,000 reported currently having asthma. For the first time, the call-back survey provided detailed information on their recent asthma history and symptoms. For adults who currently had asthma, the survey found that those with WRA routinely reported more problems than those whose asthma was non-work related.

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[1] Behavioral Risk Factor Surveillance System

2 In 2006, Iowa participated CDC's newly designed annual Asthma Call-back Survey administered as part of BRFSS. Adults (aged 18 and older) who are identified in the BRFSS as having lifetime asthma are invited to participate in a detailed asthma survey. The questions included asthma symptoms, medications, activity limitation, environmental exposures and work-related asthma. Work related status of asthma was measured by self-report whether asthma was work related.

	WRA (%)	95% CI	Non-WRA (%)	95% CI
Had Asthma symptoms, past 30 days	79.3*	73.4 - 85.1	49.7	42.0-57.5
Sleep disturbed from asthma, past 30 days	31.7*	24.2 - 39.1	16.1	11.1 - 21.1
Had asthma attack, past 12 months	52.3	44.1 - 60.6	39.5	32.3 - 46.8
Unable to work or carry out usual activities due to asthma, past 12 months	73.0*	66.5 - 79.5	53.7	45.9 - 61.5
Had visited doctor or other HCP for urgent treatment of worsening asthma symptoms, past 12 months	17.8	12.7 - 22.9	15.2	10.4 - 20.0

Note: *The difference between the WRA % and the non-WRA % is statistically significant.

- 79% of WRA adults reported that they had asthma symptoms in the past 30 days vs. 50% of non-WRA adults;
- 32% of WRA adults reported their asthma made it difficult to stay asleep vs. 16% of non-WRA adults (2 times higher);
- 73% of WRA adults reported they were limited in their usual activities due to asthma vs. 54% of non-WRA adults;
- WRA adults had a higher percentage of asthma attacks and were more likely to seek HCP treatment than the non-WRA adults, but the percentages were not statistically different.
- 22% of adults in Iowa with current asthma reported that they had to change jobs because of their work-related Asthma.

Discussion

22% of Iowa adults (estimated 39,000 Iowans) reported that their current jobs caused/aggravated their asthmas -- about 1 out of 5 adults with current asthma.

Those who currently have WRA were younger (average age 40.6, median age 50) than the non-WRA adults with current asthma (average age 48.4, median age 57), and there were more males in the WRA group (54%) than in the non-WRA group with current asthma (35%).

The survey did not collect information about the respondents' occupations, work duties, or industries of employment. This limits the ability to use the data for additional analysis to explain the differences found. It also limits the ability to use the findings to help design effective public health occupational safety prevention and intervention programs.

The response rate on health insurance did not show a significant difference between WRAs and non-WRAs: both groups reported that 93% were covered by insurance and 7% did not have insurance.

It is significant that there is a wide gap between the percentage of those who had significant impacts within the past year (73% WRA, 54% non-WRA) and those with current asthma who had accessed medical care for urgent treatment of worsening asthma symptoms in the past year (18% WRA, 15% non-WRA). Since 93% of both groups are covered by insurance, access to health care due to cost does not appear to be the cause of the discrepancy, but more research is needed to evaluate this finding further.