

# Public Health Data Watch

## Asthma in King County

Asthma is a breathing disorder caused by ongoing inflammation of the airways, common in both adults and children.<sup>1</sup> It causes cough, wheezing and shortness of breath. It can also limit physical activity.

The impact of asthma has increased markedly over the past two decades, making it a leading public health issue. It is the most common chronic childhood illness and accounts for large numbers of missed school and work days for children and their caregivers. However, effective medications and management strategies exist, and recent local efforts to put them into practice are paying off. Asthma hospitalizations, especially among children, have declined dramatically since 2001, when the King County Asthma Forum, Public Health, and health care organizations combined forces to control asthma.

Continued efforts will help assure that all people with asthma are living free of asthma symptoms and activity limitations. These efforts will also address the continuing disproportionate burden of asthma on low-income and minority people.

Figure 1. Asthma Prevalence (%) in the U.S. and King County

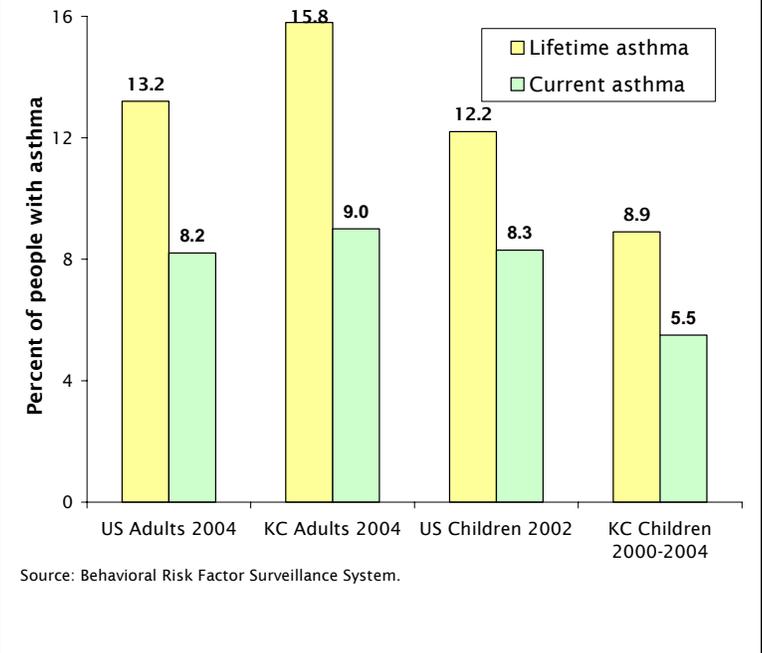
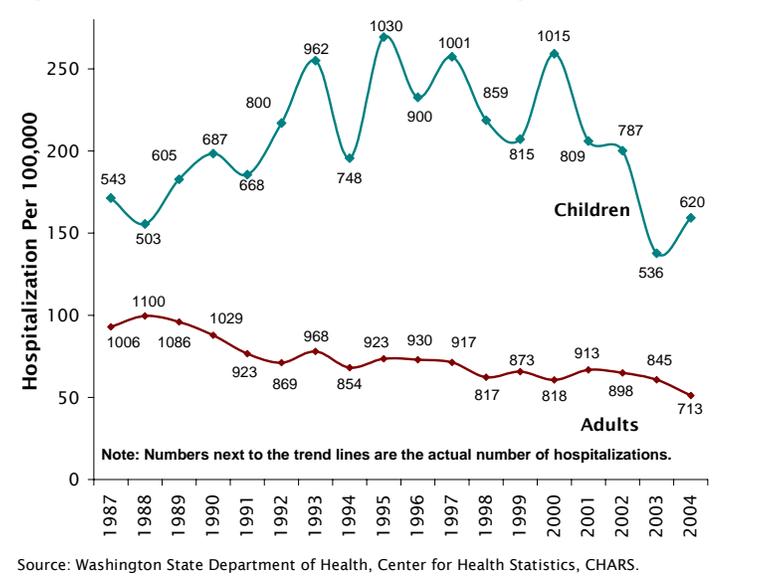


Figure 2. Asthma Hospitalization in King County



**Life time asthma vs. current asthma (BRFSS data)**

Life time asthma: have ever been told by a doctor, nurse, or other health professional that the person had asthma.

Current asthma: have ever been diagnosed with asthma and still have asthma.

## Quick Facts

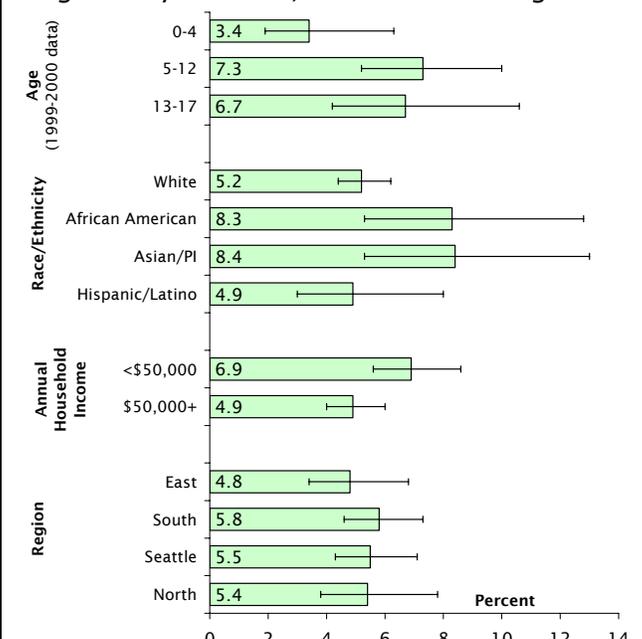
- In King County, 124,000 (9.0%) adults have current asthma, and they incur 20,000 emergency room visits and over 800 hospitalizations per year.
- The prevalence of current asthma among adults increased 34% between 1999 and 2004 while the asthma hospitalization rate declined by 45% between 1987 and 2004.
- 21,000 (5.5%) children have current asthma.
- Hospitalizations for asthma among children increased 57% between 1987 and 1995. The rate plateaued between 1995 and 2000 then declined by 39% between 2000 and 2004. The most dramatic decline was between 2002 and 2003 with a 31% drop. The decline occurred as local asthma control efforts intensified.
- Low-income adults (<200% poverty) are 1.5 times more likely to have current asthma than higher income adults (≥200% poverty).
- People from high poverty communities are much more likely to be admitted to the hospital for asthma compared to people from low poverty communities (about two times more likely for adults and three times for children).
- The highest rates of asthma hospitalization are found in Beacon Hill/Southeast Seattle, Downtown/Central Seattle, and some South King County communities.
- African-American and Asian/Pacific Islander children and American Indian/ Alaska Native (AI/AN) adults have high asthma prevalence.
- Asthma triggers are widespread in the homes of low-income people with asthma: 26% have mold, 16% have cockroaches, 23% have pets, and most have dust mites.
- Asthma medical management falls short of recommended standards. Over 60% of people with current asthma do not receive or take necessary medications. Only half of children have an asthma action plan that provides advice on what to do when asthma gets worse.
- In 2004, among King County residents of all ages, asthma hospitalizations alone cost \$11.8 million, or \$8,826 per hospitalization.

## Childhood asthma

### Prevalence

- The BRFSS data<sup>i</sup> show that 5.5% of King County children had current asthma (2000-2004 average). Asthma prevalence among children age 0-4, 5-12, and 13-17 was 3.4%, 7.3%, and 6.7% respectively (1999-2000 average).
- The 2004 HYS data<sup>ii</sup> show that the prevalence of current asthma was 6.1%, 7.4%, 9.3% and 7.2% among grade 6, 8, 10, and 12 students respectively; these rates were higher than the BRFSS data.
- The BRFSS data also show that African American and Asian children were more likely to have asthma than children of other racial/ethnic groups.
- Lower income children had a higher rate of asthma than children from higher income households.
- The rate in the East Region was somewhat lower than elsewhere in the County although the differences were not statistically significant.

Figure 3. Current Asthma Prevalence Among King County Children, 2000-2004 Averages\*



Source: Behavioral Risk Factor Surveillance System.  
\*Data for 2002 are not available. Age-specific data are only available for 1999-2000. Data for AI/AN are not presented because of small sample

<sup>i</sup> The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone survey among adults. Questions on childhood asthma are reported by an adult respondent in the household.

<sup>ii</sup> The Healthy Youth Survey (HYS) is a questionnaire survey among students. Current asthma for the HYS data is defined as "have been diagnosed with asthma and had an asthma attack or taken asthma medication during the past 12 months".

## Asthma Severity

People with current asthma can vary in severity from mild intermittent to severe persistent.<sup>1</sup> Persistent asthma (includes mild, moderate, and severe) is defined as having asthma symptoms more than two days per week or more than two nights per month, or taking daily asthma medications.

- In 2004, among students in grade 8, 10, and 12 with current asthma, 36.4% had persistent asthma. These students were more likely than students with intermittent asthma to have asthma attacks, emergency department visits, and missed school days due to asthma.
- Hospitalization is a marker for poorly controlled asthma. The hospitalization rate increased significantly between 1987 and 1995, from 171 to 269 (per 100,000). The rate plateaued between 1995 and 2000 then declined significantly between 2000 and 2004 by 39% from 259 to 159. The biggest drop in the hospitalization rate was between 2002 and 2003, from 200 to 138 (Figure 2).

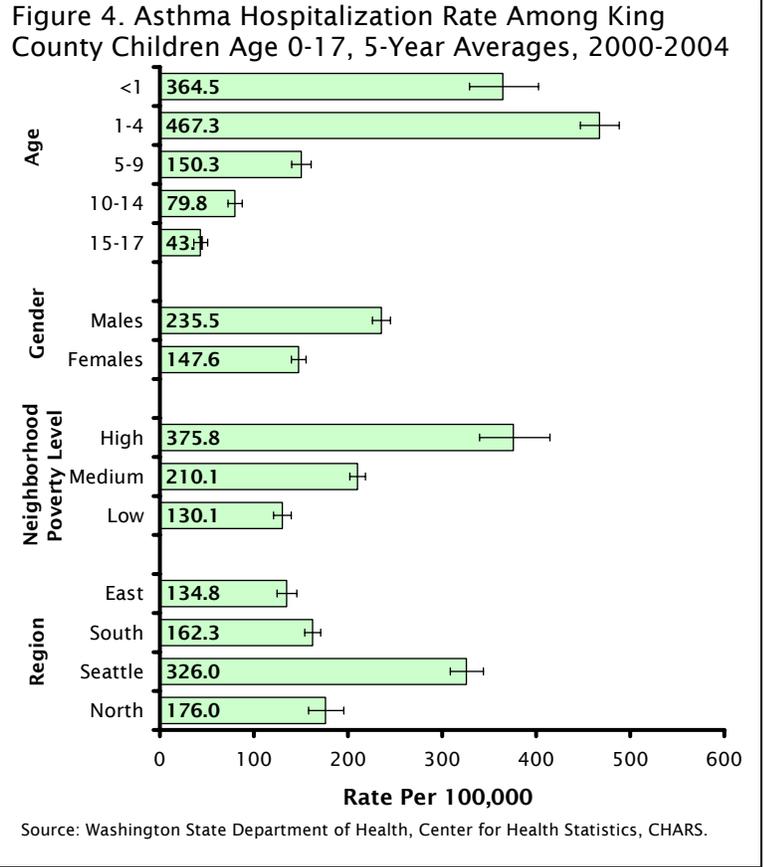
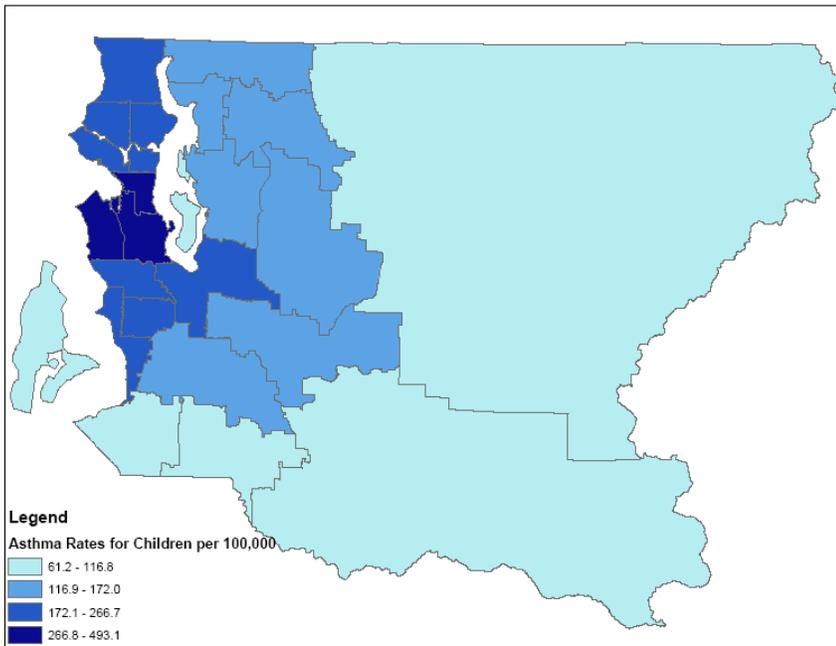


Figure 5. Asthma Hospitalization Rate Among Children Age 0-17 by Health Planning Area 2000-2004



Source: Washington State Department of Health, Center for Health Statistics, CHARS.

- The decline in childhood asthma hospitalization occurred as asthma control activities in King County intensified: community health workers began in-home asthma education, health organizations improved the quality of care (see page 9).
- Averaged over 2000-2004, the childhood asthma hospitalization rate was significantly higher in males than in females, in the younger age groups, in high poverty neighborhoods,<sup>iii</sup> and in Seattle (Figure 4).
- Among the health planning areas, Beacon Hill/Southeast Seattle, Downtown/Central Seattle, West Seattle/Delridge, Tukwila/SeaTac, Renton, and White Center/Boulevard Park had the highest hospitalization rates (Figure 5). The rate in Beacon Hill/Southeast Seattle was eight times higher than that in Southeast County.

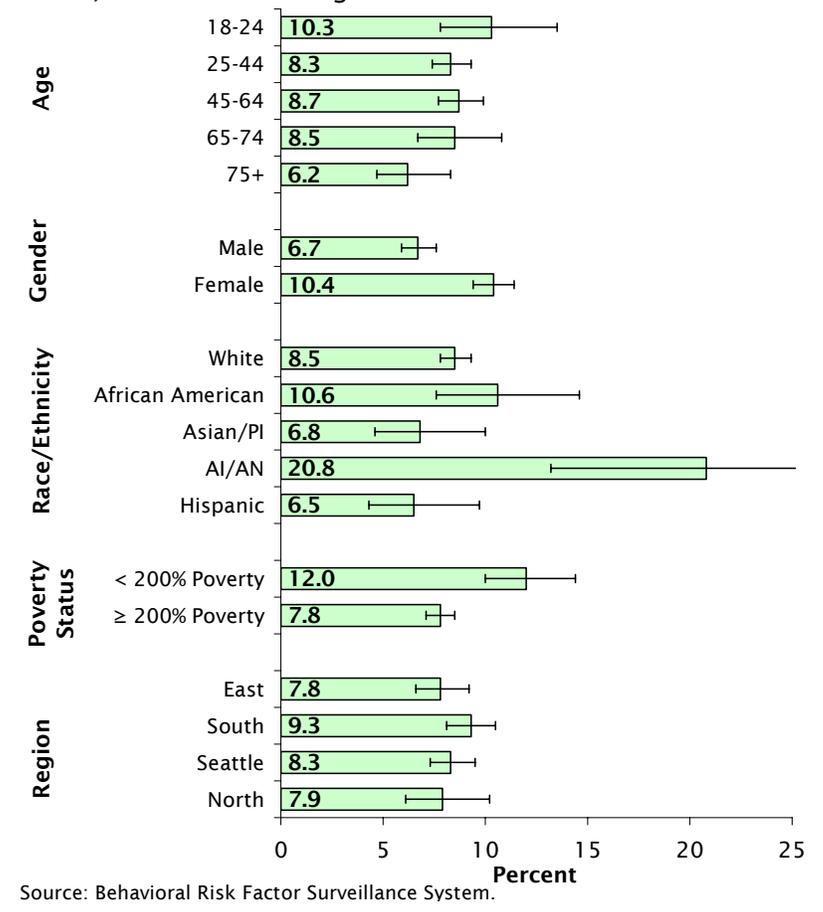
<sup>iii</sup> The poverty level for the King County neighborhoods is defined based on percent of population living below the Federal Poverty Level. High poverty: 15% or more, medium poverty: 5% to 14%, and low poverty: less than 5%.

# Adult asthma

## Prevalence

- The BRFSS data in 2004 show that 9.0% of King County adults (124,000) have current asthma while 15.8% have life-time asthma.
- Adult asthma prevalence has increased significantly since the late 1990s, rising 34% between 1999 and 2004.
- Current asthma prevalence is highest among young adults age 18-24 and lowest among persons 75 and older (Figure 6).
- Females have significantly higher prevalence than males.
- The American Indian/Alaska Native (AI/AN) prevalence is more than twice that of whites.
- Adults living below 200% poverty have significantly higher prevalence than those living above 200% poverty.
- Asthma tends to be more common among adults living in the South Region although the differences between the regions were not statistically significant.

Figure 6. Current Asthma Prevalence Among King County Adults, 2000-2004 Averages



## Asthma Severity

- About half of adults with asthma (53.2%) have persistent asthma.
- Adults with persistent asthma report more frequent use of urgent health care services, with 13% visiting the emergency department and 23% receiving other urgent treatment in the past year.
- Adults with persistent asthma miss more than one week of work each year because of asthma.
- Adults with asthma report being less healthy than those without asthma, having more days with poor physical and mental health, and more activity limitation.
- The asthma hospitalization rate among adults declined significantly between 1987 and 2004, by 45%. The most significant declines occurred between 1988 and 1998, and between 2001 and 2004 (Figure 2).
- Averaged over 2000-2004, there were 837 asthma hospitalizations per year among King County adults.

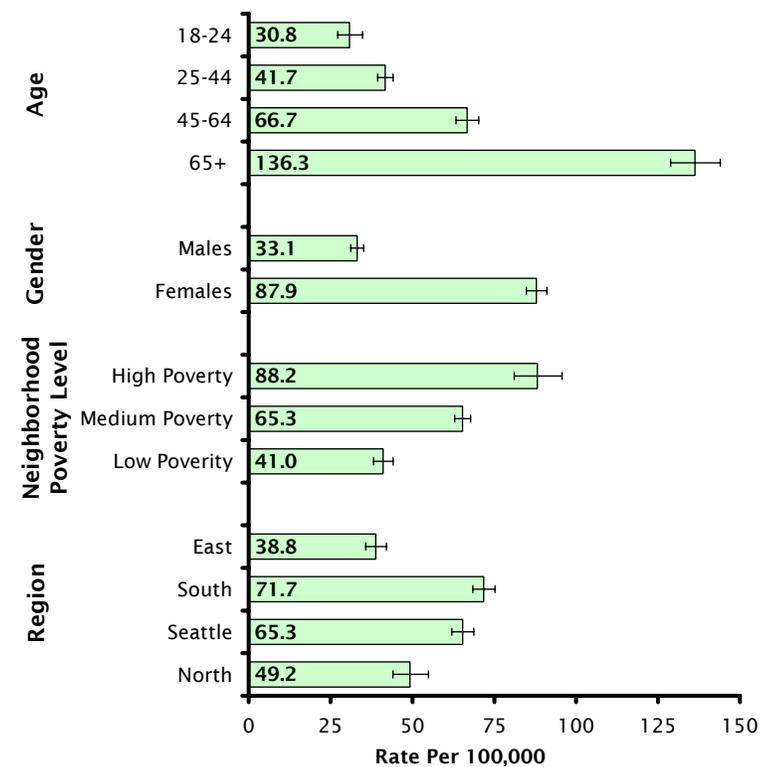
- The hospitalization rate was significantly higher among the elderly, among women (2.7 times higher than men), among people living in high poverty neighborhoods, and among residents of the South Region and Seattle (Figure 7).
- Among the Health Planning Areas, Beacon Hill/Southeast Seattle, Downtown/Central Seattle, and Auburn had the highest rates (Figure 8). The rate in Beacon Hill/Southeast Seattle was 6.5 times that of Vashon Island.

### Age at Diagnosis

While asthma is often considered a childhood disease, many people are first diagnosed with asthma as adults.

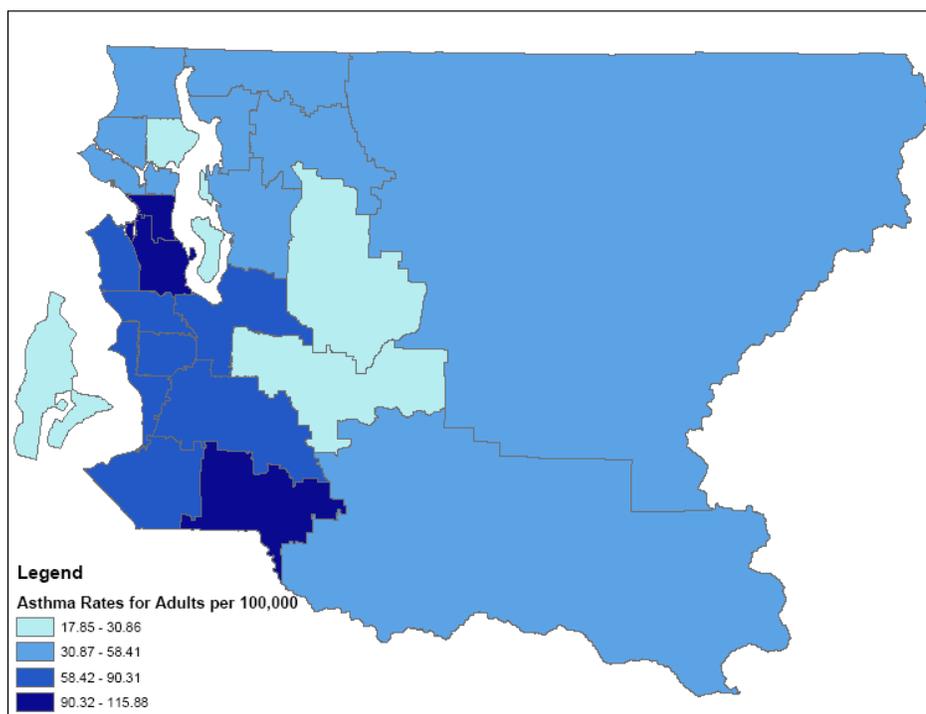
- Among adults with lifetime asthma, 45% were diagnosed after age 17 and 10% after age 49.
- Asthma is a chronic disease. While its severity may wax and wane, and symptoms may even disappear for many years, there is always some degree of lung inflammation. Symptoms can return at any time.

Figure 7. Asthma Hospitalization Rate Among King County Adults, Five-Year Averages, 2000-2004



Source: Washington State Department of Health, Center for Health Statistics, CHARs.

Figure 8. Asthma Hospitalization Rate Among Adults Age 18+ by Health Planning Area, 2000-2004



Source: Washington State Department of Health, Center for Health Statistics, CHARs.

## Economic Costs of Asthma

The total cost (direct and indirect) of asthma in the United States was estimated at \$16.1 billion in 2004.<sup>2</sup> Direct costs (medical expenditures) were \$11.5 billion, including \$5 billion for prescription drugs. Indirect costs were \$4.6 billion, which included lost school and work days, lost house-keeping work, and mortality.

Among King County residents in 2004, the total hospital charges were \$11.8 million, averaging \$8,826 per hospitalization, with an average stay of 2.6 days. Medicaid was the primary payer for 44% of the hospitalizations among children under age 18 and for 28% among adults age 18-64.

## Indoor Environmental Asthma Triggers

Indoor allergens and irritants play a significant role in both triggering asthma attacks and causing asthma. These triggers include tobacco smoke, mold, dust mites, cockroaches, rodents, pets, nitrogen dioxide (from stoves), wood smoke, and certain chemicals (such as formaldehyde from particle board or new carpet).<sup>3, 4</sup>

Data on asthma triggers are lacking at the population level. However, a number of studies in King County, including the Inner City Asthma Study (ICAS-Seattle),<sup>5</sup> Healthy Homes I (HH1),<sup>6</sup> and Healthy Homes II (HH2), provide evidence that exposures to these triggers are widespread among low income households. Among homes in Healthy Homes II, 76% had at least one trigger present and 12% had three or more. Among children in Healthy Homes II, 60% had allergies to at least one trigger and 36% were allergic to three or more.

## Tobacco Smoke

People with asthma who smoke tend to have more severe asthma. Children exposed to secondhand smoke early in life are at risk for developing asthma, and secondhand smoke can also trigger asthma symptoms in people with asthma.<sup>3</sup>

- Among King County adults with asthma, 18% are current smokers.
- Exposure to secondhand smoke in the home is common. Among adults with current asthma, 24% report having at least one smoker in the household and 10% report someone smoked inside the home during the previous 30 days.
- Many people are also exposed to secondhand smoke at work. Overall, 8% of King County adults report that smoking is permitted in indoor work areas, ranging from 2% in offices to 48% in restaurants or bars.
- Among King County children under age 5, 21% had at least one smoker in the home and 5% were exposed to tobacco smoke inside the home during the previous thirty days in 2003.

## Mold and Moisture

Molds can trigger asthma attacks.<sup>4</sup> Excessive moisture in homes can increase mold and dust mite levels. Indicators of excessive moisture include water damage, mold, and window condensation.

- Half the homes (51%) in the Healthy Homes studies had excessive condensation, 15% had water damage, and 44% had visible mold.
- In HH2, 14% of the children were allergic to at least one of the four mold allergens tested.
- Countywide, a quarter of the adults and a third with asthma report having water damage in the home during the past 5 years.
- 16% of all adults and 26% of those with asthma report mold or mildew that covers an area at least the size of a dollar bill inside the home.

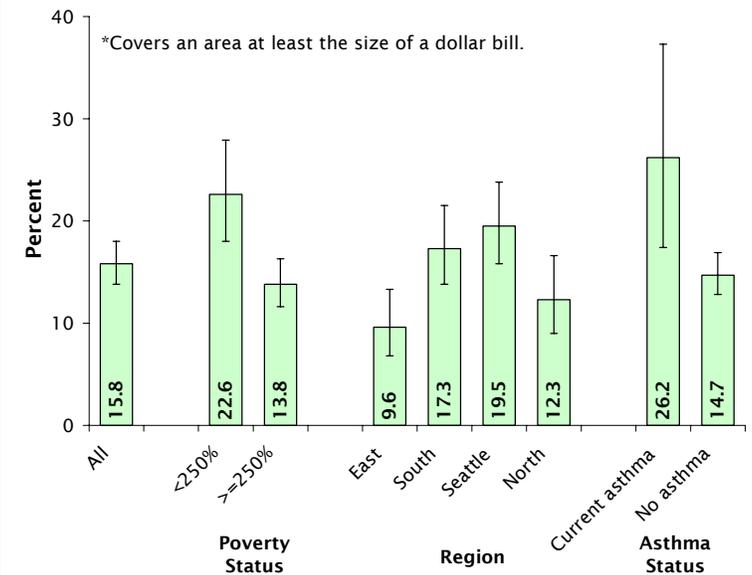
- People with household incomes below 250% poverty or living in Seattle or the South Region were more likely to report mold in the homes (Figure 9).

### Dust mites

Dust mites are tiny spider-like organisms found in every home and are the most common indoor asthma trigger in climates with high humidity.<sup>4</sup> Exposure to dust mites can be a cause of asthma and can trigger asthma in allergic individuals. Dust mite allergy is common among children with asthma.

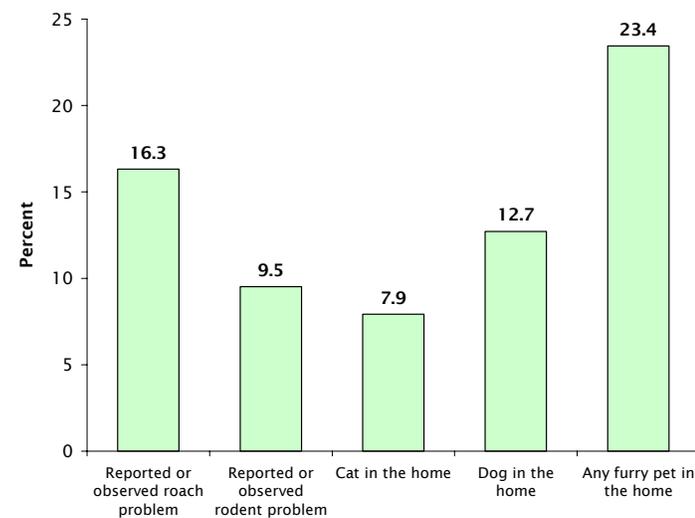
- In the ICAS study, 78% of the children were allergic to dust mites as were 55.8% in HH2.
- A significant amount of dust mite allergen<sup>iv</sup> was found in bed and floor dust in 63% of ICAS study homes and in floor dust in 49% of the HH2 study homes.

Figure 9. Percent of King County adults reporting having seen mold/mildew\* inside the home during the past 12 months, 2004



Source: Behavioral Risk Factor Surveillance System.

Figure 10. Exposure to Roaches, Rodents, and Pets in the homes among HH1 and HH2 participants



Source: Healthy Homes I and Healthy Homes II combined.

### Roaches, Rodents, and Pets

Allergens found in cockroaches, dogs, cats, rodents (including rats, mice, hamsters and guinea pigs), and birds can trigger asthma attacks in sensitive individuals.<sup>4</sup> Exposure to these allergens is common among King County residents.

- 16% of the homes in the Healthy Homes studies had roaches.
- 10% of the homes had rodent infestations.
- Almost a quarter (23%) of homes had furry pets.
- A significant amount of cat allergen<sup>v</sup> was found in bed and floor dust in 33% of the ICAS study homes and in floor dust in 13% of the HH2 study homes.
- Among children with asthma in HH2, allergies to roaches (29%), rodents (13%), and animals (27% to cat or dog) were common.

<sup>iv</sup> Der p 1 > 2 ug/g, which is the amount needed to trigger asthma symptoms in a person sensitized to mites.

<sup>v</sup> Fel d > 8ug/g, which is the amount needed to trigger asthma symptoms in a person sensitized to cats.

## Outdoor Environmental Triggers

Pollens, outdoor molds, and pollutants such as nitrogen dioxide, sulfur dioxide, ozone, and diesel exhaust particles can also make asthma worse.<sup>8, 9</sup> Asthma patients should limit outdoor activities when pollen counts and/or pollutant levels are high. In 2004, there were six days during which the air quality in King County was unhealthy for sensitive groups such as people with asthma, COPD, and heart disease.<sup>10</sup> Local pollen counts are available at the American Academy of Allergy, Asthma, & Immunology website ([www.aaaai.org/nab/index.cfm?p=pollen](http://www.aaaai.org/nab/index.cfm?p=pollen)) and outdoor air quality grade can be found at the Puget Sound Clean Air Agency website ([www.pscleanair.org/airq/aqi.aspx](http://www.pscleanair.org/airq/aqi.aspx)).

## Asthma Quality of Care and Self Management

- National guidelines describing optimal asthma management have been available since 1991 and were updated in 1997 and 2002.<sup>1</sup> However, even with recent improvements, current asthma management in King County, as in the nation,<sup>11, 12</sup> falls far short of these goals.

- Only 37% of the King County adults with persistent asthma are taking adequate doses of daily medicine to keep asthma under control.
- Patients often do not take asthma medicines as prescribed. Of the children in HH2, one-third (32%) had forgotten taking his/her medicines during the previous two weeks and one quarter (25%) had stopped taking his/her medicine altogether.

Written *Asthma Action Plans* tell people with asthma which medications to take and when to seek medical care when their asthma worsens. Their use can decrease urgent health care use and prevent serious attacks.<sup>1</sup>

- The HYS data show that among grade 8, 10, and 12 students in King County with persistent asthma, 49% had an asthma action plan.
- Documented asthma action plan use among asthmatic children ranged from 8% to 59% among the ten community clinics that participated in Healthy Homes II.

*Medical care visits* at least once a year allow patients and doctors to assess how well asthma is being controlled, review action plans and adjust medications.

- Only half (47.6%) of the King County adults with current asthma report having a routine asthma check in the past year.

## Policies to Improve Asthma Control in King County

Implementing the following policies will allow continued progress in controlling asthma:

- Including asthma education, such as community health workers, classes and support groups as a health insurance benefit offered by health care purchasers and provided by health plans.
- Improving housing quality, including updating housing codes to incorporate specifications that will reduce asthma triggers (e.g. improved ventilation), funding residential and school environmental audits, and offering incentives to homeowners and builders for adequate ventilation, moisture control and hard floor surfaces (less likely to trap asthma triggers).
- Increasing coordination of asthma services, including development of routine communication by hospitals and emergency departments with primary care providers after a patient with asthma is discharged.
- Improving school management of asthma, including assuring that every student with asthma has a management plan at school, that every school has staff trained to assist children with asthma, that schools and medical providers coordinate management and that exposure to asthma triggers is minimized.
- Improving quality of medical care, including assessing asthma severity, ensuring prescription of appropriate medications, providing asthma action plans and other tools for asthma control, providing training for health care providers, and measuring the improved medical tracking of the asthmatic population.
- Assuring funding for local asthma control activities in order to continue proven strategies started with grant-funded demonstration projects.

## Resources

In recent years, more asthma control programs, activities, and support services have been implemented in King County, such as the Allies Against Asthma program, the Steps to Health program, and the Healthy Homes projects. Information about local asthma programs is available through the King County Asthma Forum at 206-205-0523. Asthma support services include: asthma classes, home visits from community health workers to learn about asthma, home checks to identify and get rid of asthma triggers, and help working with schools to support students with asthma.

### **The following is a list of selected local asthma resources.**

#### **Asthma and Allergy Foundation of America- Washington State Chapter**

[www.aafawa.org](http://www.aafawa.org)

3400 Harbor Ave. SW, Mail Stop 113

Seattle, WA 98126

Phone: 1-800-778-2232 or 206-368-2866

Clinic-based self-management programs for families and children. Website provides information about asthma and allergies, and links to its national website.

#### **American Lung Association of Washington**

[www.alaw.org](http://www.alaw.org)

2625 Third Avenue, Seattle, WA 98121

206-441-5100

1-800-732-9339 (1-800-LUNG-USA)

ALA Call Center: 1-800-548-8252

Asthma programs include Master Home Environmentalist™, Asthma Educator Institute, Asthma Friendly Schools, Asthma Outreach Workers, Asthma Camps, and the Asthma Walk™. The Breathe Easy Network sends daily e-mail reports of air quality.

#### **Children's Hospital and Regional Medical Center**

[www.seattlechildrens.org](http://www.seattlechildrens.org)

P.O. Box 5371

Seattle, WA 98105-0371

206-987-2000 Children's Resource Line:

206-987-2500 or toll free 1-866-987-2500

Website provides educational information in English and Spanish.

#### **King County Asthma Forum**

[www.metrokc.gov/health/asthma/forum.htm](http://www.metrokc.gov/health/asthma/forum.htm)

7300 Perimeter Road, suite 128

Seattle, WA 98104

Phone: 206-205-1588

Asthma services line (links caller to local programs): 206-205-0523

Coordinates communication and service delivery among organizations providing asthma services, and fosters collaboration on new activities. Organizes south-end neighborhood asthma committees. Website offers asthma educational tools, intervention models, local and national data and links.

#### **Public Health- Seattle & King County**

[www.metrokc.gov/health/asthma/index.htm](http://www.metrokc.gov/health/asthma/index.htm)

999 3<sup>rd</sup> Avenue

Seattle, WA 98104

Offers programs through which community health workers, public health sanitarians and public health nurses provide self-management support and home- or school-based environmental assessments. Website offers educational materials, guidelines for professionals, and local data reports.

#### **Steps to Health-King County**

[www.metrokc.gov/health/steps/](http://www.metrokc.gov/health/steps/)

Phone: 206-205-0932

Networks on service delivery, policy and integration activities addressing asthma, diabetes, and obesity. Community health workers provide self-management support and home environmental assessments to eligible families.

#### **Washington Asthma Initiative**

[wai.alaw.org](http://wai.alaw.org)

2625 3<sup>rd</sup> Avenue

Seattle, WA 98121

Phone: 206-441-5100

Statewide network for coordinating the fight against asthma. Resources include Washington State Asthma Plan, State Asthma Burden Report, November Summit on Asthma, local and state advocacy initiatives.

The following is a list of selected national asthma resources.

**The Allergy & Asthma Network Mothers of Asthmatics** [www.aanma.org](http://www.aanma.org)  
2751 Prosperity Ave., Suite 150  
Fairfax, VA 22031  
Bilingual help line: 1-800-878-4403  
Online classes, publications, books, videos and medical devices.

**American Academy of Allergy, Asthma and Immunology** [www.aaaai.org](http://www.aaaai.org)  
555 East Wells Street, Suite 1100  
Milwaukee, WI 53202-3823  
Phone: 414-272-6071, 1-800-822-2762  
Information in English and Spanish for patients and professionals, a physician referral directory, and a link to pollen counts.

**National Heart, Lung and Blood Institute**  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)  
NHLBI Health Information Center  
P.O. Box 30105, Bethesda, MD 20824-0105  
Phone: 301-592-8573  
Email: [nhlbiinfo@nhlbi.nih.gov](mailto:nhlbiinfo@nhlbi.nih.gov)  
Information for patients and the general public, researchers, and health professionals that includes national clinical practice guidelines, interactive educational tools, research reports, and publications.

**National Jewish Medical and Research Center** [www.njc.org](http://www.njc.org)  
1400 Jackson Street, Denver, CO 80206  
LungLine® at 1-800-222-LUNG (5864)  
Interactive Asthma Wizard, a web-based educational program for kids, and the Health E-newsletter.

## Data sources

Behavioral Risk Factor Surveillance System (BRFSS): Provides population level data for adults age 18 and over on asthma prevalence and other asthma-related questions, such as age at diagnosis, flu shot, and tobacco use. It also provides data on asthma prevalence for children based on response from a selected adult in the household. The BRFSS is a telephone survey that tracks health risk factors in the United States.

Healthy Youth Survey (HYS): Provides asthma-related data for students in Washington State in 2004. Students in grades 6, 8, 10 and 12 answered questions about safety and violence, physical activity and diet, alcohol, tobacco and other drug use, and health-related risk and protective factors.

Hospital discharge data (CHARS): Hospitalization for asthma. CHARS has hospital inpatient discharge information since 1987 with items such as age, sex, zip code and billed charges of the patient, as well as codes for their diagnosis and procedures.

### Local asthma research projects

Several research projects in King County have recently studied ways to reduce the burden of asthma among low-income children:

**Healthy Homes I** (1997-2001): Home visits by community health workers who assessed indoor asthma triggers and helped families reduce them. Resulted in improved asthma control among children with asthma. Funded by the National Institute of Environmental Health Sciences.

**Inner City Asthma Study** (1998-2001): Home visits to help families reduce exposure to indoor asthma triggers. Resulted in improved asthma control among children with asthma. Funded by the National Institutes Health.

**Healthy Homes II** (2001-2006): Home visits by community health workers and clinic-based education by nurses who helped children with asthma and their families learn how to better self-manage asthma. Results pending. Funded by the National Institute of Environmental Health Sciences.

## References

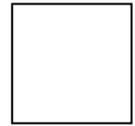
- <sup>1</sup> National Heart, Lung, and Blood Institute. Expert Panel Report 2. Guideline for Diagnosis and Management of Asthma. National Institute of Health. NIH Publication No. 97-4051. July 1997.
- <sup>2</sup> National Heart, Lung and Blood Institute. Morbidity and Mortality: 2004 Chartbook on Cardiovascular, Lung, and Blood Diseases. National Institute of Health, May 2004.
- <sup>3</sup> U.S. Environmental Protection Agency. Asthma and Indoor Environments. [www.epa.gov/asthma/triggers.html](http://www.epa.gov/asthma/triggers.html)
- <sup>4</sup> Institute of Medicine. Clearing the Air, Asthma and Indoor Exposures. National Academy Press. Washington, D.C.
- <sup>5</sup> Gruchalla et al. Inner City Asthma Study: Relationships among sensitivity, allergen exposure, and asthma morbidity. J Allergy Clin Immunol 2005; 115:478-85.
- <sup>6</sup> Krieger JW et al. Asthma and the home environment of low-income urban children: preliminary findings from the Seattle-King County Healthy Homes Project. Journal of Urban Health. 77(1): 50-67. March 2000.
- <sup>7</sup> Krieger JW et al. The Seattle-King County Healthy Homes Project: A Randomized, Controlled Trial of a Community Health Worker Intervention to Decrease Exposure to Indoor Asthma Triggers. American Journal of Public Health. 2005;95:652-659.
- <sup>8</sup> Pandya RJ et al. Diesel Exhaust and Asthma: Hypotheses and Molecular Mechanisms of Action. Environmental Health Perspectives. 110(suppl 1): 103-112 (2002).
- <sup>9</sup> American Academy of Pediatrics. Policy Statement. Ambient Air Pollution: Health Hazards to Children. Pediatrics. 2004;114:1699-1707.
- <sup>10</sup> Puget Sound Clean Air Agency. 2004 Air Quality Data Summary. July 2005. [www.pscleanair.org](http://www.pscleanair.org).
- <sup>11</sup> Legorreta AP et al. Compliance with National Asthma Management Guidelines and Specialty Care. Arch Intern Med. 1998;158:457-464.
- <sup>12</sup> Halterman JS et al. Health and Health Care for High-Risk Children and Adolescents. Inadequate Therapy for Asthma among Children in the United States. Pediatrics. 2000;105:272-276.

This issue of Public Health Data Watch is prepared by Lin Song and Jim Krieger.

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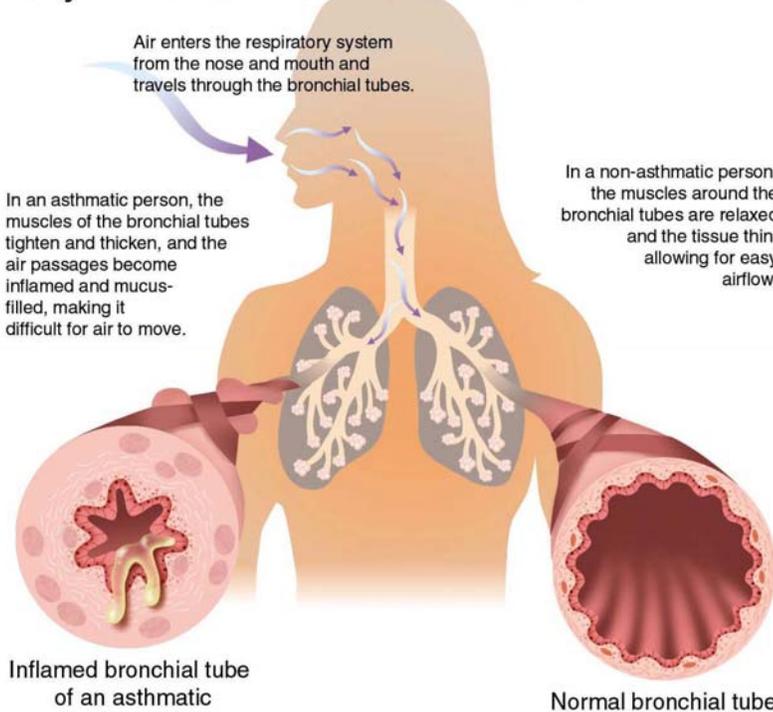
Public Health – Seattle & King County  
Epidemiology, Planning, and Evaluation  
999 Third Avenue, Suite 1200  
Seattle, WA 98104

Phone: 206-296-6817  
Fax: 206-296-0166  
Email: [data.request@metrokc.gov](mailto:data.request@metrokc.gov)  
Website: <http://www.metrokc.gov/health>



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## Why asthma makes it hard to breathe



Source: American Academy of Allergy, Asthma and Immunology

## Key Points

- Asthma is a leading cause of illness and disability in King County, affecting nearly one in ten adults and one in twenty children. Yet asthma can be largely controlled with existing treatments.
- Asthma disproportionately affects low-income and minority populations. Children from low-income communities are three times more likely to be admitted to the hospital for asthma than children from high-income communities.
- Asthma hospitalizations in King County, most of which are preventable with good asthma management, cost more than \$11 million per year.
- Exposure to environmental asthma triggers is common in low-income households. Efforts to reduce exposure would significantly decrease asthma morbidity.
- Asthma hospitalizations, especially among children, have declined dramatically since 2001, when the King County Asthma Forum, Public Health, and health care organizations combined forces to control asthma.