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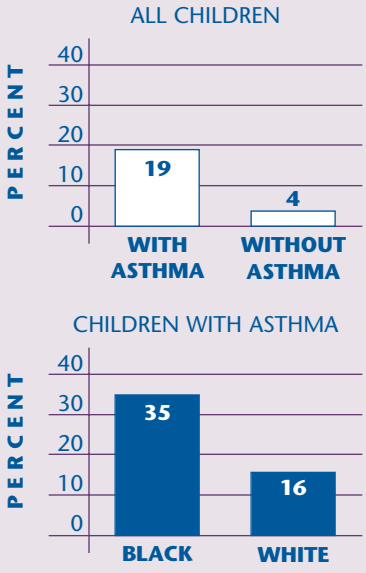
Childhood Asthma

The most common chronic disease among children

The number of children with asthma has risen about 75 percent since 1982. In 1996, 4.4 million children, or 6 percent of the U.S. population under 18 years of age, had asthma. Asthma is one of the highest-ranked causes of pediatric hospitalizations in the United States. It is the leading cause of missed school days due to a chronic condition. Although there is relatively little difference in asthma rates between black and white children, black children with asthma experience much higher rates of activity limitations, hospitalizations, and deaths than white children.

ASTHMA LIMITS CHILDREN'S ACTIVITIES



SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

There is growing concern in this country over the large number of children with asthma and the disproportionate health burden of asthma on minority children.

- The number of children with asthma has risen from 2.5 million in 1982 to 4.4 million in 1996.
- Black children with asthma are twice as likely as white children with asthma to report that their health is fair or poor.

Asthma limits activities, especially for black children

Differences in major activity limitations for children with and without asthma are substantial. Children with asthma are almost five times more likely than children without asthma to have activity limitations.

Activity limitations are most common among black children with asthma. About 35 percent of black children with asthma are limited in their major activity compared to only 16 percent of white children with asthma.

Who has childhood asthma?

Among children with asthma, the proportions of older children, black children, boys, children from low-income families, and children living in urban areas are higher than in the general population of children (see Figure 1).

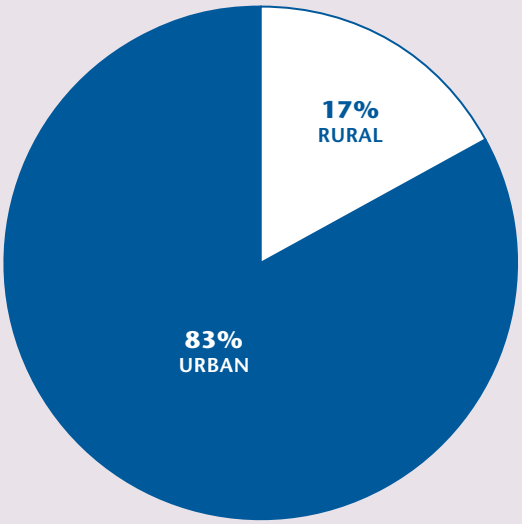
■ Although black children are slightly more likely than white children to have asthma, the number of white children who have asthma is far greater. About 900,000 black children and 3.6 million white children have asthma.

■ There are approximately 1.4 boys with asthma for every girl with asthma.

■ The proportion of children with asthma is much higher in urban areas than in rural areas (see Figure 2). The number of asthma cases is particularly high among low-income and minority children living in inner cities.[1]

FIGURE 2

Proportion of Children with Asthma Living in Rural and Urban Areas



SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

FIGURE 1

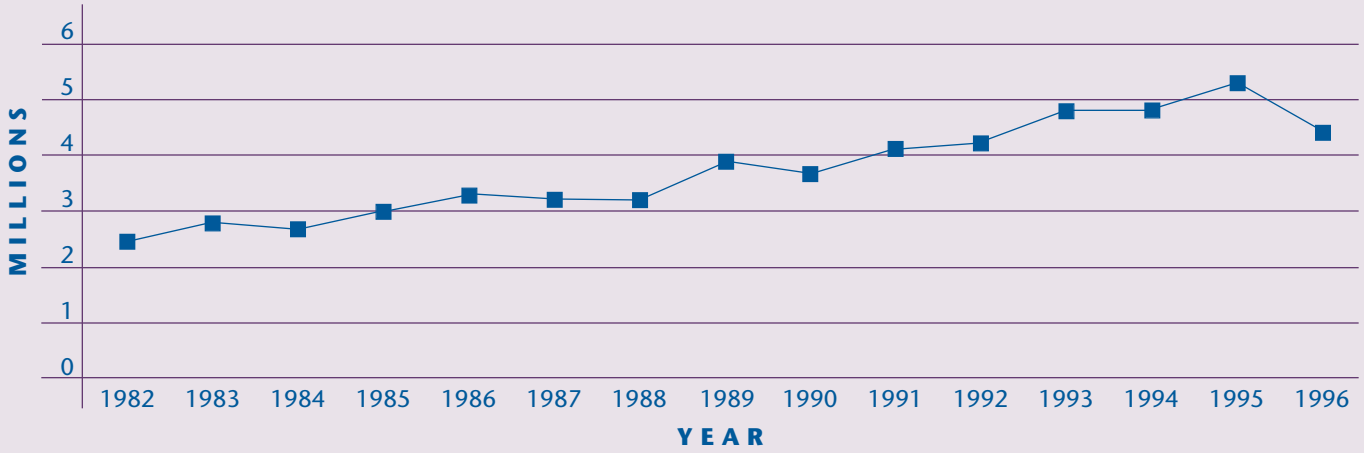
Description of Children with Asthma

		ALL CHILDREN (%)	CHILDREN WITH ASTHMA (%)
AGE	0–5	34	27
	6–11	34	36
	12–17	31	37
RACE	WHITE	79	75
	BLACK	16	19
	OTHER	5	6
GENDER	MALE	51	59
	FEMALE	49	41
FAMILY INCOME	<$20,000	24	26
	>$50,000	23	22
RESIDENCE	URBAN	78	83
	RURAL	22	17

SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

FIGURE 3

Number of Children with Asthma, 1982–1996



SOURCE: National Center for Health Statistics, *National Health Interview Survey, 1982–1996.*

Childhood asthma has increased 75 percent since 1982

After a decade of steady decline in the 1970s, the number of children with asthma increased sharply during the 1980s. The number of children with asthma has risen from 2.5 million in 1982 to 4.4 million in 1996 (see Figure 3). The reason for this increase is not known, but a growing current of research suggests poor indoor air quality may be a key factor. Since the 1970s, homeowners have sought to make their homes as airtight and energy-efficient as possible, which has often meant reduced and inadequate ventilation. In addition, compared to previous generations, American children spend more time indoors—where asthma-triggering dust mites and allergens are most common.[2] It should be noted, however, that the number of children with asthma declined by about 865,000 from 1995 to 1996, the last year for which national estimates were available.

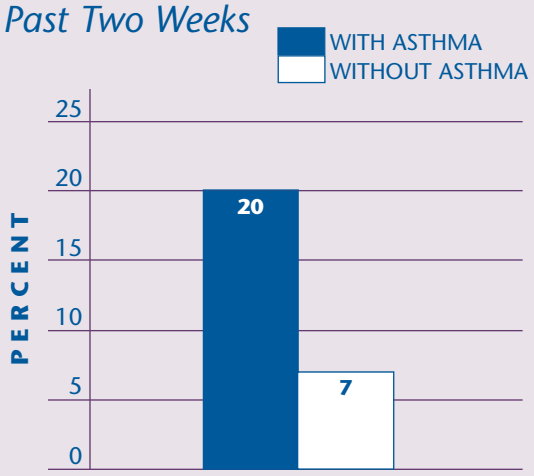
Asthma limits school activity

Asthma is the primary chronic condition causing children to be absent from school.[3] Over 20 percent of children with asthma report that they missed at least one school day in the last two weeks, compared to just 7 percent of children without asthma. On average, children with asthma miss two full weeks of school each year (see Figure 4).

Children with asthma are more likely to have school-related limitations than children without asthma. Among children with asthma, 7 percent are limited in school attendance, 7 percent attend special schools or classes, and 4 percent are unable to attend school.

FIGURE 4

Proportion of Children Missing At Least One School Day in Past Two Weeks



SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

Asthma is a leading cause of hospitalization among children

Among infants, asthma is the third-ranking cause of hospitalization, accounting for about 3 percent of all hospitalizations. Asthma is the second-highest-ranked cause of hospitalization among children ages 1 to 9, accounting for more than 10 percent of all hospitalizations in this age group. In the 10-to-14-year-old group, asthma is the fourth-ranked cause of hospitalization (see Figure 5). After age 15, hospitalizations due to asthma are rare.

Between 1993 and 1995, children less than 15 years of age with asthma made more than 3 million doctor visits, and nearly 2 million emergency department visits.[4] Better asthma management could reverse the increasing numbers of emergency room visits and hospitalizations due to asthma. Use of emergency facilities for asthma attacks suggests that children are not adequately controlling their asthma and need quality, routine medical care and instruction.

FIGURE 5

Hospitalizations for Children with Asthma, 1996

	AGE		
	UNDER 1	1–9	10–14
Number of Hospitalizations for Asthma	17,000	104,000	26,000
Rank of Asthma as a Cause of Hospitalizations	3	2	4

SOURCE: Agency for Healthcare Research and Quality (2000), *Annual Report on Access to and Utilization of Health Care for Children and Youth in the United States, 1999.*

Medicaid covers most hospital admissions for asthma

In 1996, some 78,000 hospital admissions for asthma among children were covered by Medicaid. Private insurance covered 68,000 hospital admissions and 8,000 hospital admissions were reported for children without insurance. Hospital admissions for asthma accounted for a larger proportion of all hospital admissions for children with Medicaid or without insurance than for children covered by private insurance (see Figure 6).

FIGURE 6

Hospital Admissions for Children with Asthma, by Payer, 1996

	PAYER		
	MEDICAID	PRIVATE	UNINSURED
Number of Hospital Admissions for Asthma	78,000	68,000	8,000
Hospital Admissions for Asthma as a Percent of All Admissions	3.2	2.1	2.6

SOURCE: Agency for Healthcare Research and Quality (2000), *Annual Report on Access to and Utilization of Health Care for Children and Youth in the United States, 1999.*

CURRENTLY ASTHMA CANNOT BE CURED, ONLY CONTROLLED

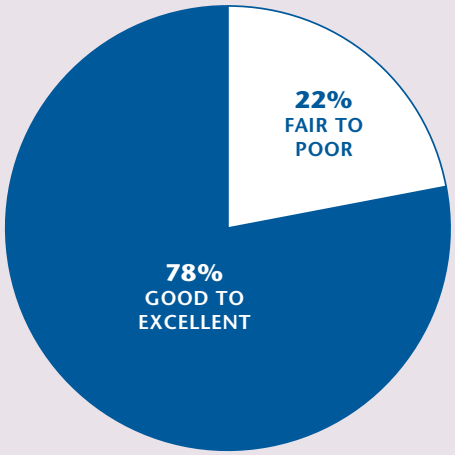
Asthma is a chronic lung disease characterized by episodes of airflow obstruction. Symptoms of an asthma attack include recurrent episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing. The severity of asthma may range from mild to life threatening. The actual cause of asthma is not known, but it is known that asthma attacks can be triggered by exposure to substances called allergens, substances to which a person becomes allergic. Some of the most common indoor allergens are mold spores, pollens, animal dander (the shed skin of pets such as cats and dogs), and the droppings of house dust mites and cockroaches. The proportion of asthma cases related to indoor allergens appears to have increased since people have begun to spend more time indoors where homes have been carpeted, heated, cooled, and humidified. Outdoor allergens include pollens and fungi. Other risk factors increase the likelihood that predisposed people may have an asthma attack. These include smoking and exposure to second-hand smoke, exposure to indoor and outdoor pollutants, and respiratory infections. By avoiding or eliminating asthma triggers in their environment, people with asthma can substantially reduce their risk for asthma attacks. However, medical treatment with anti-inflammatory agents (especially inhaled steroids) and bronchodilators is usually necessary to prevent and control attacks.[5]

Black children with asthma are less healthy than white children with asthma

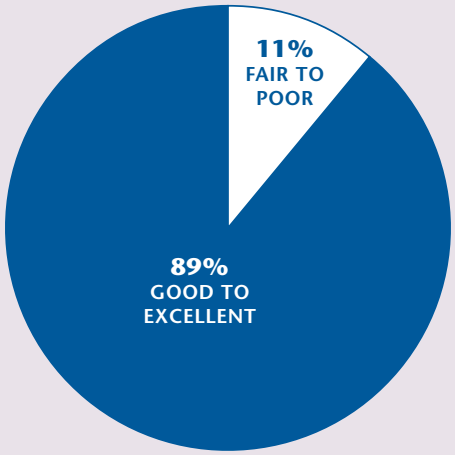
Asthma is only slightly more common in black children than in white children, but the consequences for black children are more severe. Black children with asthma are more likely to report that their health is fair or poor. Approximately 22 percent of black children with asthma describe their health as fair or poor compared to only 11 percent of white children with asthma (see Figure 7).

FIGURE 7

Self-Reported Health Status of Children with Asthma, by Race



BLACK CHILDREN

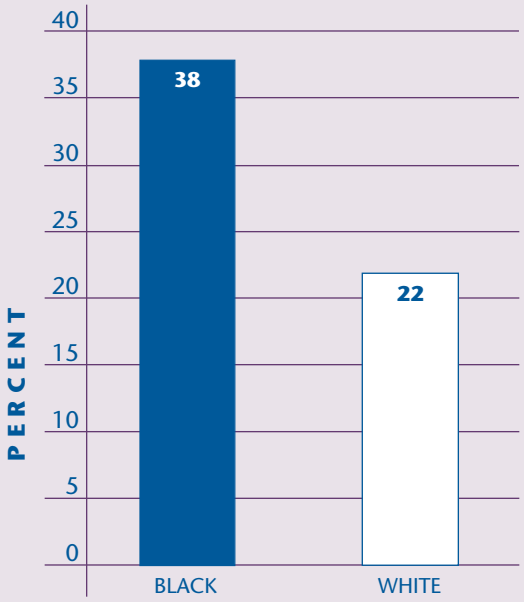


WHITE CHILDREN

SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

FIGURE 8

Proportion of Children Ever Hospitalized Due to Asthma



SOURCE: National Academy on an Aging Society analysis of data from the *1994 National Health Interview Survey.*

Black children have higher rates of hospitalization and death due to asthma than white children

Nearly 38 percent of black children have ever been hospitalized due to asthma compared to just 22 percent of white children (see Figure 8).

In 1993, among children age 5 to 14 years of age, blacks were four times more likely than whites to die from asthma. From 1980 to 1993 the asthma death rate for children in that age group nearly doubled from 1.7 to 3.2 deaths per million children.[6]

The difference in hospitalization and deaths from asthma between black and white children may be related to differences in socioeconomic status, living conditions, allergen exposures, and access to health care, particularly for children in inner-city neighborhoods. In particular, extremely high levels of exposure to cockroach allergen in inner cities may help explain the increased rates of asthma hospitalization and death among some urban children.[7]

Asthma's costs are high

The cost of asthma in 1998 was estimated to be $11.3 billion. Direct costs accounted for $7.5 billion and indirect costs were $3.8 billion. Expenditures for hospital care accounted for the largest portion of the cost. Other direct costs, including expenditures for physician and other professional care, home care, nursing home care, and drugs totaled $3.6 billion. In 1998, decreased productivity by those with asthma accounted for $2.4 billion in lost earnings. Lost productivity by those who died from asthma in 1998 accounted for $1.4 billion in lost future earnings (see Figure 9). Because children account for approximately 30 percent of all people with asthma, it is likely that a large percentage of annual expenditures for asthma are the costs of treating children with asthma and the costs of lost productivity by working parents caring for children.

1. Centers for Disease Control and Prevention. (1999). *Asthma: A Public Health Response*. Available at http://www.cdc.gov/nceh/programs/asthma.

2. Institute of Medicine. (2000). *Clearing the Air: Asthma and Indoor Air Exposures*. Washington, D.C.

3. National Institute of Allergy and Infectious Diseases. (1997). *Asthma: A Concern for Minority Populations*. Available at http://www.niaid.gov/factsheets/minorasthma.htm.

4. Centers for Disease Control and Prevention. (1998). Surveillance for Asthma, United States, 1960–1995. *Mortality and Morbidity Weekly Report*; 47(SS-1): 1–28.

5. Centers for Disease Control and Prevention. (2000). *Asthma: A Speaker's Kit for Public Health Professionals*. Available at http://www.cdc.gov/nceh/programs/asthma.

6. Centers for Disease Control and Prevention. (1996). Asthma Mortality and Hospitalization Among Children and Young Adults, United States, 1980-1993. *Mortality and Morbidity Weekly Report* 45(17): 350–353.

7. Centers for Disease Control and Prevention. (2000).

ABOUT THE DATA

Unless otherwise noted, the data presented in this *Profile* are from the 1994 National Health Interview Survey (NHIS). The NHIS, conducted by the National Center for Health Statistics, provides information on the community-dwelling population living within the United States. For children, all information on asthma would have been provided by an adult responding for the family.

FIGURE 9

Costs of Asthma, 1998

DIRECT COSTS	
Hospital Care	$3.9
Other Health Care	$3.6
INDIRECT COSTS	
Lost Productivity	$1.4
Decreased Productivity	$2.4
TOTAL	**$11.3 BILLION**

SOURCE: National Heart, Lung, and Blood Institute (1998), *Morbidity and Mortality Chartbook*.

ABOUT THE PROFILES

This series, *Challenges for the 21st Century: Chronic and Disabling Conditions*, is supported by a grant from the Robert Wood Johnson Foundation. This *Profile* was written by Greg O'Neill with assistance from Laura Summer. It is the eighth in the series. Previous *Profiles* include:

1. **Chronic Conditions: A challenge for the 21st century**
2. **Hearing Loss: A growing problem that affects quality of life**
3. **Heart Disease: A disabling yet preventable condition**
4. **At Risk: Developing chronic conditions later in life**
5. **Arthritis: A leading cause of disability in the United States**
6. **Diabetes: A drain on U.S. resources**
7. **Caregiving: Helping the elderly with activity limitations**

The National Academy on an Aging Society is a Washington-based nonpartisan policy institute of The Gerontological Society of America. The Academy studies the impact of demographic changes on public and private institutions and on the economic and health security of families and people of all ages.

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