

*Hospital Discharges  
for Asthma in Ohio,  
1999-2003*



*Asthma Program  
Indoor Environments Section  
Ohio Department of Health*

## **Hospital Discharges for Asthma in Ohio, 1999–2003**

Ohio Hospital Association Discharge Data Set, Years 1999–2003.

Analysis by Injury Prevention Section  
Bureau of Health Promotion-Risk Reduction  
Ohio Department of Health

Report prepared by  
Cynthia H. Weiss, MA  
Epidemiology Investigator III  
Bureau of Environmental Health  
Ohio Department of Health

Ohio Department of Health  
Asthma Program  
Bureau of Environmental Health  
246 North High Street  
Columbus, OH 43215

### **Background**

---

Asthma is a major public health concern in the United States. Although asthma mortality in the United States is among the lowest in the world, approximately 5,000 asthma-related deaths still occur each year in this country. The asthma mortality rate has risen over the past 20 years, especially in African-Americans and adults aged 85 and older. This increase is particularly disturbing because it is occurring while mortality rates from many natural causes in the United States are declining (National Heart, Lung and Blood Institute, 1999).

Increasing asthma prevalence, especially among children, is another cause for concern. It is estimated that nationally more than 12 percent of children are reported to have asthma (National Survey of Child Health, 2004).

The burden of asthma can be estimated through a number of asthma-related events. Inpatient hospital discharge rates and emergency visit rates are important proxies for burden. Data on inpatient hospitalizations for asthma can be used to examine the severity of asthma. It is important to note that asthma hospital discharge rates measure a severe and fairly infrequent outcome of the disease. While hospital discharge rates are not necessarily indicators of asthma prevalence, they can be used to identify groups that are at higher risk of morbidity and mortality due to asthma.

According to the National Asthma Education and Prevention Program, asthma is considered to be an ambulatory care-sensitive condition, because with regular, effective outpatient care, the vast majority of hospitalizations are preventable (National Heart, Lung and Blood Institute, 1999).

### **How Can We Determine Asthma Severity and Costs with Asthma Hospital Discharges?**

Tracking rates of hospital discharge can aid in identifying groups or areas with inadequate access to basic medical care. Asthma inpatient hospital discharge data also give us important information about the severity and cost of asthma in Ohio. With the Ohio Hospital Association Discharge Data Set, we can identify:

- numbers and rates of hospital discharges
- hospital discharge rates by age, sex or county
- annual trends for asthma hospital discharges
- average length of stay for asthma
- charges associated with asthma hospitalization

### **How Do We Get Asthma Discharge Data?**

Asthma hospital discharge data are collected by the Ohio Hospital Association (OHA), a private organization that has agreed to share the data with Ohio Department of Health. The data are given by the hospitals to OHA on a voluntary basis.

### **What Is Considered A Hospitalization For Asthma?**

The Council of State and Territorial Epidemiologists (CSTE) and the Centers for Disease Control and Prevention developed a standardized case classification for asthma to identify probable and possible asthma cases in hospital discharge data.

**Confirmed Case:** There is no confirmed case classification for hospital discharge data.

**Probable Case:** Hospital records listing the ICD-9-CM Code 493.0–493.9 as the primary discharge diagnosis.

**Possible Case:** Hospital records listing the ICD-9-CM Code 493.0–493.9 as the secondary discharge diagnosis.

Unless otherwise specified, this report will use the probable case definition of asthma with hospital discharges that have a primary diagnosis of asthma.

### **What are the Limitations of this Data Set?**

Currently, all hospitals in Ohio contribute data to OHA. It should be noted that these data are collected for billing and other administrative purposes, rather than surveillance purposes. As a result, some of the variables that would be of interest for surveillance, such as race, education level or income, are not collected.

There are some limitations to the OHA Discharge Data Set. Unique identifiers are not assigned, so there is no way of identifying multiple hospital discharges for individuals. However, the count and rate of total hospital discharges is a good representation of the asthma burden experienced by a community.

Even with all hospitals reporting, the OHA discharge data set may not be a complete census of hospital discharges for Ohio residents. While efforts are employed to capture visits for asthma in other states, Ohio residents visiting other states can not be reported in the data set.

For statistical stability, some counties with only a few cases, are calculated for multiple years.

It is also important to note that charges are not necessarily reflective of reimbursement received by any given hospital.

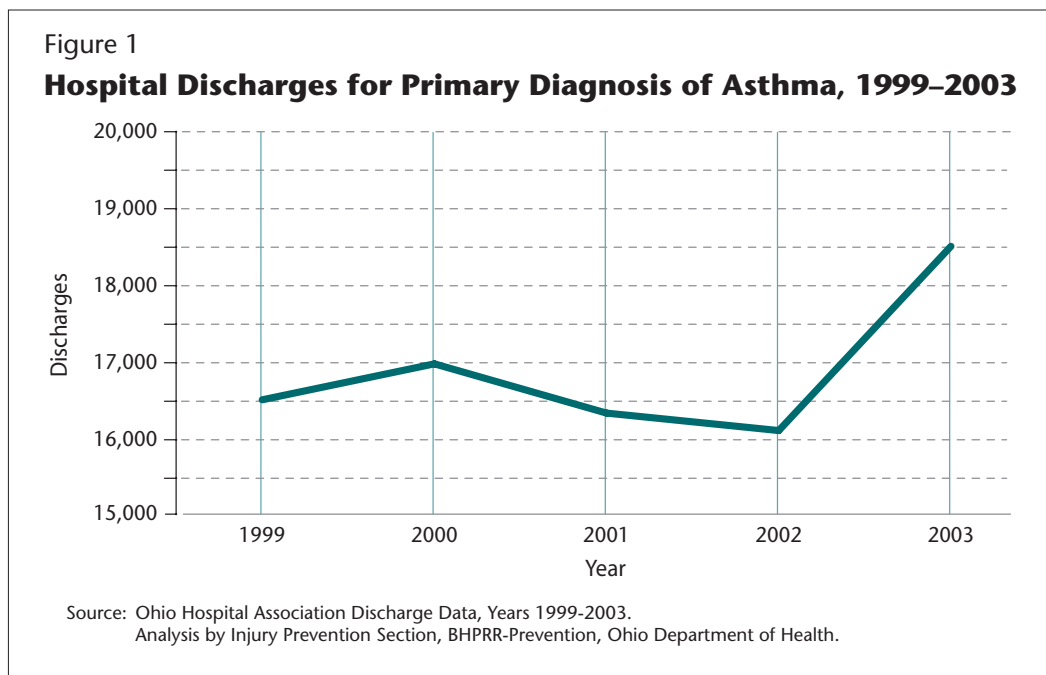
### **What Are The Numbers and Rates for Asthma Inpatient Hospital Discharges in Ohio?**

In 2003, there were 1,669,446 hospital discharges of Ohio residents. There were 89,674 discharges with any mention of asthma. Of these discharges, 18,502 had asthma listed as the primary diagnosis. Figure 1 shows the trend of these data from 1999-2003.

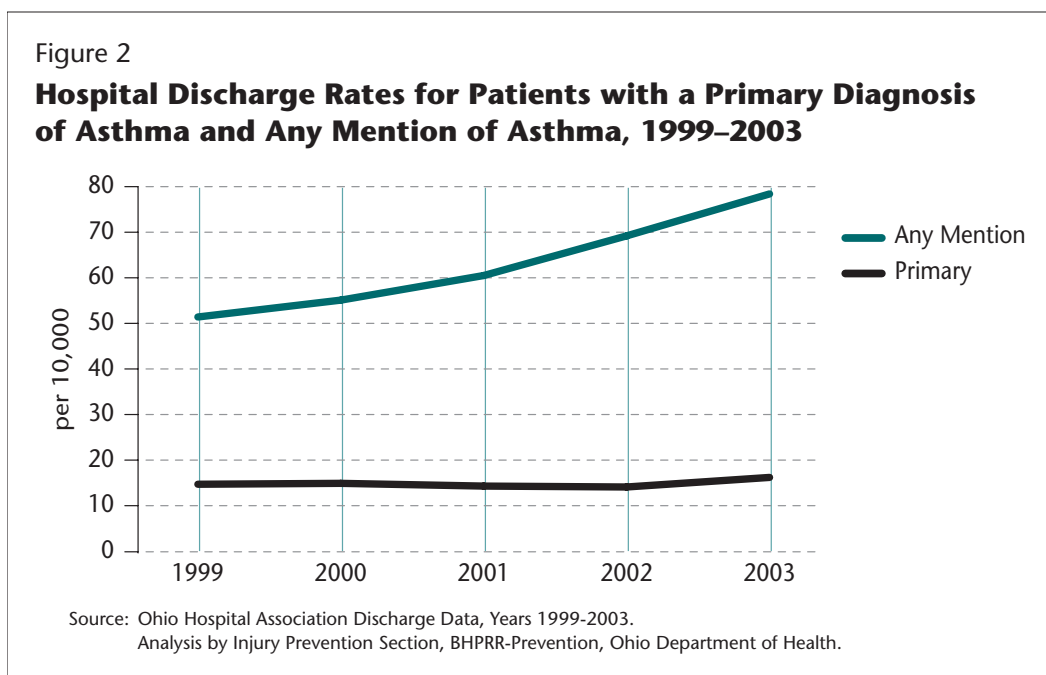
During 2003, Ohio residents were discharged from inpatient hospital stays at a rate of 1,418.7 per 10,000 residents. As indicated in Figure 2, for hospital stays where asthma was mentioned as the primary diagnosis the rate was 16.2 per 10,000 residents. For inpatient hospital stays where there was any mention of asthma, patients were discharged at the rate of 78.4 per 10,000 residents in 2003.

Inpatient hospital discharges that had any mention of asthma increased 52.5 percent from 1999–2003, from 51.4 to 78.4 per 10,000 residents. For primary diagnosis of asthma inpatient hospital discharges, there was a 10.2 percent increase from 1999-2003 from 14.7 to 16.2 per 10,000 residents.

## Hospital Discharges for Asthma in Ohio, 1999–2003



In 2003, there were 18,502 hospital discharges for primary diagnosis of asthma, up from 16,495 in 1999.



This chart shows a rapid increase in hospital discharges with any mention of asthma from 1999–2003. For discharges with a primary diagnosis of asthma, there was a slower increase until 2003.

**How Does Ohio Compare with the Healthy People 2010 Goals?**

Healthy People 2010 is a set of health objectives developed by an alliance of more than 350 national membership organizations and 250 state health, mental health, substance abuse and environmental agencies. Healthy People 2010 goals are used by states, communities, professional organizations and others to develop programs to improve health. There are two overarching goals in Healthy People 2010: increase quality and years of healthy life, and eliminate health disparities.

Objective 24-2 in Healthy People 2010 is to reduce hospitalizations for asthma.

The Healthy People 2010 goals for asthma hospitalization are:

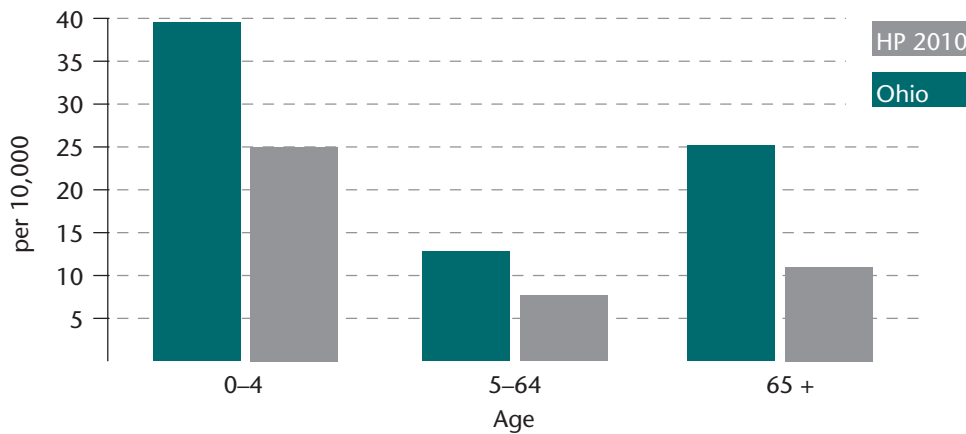
- 25/10,000 in children under age 5 years
- 7.7/10,000 in children and adults age 5 to 64 years
- 11/10,000 in adults aged 65 years and older

As shown in Figure 3, Ohio exceeds all three of these targets by at least 58 percent in 2003. The inpatient hospital discharge rates for patients with a primary diagnosis of asthma are 39.5 per 10,000 residents for children under 5, 12.8 per 10,000 residents for adults and children aged 5 to 64; and 25.2 per 10,000 residents for adults 65 and older.

---

Figure 3

**Hospital Discharges for Patients with a Primary Diagnosis of Asthma Ohio, 2003, Compared to Healthy People 2010 Goals**



Source: Ohio Hospital Association Discharge Data, Years 2003.  
Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

---

Ohio hospital discharge rates for a primary diagnosis of asthma exceeds all three of the Healthy People 2010 targets by large margins.

### **What Are The Demographic Trends For Asthma Hospital Discharges?**

Ohio Hospital Association Discharge Data can be stratified by sex, age and county.

More than twice as many females than males were discharged from the hospital for a primary diagnosis of asthma in 2003 (6,649 males and 11,853 females). These figures are consistent with the difference in current adult asthma prevalence rates, where women have a 91.7 percent higher asthma prevalence than men, with 4.8 percent of men reporting current asthma, and 9.2 percent of women reporting current asthma, (Behavioral Risk Factor Surveillance System, 2004).

Females also have nearly twice the rate of hospital discharge as males for a primary diagnosis of asthma (females at 21.3, and males at 11.2 per 10,000 residents).

Female rates of hospital discharge for primary diagnosis of asthma increased 22.4 percent during 1999-2003, (17.4 to 21.3 per 10,000 residents), with a sharp increase from 2002-2003. For males during the same time period, the rate actually decreased (11.7 to 11.2 per 10,000 residents).

For possible cases of asthma, with any mention of asthma in the hospital discharge, rates for females increased more rapidly than for males. Inpatient hospital discharges for any mention of asthma among females increased 58.1 percent, while for males it increased 41.2 percent. Similar to other statistics, the inpatient hospital discharge rate for discharges with any mention of asthma is more than twice as high for females than males, (106.9 per 10,000 residents for females and 48.3 per 10,000 residents for males).

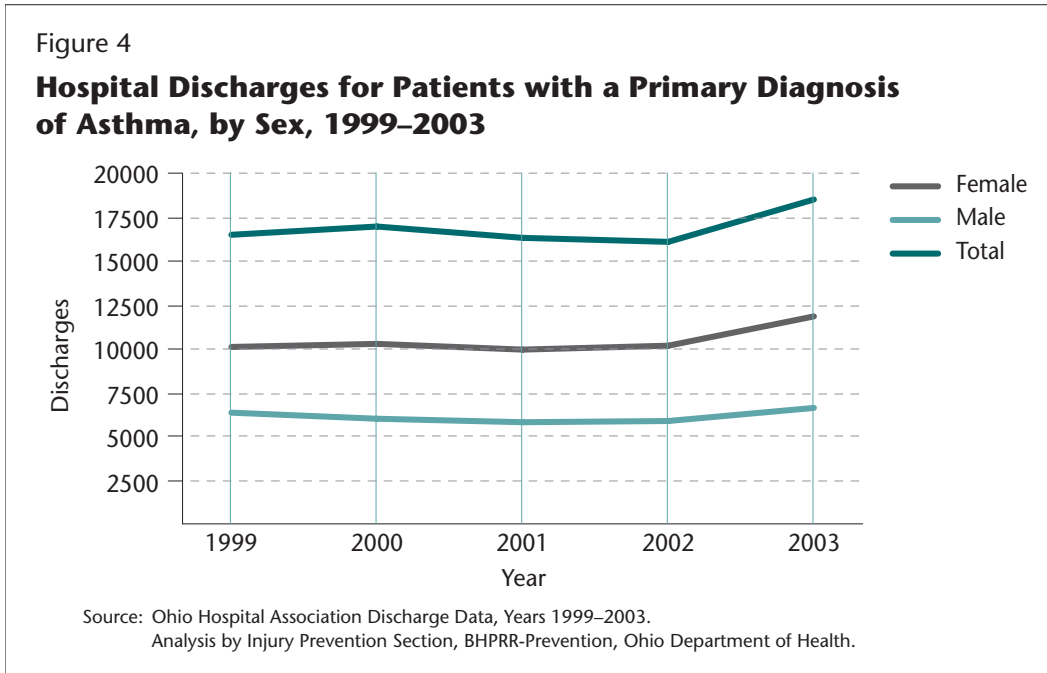
The age group with the highest number of inpatient hospital discharges with a primary diagnosis of asthma was for residents aged 45–64 (4,897 discharges) in 2003. In 2003, the fewest number of discharges with a primary diagnosis of asthma were for children aged 5 to 19, (2,713).

Of all discharges with a primary diagnosis of asthma in 2003, 30.5 percent were for children under the aged 19 and younger. In comparison, 17.1 percent of non-asthma discharges were for children 9 and under. About one-fifth (20.7 percent) of patients with primary diagnosis of asthma were over 65 years old, compared to patients discharged without asthma, of whom 37.6 percent are older adults.

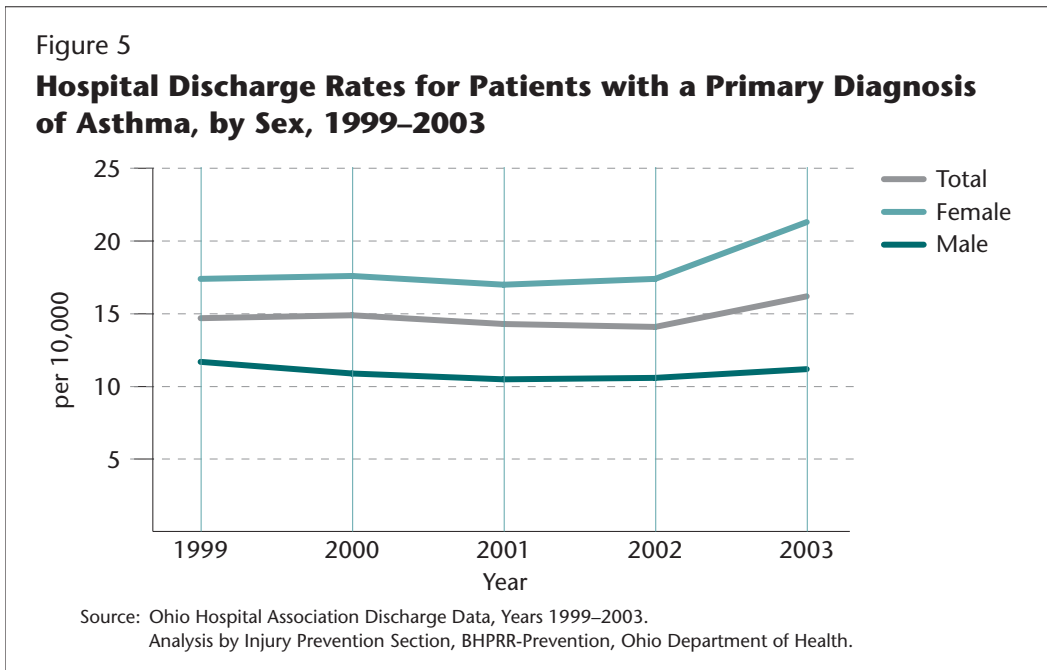
The highest rates for primary diagnosis of asthma hospital discharges are for children under age 5 (39.5 per 10,000 residents), 56.7 percent higher than the next nearest age group in 2003. However, rates for this group are actually declining since 1999, from 42.7 to 39.5 per 10,000 residents. Primary diagnosis of asthma hospital discharge rates are rising the fastest for adults aged 65 and older, from 18.1 to 25.2 per 10,000 residents (a 39.2 percent increase). For the remaining age groups in the middle, rates were fairly consistent from 1999–2002, with an increase noted among all from 2002–2003.

Hospital discharge rates for primary diagnosis of asthma were calculated for all Ohio counties and divided into quintiles. Counties in the highest quintile were concentrated in the northeast, along Lake Erie and in some Appalachian counties. Hospital discharges for males were more concentrated in the northeast and Toledo areas, where heavy industry is located. Females had higher rates in the southernmost point of Ohio.

## Hospital Discharges for Asthma in Ohio, 1999–2003

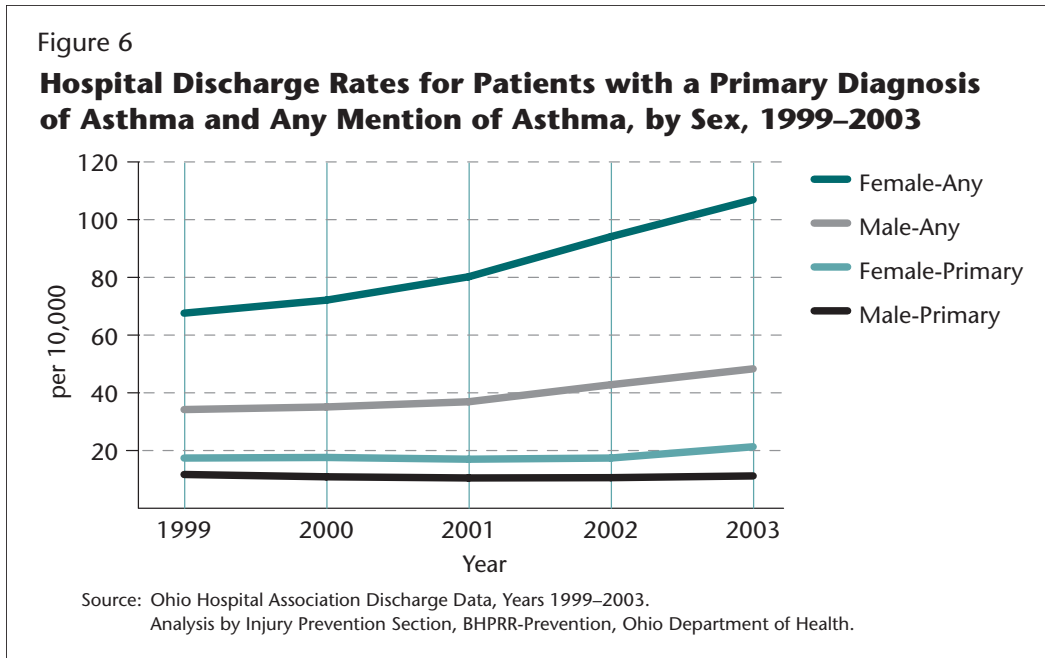


There were nearly twice as many inpatient hospital discharges for patients with a primary diagnosis of asthma for females than for males in 2003. The number of discharges remained steady from 1999–2002, with a sharp increase for both sexes in 2003.

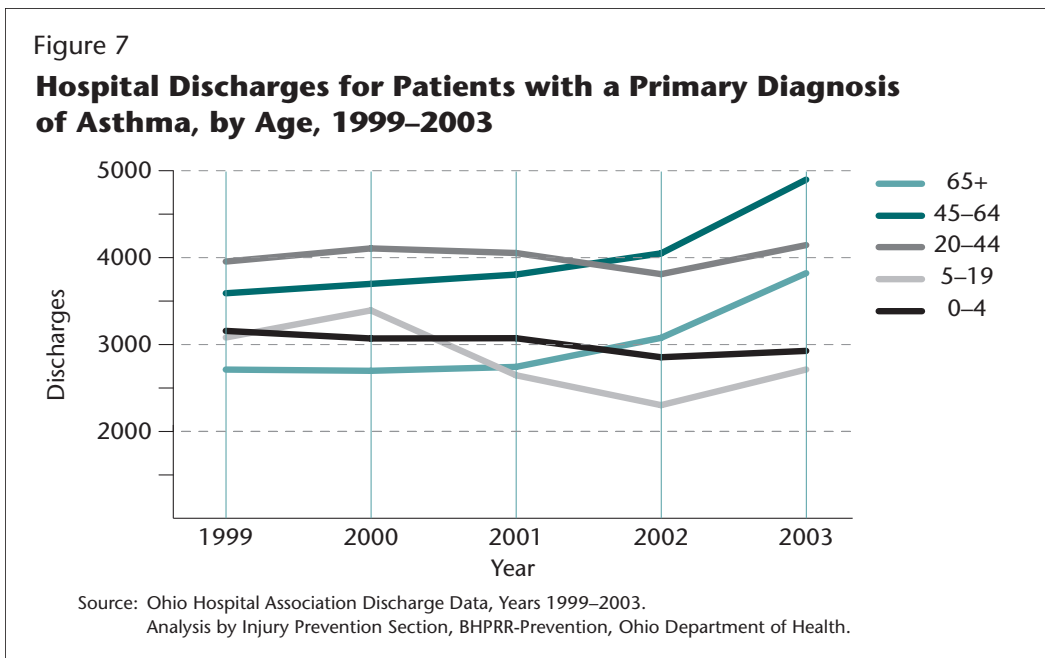


There were nearly twice as many inpatient hospital discharges for patients with a primary diagnosis of asthma for females than for males in 2003. The number of discharges remained steady from 1999–2002, with a sharp increase for both sexes in 2003.

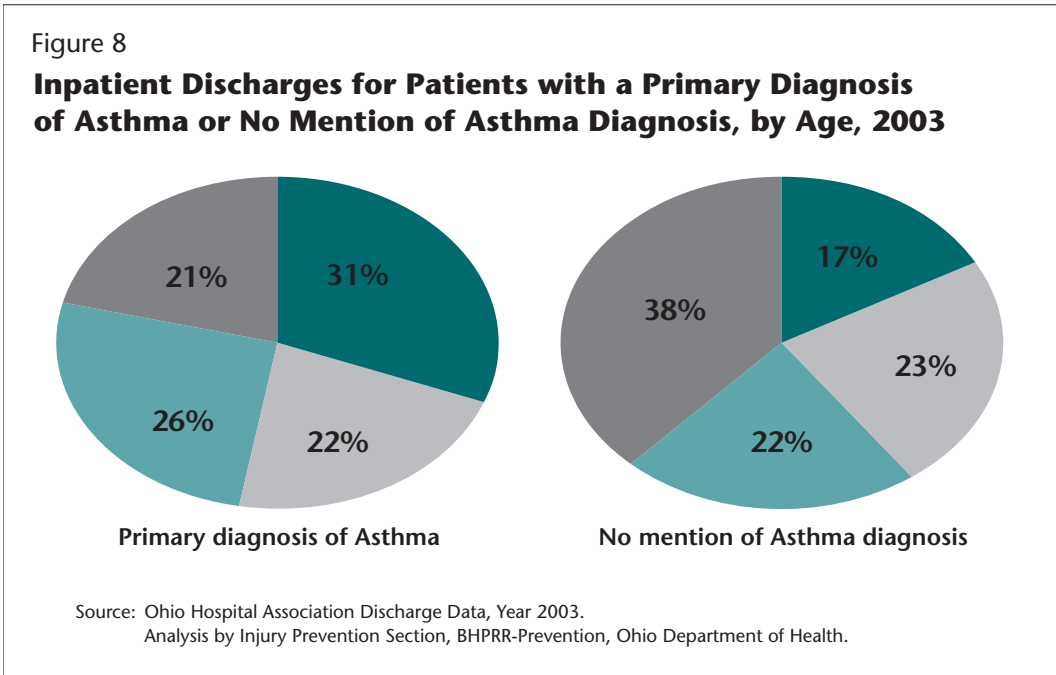
## Hospital Discharges for Asthma in Ohio, 1999–2003



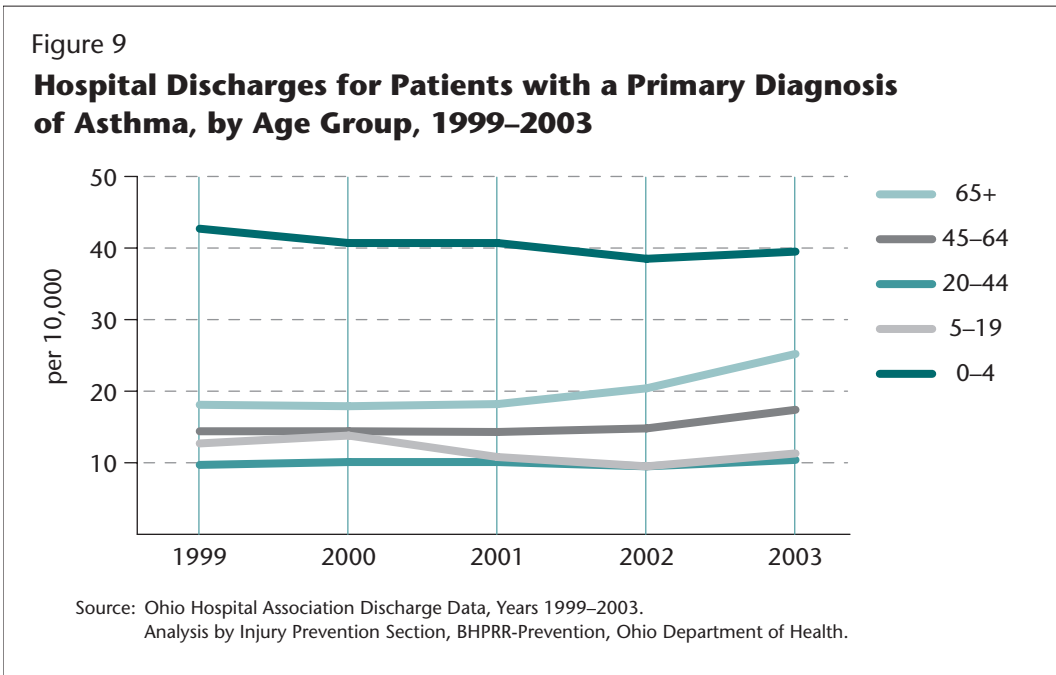
The rate of hospital discharge for females with any mention of asthma has risen the fastest of the rates depicted above. The hospital discharge rate for patients with any mention of asthma increased faster for females than for males. The female rate for patients with a primary diagnosis of asthma increased during 1999–2003, while for males, it decreased.



In 2003, the age group with the most inpatient hospital discharges for patients with a primary diagnosis of asthma was 45–64, with a steady increase since 1999, and a sharper increase from 2002–2003. The age group with the fewest discharges for patients with a primary diagnosis of asthma was children aged 5 to 19. This age group also showed a steep decline in discharges from 2000–2002.

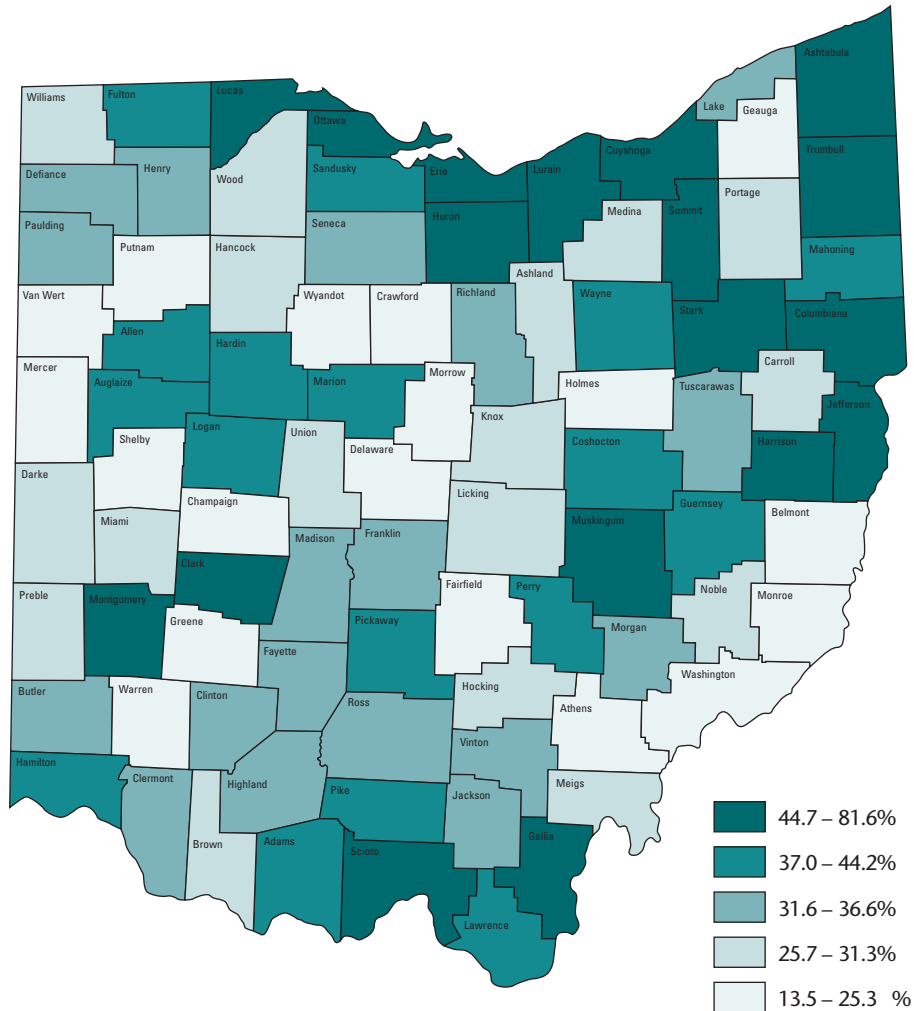


Patients discharged from the hospital with a primary diagnosis of asthma tend to be younger than patients who are discharged with no mention of asthma.



The hospital discharge rate for children under 5 years of age remains by far the highest from 1999–2003. The rate has declined since 1999. The fastest increase in the primary diagnosis of asthma hospital discharge rate is among adults 65 years of age and over.

Figure 10  
**Hospital Discharges for Patients with a Primary Diagnosis of Asthma, by County, 2001–2003**

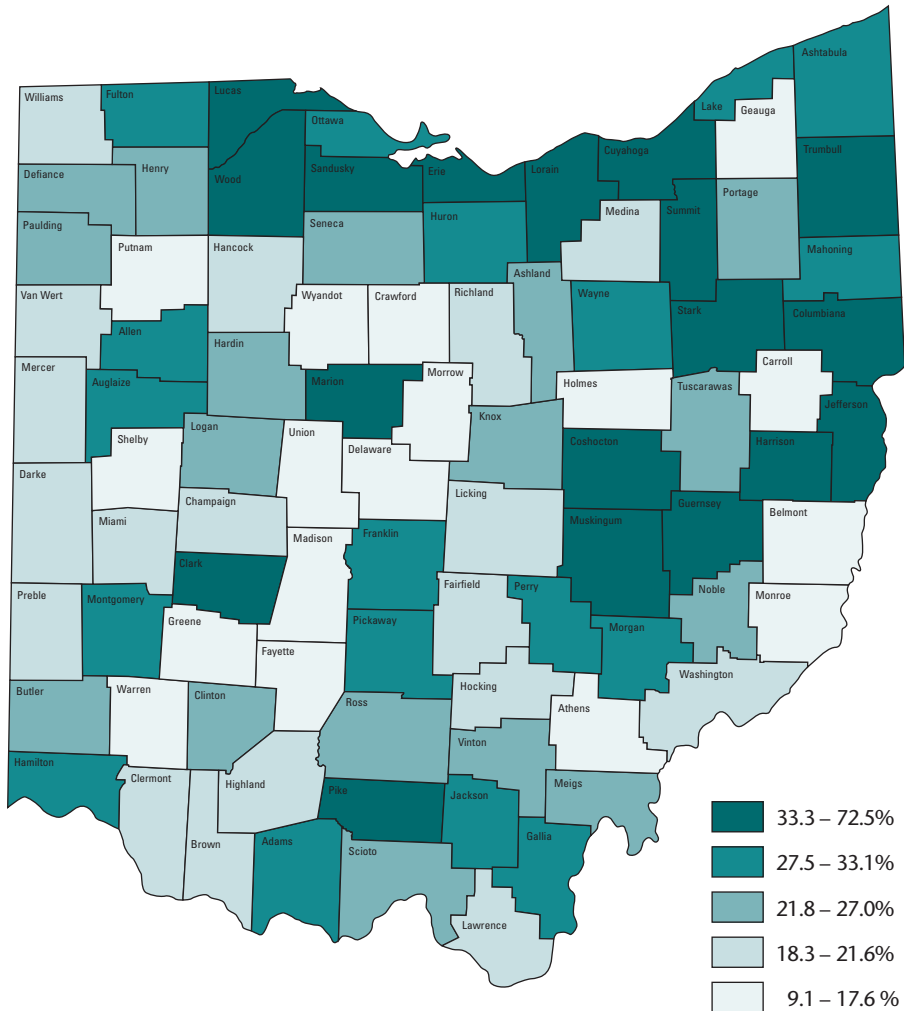


Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

The hospital discharge rates for all counties are shown this map. The highest rate of hospital discharge for patients with a primary diagnosis of asthma was in Harrison County (81.6 per 10,000 residents), followed by Cuyahoga County (81.2 per 10,000). The lowest rate was in Putnam County (13.5 per 10,000 residents). Of the 18 counties in the highest quintile, 12 are located in northeast Ohio.

Figure 11

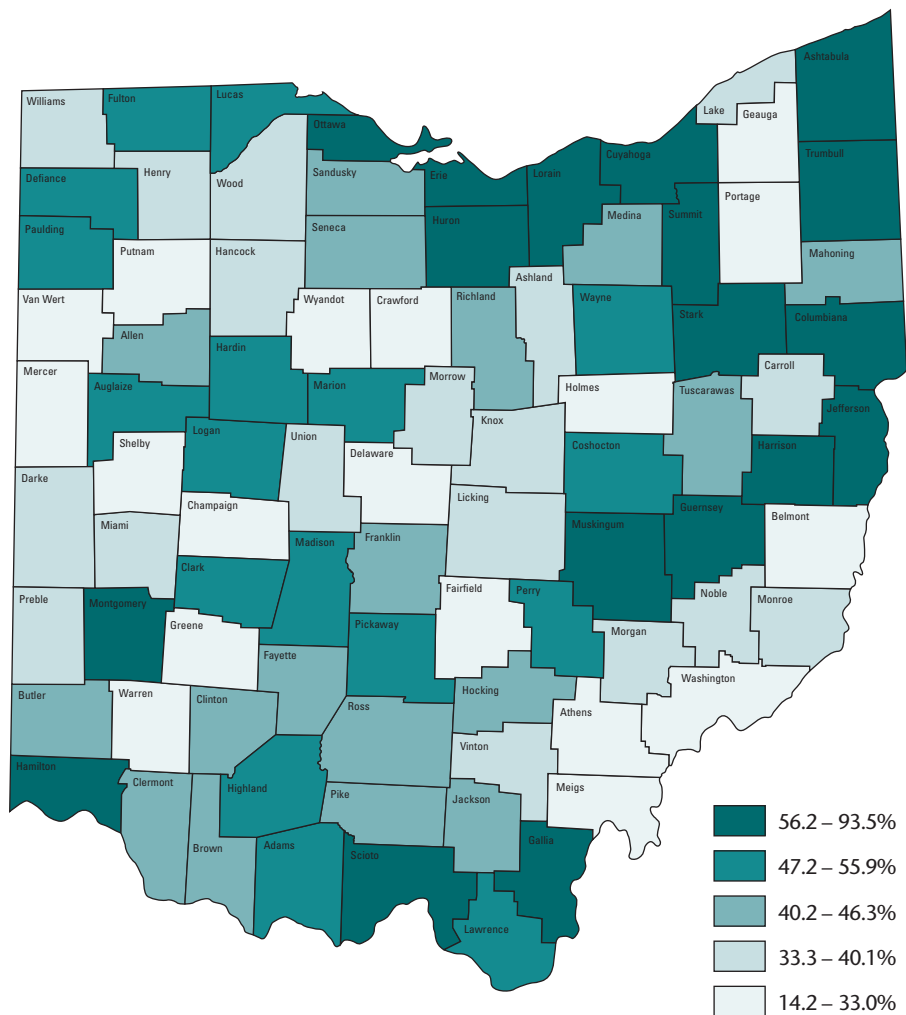
**Hospital Discharges for Patients with a Primary Diagnosis of Asthma, by County, Males, 2001–2003**



Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

The highest hospital discharge rate for males with a primary diagnosis of asthma was in Harrison County (72.5 per 10,000 residents), and the lowest for a county with 20 or more discharges was in Holmes (9.2 per 10,000 residents). Many counties with rates in the highest quintile are in the Northeast and along Lake Erie.

Figure 12  
**Hospital Discharges for Patients with a Primary  
 Diagnosis of Asthma, by County, Females, 2001–2003**



Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

The highest hospital discharge rate for patients with a primary diagnosis of asthma for females was in Cuyahoga County (93.5 per 10,000 residents), and the lowest was in Putnam County (14.2 residents). The discharge rates for females are higher than males in all of the quintiles. While many of the counties in the highest quintile are in northeast Ohio, there are also counties with high rates at the southernmost point.

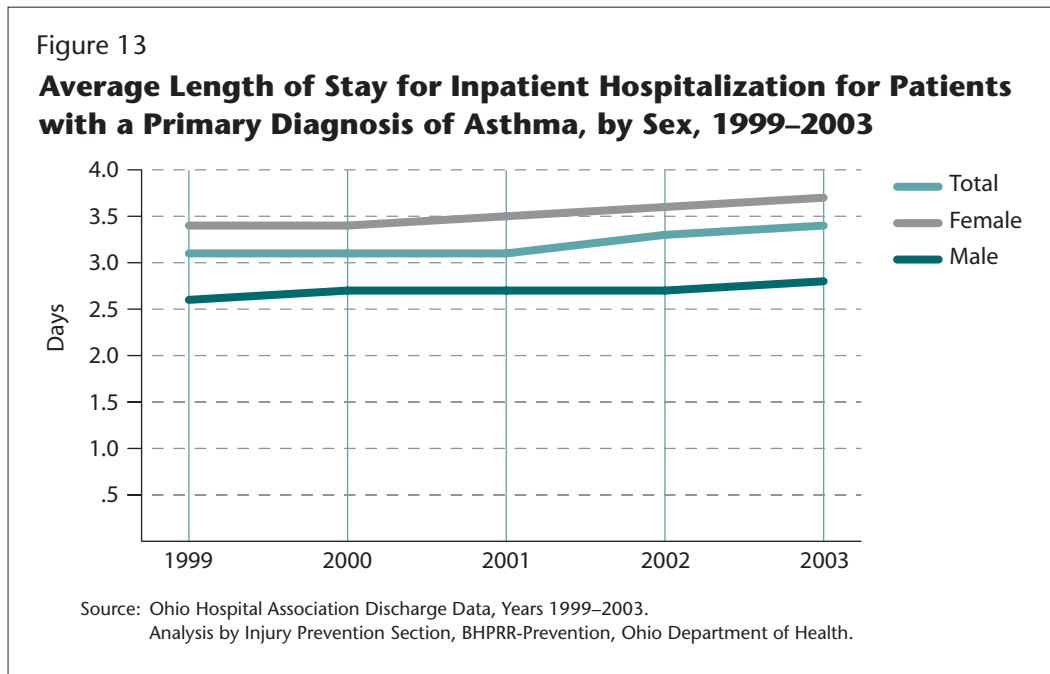
**How Long Do People Stay In The Hospital For Asthma?**

The average length of stay in the hospital for patients with a primary diagnosis of asthma is increasing, from 3.1 days in 1999 to 3.4 days in 2003, as shown in Figure 13. In comparison, hospital stays without a mention of asthma lasted an average of 4.2 days in 2003.

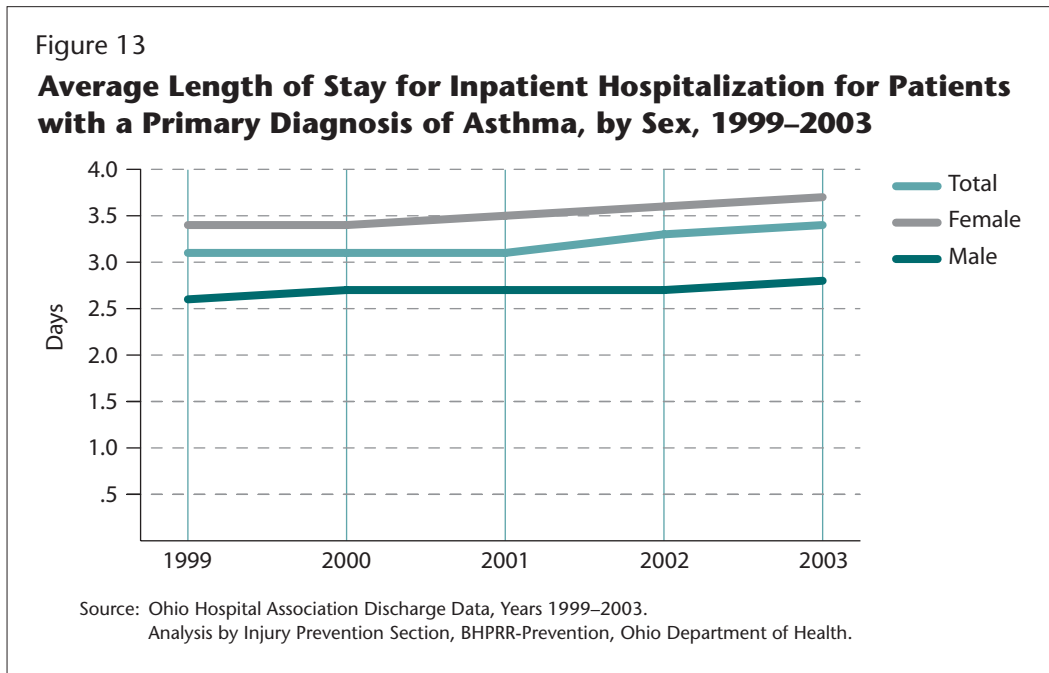
Hospital stays for patients with a primary diagnosis of asthma tend to be shorter than for patients discharged with another diagnosis. In 2003, 22.5 percent of patients with a primary diagnosis of asthma had stays that were less than two days.

In 2003, female patients with a primary diagnosis of asthma had a longer average length of stay (3.7 days) than males (2.8), as shown in Figure 13. Figure 14 shows that the two youngest age groups (children under 5 and children under 19) had the shortest average length of stay of 2.1 days. The longest average stays were for adults age 65 and over, at 4.5 days.

During 2001–2003, average length of stay for patients with a primary diagnosis of asthma varied widely by county. The highest average length of stay for patients with a primary diagnosis of asthma was experienced by residents of Carroll County (4.6 days). The lowest average length of stay for patients with a primary diagnosis of asthma was experience by residents of Crawford County (2.3 days). As shown in Figure 15, there is a cluster of counties in the highest quintile for average length of stay for patients with a primary diagnosis of asthma in East Central Ohio. Counties in the quintile with the lowest average length of stay are all in rural areas.

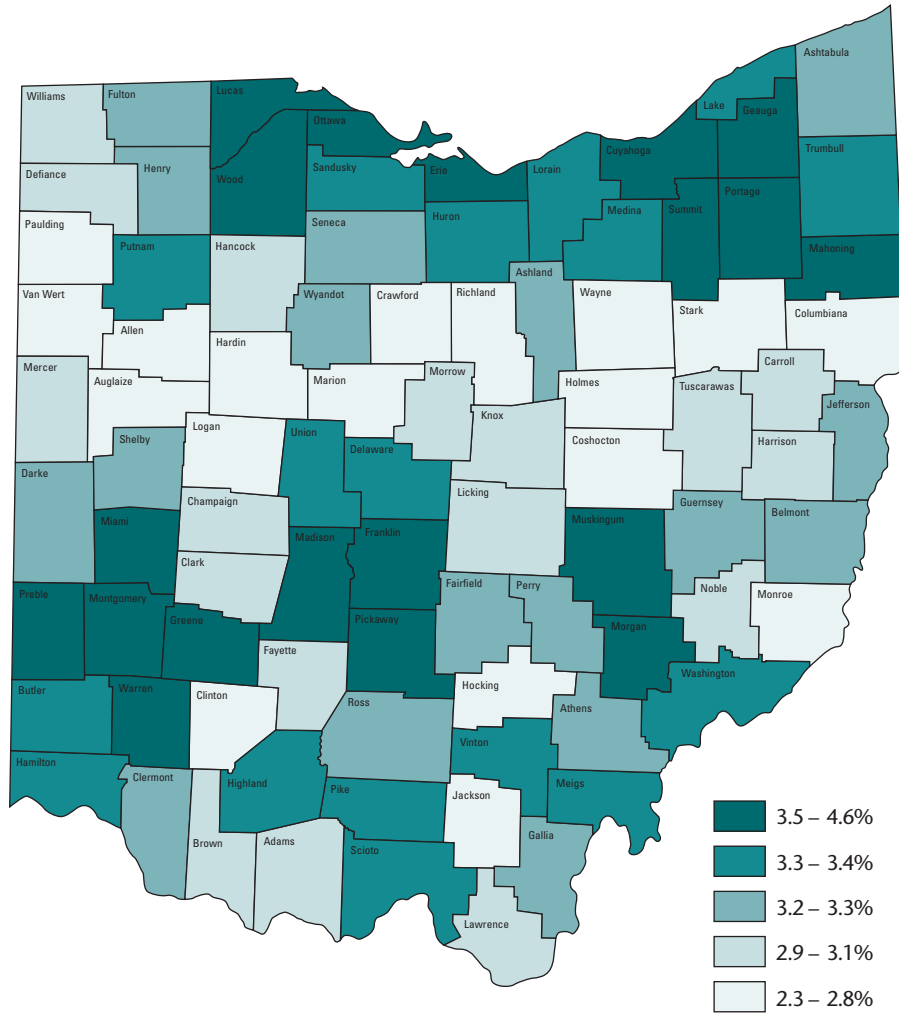


From 1999–2003 average length of stay for hospital discharges for patients with a primary diagnosis of asthma increased slightly for both sexes. In 2003, the average length of stay was 3.4 days for patients with a primary diagnosis of asthma. Females tended to stay longer than males, 3.7 vs 2.8 days, respectively.



From 1999–2003, average length of stay for patients with a primary discharge diagnosis of asthma increased slightly for adults 20 years of age and older. For children 5 through 19, average length of stay declined during 1999–2003. Average length of stay remained essentially the same for children under 5 from 1999–2003. In 2003, children under 19 had the shortest stays, at 2.1 days, and older adults over 65 have the longest stays, at 4.5 days.

Figure 15  
**Average Length of Stay for Patients with a Primary Diagnosis of Asthma, by County, 2001–2003**



Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

There is a cluster of counties in the highest quintile of average length of stay for patients with a primary diagnosis of asthma in East Central Ohio.

### **What Are Average Charges for Asthma Inpatient Hospitalizations in Ohio?**

As mentioned previously, inpatient hospitalizations for patients with a primary discharge diagnosis of asthma had a shorter average length of stay than other diagnoses. In addition, compared with discharges for patients with no mention of asthma, patients hospitalized with a primary diagnosis of asthma had fewer procedures in 2003. While 60.9 percent of patients with no mention of asthma had billable procedures done, only 11.2 percent of patients with a primary diagnosis of asthma underwent procedures. It is not surprising, then that average charges for hospital stays for patients with a primary diagnosis of asthma are less than other diagnoses.

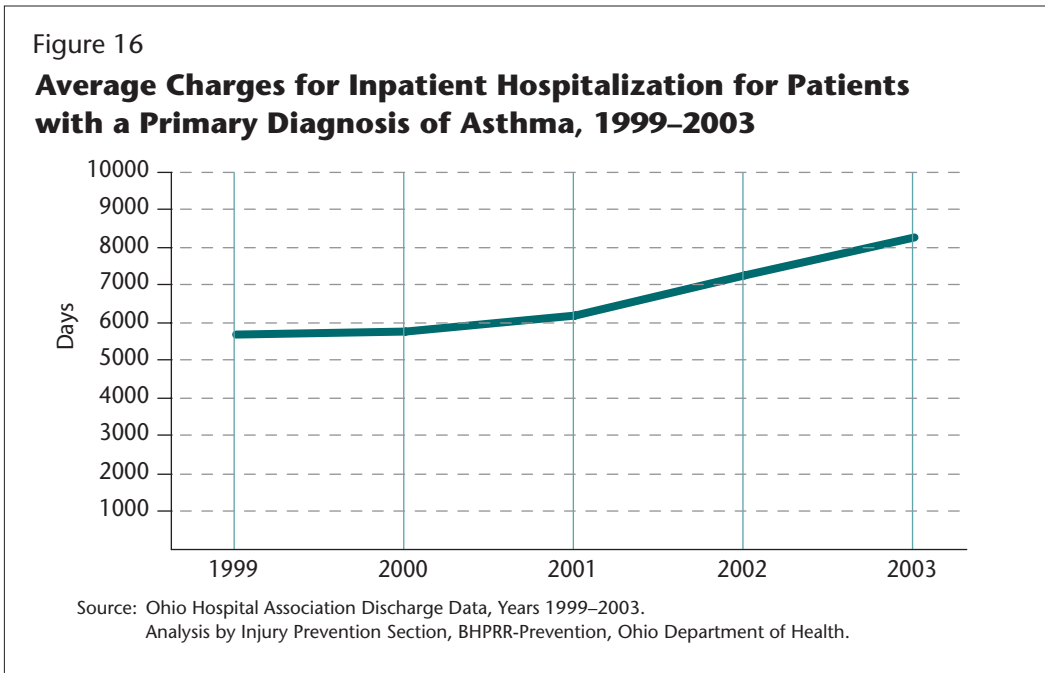
The average cost for an inpatient stay due to a primary diagnosis of asthma increased from \$5,692 in 1999 to \$8,272 in 2003, a 45.3 percent increase in five years (Figure 16). Inpatient hospitalizations for patients with a primary diagnosis other than asthma increased as well. In 1999, average charges for any mention of asthma were \$8,839, up to \$12,972 in 2001–2003, a 46.8 percent increase. Inpatient hospitalizations for patients with no mention of asthma at discharge increased from \$10,995 to \$17,125, an increase of 55.7 percent from 1999–2003.

With longer average lengths of stay, it stands to reason that females with a primary diagnosis of asthma have higher average charges for inpatient hospitalization. Females had an average charge of \$8,886 per stay, compared to males at \$7,177 in 2003, as shown in Figure 17.

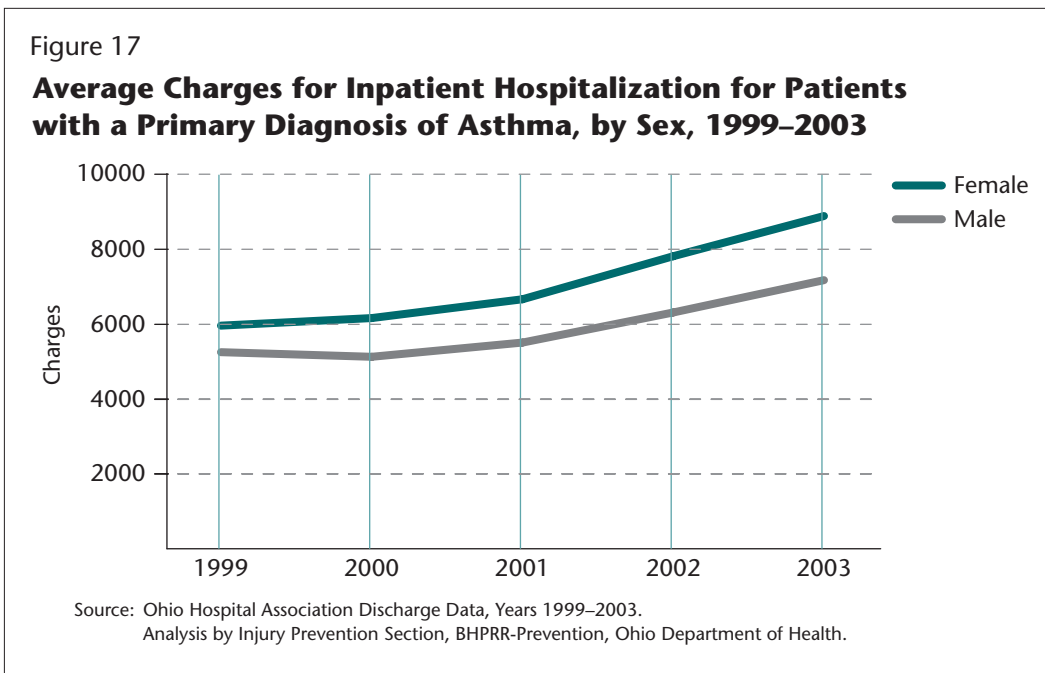
Children under age 5 with a primary diagnosis of asthma had the lowest average charges of any age group, at \$5,298 per stay, which is consistent with their short average length of stay, displayed in Figure 18. Adults age 65 and over have the highest average charges at \$11,163 per stay. Average inpatient hospitalization charges for patients with a primary diagnosis of asthma are increasing the fastest among adults aged 65 and older, at 52.6 percent during 1999–2003. They are rising slowest among children under age 5, increasing 24.6 percent during 1999–2003.

Average charges for a hospital stay due to primary diagnosis of asthma varied widely among counties. The highest average charge was experienced among Lucas County residents, at \$9,874, and the lowest average charge was among Crawford County residents, at \$3,617. As shown in Figure 19, the quintile of counties with highest average charges contains counties and surrounding areas of the major cities of Toledo, Akron, Youngstown, Dayton, Cleveland and Columbus. Counties in the quintile with the lowest average charges are mostly non-Appalachian, rural counties in the northern part of the state.

## Hospital Discharges for Asthma in Ohio, 1999–2003

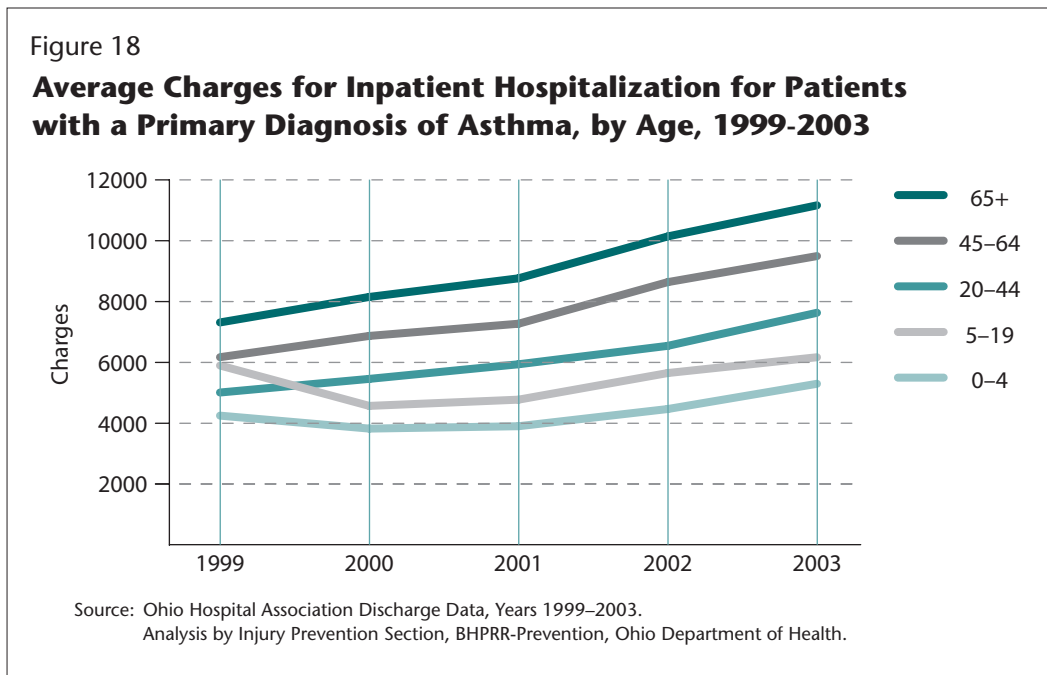


The average cost for an inpatient stay due to a primary diagnosis of asthma increased from \$5,692 in 1999 to \$8,272 in 2003, a 45.3 percent increase.



Both sexes saw large increases in the charges for hospital stays for patients with a primary diagnosis of asthma. Females consistently had higher charges for hospital stays than males.

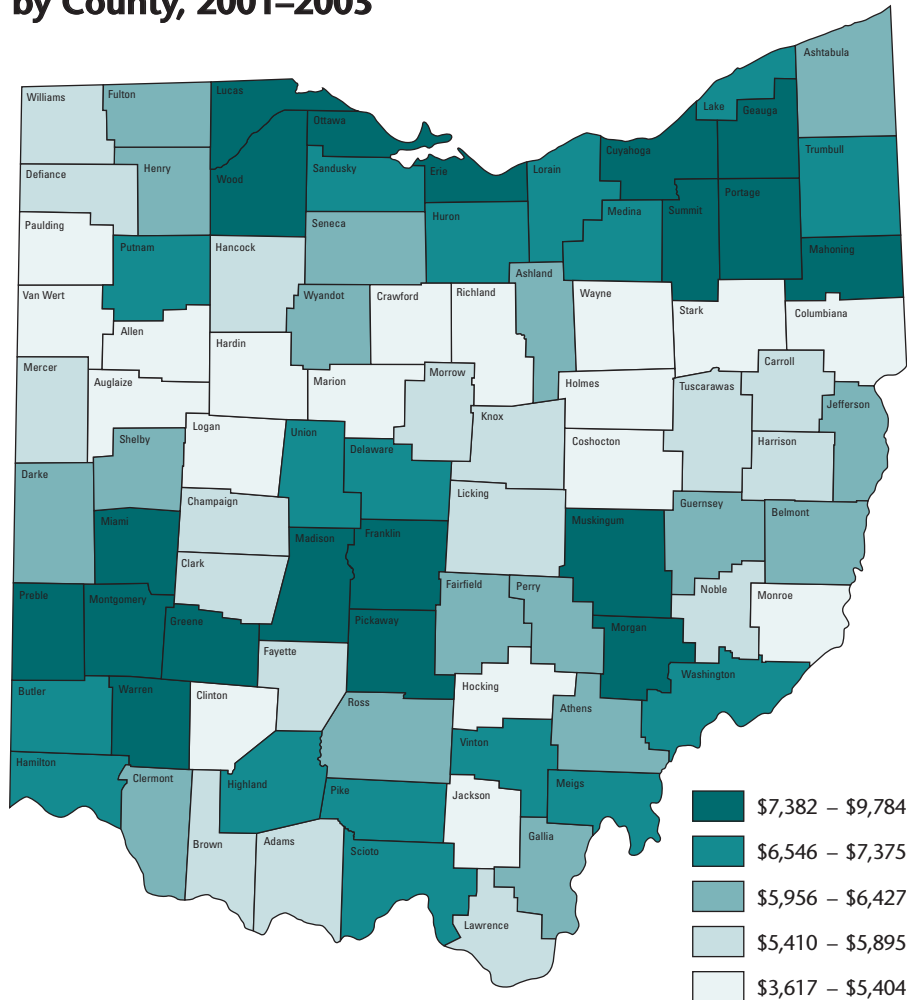
## Hospital Discharges for Asthma in Ohio, 1999–2003



While the discharge rates for patients with a primary diagnosis of asthma are highest for children under 5 years of age, the larger costs are found among older adults, who tend to have longer stays.

Figure 19

**Average Charges for Inpatient Hospitalizations for Patients with a Primary Diagnosis of Asthma, by County, 2001–2003**



Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

The counties in the quintile with the highest average charges for an inpatient hospital stay for patients with a primary diagnosis of asthma are in major metropolitan area and along Lake Erie. The counties with the lowest average charges are mostly rural, non-Appalachian counties.

### **What Are the Total Charges for Asthma Inpatient Hospitalizations in Ohio?**

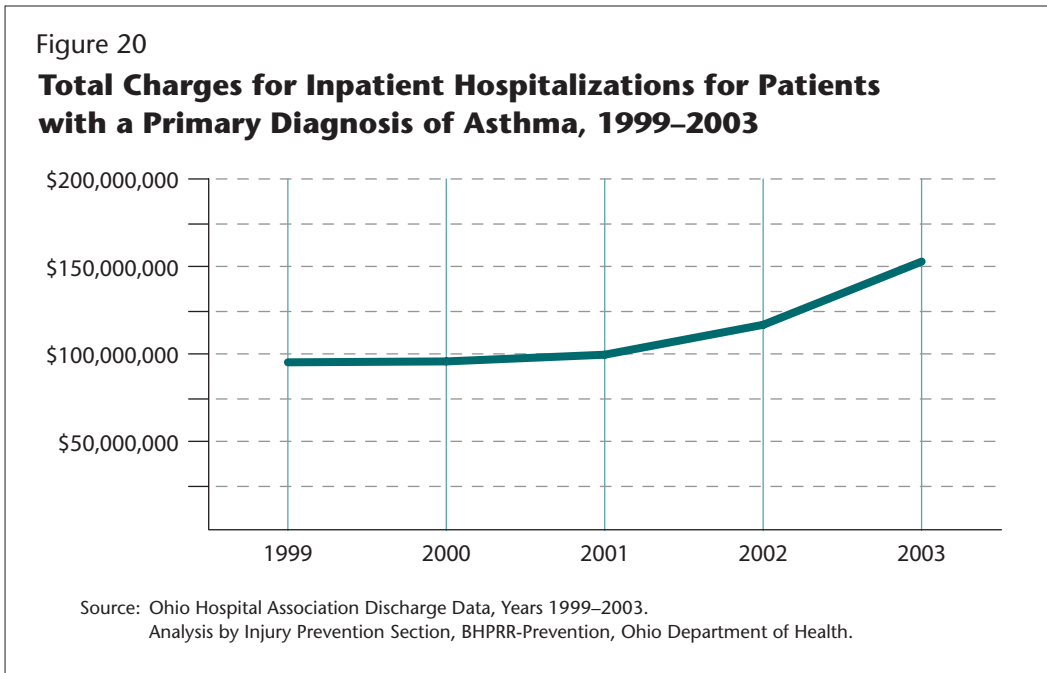
Figure 20 shows how total charges for inpatient hospitalizations for patients with a primary diagnosis of asthma in Ohio increased from \$95,180,080 to \$152,753,566 from 1999–2003 during the five-year period. These numbers represent an increase of 60.5 percent in five years. However, total charges for inpatient hospitalizations with a primary diagnosis of asthma are increasing at a slower rate than for patients who have inpatient hospital charges for other diagnoses. For inpatient hospitalizations for patients discharged with mention of asthma, the total charges increased from \$513,466,522 in 1999 to an average of \$1,037,993,978 in 2001–2003, an increase of 102.1 percent in three years.

With more admissions and longer stays, total charges for inpatient hospitalizations for patients with primary diagnoses of asthma are higher for females (\$105,132,237) than for males (\$47,621,329), shown in Figure 21. Total charges appear to be increasing from 1999 with a steep increase for the 2002–2003 time frame. Females accounted for 68.8 percent of total charges for inpatient hospitalizations due to primary diagnosis of asthma.

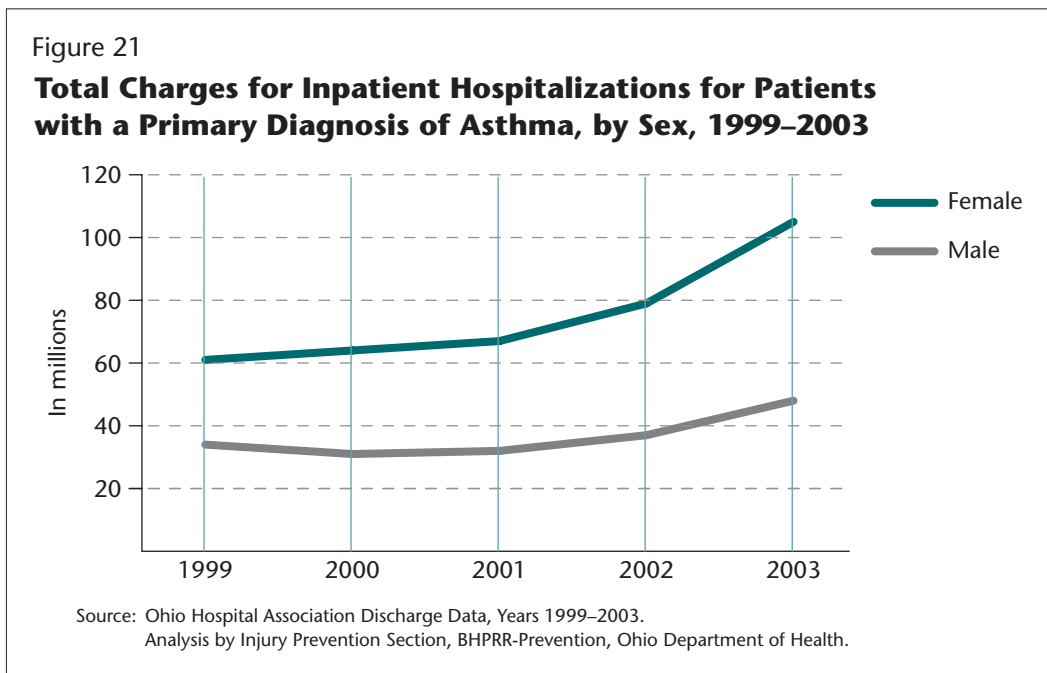
Figure 22 shows that total charges for inpatient hospitalizations for patients with primary diagnosis of asthma were highest for adults aged 45–64 at \$46,409,713. This group also experienced the largest increase in charges from 1999–2003, at 109 percent. Children aged 5 to 19 years with a primary diagnosis of asthma experienced a decline in charges due to inpatient hospitalizations from 1999–2003. This group incurred charges of \$18,122,158 in 1999, which decreased to \$16,727,348 in 2003.

During 2001–2003, the total charges incurred by patients with primary diagnoses of asthma were generally in proportion to a county's population. As seen in Figure 23, the counties in the quintiles with the highest total charges were the ones in major metropolitan areas. From 2001–2003, the highest total charges were incurred by residents of Cuyahoga County at \$87,512,528, Franklin County \$28,544,793 and Hamilton County \$26,481,278. The lowest total charges were incurred by Monroe County (\$138,622).

## Hospital Discharges for Asthma in Ohio, 1999–2003

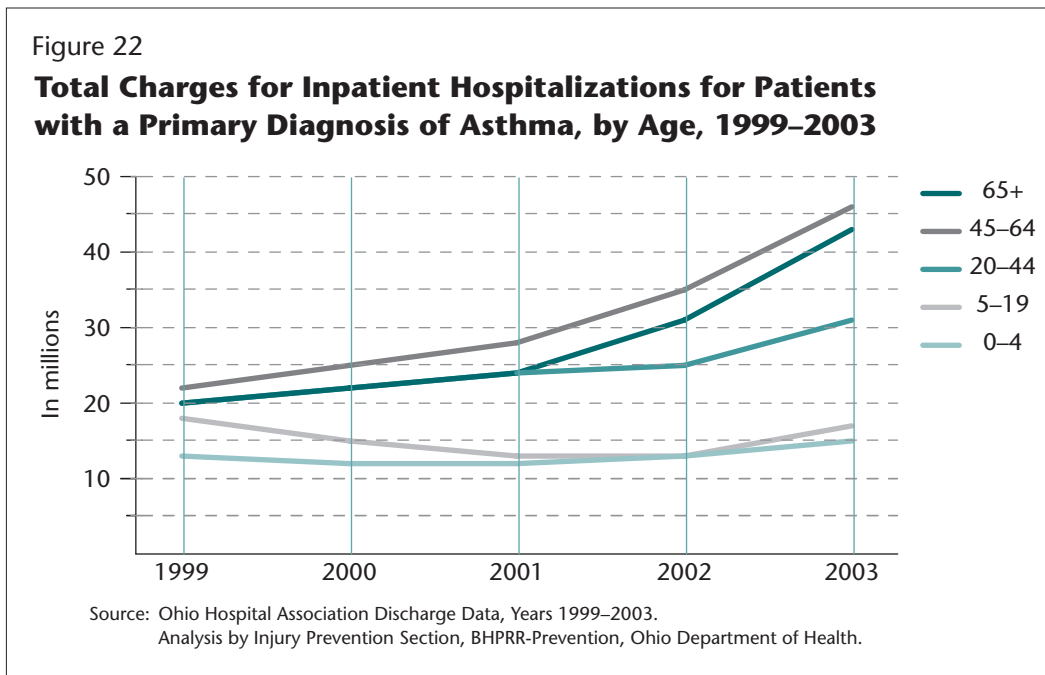


Inpatient hospitalization charges for patients with a primary diagnosis of asthma have increased in Ohio, from \$95,180,080 in 1999 to \$152,753,566 in 2003.



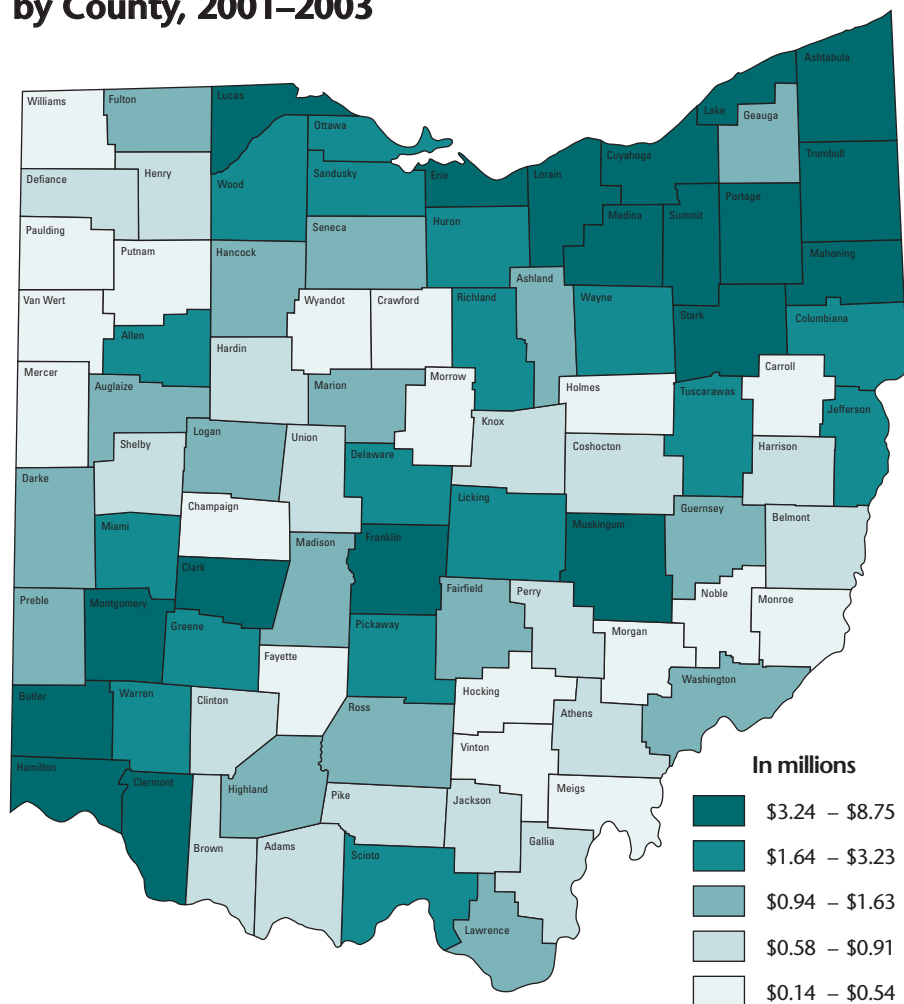
Total charges for inpatient hospitalizations for patients with primary diagnosis of asthma are higher for females than males. Total charges have increased from 1999 with a steep increase for the 2002–2003 time frame.

## Hospital Discharges for Asthma in Ohio, 1999–2003



Charges for inpatient hospitalizations for patients with primary diagnosis of asthma increased for all age groups except children aged 5 through 19. The biggest increase occurred in the 45- to 64-year age range, with an increase in charges of 109 percent. The lowest charges were incurred by children under age 5.

Figure 23  
**Total Charges for Inpatient Hospitalizations  
 for Patients with a Primary Diagnosis of Asthma,  
 by County, 2001–2003**



Source: Ohio Hospital Association Discharge Data, Years 2001–2003.  
 Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

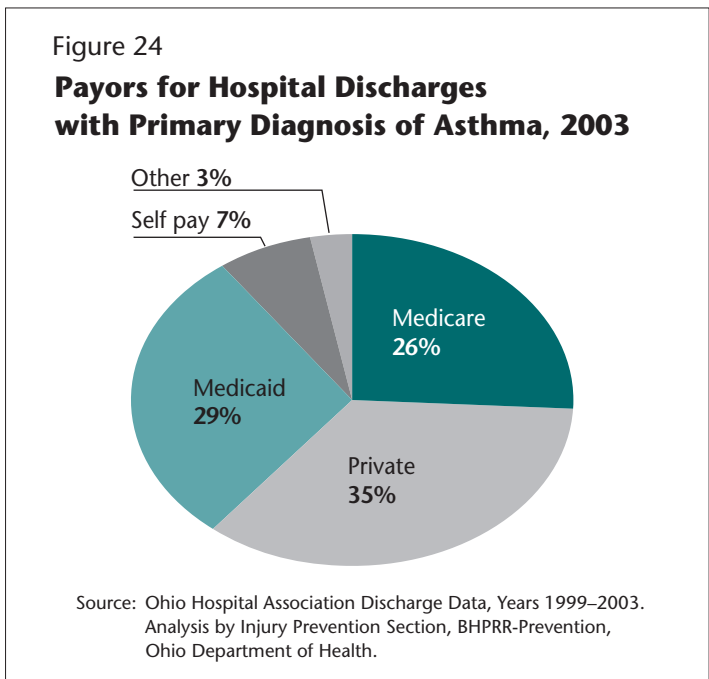
The counties in the quintile with the highest total charges were the ones in major metropolitan areas. During 2001–2003, the highest total charges were incurred by residents of Cuyahoga County (\$87,512,528), Franklin County (\$28,544,793) and Hamilton County \$26,481,278. The lowest total charges were incurred by Monroe County (\$138,622).

**Who are the Payors for Inpatient Hospital Discharges for Asthma?**

Many of these inpatient hospital stays for patients with a primary diagnosis of asthma are paid for by public funds, as shown in Figure 24. The payor for 29.0 percent of these cases was Medicaid, and 25.7 percent by Medicare. A little over a third (34.7 percent) were charged to private insurance.

Compared to hospital patients who do not have asthma, patients with a primary diagnosis are more likely to have Medicaid as a payor. Medicaid was the payor for 16.0 percent of inpatient hospital visits for patients without asthma. Patients without asthma were more likely to have Medicare as a payor (39.6 percent of inpatient visits).

Medicaid was the type of insurance with had the highest percentage of its members with asthma diagnosis (7.8 percent). Medicare had the smallest percentage discharged from the hospital with an asthma diagnosis (4.1 percent).

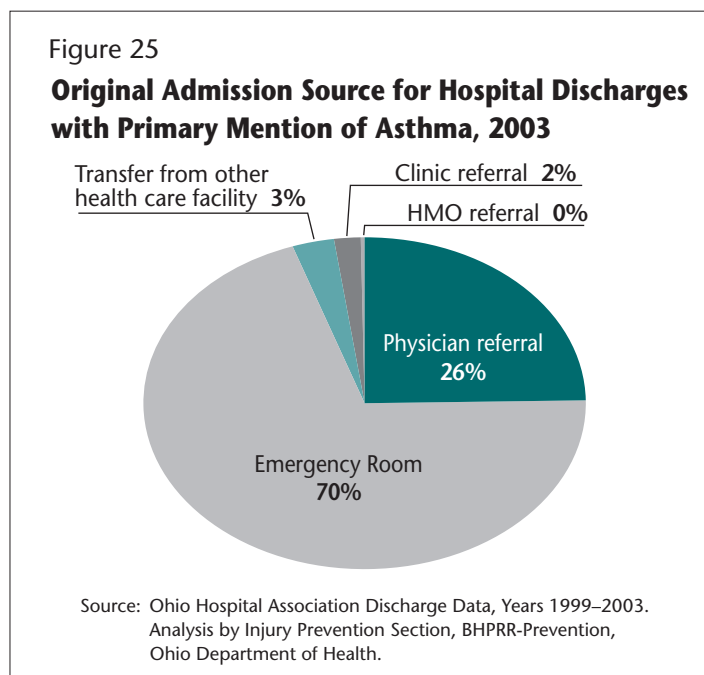


The majority of inpatient hospital costs related to a primary diagnosis of asthma are paid for by private insurance (35 percent) followed by Medicaid (29 percent), Medicare (26 percent), self-pay (7 percent) and other (3 percent).

### Who Admits Asthma Patients to the Hospital?

Figure 25 shows that the largest source of patients admitted to the hospital with a primary diagnosis of asthma comes from the emergency department (70 percent). Another 25 percent of patients are admitted by a physician's referral, with much smaller percentages admitted from HMO referral, clinic referral. Three percent are transferred from another health care facility.

Of those patients who are admitted without asthma, only 41.4 percent are admitted from the emergency department. More are admitted under a physician's referral, at 44.3 percent.



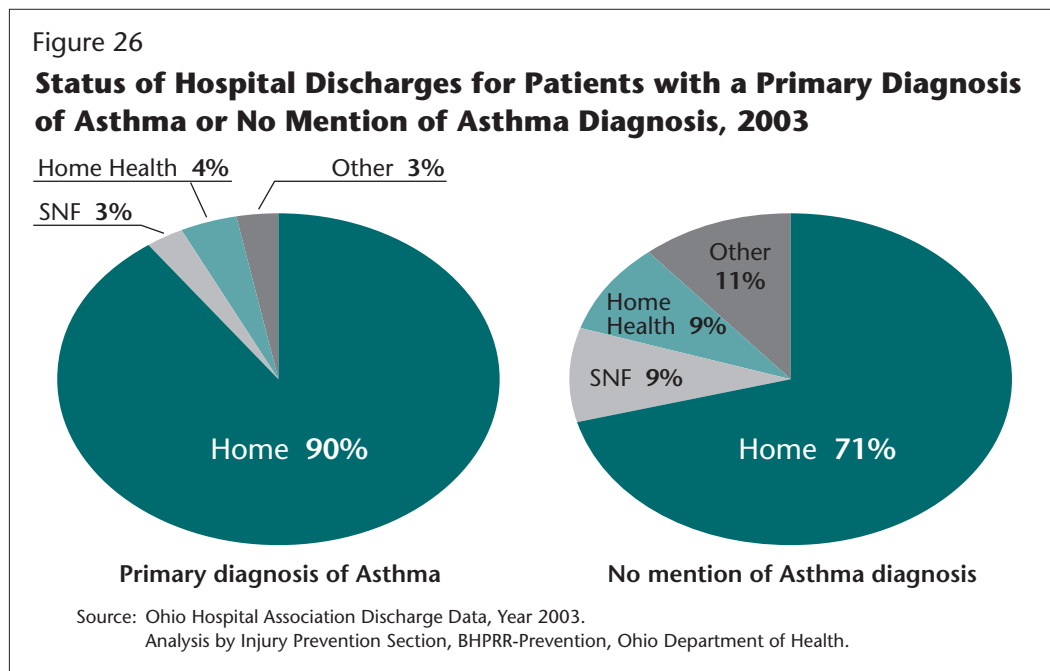
Most inpatient hospital admissions of patients with a primary diagnosis of asthma are made from the emergency department (70 percent), followed by physicians (25 percent), transfer from another health care facility (3 percent), clinic referral (2 percent) and other (less than 1 percent).

**Where do asthma patients go after hospitalization?**

In 2003, upon discharge from the hospital, 90 percent of patients with primary diagnosis of asthma were discharged to home, as shown in Figure 26. Smaller groups went to a skilled nursing facility (3 percent), home health care (4 percent) or another destination (3 percent).

Patients with primary diagnosis of asthma are more likely to go home than patients without asthma. A smaller percentage (70.9 percent) of patients without asthma diagnosis were discharged to home. More patients without asthma diagnosis required additional care, and were discharged to a skilled nursing facility, at 9.6 percent or home health care, at 8.8 percent.

Because patients are not assigned a unique identifier, we cannot make any observations about readmittance to the emergency room or hospital.



In 2003, upon discharge from the hospital, 90 percent of patients with primary diagnosis of asthma were discharged to home.

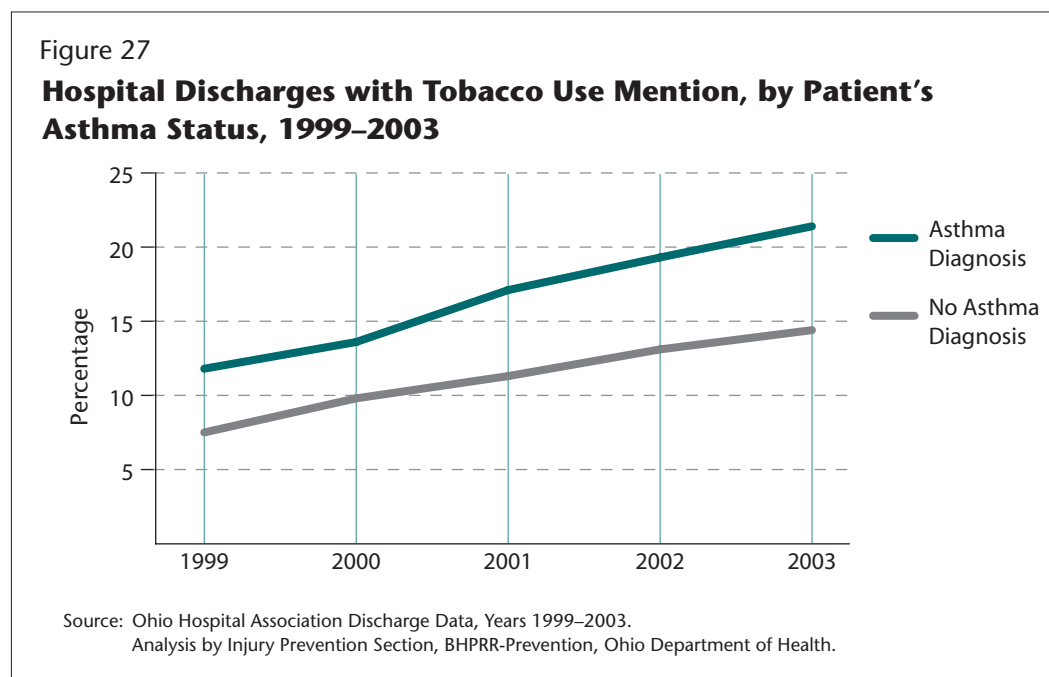
### How Often is Tobacco Use Reported Along with Asthma?

When a person inhales tobacco smoke, irritating substances can settle in the airway linings. Health effects for adults with asthma exposed to tobacco smoke include asthma attacks, increased sensitivity and reduced lung function and irritation of the mucus membranes, including the eyes, nose and throat. People with asthma who smoke will experience constant poor asthma control, and can have ongoing asthma symptoms (Cleveland Clinic, 2005).

Figure 27 shows the percentage of patients discharged with asthma diagnoses who also had a mention of tobacco use increased from 11.8 percent in 1999 to 21.4 percent in 2003, an increase of 81.4 percent. Among patients with no mention of asthma diagnosis, reporting of tobacco use went from 7.5 percent to 14.4 percent of discharges, showing a similar increase of 92.1 percent. Patients with any mention of asthma were 48.6 percent more likely to have a tobacco use mention than non-asthma patients.

During the same time frame, the percentage of adults reporting they were current smokers in the Ohio Behavioral Risk Factor Surveillance System decreased from 27.6 percent to 25.2 percent. It is unclear whether there is a real increase of smokers being hospitalized for asthma, or if there is increased documenting by physicians of actual tobacco use.

Similar rates of tobacco use were reported among male and female patients from 1999–2003, consistent with BRFSS.



The percentage of hospital discharges for patients with an asthma diagnosis also reporting tobacco use nearly doubled from 1999–2003. There was, however, a corresponding increase in discharge for patients who reported no mention of an asthma diagnosis.

## Hospital Discharges for Asthma in Ohio, 1999–2003

### Recommendations

Asthma is a serious chronic disease that affects close to 1 million Ohioans. Many inpatient hospitalizations due to asthma are preventable through proper asthma management and education. Effective management includes controlling exposure to triggers of asthma episodes, prescription and appropriate compliance with long-term medications, monitoring of the disease on a continuous basis and educating patients about their asthma care. If therapy is appropriate, asthma can generally be managed in an outpatient setting, reducing or eliminating the need for inpatient hospitalization.

The rate of hospitalizations for asthma has continued to increase between 1999 and 2003. As this report highlights, females, along with children under age 5 and adults over 65 are at the greatest risk of being hospitalized due to a primary diagnosis of asthma.

Costs associated with hospitalization due to asthma are substantially higher than care received in an outpatient setting. While direct costs were mentioned, indirect costs due to asthma hospitalization also have an economic impact with lost days of work and school, as the asthma patient or as a caregiver. Charges for care of patients with a primary diagnosis of asthma are overwhelmingly incurred by females rather than males, and by adults over the age of 65.

cTable 1

**Hospital Discharges for Patients with Primary Diagnosis of Asthma<sup>1</sup>, Average Length of Stay<sup>2</sup>, costs and Discharges per 10,000 Residents, by year, Ohio 1999-2003**

Year	Number of Hospital Discharges	Total Number of Days	Average Length of Stay in Days <sup>2</sup>	Total Charges	Average Charges	Crude Discharges per 10,000 Ohio Residents	Age-adjusted Discharges per 10,000 Ohio Residents
1999	16,767	52,139	3.1	\$95,180,080	\$5,691.57	14.79	14.72
2000	1,7233	53,684	3.1	\$99,187,753	\$5,772.10	15.17	15.09
2001	16,532	52,147	3.2	\$102,044,932	\$6,197.31	14.52	14.45
2002	16,093	52,529	3.3	\$116,636,035	\$7,264.78	14.11	14.00
2003	18,502	62,098	3.4	\$152,753,566	\$8,272.15	16.18	16.00

Source: Ohio Hospital Association Discharge Data, Years 2001-2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9-CM Codes for Asthma: 493.XX

2 Number of days divided by number of hospital discharges.

## Hospital Discharges for Asthma in Ohio, 1999–2003

cTable 2

### Hospital Discharges with any Mention of Asthma Diagnosis<sup>1</sup> as a Listed Diagnosis by Year, Age, Sex, Number of Discharges and Discharges per 10,000 Residents, Ohio 1999-2003

Year	Age Group	Males		Females		Total	
		Hospital Discharges	Hospital Discharges per 10,000 Ohio Residents	Hospital Discharges	Hospital Discharges per 10,000 Ohio Residents	Hospital Discharges	Hospital Discharges per 10,000 Ohio Residents
1999	0–19	6,663	40.5	4,938	31.3	11,601	36.0
	20–44	3,918	19.4	12,280	59.7	16,198	39.7
	45–64	3,945	32.2	11,248	86.4	15,193	60.1
	65+	4,264	70.4	10,952	121.8	15,217	101.1
	Total	18,790	34.2	39,418	67.6	58,209	51.4
2000	0–19	6,389	39.0	4,745	30.2	12,106	37.7
	20–44	4,248	21.1	14,055	68.9	18,332	45.3
	45–64	4,637	36.8	12,839	96.1	17,519	67.5
	65+	4,782	78.4	12,394	137.7	17,254	114.3
	Total	20,056	36.3	44,033	75.3	65,211	57.4
2001	0–19	6,284	38.7	4,611	29.7	11,750	37.0
	20–44	4,899	24.4	15,662	77.2	20,609	51.1
	45–64	5,428	41.9	15,183	110.6	20,660	77.4
	65+	5,386	88.0	14,096	156.8	19,556	129.4
	Total	21,997	39.8	49,552	84.7	72,575	63.7
2002	0–19	6,529	40.5	5,258	34.1	11,787	37.4
	20–44	5,387	27.1	17,064	84.8	22,453	56.1
	45–64	6,009	45.2	17,481	124.1	23,491	85.8
	65+	5,863	95.4	15,366	171.0	21,229	140.3
	Total	23,788	42.9	55,169	94.1	78,960	69.2
2003	0–19	7,043	43.9	5,941	38.7	12,984	41.4
	20–44	5,915	29.9	18,906	94.9	24,821	62.5
	45–64	7,086	51.9	20,021	138.6	27,107	96.5
	65+	6,864	111.1	17,898	199.1	24,762	163.3
	Total	26,908	48.3	62,766	106.9	89,674	78.4

Source: Ohio Hospital Association Discharge Data, Years 2001-2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

<sup>1</sup> ICD 9-CM Codes for Asthma: 493.XX

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 3

### Hospital Discharges for Patients with Primary Diagnosis of Asthma<sup>1</sup>, Discharges with Any Mention of Asthma Diagnosis<sup>1</sup> and ED Visits with Primary Diagnosis of Asthma<sup>1</sup>, by Healthy People 2010 Categories, Ohio 2002–03

Year	Age	Discharges with Primary Asthma Diagnosis			Discharges with Any Mention of Asthma			ED Visits with Primary Asthma Diagnosis		
		Number of Discharges	Percent of Discharges	Rate per 10,000 Population	Number of Discharges	Percent of Discharges	Rate per 10,000 Population	Number of Discharges	Percent of Discharges	Rate per 10,000 Population
2002	0 to 4	2,854	17.7	38.4	5,485	7.0	73.9	10,057	16.9	135.5
	5 to 64	10,162	63.2	11.1	52,246	66.2	57.1	47,012	79.3	51.4
	65 +	3,077	19.1	20.3	21,229	26.9	140.3	2,254	3.8	14.9
2003	0 to 4	2,927	15.8	39.5	5,542	6.2	74.9	10,806	17.2	146.0
	5 to 64	11,754	63.5	12.8	59,370	66.2	64.7	49,569	79.0	54.0
	65 +	3,821	20.7	25.2	24,762	27.6	163.3	2,341	3.7	15.4

Source: Ohio Hospital Association Discharge Data, Years 2001–2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9-CM Codes for Asthma: 493.XX

Table 4

### Hospital Discharges for Patients with Primary Diagnosis of Asthma<sup>1</sup> by Sex, Average Length of Stay<sup>2</sup>, Costs and Discharges per 10,000 Residents, by year, Ohio 1999–2003

Year	Sex	Number of Hospital Discharges	Total Number of Days	Average Length of Stay in Days <sup>2</sup>	Total Charges	Average Charges	Crude Discharges per 10,000 Ohio Residents	Age-adjusted Discharges per 10,000 Ohio Residents
1999	Male	6,478	16,943	2.6	\$33,985,719	\$5,257.69	11.8	11.6
	Female	10,289	35,196	3.4	\$61,194,361	\$5,964.94	17.6	17.6
	Total	16,767	52,139	3.1	\$95,180,080	\$5,691.57	14.8	14.7
2000	Male	6,107	16,250	2.7	\$31,269,242	\$5,135.37	11.1	11.0
	Female	10,477	36,016	3.4	\$64,424,627	\$6,167.40	17.9	17.8
	Total <sup>3</sup>	17,233	53,684	3.1	\$99,187,753	\$5,772.10	15.2	15.1
2001	Male	5,905	15,798	2.7	\$32,471,033	\$5,513.84	10.7	10.6
	Female	10,106	35,336	3.5	\$67,055,451	\$6,668.20	17.3	17.1
	Total <sup>3</sup>	16,532	52,147	3.2	\$102,044,932	\$6,197.31	14.5	14.4
2002	Male	5,904	15,852	2.7	\$37,185,910	\$6,315.54	10.6	10.6
	Female	10,188	36,672	3.6	\$79,442,833	\$7,814.56	17.4	17.2
	Total <sup>3</sup>	16,093	52,529	3.3	\$116,636,035	\$7,264.78	14.1	14.0
2003	Males	6,649	18,445	2.8	\$47,621,329	\$7,177.29	11.9	11.9
	Female	11,853	43,653	3.7	\$105,132,237	\$8,886.17	20.2	19.8
	Total	18,502	62,098	3.4	\$152,753,566	\$8,272.15	16.2	16.0

Source: Ohio Hospital Association Discharge Data, Years 2001–2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9-CM Codes for Asthma: 493.XX

2 Number of days divided by number of hospital discharges.

3 Missing sex= 649 in 2000, 521 in 2001, 1 in 2002

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 5

**Hospital Discharges with Primary Diagnosis of Asthma<sup>1</sup> by Age, Average Length of Stay<sup>2</sup>, Costs and Discharges per 10,000 Residents, by year, Ohio 1999–2003**

Year	Age Group	Number of Hospital Discharges	Total Number of Days	Average Length of Stay	Total Charges	Average Charges	Discharge Rate per 10,000
1999	0-4	3,157	6,560	2.1	\$13,387,037.05	\$4,251.20	42.7
	5-19	3,081	7,036	2.3	\$18,122,158.20	\$5,899.14	12.7
	20-44	3,955	11,466	2.9	\$19,786,629.49	\$5,010.54	9.7
	45-64	3,590	13,256	3.7	\$22,107,890.42	\$6,171.94	14.4
	65+	2,712	12,529	4.6	\$19,756,012.97	\$7,314.33	18.1
2000	0-4	3,070	6,392	2.1	\$11,707,307.36	\$3,824.67	40.7
	5-19	3,393	7,601	2.2	\$15,469,785.32	\$4,571.45	13.8
	20-44	4,106	12,076	2.9	\$22,344,992.27	\$5,459.32	10.1
	45-64	3,698	13,832	3.7	\$25,341,687.95	\$6,871.39	14.4
	65+	2,698	12,438	4.6	\$21,936,676.66	\$8,151.87	17.9
2001	0-4	3,073	6,205	2.0	\$11,942,170.43	\$3,902.67	40.7
	5-19	2,647	5,674	2.1	\$12,599,756.82	\$4,776.25	10.8
	20-44	4,053	12,210	3.0	\$23,950,070.53	\$5,938.52	10.1
	45-64	3,805	14,270	3.8	\$27,561,986.35	\$7,272.29	14.3
	65+	2,743	12,806	4.7	\$23,969,436.51	\$8,763.96	18.2
2002	0-4	2,854	5,706	2.0	\$12,708,312.42	\$4,468.46	38.5
	5-19	2,303	5,118	2.2	\$12,986,423.29	\$5,651.19	9.5
	20-44	3,810	11,185	2.9	\$24,864,887.46	\$6,545.11	9.5
	45-64	4,049	15,733	3.9	\$34,893,239.46	\$8,639.08	14.8
	65+	3,077	14,787	4.8	\$31,183,172.08	\$10,140.87	20.4
2003	0-4	2,927	6,041	2.1	\$15,465,351.91	\$5,298.17	39.5
	5-19	2,713	5,812	2.1	\$16,727,348.44	\$6,170.18	11.3
	20-44	4,144	12,759	3.1	\$31,497,601.58	\$7,632.08	10.4
	45-64	4,897	18,961	3.9	\$46,409,713.11	\$9,494.62	17.4
	65+	3,821	18,525	4.8	\$42,653,551.37	\$11,162.93	25.2

Source: Ohio Hospital Association Discharge Data, years 2001–2003.  
Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9-CM Codes for Asthma: 493.XX

2 Number of days divided by number of hospital discharges.

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 6

**Hospital Discharges for Patients with Primary Diagnosis of Asthma<sup>1</sup> by Sex, Average Length of Stay<sup>2</sup>, Costs and Discharges per 10,000 Residents, by Year and County, Ohio 1999–2003**

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Adams	Male	37	88	2.4	\$184,216	\$5,117.12	27.2	27.0
	Female	71	271	3.8	\$412,216	\$5,805.85	50.2	50.2
	Total	110	367	3.3	\$608,280	\$5,580.55	39.6	39.3
Allen	Male	170	378	2.2	\$811,510	\$4,773.59	31.5	31.2
	Female	241	694	2.9	\$1,409,508	\$5,848.58	44.6	44.6
	Total	411	1,072	2.6	\$2,221,018	\$5,403.94	38.0	37.8
Ashland	Male	62	152	2.5	\$318,930	\$5,144.03	23.7	22.8
	Female	102	342	3.4	\$689,543	\$6,760.23	37.7	36.7
	Total	164	494	3.0	\$1,008,473	\$6,149.23	30.8	29.8
Ashtabula	Male	162	448	2.8	\$926,247	\$5,789.04	32.1	31.8
	Female	349	1,204	3.4	\$2,303,267	\$6,618.58	66.4	66.9
	Total	511	1,652	3.2	\$3,229,514	\$6,357.31	49.6	49.7
Athens	Male	45	96	2.1	\$193,572	\$4,301.61	14.4	15.2
	Female	81	261	3.2	\$584,976	\$7,221.93	24.9	25.2
	Total	126	357	2.8	\$778,549	\$6,178.96	19.8	20.3
Auglaize	Male	66	174	2.6	\$318,950	\$4,906.93	28.8	27.4
	Female	114	374	3.3	\$643,000	\$5,640.35	48.0	47.2
	Total	180	548	3.0	\$961,950	\$5,374.02	38.5	37.4
Belmont	Male	37	107	2.9	\$209,739	\$5,668.63	10.8	11.1
	Female	97	355	3.7	\$617,260	\$6,363.50	27.4	25.0
	Total	134	462	3.4	\$826,999	\$6,171.63	19.2	18.1
Brown	Male	40	98	2.5	\$216,667	\$5,416.67	18.7	18.5
	Female	94	292	3.1	\$521,526	\$5,548.15	42.7	43.0
	Total	135	392	2.9	\$740,963	\$5,488.62	31.1	31.1
Butler	Male	372	1,161	3.1	\$2,524,558	\$6,823.13	22.4	22.7
	Female	727	2,680	3.7	\$5,053,963	\$6,970.98	41.9	42.9
	Total	1,101	3,845	3.5	\$7,588,419	\$6,917.43	32.4	33.1

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Carroll	Male	24	85	3.5	\$144,161	\$6,006.72	16.6	15.8
	Female	58	290	5.0	\$334,949	\$5,774.99	39.1	37.4
	Total	82	375	4.6	\$479,111	\$5,842.81	28.0	26.6
Champaign	Male	41	116	2.8	\$221,228	\$5,395.81	21.3	20.9
	Female	53	191	3.6	\$329,312	\$6,213.44	26.5	25.9
	Total	96	310	3.2	\$557,700	\$5,809.38	24.5	23.9
Clark	Male	278	773	2.8	\$1,367,152	\$4,917.81	40.1	40.2
	Female	376	1,277	3.4	\$2,346,657	\$6,274.48	50.5	50.6
	Total	679	2,103	3.1	\$3,843,765	\$5,677.64	47.2	47.5
Clermont	Male	172	423	2.5	\$1,004,070	\$5,837.62	19.1	19.4
	Female	391	1,439	3.7	\$2,592,580	\$6,647.64	42.0	43.3
	Total	563	1,862	3.3	\$3,596,650	\$6,399.73	30.7	31.6
Clinton	Male	46	111	2.4	\$227,351	\$4,942.41	22.7	22.5
	Female	95	279	2.9	\$522,891	\$5,504.12	45.2	45.2
	Total	144	393	2.7	\$759,991	\$5,277.72	34.9	34.9
Columbiana	Male	247	697	2.8	\$1,135,755	\$4,616.89	44.5	44.3
	Female	363	1,345	3.7	\$2,049,187	\$5,645.14	64.7	62.7
	Total	610	2,042	3.3	\$3,184,943	\$5,229.79	54.7	53.3
Coshocton	Male	71	168	2.4	\$299,039	\$4,211.81	39.3	37.8
	Female	97	340	3.5	\$519,748	\$5,358.23	51.4	50.3
	Total	168	508	3.0	\$818,787	\$4,873.73	45.5	44.1
Crawford	Male	32	62	1.9	\$93,769	\$2,930.29	14.3	14.5
	Female	64	160	2.5	\$253,453	\$3,960.20	26.7	25.6
	Total	96	222	2.3	\$347,222	\$3,616.90	20.7	20.2
Cuyahoga	Male	4,372	11,472	2.6	\$28,353,135	\$6,497.05	67.3	66.9
	Female	6,903	24,058	3.5	\$59,159,393	\$8,595.00	95.4	93.5
	Total	11,275	35,530	3.2	\$87,512,528	\$7,780.97	82.1	81.2
Darke	Male	56	160	2.9	\$351,353	\$6,274.16	21.5	20.5
	Female	104	328	3.2	\$615,727	\$6,157.27	38.7	37.4
	Total	167	497	3.0	\$993,411	\$6,094.55	31.5	30.3

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Defiance	Male	44	126	2.9	\$207,215	\$4,933.69	22.7	22.0
	Female	97	313	3.2	\$560,209	\$6,089.23	48.8	47.8
	Total	141	439	3.1	\$767,424	\$5,727.04	36.0	35.0
Delaware	Male	94	260	2.8	\$528,374	\$5,621.00	15.1	15.7
	Female	165	561	3.4	\$1,325,725	\$8,034.69	26.0	29.9
	Total	259	821	3.2	\$1,854,098	\$7,158.68	20.6	22.8
Erie	Male	185	674	3.6	\$1,266,175	\$6,844.19	48.2	46.7
	Female	338	1,467	4.3	\$3,158,165	\$9,343.68	83.5	80.0
	Total	524	2,146	4.1	\$4,431,631	\$8,457.31	66.4	63.8
Fairfield	Male	112	291	2.6	\$595,515	\$5,365.00	17.5	17.6
	Female	159	532	3.3	\$996,005	\$6,264.18	24.5	24.6
	Total	271	823	3.0	\$1,591,520	\$5,894.52	21.0	21.2
Fayette	Male	24	55	2.3	\$109,807	\$4,575.30	17.3	16.9
	Female	67	229	3.4	\$420,065	\$6,269.62	47.0	45.2
	Total	93	287	3.1	\$538,757	\$5,793.09	33.1	32.0
Franklin	Male	1,509	3,969	2.6	\$9,534,563	\$6,322.65	28.6	29.5
	Female	2,312	7,820	3.4	\$18,996,669	\$8,227.23	41.6	42.9
	Total	3,824	1,793	3.1	\$28,544,793	\$7,472.46	35.3	36.5
Fulton	Male	64	129	2.0	\$320,895	\$5,093.57	30.9	30.1
	Female	120	349	2.9	\$819,976	\$6,833.13	55.5	55.9
	Total	184	478	2.6	\$1,140,871	\$6,234.27	43.5	43.2
Gallia	Male	45	92	2.0	\$206,085	\$4,579.67	29.4	29.7
	Female	95	317	3.3	\$627,719	\$6,607.57	59.3	59.5
	Total	140	409	2.9	\$833,804	\$5,955.74	44.7	45.1
Geauga	Male	73	214	2.9	\$491,444	\$6,732.10	16.0	15.2
	Female	141	528	3.7	\$1,113,343	\$7,896.05	30.0	29.8
	Total	214	742	3.5	\$1,604,786	\$7,499.00	23.1	22.5
Greene	Male	121	284	2.3	\$757,006	\$6,256.25	16.5	16.6
	Female	205	774	3.8	\$1,775,458	\$8,921.90	26.6	26.6
	Total	377	1,141	3.0	\$2,736,393	\$7,375.72	25.1	25.3

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Guernsey	Male	90	356	4.0	\$549,510	\$6,105.67	45.0	42.1
	Female	149	593	4.0	\$891,921	\$5,986.04	70.5	67.1
	Total	239	949	4.0	\$1,441,431	\$6,031.09	58.1	54.9
Hamilton	Male	1,230	3,087	2.5	\$8,283,587	\$6,745.59	30.9	30.6
	Female	2,468	8,578	3.5	\$18,175,295	\$7,382.33	56.8	56.2
	Total	3,701	11,675	3.2	\$26,481,278	\$7,170.67	44.5	44.2
Hancock	Male	71	176	2.5	\$348,407	\$4,907.14	20.1	20.0
	Female	126	484	3.8	\$772,266	\$6,129.10	33.7	33.3
	Total	197	660	3.4	\$1,120,673	\$5,688.69	27.1	26.9
Hardin	Male	39	88	2.3	\$151,761	\$3,891.30	25.0	24.7
	Female	79	249	3.2	\$439,894	\$5,568.28	49.0	48.7
	Total	118	337	2.9	\$591,655	\$5,014.03	37.2	37.0
Harrison	Male	59	179	3.0	\$328,119	\$5,561.35	76.5	72.5
	Female	85	376	4.4	\$453,830	\$5,339.18	104.3	90.0
	Total	144	555	3.9	\$781,950	\$5,430.21	90.8	81.6
Henry	Male	38	95	2.5	\$205,013	\$5,395.08	26.4	25.6
	Female	58	183	3.2	\$378,448	\$6,524.97	38.9	39.0
	Total	96	278	2.9	\$583,461	\$6,077.72	32.8	32.3
Highland	Male	40	95	2.4	\$291,966	\$7,299.14	19.6	19.2
	Female	111	404	3.6	\$741,553	\$6,680.66	51.9	51.5
	Total	151	499	3.3	\$1,033,519	\$6,844.50	36.1	35.7
Hocking	Male	27	71	2.6	\$145,081	\$5,373.36	19.0	19.5
	Female	59	172	2.9	\$282,225	\$4,783.47	41.2	40.6
	Total	86	243	2.8	\$427,305	\$4,968.67	30.2	29.9
Holmes	Male	20	59	3.0	\$113,122	\$5,656.10	9.9	9.2
	Female	48	151	3.1	\$225,884	\$4,705.91	23.8	25.8
	Total	68	210	3.1	\$339,006	\$4,985.38	16.9	17.6
Huron	Male	91	205	2.3	\$379,013	\$4,164.97	31.0	29.9
	Female	180	725	4.0	\$1,573,555	\$8,741.97	58.9	59.1
	Total	271	930	3.4	\$1,952,567	\$7,205.05	45.2	44.7

## *Hospital Discharges for Asthma in Ohio, 1999–2003*

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Jackson	Male	46	89	1.9	\$176,981	\$3,847.42	28.8	29.1
	Female	76	252	3.3	\$463,181	\$6,094.49	44.6	43.6
	Total	122	341	2.8	\$640,163	\$5,247.23	37.0	36.6
Jefferson	Male	124	324	2.6	\$588,362	\$4,744.86	36.0	36.6
	Female	308	1,313	4.3	\$2,099,428	\$6,816.32	81.4	80.1
	Total	432	1,637	3.8	\$2,687,790	\$6,221.74	59.8	59.3
Knox	Male	62	188	3.0	\$322,315	\$5,198.64	22.6	22.1
	Female	105	347	3.3	\$581,172	\$5,534.97	36.4	35.6
	Total	167	535	3.2	\$903,487	\$5,410.10	29.7	29.0
Lake	Male	305	832	2.7	\$1,964,083	\$6,460.80	27.4	27.9
	Female	488	1,851	3.8	\$3,826,786	\$7,857.88	41.5	40.1
	Total	793	2,683	3.4	\$5,790,869	\$7,320.95	34.7	34.2
Lawrence	Male	63	151	2.4	\$268,369	\$4,259.82	21.1	21.6
	Female	162	599	3.7	\$1,060,641	\$6,547.17	50.2	50.3
	Total	262	881	3.4	\$1,517,187	\$5,790.79	42.2	42.5
Licking	Male	138	400	2.9	\$848,198	\$6,146.36	19.0	18.9
	Female	258	833	3.2	\$1,442,879	\$5,592.55	33.9	33.8
	Total	396	1,233	3.1	\$2,291,077	\$5,785.55	26.6	26.5
Logan	Male	52	122	2.3	\$243,597	\$4,684.55	22.9	22.1
	Female	127	370	2.9	\$670,891	\$5,282.61	54.0	53.3
	Total	179	492	2.7	\$914,488	\$5,108.87	38.7	37.9
Lorain	Male	627	1,993	3.2	\$4,124,083	\$6,577.48	44.4	44.0
	Female	1,080	4,303	4.0	\$8,118,856	\$7,517.46	73.6	72.8
	Total	1,707	6,296	3.7	\$12,242,939	\$7,172.20	59.3	58.6
Lucas	Male	918	2497	2.7	\$7,796,872	\$8,558.59	41.8	41.1
	Female	1,272	4,703	3.7	\$13,532,362	\$10,663.80	54.1	53.9
	Total	2,190	7,200	3.3	\$21,329,234	\$9,784.05	48.2	47.9
Madison	Male	33	65	2.0	\$147,369	\$4,465.73	15.1	16.4
	Female	98	374	3.8	\$919,776	\$9,482.23	52.8	52.4
	Total	131	439	3.4	\$1,067,145	\$8,208.81	32.4	33.0

## *Hospital Discharges for Asthma in Ohio, 1999–2003*

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Mahoning	Male	387	1,131	2.9	\$2,864,517	\$7,401.85	32.0	31.8
	Female	606	2,613	4.3	\$6,130,275	\$10,115.96	45.9	44.7
	Total	993	3,744	3.8	\$8,994,791	\$9,058.20	39.3	38.5
Marion	Male	113	305	2.7	\$576,120	\$5,098.41	32.9	34.1
	Female	155	440	2.8	\$618,877	\$3,992.75	48.6	48.0
	Total	268	745	2.8	\$1,194,997	\$4,458.94	40.5	40.6
Medina	Male	158	482	3.1	\$1,062,203	\$6,722.80	20.2	20.2
	Female	327	1,188	3.6	\$2,447,713	\$7,531.43	40.7	41.8
	Total	485	1,670	3.4	\$3,509,916	\$7,266.91	30.6	31.1
Meigs	Male	25	87	3.5	\$176,577	\$7,063.08	22.2	22.1
	Female	35	115	3.3	\$220,375	\$6,296.42	29.4	29.3
	Total	60	202	3.4	\$396,952	\$6,615.86	25.9	25.7
Mercer	Male	41	94	2.3	\$167,459	\$4,293.81	20.1	19.3
	Female	60	173	2.9	\$345,250	\$6,277.28	29.4	28.6
	Total	101	267	2.6	\$512,709	\$5,454.35	24.7	24.0
Miami	Male	104	275	2.6	\$744,936	\$7,162.85	21.3	20.9
	Female	197	763	3.9	\$1,717,229	\$8,716.90	38.8	37.6
	Total	319	1,072	3.4	\$2,546,304	\$7,982.14	32.0	31.3
Monroe	Male	7	24	3.4	\$39,185	\$5,597.88	9.4	9.1
	Female	24	80	3.3	\$99,437	\$4,143.22	31.8	33.7
	Total	31	104	3.4	\$138,622	\$4,471.69	20.7	21.6
Montgomery	Male	881	2,360	2.7	\$6,897,125	\$7,828.75	33.1	33.1
	Female	1,705	6,162	3.6	\$16,148,947	\$9,493.80	59.4	58.6
	Total	2,919	9,113	3.1	\$24,671,929	\$8,463.78	52.8	52.7
Morgan	Male	24	83	3.5	\$142,497	\$5,937.36	32.9	32.0
	Female	27	134	5.0	\$286,388	\$10,606.97	35.8	33.3
	Total	51	217	4.3	\$428,885	\$8,409.51	34.4	32.6
Morrow	Male	21	54	2.6	\$102,705	\$4,890.72	12.8	12.7
	Female	56	166	3.0	\$324,171	\$5,788.77	33.9	34.6
	Total	77	220	2.9	\$426,876	\$5,543.84	23.4	23.5

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Muskingum	Male	175	678	3.9	\$1,234,455	\$7,094.57	42.8	42.2
	Female	285	1,248	4.4	\$2,383,742	\$8,393.46	64.3	62.8
	Total	460	1,926	4.2	\$3,618,197	\$7,899.99	54.0	52.9
Noble	Male	19	54	2.8	\$89,422	\$4,706.44	24.0	24.5
	Female	24	85	3.5	\$151,757	\$6,323.19	39.6	37.4
	Total	43	139	3.2	\$241,179	\$5,608.81	30.8	31.1
Ottawa	Male	57	172	3.0	\$657,173	\$11,529.35	28.2	28.8
	Female	133	433	3.3	\$979,681	\$7,366.02	64.2	61.9
	Total	190	605	3.2	\$1,636,854	\$8,615.02	46.4	45.4
Paulding	Male	25	52	2.1	\$64,712	\$3,081.51	25.5	25.2
	Female	50	130	2.6	\$169,904	\$3,951.26	49.5	47.9
	Total	75	182	2.4	\$234,616	\$3,665.88	37.7	36.6
Perry	Male	53	145	2.7	\$271,549	\$5,123.56	30.7	29.8
	Female	89	352	4.0	\$607,666	\$6,827.71	51.3	51.7
	Total	142	497	3.5	\$879,215	\$6,191.65	41.1	40.9
Pickaway	Male	78	280	3.6	\$755,523	\$9,686.20	28.2	28.4
	Female	133	464	3.5	\$1,051,239	\$7,904.05	55.4	54.5
	Total	211	744	3.5	\$1,806,763	\$8,562.86	40.8	40.8
Pike	Male	47	114	2.4	\$278,515	\$5,925.84	34.3	33.3
	Female	59	175	3.0	\$427,545	\$7,246.52	41.2	40.7
	Total	106	289	2.7	\$706,059	\$6,660.94	37.8	37.2
Portage	Male	179	549	3.1	\$1,432,932	\$8,005.21	23.8	24.4
	Female	229	774	3.4	\$2,007,154	\$8,764.86	29.0	29.8
	Total	408	1,323	3.2	\$3,440,086	\$8,431.58	26.5	27.0
Preble	Male	40	127	3.2	\$279,571	\$6,989.28	18.9	18.3
	Female	76	296	3.9	\$636,855	\$8,606.14	35.7	34.0
	Total	120	432	3.6	\$944,136	\$8,001.15	28.2	27.1
Putnam	Male	24	65	2.7	\$108,255	\$4,510.60	13.9	13.1
	Female	25	92	3.7	\$247,192	\$9,887.66	14.3	14.2
	Total	49	157	3.2	\$355,446	\$7,254.00	14.1	13.5

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Richland	Male	131	433	3.3	\$640,069	\$4,886.03	20.3	20.4
	Female	279	1,066	3.8	\$1,478,017	\$5,297.55	43.8	42.9
	Total	410	1,499	3.7	\$2,118,087	\$5,166.06	31.9	31.4
Ross	Male	89	246	2.8	\$543,781	\$6,109.89	23.1	24.5
	Female	162	496	3.1	\$992,415	\$6,126.02	45.4	44.9
	Total	251	742	3.0	\$1,536,196	\$6,120.30	33.8	34.2
Sandusky	Male	104	290	2.8	\$569,345	\$5,474.47	34.3	34.0
	Female	149	538	3.6	\$1,056,263	\$7,089.01	47.3	46.3
	Total	254	831	3.3	\$1,632,462	\$6,427.02	41.1	40.4
Scioto	Male	102	278	2.7	\$600,794	\$5,890.14	26.7	26.5
	Female	258	953	3.7	\$1,994,543	\$7,730.78	64.7	63.5
	Total	368	1,250	3.4	\$2,630,379	\$7,147.77	47.1	46.5
Seneca	Male	66	167	2.5	\$312,754	\$4,811.61	23.0	22.6
	Female	136	455	3.3	\$885,537	\$6,511.30	46.5	45.6
	Total	202	622	3.1	\$1,198,291	\$5,961.65	34.9	34.1
Shelby	Male	26	74	2.8	\$156,392	\$6,015.08	10.8	11.0
	Female	79	223	2.8	\$472,127	\$5,976.29	32.5	33.0
	Total	106	301	2.8	\$636,287	\$6,002.71	21.9	22.2
Stark	Male	663	1,893	2.9	\$2,611,046	\$3,944.18	36.5	35.6
	Female	1,427	5,868	4.1	\$6,979,936	\$4,891.34	72.8	69.5
	Total	2,090	7,761	3.7	\$9,590,982	\$4,591.18	55.3	53.2
Summit	Male	904	2,350	2.6	\$6,931,813	\$7,667.93	34.3	34.2
	Female	1,697	5,980	3.5	\$16,974,129	\$10,008.33	60.0	59.2
	Total	2,602	8,334	3.2	\$23,911,446	\$9,193.17	47.6	47.2
Trumbull	Male	524	1,371	2.6	\$2,850,216	\$5,439.34	48.4	49.4
	Female	930	3,310	3.6	\$7,242,262	\$7,804.16	80.9	78.9
	Total	1,454	4,681	3.2	\$10,092,479	\$6,950.74	65.2	64.5
Tuscarawas	Male	100	299	3.0	\$427,407	\$4,274.07	22.3	21.8
	Female	224	925	4.1	\$1,415,960	\$6,321.25	47.9	46.3
	Total	324	1,224	3.8	\$1,843,366	\$5,689.40	35.4	34.4

## Hospital Discharges for Asthma in Ohio, 1999–2003

County	Sex	Number of Discharges	Total Number of Days	Average LOS	Total Charges	Average Charge	Discharges per 10,000	Age Adjusted Discharges per 10,000
Union	Male	35	65	1.9	\$156,260	\$4,464.57	16.9	16.6
	Female	75	244	3.3	\$569,999	\$7,599.99	33.6	34.7
	Total	110	309	2.8	\$726,259	\$6,602.35	25.6	26.1
Van Wert	Male	29	147	5.1	\$109,241	\$4,369.64	20.3	21.0
	Female	42	134	3.2	\$184,885	\$5,602.57	28.0	27.7
	Total	71	281	4.0	\$294,126	\$5,071.13	24.2	24.5
Vinton	Male	16	35	2.2	\$65,045	\$4,065.30	24.4	23.9
	Female	27	111	4.1	\$227,327	\$8,419.50	41.0	40.2
	Total	43	146	3.4	\$292,371	\$6,799.33	32.7	32.2
Warren	Male	123	326	2.7	\$801,174	\$6,513.61	14.0	14.4
	Female	231	882	3.8	\$1,842,528	\$7,976.31	26.8	29.0
	Total	370	1,243	3.4	\$2,731,274	\$7,381.82	21.2	22.5
Washington	Male	57	123	2.2	\$287,851	\$5,050.01	18.7	19.3
	Female	99	312	3.2	\$733,367	\$7,407.75	30.9	30.7
	Total	156	435	2.8	\$1,021,218	\$6,546.27	25.0	25.2
Wayne	Male	168	437	2.6	\$773,300	\$4,602.98	30.1	29.4
	Female	287	983	3.4	\$1,436,154	\$5,004.02	50.3	50.2
	Total	455	1,420	3.1	\$2,209,455	\$4,855.94	40.3	39.9
Williams	Male	39	124	3.2	\$224,554	\$6,069.03	20.1	20.2
	Female	68	246	3.6	\$355,313	\$5,383.54	34.7	34.2
	Total	107	370	3.5	\$579,867	\$5,629.78	27.5	27.1
Wood	Male	121	307	2.5	\$946,176	\$7,884.80	20.4	20.7
	Female	208	928	4.5	\$2,036,318	\$9,837.28	33.0	33.8
	Total	329	1,235	3.8	\$2,982,493	\$9,120.77	26.9	27.4
Wyandot	Male	18	42	2.3	\$88,800	\$4,933.36	16.2	15.4
	Female	36	115	3.2	\$235,555	\$6,543.20	30.9	28.9
	Total	54	157	2.9	\$324,355	\$6,006.58	23.7	22.4
Ohio <sup>3</sup>	Male	18,458	50,095	2.7	\$117,278,272	\$6,369.67	33.3	33.1
	Female	32,147	115,661	3.6	\$251,630,521	\$7,850.45	54.9	54.2
	Total <sup>4</sup>	51,126	166,774	3.3	\$371,434,533	\$7,284.89	44.8	44.5

Source: Ohio Hospital Association Discharge Data, Years 2001–2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9-CM Codes for Asthma: 493.XX

2 Number of days divided by number of hospital discharges.

3 Includes 33 cases with missing county

4 Includes 521 cases with missing sex

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 7

### Number of Discharges, Percent of Discharges and Rates of Hospitalizations with Primary Diagnosis of Asthma<sup>1</sup>, Any Mention of Asthma Diagnosis and no Asthma Diagnosis, Ohio 2002

	Discharges with Primary Asthma Diagnosis			Discharges with Any Mention of Asthma Diagnosis			Discharges with No Asthma Diagnosis		
	Number of Discharges	Percent of Discharges	Rate per 10,000 population	Number of Discharges	Percent of Discharges	Rate per 10,000 population	Number of Discharges	Percent of Discharges	Rate per 10,000 population
<b>Total</b>	16,093		14.1	78,960		69.2	1,591,518		1429.3
<b>Age Group</b>									
0–19	5,157	32.0	16.4	11,787	14.9	37.4	269,925	17.0	856.5
20–44	3,810	23.7	9.5	22,453	28.4	56.0	365,993	23.0	913.4
45–64	4,049	25.2	14.8	23,491	29.8	85.8	349,25	21.9	1274.9
65+	3,077	19.1	20.3	21,229	26.9	140.4	606,228	38.1	4008.8
<b>Sex<sup>2</sup></b>									
Male	5,904	36.7	10.6	23,78	30.1	42.9	658,144	41.4	1186.0
Female	10,188	63.3	17.4	55,169	69.9	94.1	933,313	58.6	1592.4
<b>At Least 1 Procedure</b>									
At Least 1 Procedure	1,694	10.4	1.5	36,295	46.0	31.8	954,245	60.0	836.3
Less than 2-day LOS	3,834	24.1	3.4	13,859	17.6	12.1	272,030	17.1	238.4
<b>Discharges</b>									
Home	14,643	91.0		61,579	78.0		1,137,108	71.4	
SNF	346	2.2		5,067	6.4		147,605	9.3	
Home Health	581	3.6		6,227	7.9		136,603	8.6	
Other	523	3.3		6,087	7.7		170,202	10.7	
<b>Payment</b>									
Medicare	3,861	24.0		25,776	32.6		630,235	39.6	
Private	5,805	36.1		28,280	35.8		608,001	38.2	
Medicaid	4,618	28.7		18,166	23.0		239,582	15.1	
Self Pay	1,108	6.9		3,896	4.9		65,475	4.1	
Other	701	4.4		2842	3.6		48,225	3.0	

Source: Ohio Hospital Association Discharge Data , year 2002. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9 CM Codes for Asthma: 493.XX

2 Sex missing, n=1 for primary asthma, n=3 for any asthma, n=61 for no asthma

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 8  
**Number of Discharges, Percent of Discharges and Rates of Hospitalizations  
 with Primary Diagnosis of Asthma<sup>1</sup>, Any Listed Diagnosis of Asthma and Non-asthma  
 Diagnosis, Ohio 2003**

	Discharges with Primary Asthma Diagnosis			Discharges with Any Mention of Asthma Diagnosis			Discharges with No Asthma Diagnosis		
	Number of Discharges	Percent of Discharges	Rate per 10,000 population	Number of Discharges	Percent of Discharges	Rate per 10,000 population	Number of Discharges	Percent of Discharges	Rate per 10,000 population
<b>Total</b>	18,502		16.2	89,674		78.4	1,579,772		1418.8
<b>Age Group</b>									
0–19	5,640	30.5	18.0	12,984	14.5	41.5	269,539	17.1	861.5
20–44	4,144	22.4	10.4	24,821	27.7	62.4	362,428	22.9	911.0
45–64	4,897	26.5	17.4	27,107	30.2	96.4	353,997	22.4	1258.9
65+	3,821	20.7	25.2	24,762	27.6	163.0	593,750	37.6	3909.4
<b>Sex<sup>2</sup></b>									
Male	6,649	35.9	11.9	26,908	30.0	48.3	656,017	41.5	1178.6
Female	11,853	64.1	21.3	62,766	70.0	112.8	923,717	58.5	1659.5
At Least 1 Procedure	2,064	11.2	1.8	42,183	47.0	36.9	962,689	60.9	841.7
Less than 2-day LOS	4,162	22.5	3.6	15,125	16.9	13.2	266,317	16.9	232.8
<b>Discharges</b>									
Home	16,688	90.2		69,073	77.0		1,120,661	70.9	
SNF	505	2.7		6,327	7.1		151,869	9.6	
Home Health	730	4.0		7,461	8.3		138,423	8.8	
Other	579	3.1		6,813	7.6		168,819	10.7	
<b>Payment</b>									
Medicare	4,774	25.8		30,196	33.7		625,418		
Private	6,575	35.5		31,195	34.8		595,292		
Medicaid	5,323	28.8		21,295	23.8		252,095		
Self Pay	1,257	6.8		4,349	4.9		64,791		
Other	573	3.1		2,639	2.9		42,176		

Source: Ohio Hospital Association Discharge Data, Year 2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

<sup>1</sup> ICD 9- CM Codes for Asthma 493.XX

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 9

### Number of Discharges, Average Length of Stay, Total Charges, Average Charges, by Payor and Mention of Asthma Diagnosis<sup>1</sup>, Ohio 2001–2003

Payor	Mention of Asthma				No Mention of Asthma				Percentage of charges with Asthma diagnosis
	Number of Hospital Discharges	Average Length of Stay in Days <sup>3</sup>	Total Charges <sup>2</sup>	Average Charge <sup>2</sup>	Number of Hospital Discharges	Average Length of Stay in Days <sup>3</sup>	Total Charges	Average Charge <sup>2</sup>	
Medicare	79,086	5.42	\$1,262,116,453	\$16,005	1,870,560	5.58	\$30,845,141,908	\$16,490	4.09%
Medicaid	55,807	3.94	\$572,518,319	\$10,293	719,468	4.19	\$7,306,299,512	\$10,155	7.84%
Self Pay	11,840	3.47	\$112,515,014	\$9,541	194,144	3.95	\$2,081,699,766	\$10,722	5.40%
Other	7,943	3.89	\$98,067,182	\$12,474	136,893	4.52	\$1,979,481,363	\$14,460	4.95%
Private	86,533	3.94	\$972,288,116	\$11,826	1,826,890	3.79	\$22,213,794,540	\$12,159	4.38%

Source: Ohio Hospital Association Discharge Data , years 2001–2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD 9- CM Codes for Asthma 493.XX

2 Total and average charges for those patients for whom this information is known.

3 Number of days divided by number of hospital discharges.

Note: Charges are not necessarily reflective of reimbursement received by any given hospital.

Table 10

### Original Admission Source by Mention of Asthma<sup>1</sup>, Number of Discharges, Percent of Discharges and Discharges per 10,000 Residents, Ohio 2003

Original Admission Source	Discharges with Primary Diagnosis of Asthma			Discharges with any Mention of Asthma			Discharges with no Asthma Diagnosis		
	Number of Discharges	Percent of Discharges	Rate per 10,000 Population	Number of Discharges	Percent of Discharges	Rate per 10,000 Population	Number of Discharges	Percent of Discharges	Rate per 10,000 Population
Physician Referral	4,654	25.5	4.1	31,346	37.4	27.4	699,328	44.3	611.4
Clinic Referral	304	1.7	0.3	2,577	3.1	2.3	49,280	3.2	43.1
HMO Referral	61	0.3	0.1	616	0.7	0.5	10,855	0.1	9.5
Transfer from Hospital	425	2.3	0.4	3,569	4.3	3.1	78,361	5	68.5
Transfer from SNF	26	0.1	0.0	346	0.4	0.3	12,225	1	10.7
Transfer from other Health Care Facility	80	0.4	0.1	808	1.0	0.7	17,123	1.1	15.0
Emergency Room	12,715	69.6	11.1	44,419	53.0	38.8	653,855	41.4	571.7
Court/Law	0	0.0	0.0	21	0.0	0.0	470	0.1	0.4
Unknown	16	0.1	0.0	96	0.1	0.1	58,275	3.7	51.0

Source: Ohio Hospital Association Discharge Data , years 2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1 ICD Codes for Asthma: 493.XX

## Hospital Discharges for Asthma in Ohio, 1999–2003

Table 11

### Hospital Discharges with any Mention of Tobacco Use<sup>1</sup> and Mention of Asthma Diagnosis<sup>2</sup> or no Mention of Asthma Diagnosis<sup>2</sup> as Listed Diagnoses by Sex, Number of Discharges and Discharges per 10,000 Residents, Ohio 1999–2003

Year	Sex	Mention of Asthma Diagnosis			No Mention of Asthma Diagnosis		
		Number of Hospital Discharges	Age-adjusted Discharges per 10,000 Ohio Residents	Percent of Discharges <sup>5</sup>	Number of Hospital Discharges	Age-Adjusted Discharges per 10,000 Ohio Residents	Percent of Discharges
1999	Male	2,146	3.9	11.4	60,342	109.3	9.6
	Female	4,728	8.2	12.0	52,956	90.1	5.9
	Total	6,874	6.1	11.8	113,299	99.5	7.5
2000	Male	2,705	4.9	14.9	80,746	144.3	12.7
	Female	5,927	10.2	14.1	70,939	119.9	7.8
	Total <sup>4</sup>	8,650	7.6	13.8	152,062	132.2	9.8
2001	Male	3,740	6.7	17.8	93,962	165.8	14.5
	Female	8,032	13.6	17.1	83,270	139.7	9.1
	Total <sup>4</sup>	11,792	10.3	17.1	177,624	152.9	11.3
2002	Male	4,506	8.0	20.0	108,803	189.8	16.5
	Female	9,800	16.6	18.9	98,954	165.2	10.6
	Total	14,306	12.4	19.3	207,760	177.4	13.1
2003	Male	5,621	9.8	22.2	118,659	204.7	18.1
	Female	12,569	21.0	21.5	108,710	180.4	11.8
	Total	18,190	15.6	21.7	227,371	192.5	14.4

Source: Ohio Hospital Association Discharge Data , years 1999–2003. Analysis by Injury Prevention Section, BHPRR-Prevention, Ohio Department of Health.

1ICD-9-CM Codes : Tobacco dependence (305.1).and history of tobacco use V15.82

2ICD-9 CM Codes for Asthma: 493.XX

3 Number of days divided by number of hospital discharges

4 Tobacco smokers of unknown sex: 18 in 2000, 20 in 2001

5 Persons of unknown sex (1,103 in 2000, 1,013 in 2001) were less likely to be identified as smokers, thereby affecting 'total' rate

Persons of unknown sex total for all non asthmatics (103 in 1999, 9,493 in 2000, 9,778 in 2001, 61 in 2002, 38 in 2003)

Persons of unknown sex total for tobacco using non asthmatics (1 in 1999, 377 in 2000, 392 in 2001, 3 in 2002, 2 in 2003)

**References**

Centers for Disease Control and Prevention (CDC). Council of State and Territorial Epidemiologists asthma surveillance definition. Available at: <http://www.cdc.gov/nceh/airpollution/asthma/casedef.htm>.

Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2004

Child and Adolescent Health Measurement Initiative (2005). National Survey of Children's Health Data Resource Center on Child and Adolescent Health Web. Retrieved 05/30/05 from <http://www.nschdata.org>

National Asthma Education and Prevention Program. (2003). Expert Panel

Report and Guidelines for the Diagnosis and Management of Asthma. Update and Selected Topics 2002. Washington, DC: National Institutes of Health, National Heart, Lung and Blood Institute. NIH publication No. 02-5074.