Hospital Discharge Data
West Virginia Health Care Authority

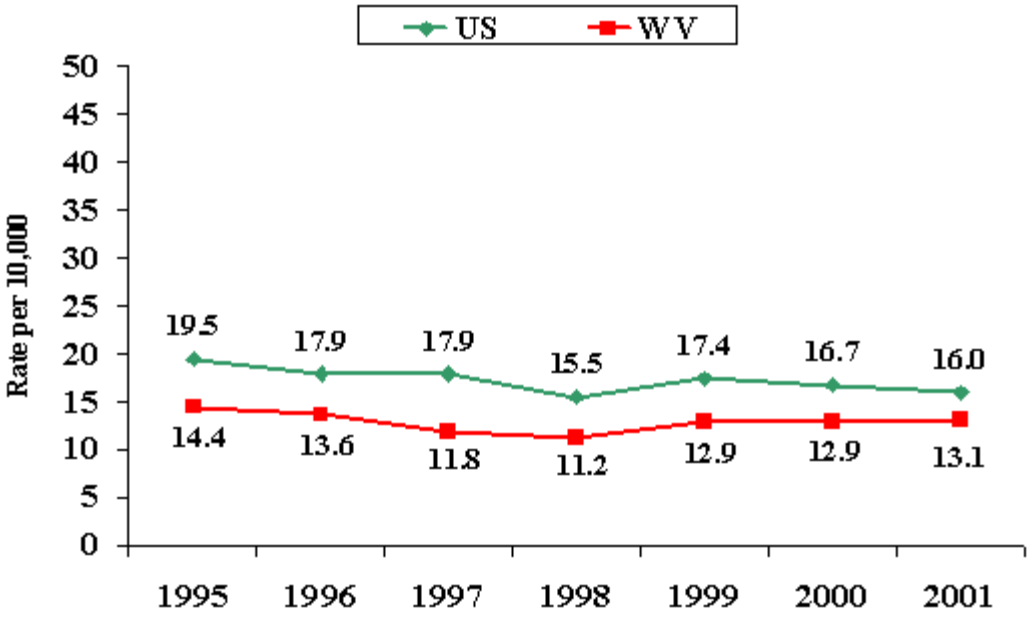
Hospitalization data were obtained from the West Virginia Health Care Authority's (WVHCA) hospital discharge database. Data are submitted by hospitals under the Freedom of Information Act using the Uniform Bill (UB) claims form.[8] The database contains information on all discharges regardless of payer status including patients without insurance coverage. Data elements in the public data set include International Classification of Diseases, Ninth Revision, Clinical Manual (known as ICD-9-CM) diagnosis and procedures codes, gender, date of birth, admission date, discharge date, admission priority, length of stay, discharge status, total charges (based on specific items such as prescriptions), admission source, payer source, and county of origin.

Hospitalization data in this report are for West Virginia residents for the years 1995 through 2001 and were obtained for the ICD-9-CM code of 493 for asthma as a primary diagnosis (first-listed diagnosis). Corresponding rate estimates for the United States were obtained from the National Hospital Discharge Survey (12).[9] Comparisons between West Virginia and the United States for the year 2001 are summarized in Appendix D.

[8] The WVHCA collects hospital discharge data from all non-federal licensed hospitals in the state and Medicare data on West Virginia residents hospitalized in out-of-state hospitals.

[9] The National Hospital Discharge Survey (NHDS) is a national survey conducted annually since 1965. The NHDS collects data from a sample of approximately 270,000 inpatient records acquired from a national sample of about 500 non-federal short-stay hospitals.

Figure 27
Asthma Hospitalization Rates in United States and West Virginia Residents
Primary Diagnosis of Asthma[a,b,c]
1995-2001

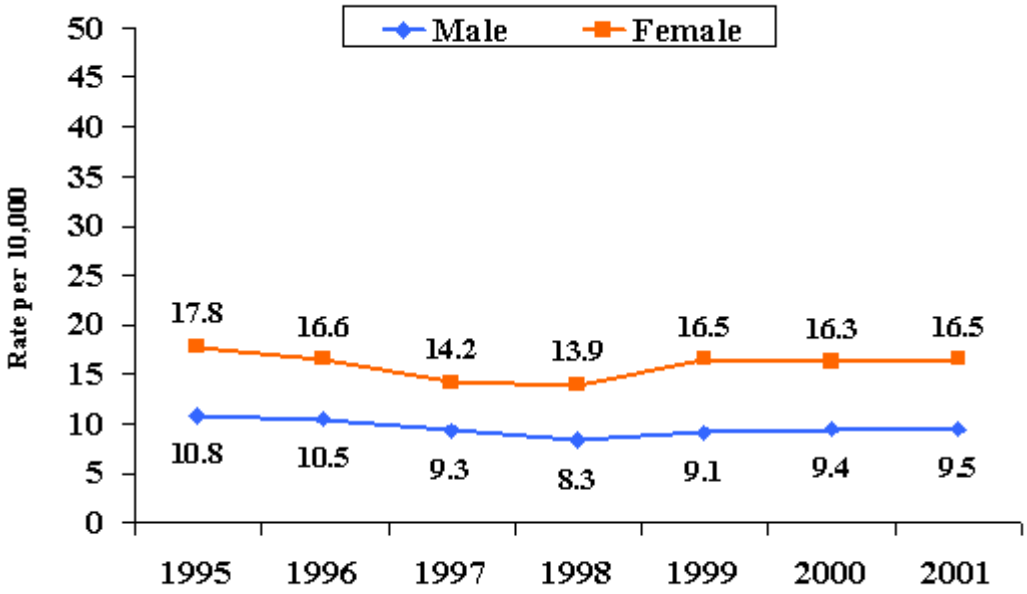


a. Rates exclude newborns, defined as patients admitted to the hospital by birth. Rates are not age-adjusted.
b. U.S. rates are estimates from the National Hospital Discharge Survey.
c. Year 2000 denominator data for West Virginia were from the 2000 Census; denominator data for all other years were estimated using the 1990 and 2000 Census data.

During the period 1995-2001, hospitalization rates for asthma as a primary diagnosis in West Virginia were lower than the corresponding U.S. rates. It is interesting to note that the prevalence of asthma in West Virginia as estimated by the BRFSS is higher than the U.S. prevalence, but the hospitalization rates are lower.

The actual number of hospitalizations for asthma as a primary diagnosis in West Virginia decreased from 2,598 in 1995 to 2,356 in 2001.

Figure 28
Trends in Asthma Hospitalization Rates by Gender[a]
Primary Diagnosis of Asthma
West Virginia Residents, 1995-2001

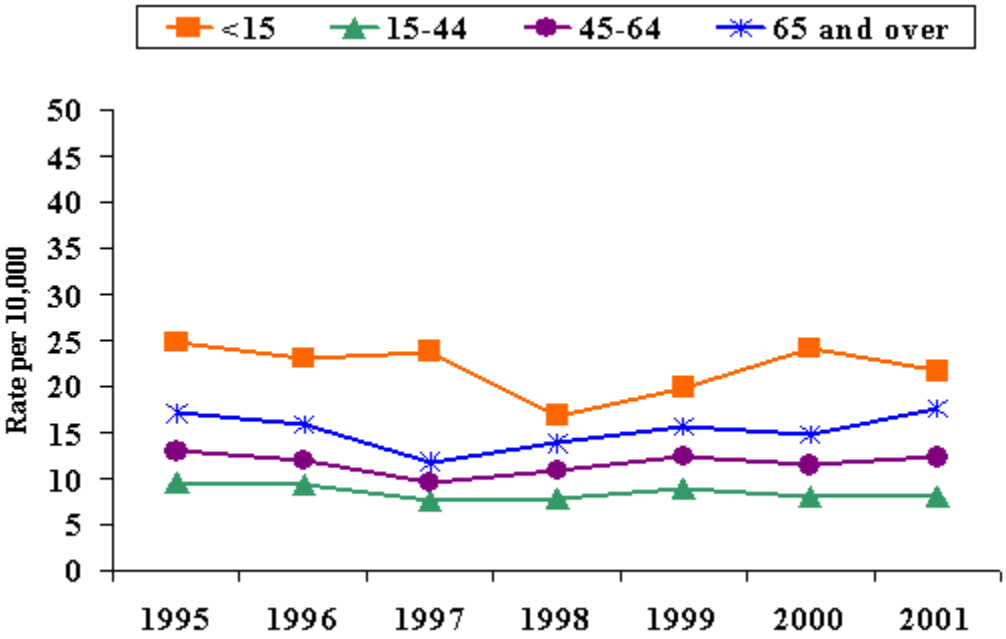


a. Excludes newborns, defined as patients admitted to the hospital by birth.

Hospitalization rates for males ranged from10.8 to 8.3 per 10,000 over the seven-year period of 1995 – 2001. Rates for females were higher than males and ranged from 17.8 to 13.9 per 10,000. After a dip in 1998, the rates for both males and females have increased.

Both males and females in West Virginia had substantially lower rates of asthma-related hospitalizations than their counterparts nationwide each year during the seven-year period (see data for year 2001 in Appendix D).

Figure 29
Trends in Asthma Hospitalization Rates by Age Group[a]
Primary Diagnosis of Asthma
West Virginia Residents, 1995-2001



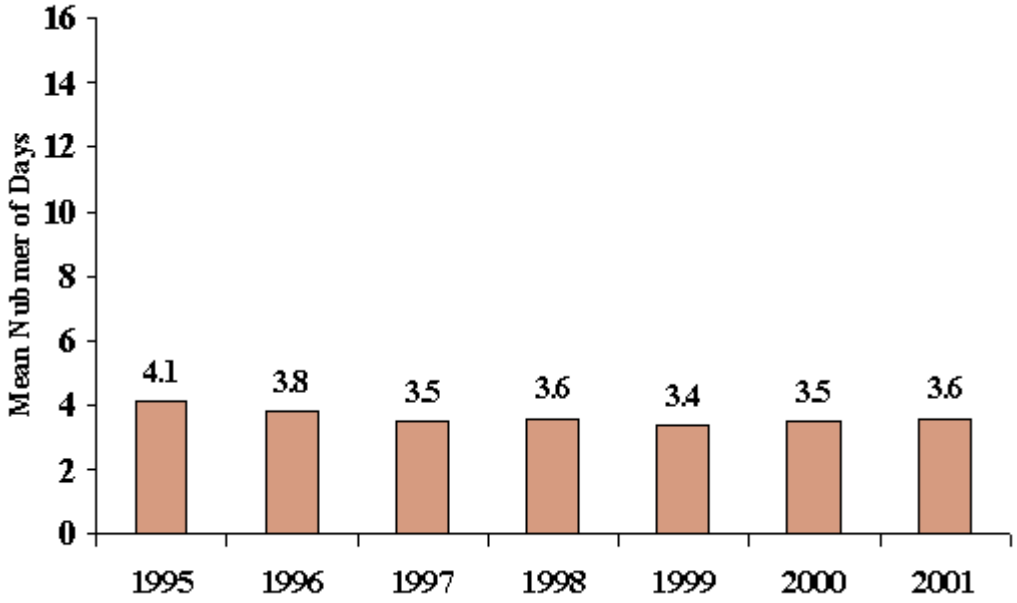
a. Age category <15 years excludes newborns, defined as patients admitted to the hospital by birth.

During 1995-2001, the hospitalization rate was the lowest in the 15-44 year age group. Currently, the highest rate is among children (aged <15 years) followed by the elderly (aged 65 years and older) – this is similar to the pattern seen nationwide. However, the rate for each individual age group in West Virginia was substantially lower than the corresponding rate in the United States each year (see data for year 2001 in Appendix D).

According to the National Asthma Education and Prevention Program's *Expert Panel Report*, underdiagnosis of asthma and its subsequent undertreatment are key problems in infants and children younger than 5 years (13). This is because the most common cause of asthma-like symptoms in this age group is viral bronchitis rather than asthma. It is therefore possible that the above rates for infants and young children are underestimated and the true rates may be even higher.[10]

[10] The Expert Panel recommends that long-term control therapy for asthma be started for infants and young children who in the past year had more than three episodes of wheezing that lasted more than one day and affected sleep *and* who have additional risk factors for asthma such as history of allergic disorders or parental asthma.

Figure 30
Average Length of Stay (ALOS) in Hospital for Discharges with a Primary Diagnosis of Asthma[a]
West Virginia Residents, 1995-2001



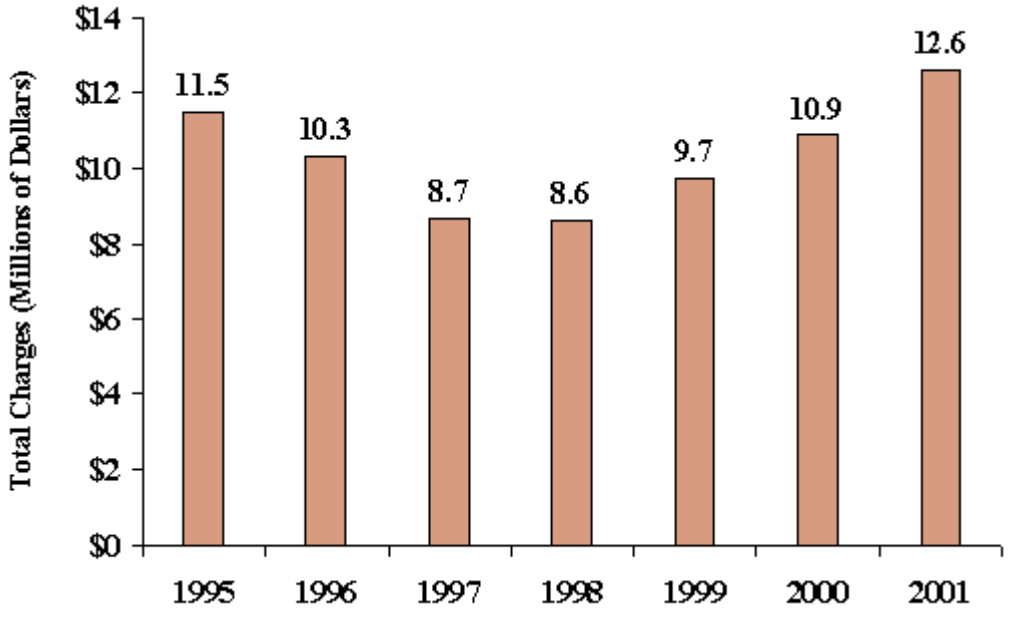
a. Excludes newborns, defined as patients admitted to the hospital by birth.

The average length of stay (ALOS) for asthma-related hospitalizations decreased from 4.1 days in 1995 to 3.6 days in 2001.

In the year 2001, the highest ALOS among all age groups was in the elderly population aged 65 years and older (5.3 days), while the lowest was among children aged 1-14 years (2.1 days). Females had a slightly higher ALOS (3.9 days) compared with males (3.1 days).

These patterns were similar to those seen nationwide (see Appendix D). However, the ALOS for asthma-related discharges in West Virginia was higher in most age and gender categories as compared with the corresponding categories nationwide. Thus, West Virginians tend to have fewer but longer hospitalizations (lower rate but higher ALOS) for asthma as compared with their counterparts nationwide.

Figure 31
Total Hospital Charges for Discharges with a Primary Diagnosis of Asthma[a]
West Virginia Residents, 1995-2001

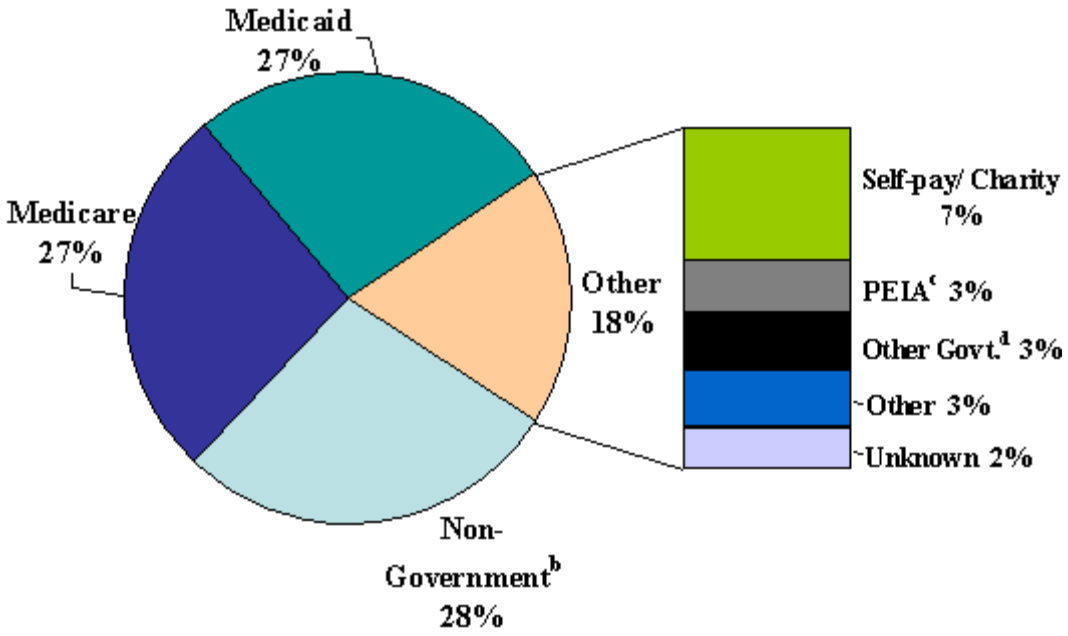


a. Excludes newborns, defined as patients admitted to the hospital by birth.

The total hospital charges for inpatient care related to a primary diagnosis of asthma appear to be increasing. After a dip in 1998 ($8,613,459), charges increased to $12,589,384 by 2001. During 1995-2001, the charges have averaged about $10.3 million per year.

During 1995-2001, the total asthma-related hospital charges for females in West Virginia exceeded those for males in each year. For example, in the year 2001, these charges were about $8.6 million for females, compared with about $3.9 million for males.

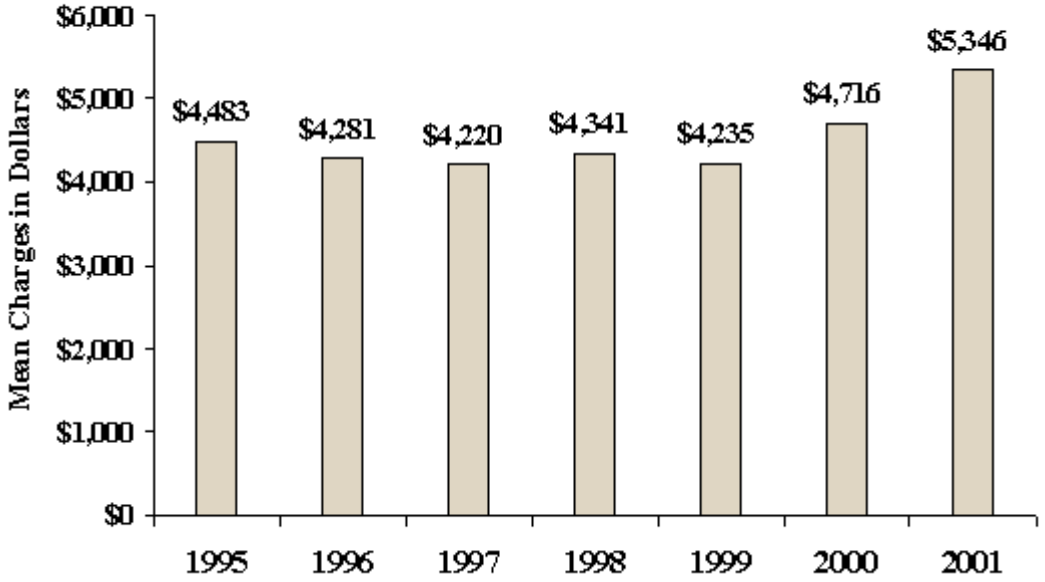
Figure 32
Distribution of Hospital Charges for Discharges with a Primary Diagnosis of Asthma by Payer[a]
West Virginia Residents, 2001



a. Excludes newborns, defined as patients admitted to the hospital by birth.
b. Commercial, non-profit, employer/union.
c. Public Employees Insurance Agency.
d. Workers' Compensation, other federal government, other WV government, other states government.

The hospitalization charges for a primary diagnosis of asthma were approximately equally billed between Medicaid, Medicare, and non-government payers. Other payer categories had relatively smaller contributions.

Figure 33
Mean Charge per Discharge for Hospitalizations with a Primary Diagnosis of Asthma[a]
West Virginia Residents, 1995-2001



a. Excludes newborns, defined as patients admitted to the hospital by birth.

The mean charge per discharge for hospitalizations related to a primary diagnosis of asthma has increased in the two most recent years, 2000 and 2001. During 1995-2001, the mean charge per discharge has averaged about $4,517 per year.

The mean charge was higher for females in West Virginia as compared with males throughout the 1995-2001 period. For example, in the year 2001, it was $5,679 for females and $4,735 in males.