



MISSISSIPPI STATE DEPARTMENT OF HEALTH

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# Asthma Surveillance Summary

**Hospitalizations & Emergency Department Visits -  
Mississippi, 2009**

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## **Introduction**

Asthma is a chronic inflammatory disease of the lungs characterized by intermittent episodes or attacks of impaired breathing precipitated by various triggers. The symptoms are due to inflammation and intermittent narrowing of the airways which lead to shortness of breath, coughing, and wheezing. Common triggers for an acute asthma attack include airway irritants (e.g., tobacco smoke, air pollution, irritating chemicals or odors), allergens (i.e., pollens, molds, and dust mites), respiratory infections (e.g., common cold, influenza), stress, and exercise.

In 2009, the prevalence of current asthma in Mississippi children aged 0-17 years was 10.4%, while the prevalence in adults was 7.6%. Male children had a higher current asthma prevalence (11.3%) as compared to female children (9.4%); however, adult females had a significantly higher current asthma prevalence (9.6%) compared to that of adult males (5.3%). Prevalence of current asthma was significantly higher among black children compared to white children (14.5% vs. 7.0%), and was also higher among black than white adults (8.9% vs. 6.8%, respectively). Asthma among persons who did not graduate from high school (12.9%) was significantly higher compared to persons that did graduate from high school (6.8%). Asthma prevalence was significantly higher among persons with annual household income of less than \$25,000 (11.7%) than among persons with household income between \$25,000 and \$50,000 (5.6%) or income greater than \$50,000 (4.8%). Comparisons of asthma prevalence are based on statistical significance.

Uncontrolled asthma can lead to acute asthma exacerbations (increased severity) requiring emergency care. Asthma hospitalizations place an enormous burden on the healthcare system, although most of them are preventable. Prevention of asthma exacerbations includes the use of anti-inflammatory medications, such as inhaled corticosteroids, and may also involve the use of short- or long-acting beta agonists. Prevention also includes self-monitoring of signs and symptoms and removing or minimizing exposure to asthma triggers in the home, school, and work environments. Despite the controllable nature of the disease, there were approximately 3,662 hospitalizations and 11,307 ED visits with asthma listed as the primary discharge diagnosis in Mississippi in 2009. The present report summarizes asthma hospitalization and ED visit rates in Mississippi which vary by race, sex, age, and geographic region.

## **Methods**

Asthma visit data were obtained from the Mississippi Asthma Surveillance System (MASS) for 2009. The MASS solicits asthma visit data from acute care hospitals located in the state of Mississippi with asthma listed as the first (or primary) discharge diagnosis (ICD-9-493.xx). In 2009, nine of 94 acute care hospitals (located in nine Mississippi counties) did not report asthma data to the MSDH. State population was adjusted to account for non-reporting hospitals and counties without acute care hospitals by using the proportion of hospital beds accounted for in the reported data. In 2009, hospitals reporting asthma visit data to the MSDH accounted for 94.6% of total hospital beds statewide. State population was adjusted by 94.6% excluding seven counties without acute care hospitals in order to estimate statewide asthma hospitalization rates. Statewide estimates of asthma rates were obtained by dividing the number of asthma visits with asthma listed as the primary discharge diagnosis (ICD-9-493.xx) by the adjusted statewide population. Asthma visit rates were calculated per 10,000 population by

race, sex, age, public health district, and county of residence using 2009 United States Census population estimates data. Race-specific rates were calculated for non-Hispanic blacks and non-Hispanic whites only, due to the small number of asthma hospitalization discharges among persons of other races/ethnicities in Mississippi. Age-specific rates were calculated as crude rates and all other rates were age-adjusted to the United States 2000 standard population. Statewide rates are presented for individual years (2007, 2008, and 2009). District asthma visit rates are presented for the year 2009.

## **Results**

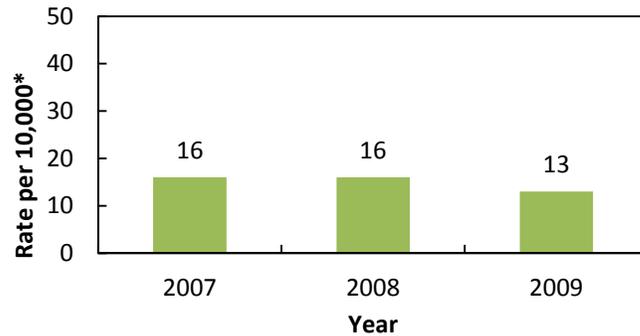
*Hospitalization rates:* Statewide asthma hospitalization rates remained the same during 2007 (16 per 10,000) and 2008 (16 per 10,000); while for 2009 it was (13 per 10,000). Black Mississippians had a higher asthma hospitalization rate (19 per 10,000) than white Mississippians (9 per 10,000). Females had a higher asthma hospitalization rate (15 per 10,000) as compared to males (12 per 10,000). Asthma hospitalization rates were highest among 0-4 year olds (30 per 10,000) and persons ages 65 and older (22 per 10,000) and lowest among 12-17 year olds (4 per 10,000). County-level asthma hospitalization rates ranged from 2 per 10,000 in Pearl River County to 40 per 10,000 in Humphreys County. Asthma hospitalization rates were higher among blacks compared to whites in 61 of the 75 Mississippi counties with available data. Comparisons of asthma hospitalization rates are not based on statistical significance.

*ED visit rates:* Statewide asthma ED visit rates were higher in 2007 (48 per 10,000) compared to 2008 (43 per 10,000) and 2009 (41 per 10,000). Black Mississippians had a higher asthma ED visit rate (70 per 10,000) than white Mississippians (21 per 10,000). Females had a higher asthma ED visit rate (45 per 10,000) than males (36 per 10,000). Asthma ED visit rates were highest among 0-4 year olds (76 per 10,000) and 5-11 year olds (70 per 10,000) and lowest among those 65 years and older (21 per 10,000). Asthma ED visit rates at the county level ranged from 2 per 10,000 in Hancock County to 162 per 10,000 in Humphreys County. Asthma ED visit rates were higher among blacks compared to whites in 71 of the 75 Mississippi counties with available data. Comparisons of asthma ED visit rates are not based on statistical significance.

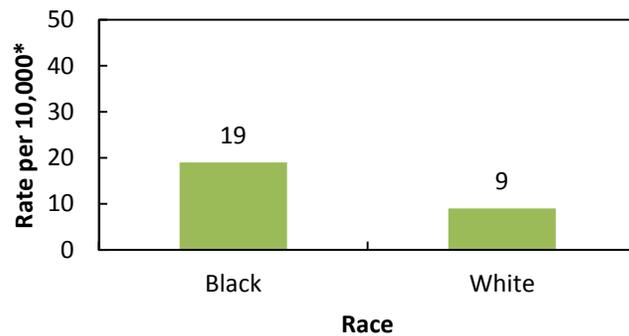
## **Limitations**

Statewide asthma rates are based on estimated population data. These estimates and resulting rates may be affected by non-reporting hospitals or counties without acute care access. Rates were calculated for public health districts including districts with non-reporting hospitals. The MASS captures only asthma visits from Mississippi acute care facilities. Mississippi residents seeking asthma care in a bordering state with a primary discharge diagnosis of asthma are not captured by the MASS. Therefore, rates may be underestimated or overestimated due to travel across county or state lines for asthma care. Asthma rates were calculated based on all visits identified, including patients with multiple visits. The population of the nine counties with non-reporting hospitals is estimated to be 103,804 persons (3.5% of the statewide population estimate). Despite unreported data, the vast majority of the black (96.8%) and white (96.2%) populations in Mississippi are captured by available data.

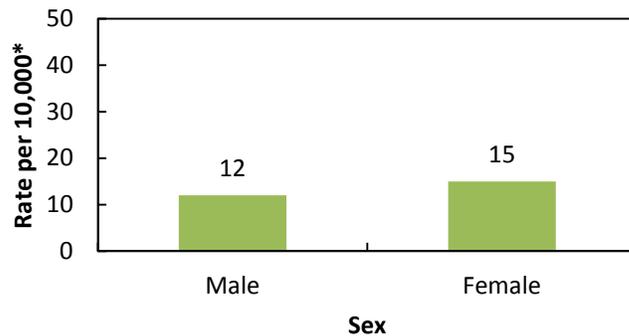
**FIGURE 1.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population – Mississippi, 2007-2009



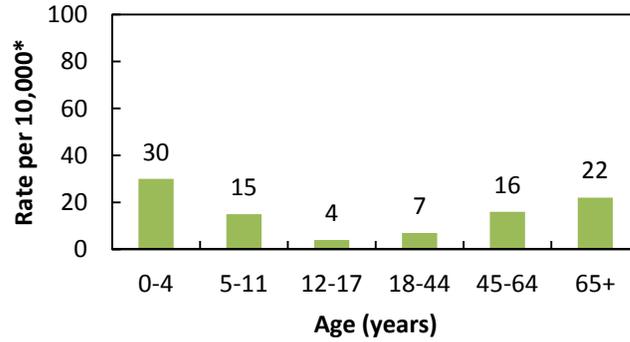
**FIGURE 2.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by race – Mississippi, 2009



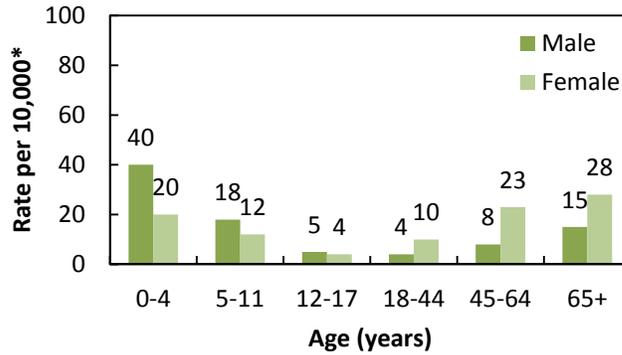
**FIGURE 3.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by sex – Mississippi, 2009



**FIGURE 4.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by age group – Mississippi, 2009

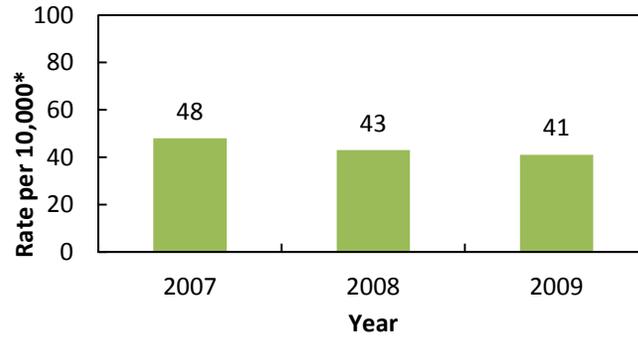


**FIGURE 5.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by age group and sex – Mississippi, 2009

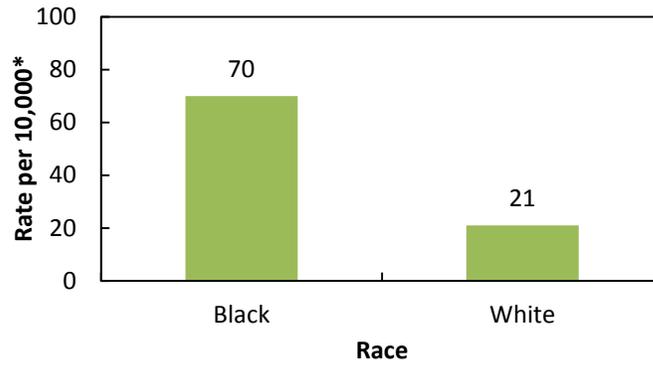


\* Figures 1-5: Rates are age-adjusted to the US 2000 standard population

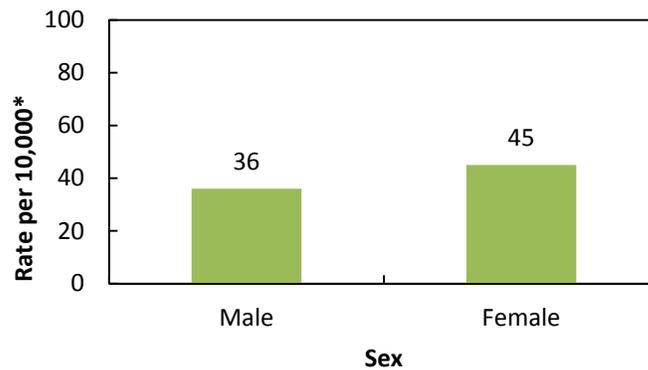
**FIGURE 6.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population – Mississippi, 2007-2009



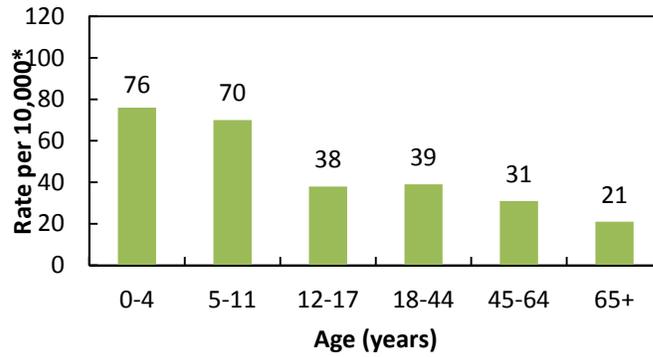
**FIGURE 7.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by race – Mississippi, 2009



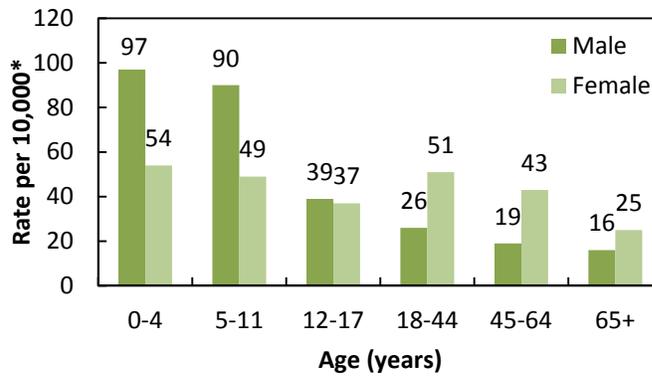
**FIGURE 8.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by sex – Mississippi, 2009



**FIGURE 9.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by age group – Mississippi, 2009

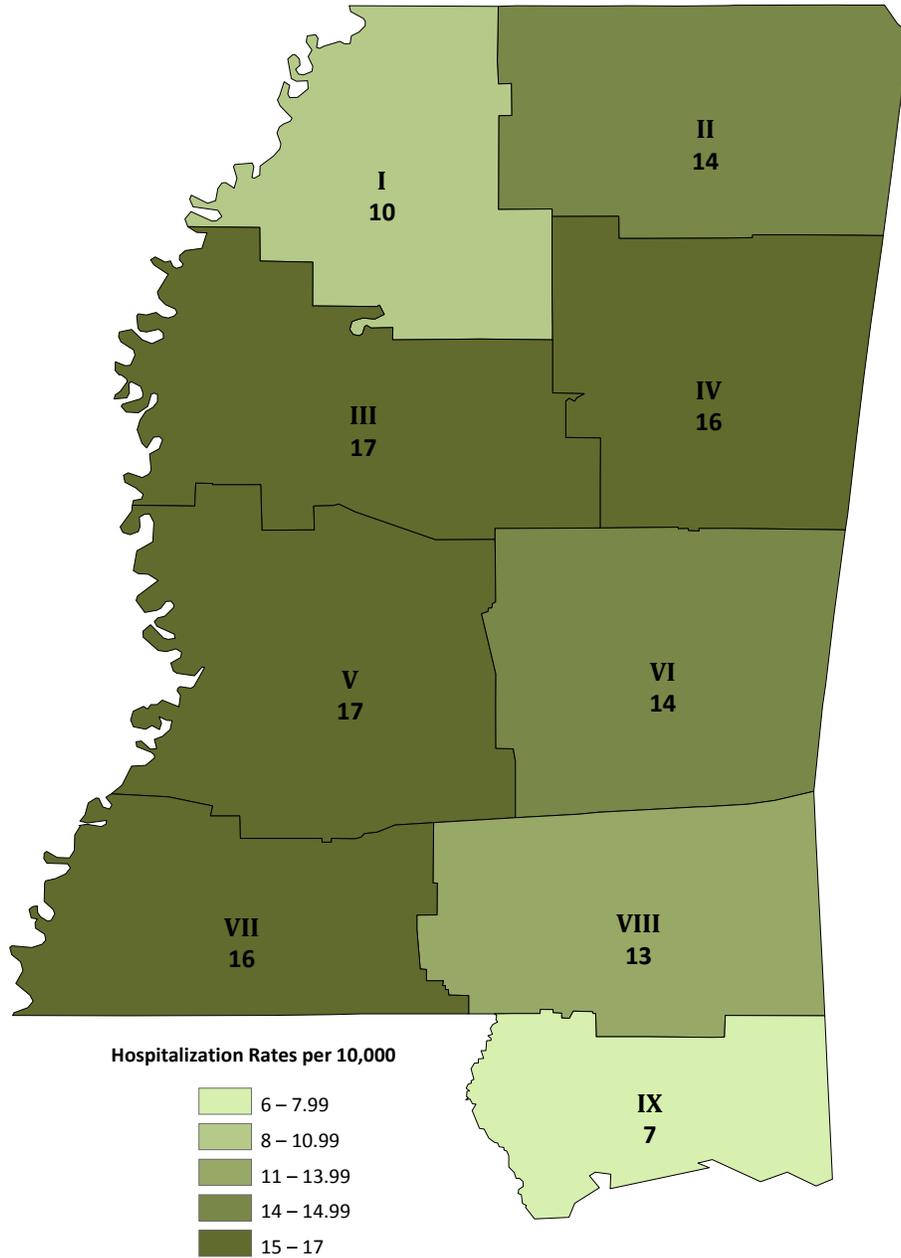


**FIGURE 10.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by age group and sex – Mississippi, 2009



\* Figures 6-10: Rates are age-adjusted to the US 2000 standard population

**MAP 1.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by Public Health District – Mississippi, 2009\*



\* Rates are age-adjusted to the US 2000 standard population

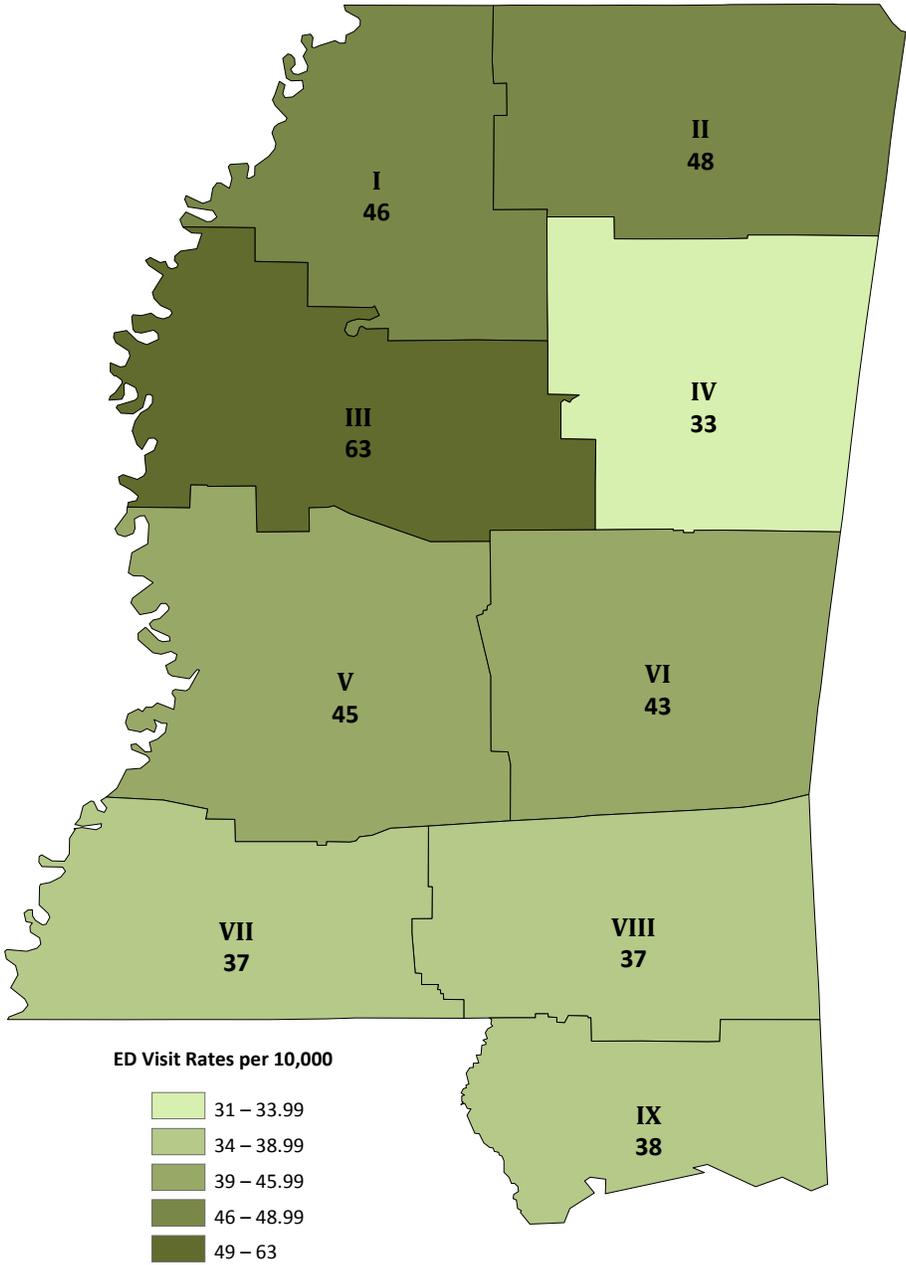
**TABLE 1.** Estimated annual rate of hospitalizations with asthma listed as the first (or primary) discharge diagnosis per 10,000 population by Public Health District, race, sex, and age – Mississippi, 2009\*

Public Health District	Total **	White *	Black *	Male *	Female *	Age group (years)					
						0-4	5-11	12-17	18-44	45-64	65+
I	10	10	15	10	49	17	10	7	6	12	20
II	14	13	34	10	20	23	25	7	6	19	24
III	17	13	21	16	19	47	22	7	9	19	25
IV	16	13	23	14	20	36	21	7	7	21	26
V	17	10	24	13	20	32	15	7	9	22	33
VI	14	10	22	12	18	46	20	7	7	14	20
VII	16	14	20	14	20	52	22	11	9	14	19
VIII	13	11	20	10	16	22	6	6	8	16	25
IX	7	6	15	8	7	34	14	3	3	5	7

\* Rates are age-adjusted to the U.S. 2000 standard population.

† Total includes “other” and “unknown” races.

**MAP 2.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population, by Public Health District – Mississippi, 2009\*



\* Rates are age-adjusted to the US 2000 standard population

**TABLE 2.** Estimated annual rate of emergency department visits with asthma listed as the first (or primary) discharge diagnosis per 10,000 population by Public Health District, race, sex, and age – Mississippi, 2009\*

Public Health District	Total**	White*	Black*	Male*	Female*	Age group (years)					
						0-4	5-11	12-17	18-44	45-64	65+
I	46	24	68	44	49	85	84	40	43	36	30
II	48	31	98	39	56	69	85	56	49	35	19
III	63	24	81	61	65	171	138	53	51	43	22
IV	33	19	55	29	39	62	57	38	28	29	17
V	45	16	68	38	52	68	64	43	48	34	31
VI	43	23	79	41	47	88	58	41	40	43	24
VII	37	22	54	33	44	68	57	33	35	34	22
VIII	37	19	73	34	39	55	59	38	34	34	21
IX	38	22	106	35	42	71	63	23	46	22	10

\* Rates are age-adjusted to the U.S. 2000 standard population.

† Total includes “other” and “unknown” races.