

# Children with Asthma

## DEFINITION

*Children with asthma* is the rate of emergency department visits where asthma was the primary diagnosis per 1,000 children under age 18. Data are reported by place of child's residence at the time of the emergency department visit.

## SIGNIFICANCE

Asthma is a chronic respiratory disease that causes treatable episodes of coughing, wheezing, shortness of breath, and chest tightness, which can be life threatening when not controlled. Asthma attacks can be triggered by respiratory infections, air pollutants (such as high levels of ozone), cigarette smoke, allergens, and exposure to cold air. While the exact cause is unknown, various genetic, environmental (such as long-term exposure to traffic pollution), birth, and health factors have been linked to an increased risk for asthma.<sup>1,2,3</sup>

Nationally, asthma is the most common chronic condition among children.<sup>4</sup> Current asthma prevalence among U.S. children fell from 8.4% in 2015 to 7.0% in 2019. Despite the decline in asthma prevalence, disparities in asthma rates continue to persist. Puerto Rican and non-Hispanic Black children have much higher rates of asthma than non-Hispanic white children. Rates of asthma are also higher among males than females and among

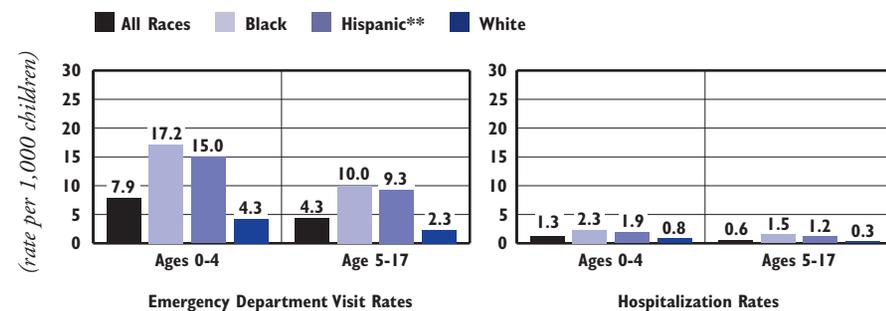
children living in poverty than among children in higher income families.<sup>5,6,7</sup> Racial and ethnic differences in asthma prevalence are believed to be correlated with poverty, exposure to air pollution, stress, acute exposure to violence, and access to health care.<sup>8,9</sup>

Compared with adults, children have much higher rates of emergency department visits for asthma, slightly higher hospitalization rates, and lower death rates.<sup>10</sup> Asthma is the third leading cause of hospitalization for children under age 18 and is a leading cause of school absenteeism.<sup>11</sup>

Proper asthma management requires continued assessment and monitoring, patient education, adjusting environmental factors, and appropriate medication. Health care providers should work with the child and family to create an asthma action plan, which provides instruction on how to avoid asthma triggers and how to use medications properly. An asthma action plan can improve health outcomes and reduce hospitalizations if adhered to and supported by enhanced care and community-based interventions.<sup>12,13,14</sup>

In 2018, 69% of middle and high schools in the U.S. reported providing health care referrals for students diagnosed with or suspected of having asthma, 52% of schools reported providing asthma education to students, and 33% provided families with information on asthma.<sup>15</sup>

**Asthma\* Emergency Department and Hospitalization Rates, by Age and Race/Ethnicity, Rhode Island Children, 2016-2020\***



Source: Rhode Island Department of Health, Emergency Department Visit and Hospital Discharge Data, 2016-2020; U.S. Census Bureau, Census 2010. \*Rates are for primary diagnosis of asthma. \*Asthma-related emergency department visits and hospitalizations decreased substantially in spring 2020, due to the COVID-19 pandemic. \*\*Hispanic children can be of any race.

- ◆ In Rhode Island between 2016 and 2020, Black children and Hispanic children under age five were the most likely to visit the emergency department or be hospitalized as a result of asthma. Diagnosing asthma in infants and toddlers is difficult, and tests are not always accurate for children under age six. A number of childhood conditions can have similar symptoms to those caused by asthma. Children of all ages were more likely to visit the emergency department than to be hospitalized for asthma.<sup>16</sup>
- ◆ In Rhode Island between 2016 and 2020, boys under age 18 had higher asthma emergency department visit and hospitalization rates (6.8 and 0.9 per 1,000 boys respectively) than girls under age 18 (4.3 and 0.7 per 1,000 girls respectively).<sup>17</sup>
- ◆ Among all children who had an emergency department visit for a primary diagnosis of asthma in Rhode Island between 2016 and 2020, 72% had RIte Care/Medicaid coverage, 23% had private health insurance, 4% were self-pay (which could mean they were uninsured or that their insurance did not cover the cost of care), and 1% were unknown/other. Among hospital admissions during that time, 64% had RIte Care/Medicaid coverage, 31% had private health insurance, 4% were self-pay, and 1% were unknown/other.<sup>18</sup>

Table 24. Asthma Emergency Department Visits for Children Under Age 18, Rhode Island, 2016-2020

CITY/TOWN	ESTIMATED # OF CHILDREN UNDER AGE 18	# OF CHILD EMERGENCY DEPT. VISITS WITH PRIMARY ASTHMA DIAGNOSIS	RATE OF CHILD EMERGENCY DEPT. VISITS WITH PRIMARY ASTHMA DIAGNOSIS, PER 1,000 CHILDREN
Barrington	4,597	90	3.9
Bristol	3,623	47	2.6
Burrillville	3,576	34	1.9
Central Falls	5,644	276	9.8
Charlestown	1,506	9	*
Coventry	7,770	120	3.1
Cranston	16,414	297	3.6
Cumberland	7,535	86	2.3
East Greenwich	3,436	23	1.3 <sup>^</sup>
East Providence	9,177	197	4.3
Exeter	1,334	16	2.4 <sup>^</sup>
Foster	986	9	*
Glocester	2,098	16	1.5 <sup>^</sup>
Hopkinton	1,845	19	2.1 <sup>^</sup>
Jamestown	1,043	11	*
Johnston	5,480	99	3.6
Lincoln	4,751	71	3.0
Little Compton	654	6	*
Middletown	3,652	94	5.1
Narragansett	2,269	17	1.5 <sup>^</sup>
New Shoreham	163	1	*
Newport	4,083	167	8.2
North Kingstown	6,322	71	2.2
North Providence	5,514	168	6.1
North Smithfield	2,456	24	2.0 <sup>^</sup>
Pawtucket	16,575	611	7.4
Portsmouth	3,996	45	2.3
Providence	41,634	2,156	10.4
Richmond	1,849	13	1.4 <sup>^</sup>
Scituate	2,272	9	*
Smithfield	3,625	33	1.8
South Kingstown	5,416	48	1.8
Tiverton	2,998	23	1.5 <sup>^</sup>
Warren	1,940	29	3.0
Warwick	15,825	241	3.0
West Greenwich	1,477	12	1.6 <sup>^</sup>
West Warwick	5,746	145	5.0
Westerly	4,787	68	2.8
Woonsocket	9,888	442	8.9
Unknown	0	20	NA
Four Core Cities	73,741	3,485	9.5
Remainder State	150,215	2,378	3.2
Rhode Island	223,956	5,863	5.2

## Child Hospitalization Rates for Asthma

◆ In 2019, Rhode Island parents reported rates of current asthma prevalence of their children of 8.7%, compared to the average of 7.4% for parents surveyed in 29 states and Washington, DC. Rhode Island has the 5th highest self-reported child asthma prevalence among the 29 ranked states.<sup>19</sup>

◆ In Rhode Island between 2016 and 2020, there were 870 hospitalizations with primary asthma diagnosis of children under age 18, a rate of 0.8 per 1,000 children. The rate of primary asthma hospitalizations was more than twice as high in the four core cities (1.3 per 1,000 children) than in the remainder of the state (0.5 per 1,000 children).<sup>20</sup>

◆ There was a steep decline in pediatric asthma emergency department visits and hospitalizations in the spring of 2020, due to the COVID-19 pandemic. Families may have been reluctant to visit the hospital emergency room due to the surge in COVID-19 cases and the governor's statewide stay-at-home order issued in March 2020. In addition, with public schools closed in the spring of 2020, it is likely that children with asthma had less exposure to viral infections and environmental allergens than in prior years, which may have decreased the severity of asthma problems.<sup>21</sup>

### Source of Data for Table/Methodology

Rhode Island Department of Health, Emergency Department Visits and Hospital Discharge Data, 2016-2020.

\*\*Data for 2020 are not comparable to prior years. Asthma-related emergency department visits and hospitalizations decreased substantially in spring 2020, due to the COVID-19 pandemic.

The Rhode Island Department of Health defines emergency department visits with primary asthma diagnosis as those resulting in a home discharge or discharge to another facility, but not admitted to the hospital as an inpatient. As such, data are not comparable to *Factbooks* prior to 2017.

Effective October 1, 2015, the International Classification of Disease (ICD) codes changed from the 9th classification to the 10th classification, which may impact comparability across the years.

The data are event-level files. Children admitted to the hospital (ED or inpatient) more than once are counted as a new event for each admission.

The denominator used to compute the 2016-2020 rate of emergency department visits is the number of children according to the 2010 U.S. Census, multiplied by five.

<sup>^</sup> The data are statistically unstable and rates or percentages should be interpreted with caution.

\* The data are statistically unreliable and rates are not reported and should not be calculated.

Unknown: Children were Rhode Island residents, but specific city/town information was unavailable.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

### References

- National Institutes of Health. (2020). *Asthma*. Retrieved February 2, 2022, from [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
- Sheffield, P. E., Knowlton, K., Carr, J. L., & Kinney, P. L. (2011). Modeling of regional climate change effects on ground-level ozone and childhood asthma. *American Journal of Preventive Medicine* 41(3), 251-257.

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