

# Childhood Asthma

## Definition

*Asthma hospitalizations* is the number and rate of inpatient hospitalizations due to an asthma attack.

## Data in context

Asthma is the most common chronic illness among children and youth in the United States, having detrimental effects on a child's physical, emotional, and psychological development.<sup>1</sup> Asthma afflicts more than 5 million school-aged children in the U.S. and is the third-ranking cause of hospitalization among those younger than 15 years of age.<sup>2</sup> On average, in a classroom of 30 children, about 3 are likely to have asthma, and it is one of the leading causes of school absenteeism.<sup>3</sup> As of 2006, 9.9 million children (14 percent) have ever been diagnosed with asthma.<sup>4</sup> Students miss 14 million days of school each year as a result of asthma.<sup>5</sup>

Asthma is commonly described as a disease of the airways that causes wheezing, breathlessness, chest tightness and coughing. Asthma is a complex disease that is difficult to diagnose and for which no cure exists. Steps to keep asthma under control include taking medication and avoiding contact with environmental "triggers," including cockroaches, dust mites, mold, smoke, and certain chemicals.<sup>6</sup> Because of its complexity, however, combating asthma requires an approach that is long-term and multifaceted. Consistent treatment and monitoring are essential, as well as education, ongoing medical care, and changing behaviors that may trigger an episode.

In 2003, 10 percent of children in Kentucky were reported to currently have asthma, and the state had the highest rate in the nation of asthma attacks.<sup>7</sup> Families living in poverty face risk factors including poor housing, neighborhoods lacking resources, and a greater exposure to pesticides and toxins in older schools and the environment beyond.<sup>8</sup> Children of color are also more likely to encounter barriers to access quality health care to treat and control their asthma, such as a limited number of providers serving in poor communities.<sup>9</sup>

Rates of childhood asthma have increased for all groups since 1980; however, the condition disproportionately affects children of color and children from low-income families in the United States.<sup>10</sup> In 2006, 17 percent of non-Hispanic

Black children were ever told they had asthma compared to 13 percent each of Hispanic and non-Hispanic White children.<sup>11</sup>

The rate of asthma hospitalizations dropped slightly in Kentucky from 24 per 10,000 in 2000-2002 to 22 per 100,000 in 2005-2007. Rates more than doubled in Fleming, Hickman, Jackson, Livingston, Montgomery, and Simpson Counties between the two time periods. Clinton, Mason, and Owsley Counties showed the greatest drops in rate of hospitalizations. Despite statewide improvement, rates were more than three times the state rate in Bell, Fulton, Graves, Hickman, Johnson, Lawrence, and Perry Counties.

Kentucky can reduce disparities in asthma care and avoid hospitalizations by expanding health insurance coverage for children, addressing barriers such as lack of medical practitioners and transportation to those offices in rural areas, and improving the quality of air in schools where children spend much of their day. Schools can also address asthma within a coordinated school health program by establishing management and support systems; providing asthma education and appropriate mental health services for students with asthma; and coordinating school, family and community efforts to better manage asthma symptoms and reduce school absences.<sup>12</sup>

**Data Source:** Kentucky Cabinet for Health and Family Services, Department for Public Health, Chronic Disease Prevention and Control Branch. Number of children in 2001 and 2006 from Kentucky State Data Center.

**Data Note:** Data reflect the number of hospitalizations rather than the number of children hospitalized due to asthma.

**Rate Calculation:** (average number of hospitalizations due to asthma among children under 18 between 2000 and 2002 \* 10,000) / (total number of children under 18 in 2001)  
(average number of hospitalizations due to asthma among children under 18 between 2005 and 2007 \* 10,000) / (total number of children under 18 in 2006)



- 1 Blackman, J., and Gurka, M. (2007). "Developmental and Behavioral Comorbidities of Asthma in Children." *Journal of Developmental & Behavioral Pediatrics*, vol. 28, no. 2.
- 2 Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *Healthy Youth!*. Available at <http://www.cdc.gov>. Accessed August 2008.
- 3 Ibid.
- 4 Bloom, B., and Cohen, R. (2007). "Summary Health Statistics for U.S. Children: National Health Interview Survey, 2006." National Center for Health Statistics. *Vital and Health Statistics*, vol. 10, no. 234.
- 5 Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *Healthy Youth!* Available at <http://www.cdc.gov>. Accessed August 2008.
- 6 Ibid.
- 7 American Lung Association (2007). *Trends in Asthma Morbidity and Mortality*. Available at <http://www.lungusa.org>. Accessed August 2008.
- 8 National Institute for Health Care Management Research and Educational Foundation (2007). *Reducing Health Disparities among Children: Strategies and Programs for Health Plans*. Available at <http://www.nihcm.org>. Accessed August 2008.
- 9 Ibid.
- 10 Centers for Disease Control and Prevention (2006). "QuickStats: Percentage of Children Aged < 18 Years with Current Asthma, by Race/Ethnicity and Sex – United States, 2001-2004." *Morbidity and Mortality Weekly Report*, vol. 55, no. 07. Available at <http://www.cdc.gov>. Accessed August 2008.
- 11 Bloom, B., and Cohen, R. (2007). "Summary Health Statistics for U.S. Children: National Health Interview Survey, 2006." National Center for Health Statistics. *Vital and Health Statistics*, vol. 10, no. 234.
- 12 Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion (2002). *Strategies for Addressing Asthma within a Coordinated School Health Program*. Available at <http://www.cdc.gov>. Accessed August 2008.

## Asthma hospitalizations (number & rate per 10,000 children ages 0-17)

	2000-2002		2005-2007	
	Number	Rate	Number	Rate
Kentucky	7,075	24	6,654	22
Adair	38	31	29	25
Allen	5	*	24	18
Anderson	18	12	14	9
Ballard	8	14	9	17
Barren	72	26	68	24
Bath	9	11	9	11
Bell	261	122	480	237
Boone	69	9	52	6
Bourbon	20	14	15	11
Boyd	107	34	80	25
Boyle	44	24	31	17
Bracken	9	14	15	24
Breathitt	46	38	38	35
Breckinridge	22	16	20	15
Bullitt	43	9	64	12
Butler	12	12	9	10
Caldwell	18	21	15	18
Calloway	51	27	74	39
Campbell	31	5	14	2
Carlisle	16	43	13	37
Carroll	7	9	8	10
Carter	45	23	36	19
Casey	27	24	13	11
Christian	113	18	58	9
Clark	21	9	23	9
Clay	95	52	103	61
Clinton	89	136	28	43
Crittenden	12	19	20	35
Cumberland	24	49	10	22
Daviess	302	43	134	19
Edmonson	13	16	10	13
Elliott	11	22	8	17
Estill	19	17	27	25
Fayette	222	13	142	8
Fleming	10	9	31	30
Floyd	188	64	132	46
Franklin	37	11	38	12
Fulton	77	134	79	165
Gallatin	9	13	5	*
Garrard	9	8	8	7

	2000-2002		2005-2007	
	Number	Rate	Number	Rate
Grant	28	14	13	6
Graves	353	130	300	111
Grayson	49	28	28	16
Green	15	19	13	18
Greenup	50	19	49	20
Hancock	14	21	<5	*
Hardin	156	20	173	23
Harlan	244	101	102	46
Harrison	8	6	14	11
Hart	35	26	31	23
Henderson	94	29	103	32
Henry	18	16	19	16
Hickman	17	50	38	123
Hopkins	76	23	44	14
Jackson	6	6	19	19
Jefferson	795	16	1,292	25
Jessamine	26	8	25	8
Johnson	124	75	141	87
Kenton	114	10	84	7
Knott	54	43	28	25
Knox	64	26	47	19
LaRue	19	19	22	24
Laurel	78	19	67	16
Lawrence	192	163	102	90
Lee	16	30	9	20
Leslie	33	37	51	64
Letcher	125	73	69	43
Lewis	13	12	23	23
Lincoln	28	15	33	18
Livingston	6	9	15	25
Logan	16	8	30	15
Lyon	6	16	5	*
McCracken	62	9	63	15
McCreary	23	38	16	49
McLean	23	35	7	44
Madison	42	8	66	6
Magoffin	53	84	66	44
Marion	25	19	30	31
Marshall	36	32	30	33
Martin	88	22	43	17
Mason	26	19	42	6

	2000-2002		2005-2007	
	Number	Rate	Number	Rate
Meade	24	10	26	12
Menifee	<5	*	8	18
Mercer	24	16	17	11
Metcalfe	22	30	19	26
Monroe	54	65	48	60
Montgomery	9	5	28	15
Morgan	20	22	29	33
Muhlenberg	138	65	108	52
Nelson	38	12	47	15
Nicholas	8	17	11	22
Ohio	42	25	28	17
Oldham	27	7	34	9
Owen	5	*	6	7
Owsley	23	65	7	22
Pendleton	8	7	<5	*
Perry	179	85	157	75
Pike	332	71	163	37
Powell	<5	*	14	14
Pulaski	91	23	54	13
Robertson	<5	*	<5	*
Rockcastle	14	12	22	19
Rowan	23	17	10	8
Russell	34	31	18	16
Scott	39	14	52	16
Shelby	29	11	54	19
Simpson	11	8	28	22
Spencer	10	10	9	7
Taylor	35	22	40	26
Todd	9	9	8	8
Trigg	11	13	13	15
Trimble	<5	*	13	20
Union	22	19	12	11
Warren	135	21	85	12
Washington	7	8	10	12
Wayne	29	19	19	13
Webster	34	34	19	19
Whitley	63	23	57	21
Wolfe	30	56	23	42
Woodford	17	10	16	9

\* Rates were not calculated for counties with fewer than 6 occurrences.