

Common Reasons for and Associated Burden of Inpatient Admissions Among Children in the United States

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BACKGROUND

- Previous studies have reported reasons for hospitalization in children; however, updated information is warranted based on recent data releases.^{1,2}

OBJECTIVE

- The objective of this retrospective database analysis was to examine the most common reasons for hospitalization and the associated burden of these hospitalizations among children in the United States.

METHODS

Data Source

- Data from the 2012 Healthcare Cost and Utilization Project Kids' Inpatient Database (KID) were assessed for this analysis.
- The KID is the largest publicly available all-payer pediatric inpatient care database in the United States, containing approximately 7 million hospitalizations for patients younger than 21 years of age.
- The KID is a discharge-level dataset and contains information on patient age, sex, race, payer type, admission source, admission type, geographic region, hospital status, diagnosis codes, procedure codes, length of stay (LOS), and total charges.
- Total charges were converted to costs using hospital-specific cost-to-charge ratios.
- All patients aged 1 to 14 years were assessed in this analysis, and results are reported for the following cohorts:
 - Patients aged 1 to 4 years
 - Patients aged 5 to 9 years
 - Patients aged 10 to 14 years
- Study measures included the following:
 - Demographic and hospital characteristics for each cohort
 - Ten most common primary diagnosis codes for each cohort
 - Corresponding LOS and cost for each of the 10 most common primary diagnosis codes in each cohort
- All analyses were conducted using SAS version 9.3 (SAS Institute, Cary, NC).

RESULTS

- A total of 481,859 children aged 1 to 4 years, 321,535 children aged 5 to 9 years, and 359,000 children aged 10 to 14 years had an inpatient admission in 2012 and were included in the KID (Table 1).
- Across all age groups pneumonia, asthma, and chemotherapy administration were among the top 10 most common reasons for hospitalization (Figures 1-3).
- For children aged 1 to 4 years, chemotherapy administration had the greatest burden (mean LOS = 5.0 days; mean cost = \$12,438; LOS range: 1.4 croup-3 acute bronchiolitis due to RSV; cost range \$2,629 croup-\$5,164 acute bronchiolitis due to RSV) (Figure 4).
- For children aged 5 to 9 years, affective psychosis had the longest LOS (mean LOS = 8.1 days; range 1.2 fractured humerus-4.8 acute appendicitis with peritonitis) and acute appendicitis with peritonitis had the highest cost (mean cost = \$12,104; range: \$3,204 dehydration-\$12,100 acute appendicitis, NOS) (Figure 5).
- For children aged 10 to 14 years, affective psychoses had the longest LOS (mean LOS = 7.5 days; range 1.6 acute appendicitis-6.3 depressive disorder), and idiopathic scoliosis had the highest cost (mean cost = \$58,877; range \$3,790 asthma with acute exacerbation-\$13,295 chemotherapy administration) (Figure 6).

CONCLUSIONS

- Children in the United States are hospitalized for a variety of reasons, with respiratory illnesses (i.e., pneumonia, asthma, and bronchiolitis) being common in all age groups.
- The LOS associated with the most common reasons for hospitalization is typically short, with mean costs not exceeding \$14,000 in most cases.

REFERENCES

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- Yu H, Wier LM, Elixhauser A. Hospital stays for children, 2009. HCUP Statistical Brief #118. August 2011. Agency for Healthcare Research and Quality, Rockville, MD. Available at: <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb118.pdf>

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Table 1. Demographic and Hospital Characteristics for All Children With a Hospitalization in 2012, by Cohort

Characteristic	Age Cohort, n (%)		
	1-4 Years (n = 481,859)	5-9 Years (n = 321,535)	10-14 Years (n = 359,000)
Sex			
Male	267,354, 55.48%	180,968, 56.28%	183,667, 51.16%
Female	214,469, 44.51%	140,545, 43.71%	175,306, 48.83%
Payer			
Medicare	1,569, 0.33%	1,177, 0.37%	1,367, 0.38%
Medicaid	274,394, 56.94%	160,756, 50.00%	163,011, 45.41%
Private insurance	170,311, 35.34%	134,108, 41.71%	165,703, 46.16%
Uninsured	12,807, 2.66%	8,660, 2.69%	10,355, 2.88%
Other	21,733, 4.51%	16,194, 5.04%	17,849, 4.97%
Missing	1,045, 0.22%	640, 0.20%	715, 0.20%
Patient residence			
Large central metro	158,633, 32.92%	103,785, 32.28%	110,053, 30.66%
Large fringe metro (suburbs)	102,159, 21.20%	72,847, 22.66%	86,302, 24.04%
Medium and small metro	140,788, 29.22%	93,212, 28.99%	105,865, 29.49%
Micropolitan and noncore (rural)	78,451, 16.28%	50,184, 15.61%	55,316, 15.41%
Missing	1,828, 0.38%	1,506, 0.47%	1,464, 0.41%
Hospital ownership			
Government	61,032, 12.67%	40,233, 12.51%	45,890, 12.78%
Private, not for profit	366,784, 76.12%	249,077, 77.46%	277,968, 77.43%
Private, for profit	54,043, 11.22%	32,225, 10.02%	35,141, 9.79%
Location/teaching status			
Rural	39,159, 8.13%	81,391, 25.31%	20,987, 5.85%
Urban, nonteaching	21,185, 4.40%	51,493, 16.01%	61,090, 17.01%
Urban, teaching	20,987, 4.36%	61,090, 19.00%	276,922, 77.14%
Bed size			
Small	59,549, 10.49%	34,323, 10.67%	38,347, 10.68%
Medium	110,524, 22.94%	73,292, 22.79%	80,056, 22.30%
Large	320,786, 66.57%	213,920, 66.53%	240,597, 67.02%
Hospital type			
Not a children's hospital	341,893, 70.95%	221,302, 68.83%	255,944, 71.29%
Children's hospital	139,966, 29.05%	100,233, 31.17%	103,056, 28.71%

Note: Due to data reporting specifications, cells with counts < 30 are not reflected in this table; therefore, some cells may sum to less than the total.

Figure 1. Top 10 Most Common Reasons for Hospitalization Among Children Aged 1 to 4 Years

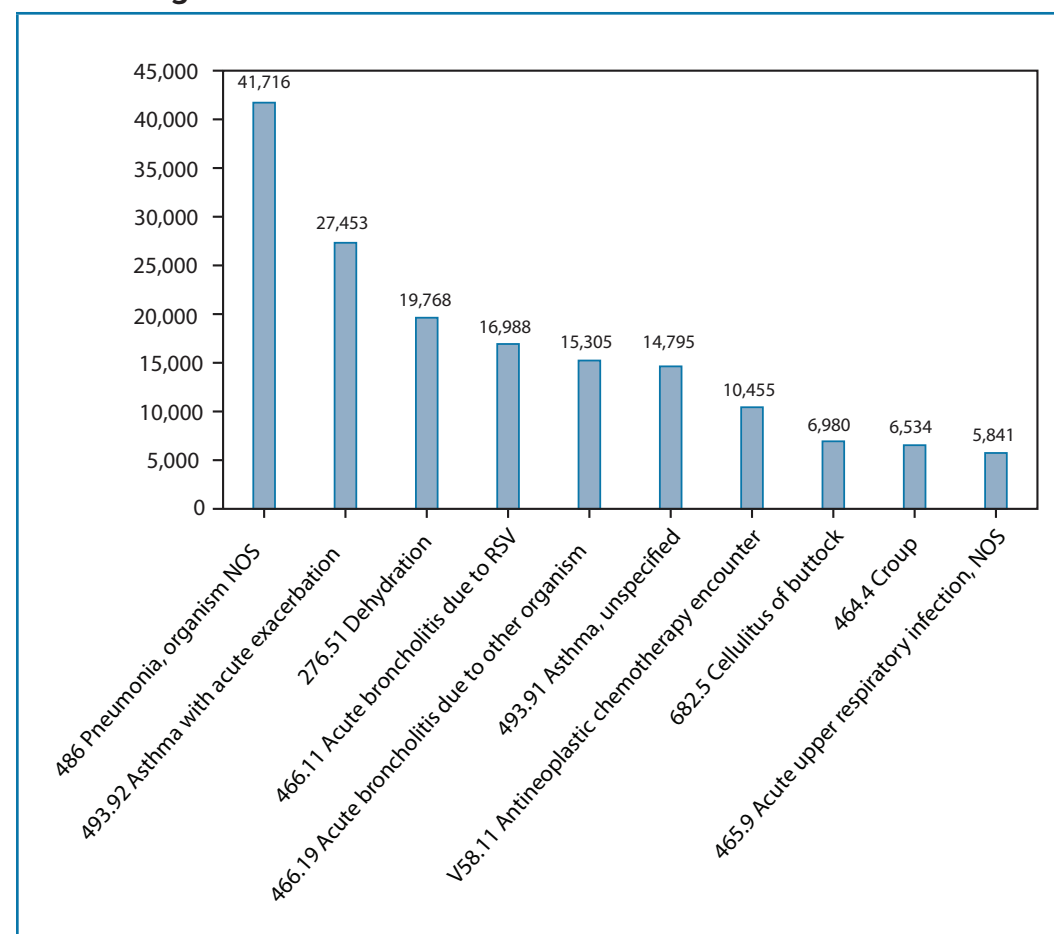


Figure 2. Top 10 Most Common Reasons for Hospitalization Among Children Aged 5 to 9 Years

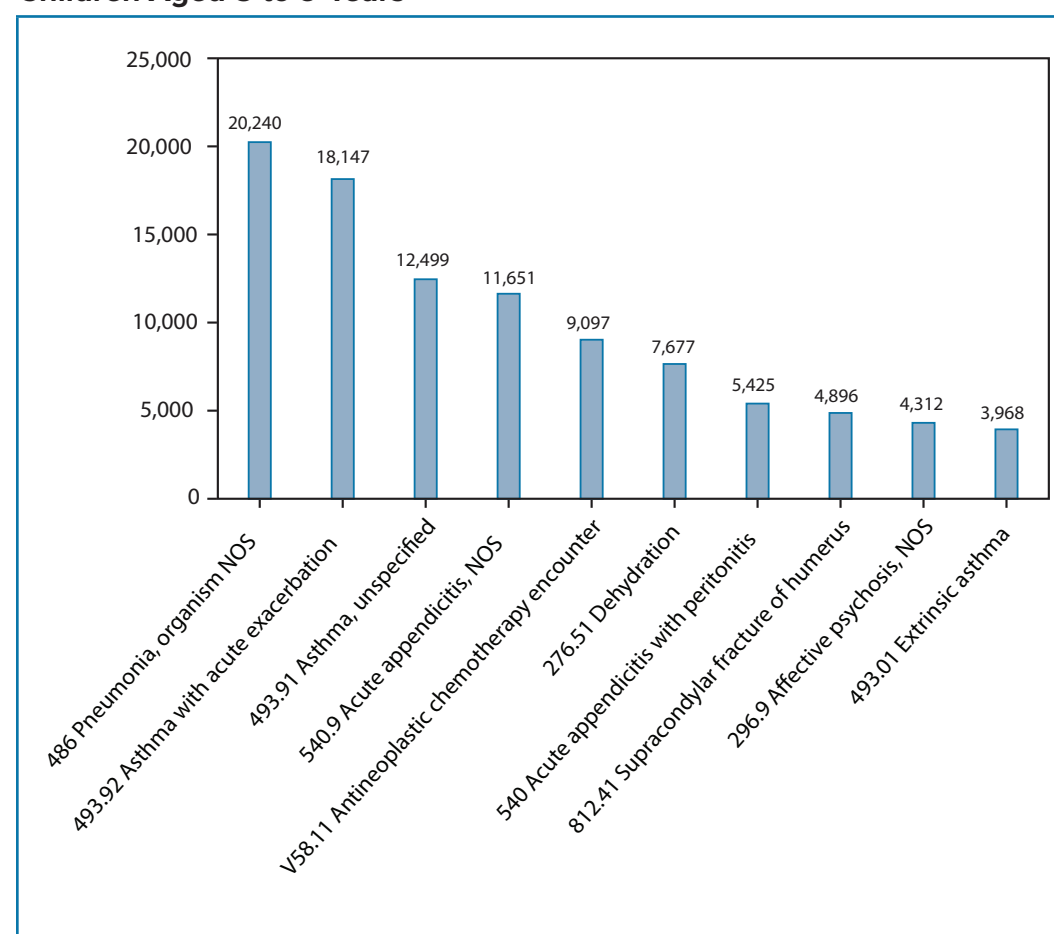
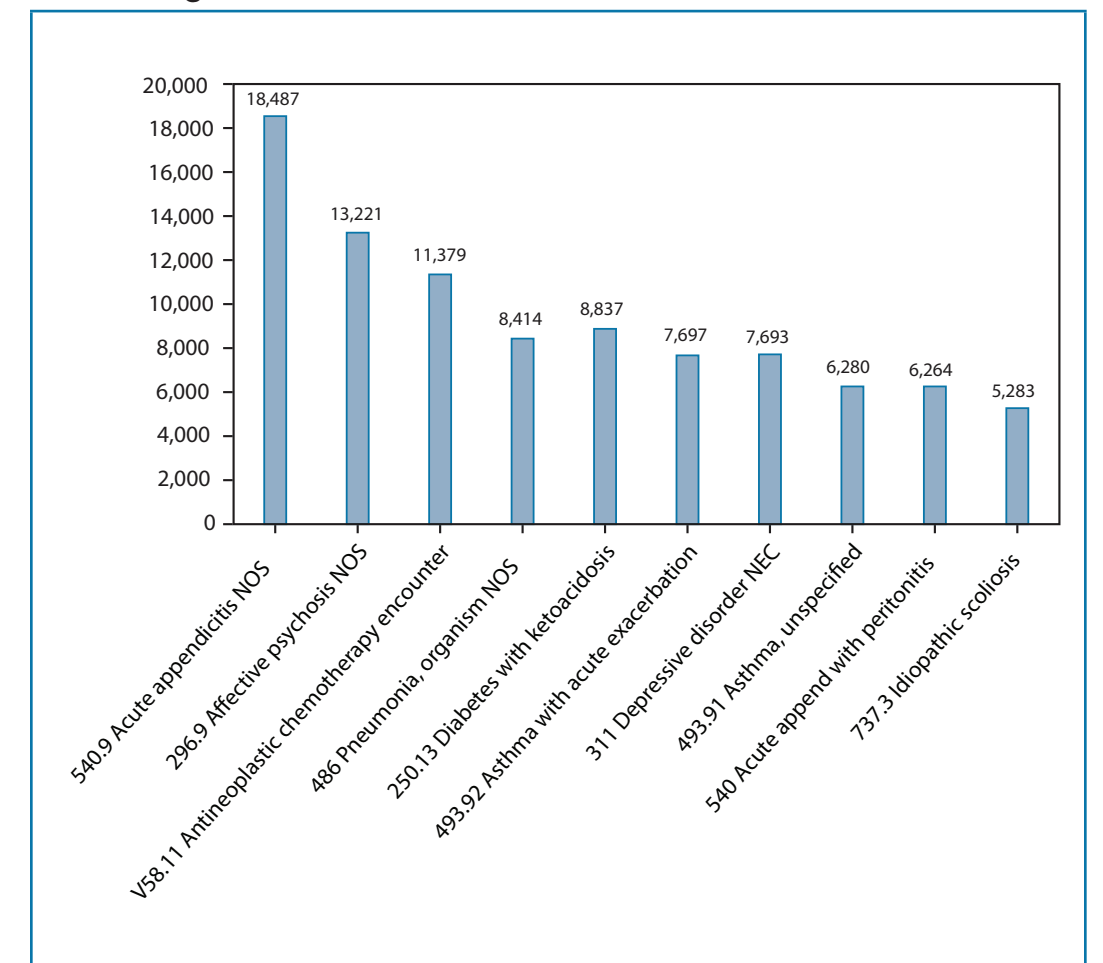


Figure 3. Top 10 Most Common Reasons for Hospitalization Among Children Aged 10 to 14 Years



NEC = not elsewhere classified.

Figure 4. LOS and Costs for Children Aged 1 to 4 Years

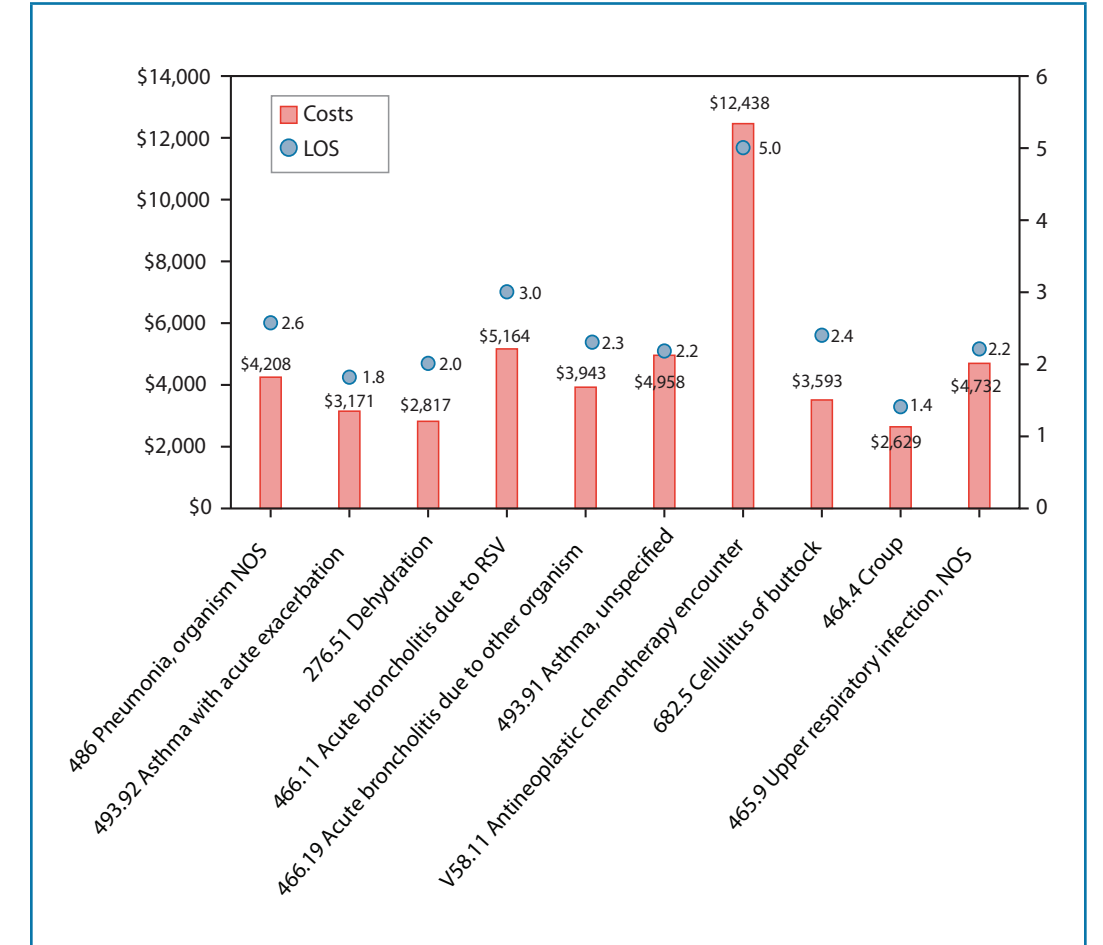


Figure 5. LOS and Costs for Children Aged 5 to 9 Years

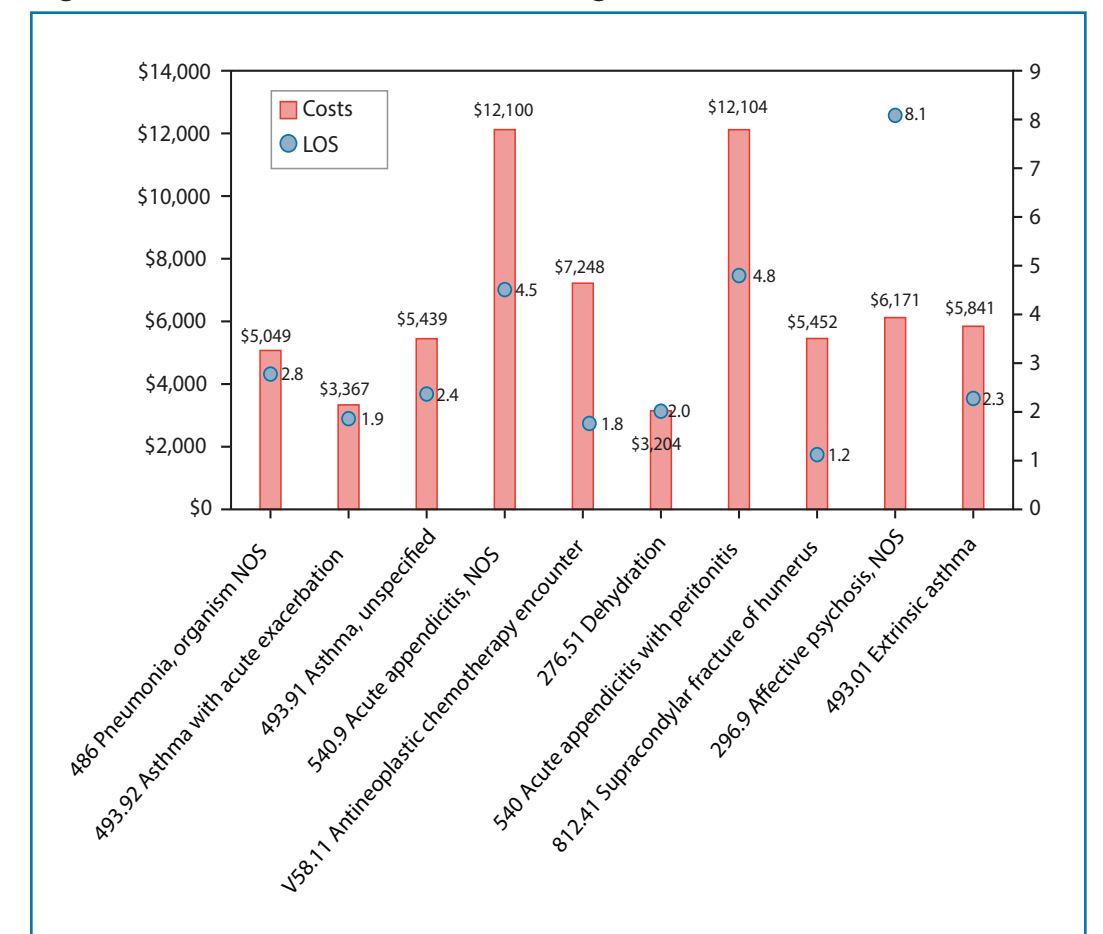


Figure 6. LOS and Costs for Children Aged 10 to 14 Years

