

Neurologically impaired children dependent on children's hospitals

January 17 2012

Because of care advances, more infants and children with previously lethal health problems are surviving. Many, however, are left with lifelong neurologic impairment. A Children's Hospital Boston study of more than 25 million pediatric hospitalizations in the U.S. now shows that neurologically impaired children, though still a relatively small part of the overall population, account for increasing hospital resources, particularly within children's hospitals. Their analysis, based on data from the Agency for Healthcare Research and Quality Kids' Inpatient Database (KID), was published online January 17th in *PLoS Medicine*.

The researchers analyzed KID data from 1997, 2000, 2003 and 2006, encompassing 25.7 million hospitalizations of [children](#) age 0 to 18. Of these, 1.3 million hospitalizations were for children with [neurologic conditions](#), primarily [cerebral palsy](#) and [epilepsy](#).

During the 10-year period, children with neurologic diagnoses were admitted more to children's hospitals and less to [community hospitals](#). At non-children's hospitals, they made up a falling share of admissions (from 3 percent in 1997 to 2.5 percent in 2006); at children's hospitals, they made up a rising share (from 11.7 percent of admissions in 1997 to 13.5 percent in 2006).

Within children's hospitals, neurologically impaired children accounted for an increasing proportion of resources: In 2006, they accounted for 25 percent of all bed days (up from 21.8 percent in 1997) and 29 percent of [hospital](#) charges (\$12 billion, up from 27 percent in 1997).

"Our findings suggest that children's and non-children's hospitals are caring for increasingly different populations of children," says first author Jay Berry, MD, MPH, an attending physician in the Complex Care Service at Children's Hospital Boston. "Children with neurologic impairment tend to require expensive, lengthy hospitalizations. As policymakers increasingly focus on [healthcare costs](#), we must be careful to not jeopardize the care these children receive as health reforms are considered."

The researchers note that improved care delivery and coordination could lead to reduced hospital utilization and better patient outcomes. Children with severe neurologic conditions commonly have additional [health problems](#), such as respiratory and feeding problems, that make their care needs more complex. Yet studies indicate that pediatric providers often feel unprepared to assess and treat them.

The result, the researchers write, is uncoordinated, crisis-driven care that can lead to a disproportionate share of emergency care and frequent re-hospitalizations that drive up costs. "We're nervous that many children with neurologic impairment are without a healthcare provider who is taking charge of their care and making sure that all of their health care needs are adequately addressed," says Berry.

In the study, inpatient utilization increased most markedly among neurologically impaired adolescents. Across all hospitals, this group of children had a 28 percent increase in hospitalizations from 1997 to 2006, while children of the same age without neurologic diagnoses had an 8.4 percent decrease in hospitalizations.

"Children with severe neurologic impairment tend to have more health problems as they reach adolescence and young adulthood," says Berry. "This coincides with a difficult period where they begin to outgrow their pediatric providers, but have trouble transferring their care to adult

providers."

More information: Berry JG, Poduri A, Bonkowsky JL, Zhou J, Graham DA, et al. (2012) Trends in Resource Utilization by Children with Neurological Impairment in the United States Inpatient Health Care System: A Repeat Cross-Sectional Study. PLoS Med 9(1): e1001158. doi:10.1371/journal.pmed.1001158

Provided by Children's Hospital Boston

Citation: Neurologically impaired children dependent on children's hospitals (2012, January 17) retrieved 19 April 2024 from

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