

## Pediatric home care nursing shortage contributes to prolonged hospitalization

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Although less than 1% of children are identified as medically complex, this increasing population consumes a disproportionate amount of health care resources.

Up to 25% of pediatric hospital days and 40% of hospital charges are credited to children with medical complexity (Simons TD, et al. *Pediatrics*. 2010;126:647-655, <http://pediatrics.aappublications.org/content/126/4/647?ck=nck>).

Estimates also show that children with medical complexity use one-third of health care dollars spent on children, and 80% of those dollars are due to hospitalization (Berry JG, et al. *The Landscape of Medical Care for Children with Medical Complexity*. Children's Hospital Association, 2013 Special Report, <http://bit.ly/2eUezCe>).

An increasing percentage of technology-dependent children require extended hours of home care nursing to facilitate a safe transition to home and minimize family burnout and costly readmissions. Although multiple factors may delay discharge of these children following prolonged hospitalization, a paucity of data is available on the cause, frequency and cost of continued hospitalization, both financially and as a community resource for other ill children.

A shortage of home care nurses reportedly is a significant cause of prolonged hospital stays for children with medical complexity and probably contributes to millions of dollars of health care expenditures annually. Determinants of skilled nursing hours required at discharge vary across state lines and with institutions and payers. A lack of specific guidelines for determining appropriate home care nursing hours may contribute to under- or over-utilization of this community resource for children and their families.

To provide data on the magnitude of this problem, four children's hospitals in Minnesota (Children's Minnesota, Gillette Children's Specialty Healthcare, Mayo Clinic Hospital and University of Minnesota Masonic Children's Hospital) are participating in a 12-month prospective study looking at delayed discharge of children with medical complexity. Inclusion criteria encompasses only children being discharged to home with more than eight hours of nursing care per week.

Using a previously published but modified delayed discharge tool, patients are tracked to see if they are being discharged to home when deemed medically ready or if they remain hospitalized due to lack of home care nurses. Two groups of children are being enrolled in the study: 1) new patients being discharged for the first time with more than eight hours of nursing care and 2) existing patients being discharged home to their pre-existing home care nurses.

The study is tracking the percentage of children who have prolonged hospitalization beyond when patients are deemed medically ready for discharge. The study aims to identify the causes of and hospital days associated with delayed discharge. In addition, home care failures after discharge may contribute to readmissions. Both groups of patients are tracked for 90 days post-discharge to identify causes for unplanned readmissions to their respective hospitals. The analysis will compare the costs of prolonged hospital length of stay to the cost of home care nursing on a daily basis.

An interim analysis six months into the study identified 23 patients going home for the first time with extended hours of nursing care. Of these patients, 11 (48%) had delayed discharges attributed to waiting for home care nursing and cumulatively accounted for 235 avoidable hospital days. Of 77 patients with pre-existing home care nursing, only one patient had a delayed discharge associated with home care nursing and accounted for 36 avoidable hospital days.

If daily costs associated with hospitalization (room, ancillary and physician fees) are approximately \$5,000 per day, waiting for home care nurses to staff patients at discharge contributed to a nearly \$1.36 million increase in expenditures.

Final analysis will include demographic risk factors and other causes for delayed discharge. The role of failed home care nursing causing readmission also will be assessed.

Information garnered from this study will help define just how big the elephant is in the room.

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