

# Solving the Readmissions Puzzle: How Do Variability and Preventability Fit?

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Since October 1, 2012, the Hospital Readmission Reduction Program, established by the Affordable Care Act, has imposed financial penalties on hospitals with high readmission rates for targeted conditions covered by Medicare. This program has led to reductions in readmissions even for conditions that were not initially targeted for such penalties.<sup>1</sup> Although this program has almost exclusively targeted Medicare, and thus adult patients, some limited state programs have begun targeting pediatrics.<sup>2</sup> Because financial penalties and incentives are likely here to stay, understanding pediatric readmissions is key for policymakers, hospital administrators, and clinicians.

In this issue, Nakamura et al<sup>3</sup> provide another piece in the pediatric readmissions puzzle. Their work focuses primarily on readmissions for children after hospitalization for lower respiratory infections (LRIs). LRIs were defined as either bronchiolitis, influenza, or community-acquired pneumonia.<sup>3</sup> Their primary goal was to describe variation in unplanned 30-day readmission rates across hospitals. Through the use of previously validated *International Classification of Diseases (Ninth Revision, Clinical Modification)* codes, the authors used a Medicaid claims database and a specific National Quality Forum–endorsed measure, developed by the authors, to capture index admission and 30-day LRI readmissions. They found that hospitals had a median readmission rate of 5.2% after adjustment for age, sex, and chronic conditions and that readmission rates varied significantly across hospitals. LRIs were the most

common diagnosis for the readmission encounters (48.2%). Their cohort included a large proportion of infants <1 year of age, and most children had no more than 1 chronic condition.

The study by Nakamura et al<sup>3</sup> has many strengths. First, it focuses on a high-risk population of Medicaid patients and places emphasis on common conditions that account for a large number of index admissions for children. Second, the analysis is not limited solely to children's hospitals. Finally, it is based on an inclusive database representing a large and varied proportion of admissions throughout the United States.

The key question in thinking about variations in readmissions is the degree to which hospitalizations are preventable. This addresses the degree to which variation is inappropriate or caused by other unmodifiable factors. Given the limitations of a Medicaid claims database, many unmeasured confounders may exist that could impact the risk of readmission. Preventability of readmissions in particular may be related to a complex array of patient-, caregiver-, and hospital-related factors.<sup>4,5</sup> Recently, much effort and many resources have been expended across institutions aimed at reducing readmission in hospitals. Although it is important to reduce the burden on families and on the health care system, it is also important to make sure resources are allocated to focus on reducing readmissions for conditions with the highest likelihood of having preventable factors. This is especially important for children, who have

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Dr Wallace conceptualized the theme for the commentary, performed the literature review, and wrote the first draft of the commentary; Dr Quinonez assisted with the conceptualization of the theme for the commentary, assisted with the literature review, and made critical revisions to the commentary; and all authors approved the final version as submitted.

Opinions expressed in these commentaries are those of the author and not necessarily those of the American Academy of Pediatrics or its Committees.

**DOI:** <https://doi.org/10.1542/peds.2017-1681>

Accepted for publication May 18, 2017

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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** No external funding.

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

**COMPANION PAPER:** A companion to this article can be found online at [www.pediatrics.org/cgi/doi/10.1542/peds.2016-0938](http://www.pediatrics.org/cgi/doi/10.1542/peds.2016-0938).

**To cite:** Wallace SS and Quinonez RA. Solving the Readmissions Puzzle: How Do Variability and Preventability Fit?. *Pediatrics*. 2017;140(2):e20171681

an overall lower readmission rate than adults.<sup>6</sup> In 3 recent single center studies addressing preventability, pediatric readmission rates ranged from 3% to 8% of all hospital discharges and of those, 20% to 29% were deemed likely preventable.<sup>4-6</sup> Thus, preventable readmissions made up <2% of all pediatric discharges in these study populations.<sup>4-6</sup>

Studies have differed in the way they define potential preventability; some studies have ascribed preventability to cases related to specific factors,<sup>4</sup> whereas others have used expert consensus ratings.<sup>5,6</sup> Given the complexity of preventability, Toomey et al<sup>5</sup> found that interviews of providers and caregivers may aid in the exploration of preventability in roughly one-third of readmission cases. Hain et al<sup>6</sup> found difficulty in attaining consensus on preventability ratings for readmissions cases when cases were reviewed by individual providers, and they recommended group consensus as the best method for ascertainment. For readmissions after hospitalization for LRI, further research that uses these types of methods may be helpful to gather more granular information about preventability and to better assess opportunities for improvement.

In highlighting variability in readmission rates across institutions for LRIs, Nakamura et al<sup>3</sup> describe, through a novel method, an all-too-familiar fact: that children in the inpatient setting experience significant inconsistency in their care. Numerous studies have illustrated unwarranted variation in the care

that children in the hospital setting receive, precisely for some of the same diagnoses as in Nakamura's study.<sup>7-9</sup> Conversely, standardization of care for children hospitalized with these diagnoses has demonstrated improved outcomes.<sup>10,11</sup> Correlating the presence of evidence-based clinical practice guidelines at the institutions included in this study could help inform whether the absence of institutional evidence-based practices may be associated with higher readmission rates. Hence, although many questions remain unanswered regarding pediatric readmissions, and particularly regarding their preventability, Nakamura et al<sup>3</sup> provide further evidence that we should continuously reexamine our practices, even for the most common of pediatric illnesses.

#### ABBREVIATION

LRI: lower respiratory infection

#### REFERENCES

1. Demiralp B, He F, Koenig L. Further evidence on the system-wide effects of the hospital readmissions reduction program [published online ahead of print May 8, 2017]. *Health Serv Res*. doi:10.1111/1475-6773.12701
2. Health and Human Services Commission. Quality-based payment and delivery reforms in Medicaid and the children's health insurance program. Available at: <https://hhs.texas.gov/sites/hhs/files/sb7-rider-46.pdf>. Accessed May 5, 2017
3. Nakamura MM, Zaslavsky AM, Toomey SL, et al. Pediatric readmissions

after hospitalizations for lower respiratory infections. *Pediatrics*. 2017;140(2):e20160938

4. Wallace SS, Keller SL, Falco CN, et al. An examination of physician-, caregiver-, disease-related factors associated with readmission. *Hosp Pediatr*. 2015;5(11):566-573
5. Toomey SL, Peltz A, Loren S, et al. Potentially preventable 30-day hospital readmissions at a children's hospital. *Pediatrics*. 2016;138(2):e20154182
6. Hain PD, Gay JC, Berutti TW, et al. Preventability of early readmissions at a children's hospital. *Pediatrics*. 2013;131(1). Available at: [www.pediatrics.org/cgi/content/full/131/1/e171](http://www.pediatrics.org/cgi/content/full/131/1/e171)
7. Leyenaar JK, Lagu T, Shieh MS, et al. Variation in resource utilization for the management of uncomplicated community-acquired pneumonia across community and children's hospitals. *J Pediatr*. 2014;165(3):585-591
8. Macias CG, Mansbach JM, Fisher ES, et al. Variability in inpatient management of children hospitalized with bronchiolitis. *Acad Pediatr*. 2015;15(1):69-76
9. Parikh K, Hall M, Mittal V, et al. Establishing benchmarks for the hospitalized care of children with asthma, bronchiolitis, and pneumonia. *Pediatrics*. 2014;134(3):55-62
10. Ralston SL, Garber MD, Rice-Conboy E, et al. A multicenter collaborative to reduce unnecessary care in inpatient bronchiolitis. *Pediatrics*. 2016;137(1):e20150851
11. Parikh K, Biondi E, Nazif J, et al. A multicenter collaborative to improve care of community acquired pneumonia in hospitalized children. *Pediatrics*. 2017;139(3):e20161411

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*Pediatrics* 2017;140;

DOI: 10.1542/peds.2017-1681 originally published online July 31, 2017;

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