Hospital Readmission: Quality Indicator or Statistical Inevitability?

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ABBREVIATION
LOS—length of stay

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Hospital readmission rate has been a long-considered quality of care indicator in adult medicine, albeit with mixed reviews.1 2 As we begin to grapple with the quality significance and preventability of readmissions in pediatrics, however, we are outpaced by movement in the insurance industry. Section 3025 of the Affordable Care Act requires the Centers for Medicare and Medicaid Services to reduce payments to hospitals with excess readmissions, effective for discharges beginning on October 1, 2012.3 Although the Centers for Medicare and Medicaid Services started with targeting only 3 adult diagnoses, they are currently considering expansion of the number of diagnoses for which reimbursement will be decreased for hospitals with high readmission rates, and that consideration includes pediatric diagnoses such as “pneumonia due to respiratory syncytial virus” (International Classification of Diseases, 9th Revision, code 480.1).4

In this edition of Pediatrics, Dr. Berdach and colleagues studied a large database of pediatric admissions in California that calls into question readmission as a quality measure. They cite a lack of variability in rates of readmissions among hospitals in California. Few hospitals were identified as either high- or low-performers for common pediatric diagnoses, limiting the ability of using diagnosis-specific readmission rate as a quality indicator. Interestingly, this is in contrast to another study of 500 000 pediatric patients from a cohort of children’s hospitals, which demonstrated variability in readmission rates by hospital.5 Although these studies differ in their cohort of hospitals and findings, neither study demonstrated that readmissions are a quality measure.

Intuitively, it makes sense that readmission rate may be a quality indicator. We might assume that readmission is more likely in the setting of decreased handwashing or longer wait times in crowded and virus-laden emergency departments. We might assume premature discharge, especially of patients with illness such as bronchiolitis, may result in “bouncebacks.”

At the same time, clearly factors outside the hospital may relate to readmission. Take asthma as an example. Inpatient action plans are currently mandated but do not seem to affect readmission rates in the largest study performed.6 From the same study, virtually every patient hospitalized received steroids and albuterol. But how does parental smoking relate to readmission? Distance lived from the hospital? Presence of competing health care institutions in the geographic area? Availability of primary care services and a true medical home?

There is growing evidence that readmission is not a good measure of quality. One retrospective analysis of readmission rates and independent quality of care indicators demonstrated that in states with higher-quality of care, children’s hospitals had higher, not lower, readmission rates.7 In an outstanding recent study, careful review of
readmissions at Vanderbilt revealed that only 20% of pediatric readmissions were likely preventable, and this accounted for <2% of all admissions.\(^8\)

For the most common illnesses in hospitalized children, preventable readmission is rare indeed. From Hain et al, we learned that in 2 years at Vanderbilt (Nashville, Tennessee), only 2 patients with bronchiolitis suffered readmission that was deemed “more likely preventable.”\(^8\) Furthermore, there is not much evidence that physician or nursing behavior can affect readmission rates in common illnesses. In bronchiolitis, the only published association with readmission rates in hospitalized children, preventable readmissions were likely preventable, and this accounted for <2% of all admissions.\(^8\)

Take another common condition, community-acquired pneumonia. National guidelines for pediatric pneumonia recommend a penicillin antibiotic as a first-line agent.\(^10\) In a study assessing poor compliance with evidence-based guidelines in >19,000 hospitalized children, 72.5% failed to receive a penicillin antibiotic as a first-line agent.\(^11\) The readmission rate was ~2% with or without guideline use. Nonetheless, we are being asked to consider the use of readmission rates, not poor antibiotic selection, as a quality measure.

Lastly, there is a potential risk for using readmission as a quality measure. Many institutions may mistakenly associate premature discharge with readmission. Back-of-the-envelope calculations are illustrative here. Hypoth- esize a medium-sized children’s hospital with 1000 cases of bronchiolitis per year; a mean length of stay (LOS) of 3 days, and a readmission rate of 5%. Increasing LOS by 4 hours, even if it reduced readmissions by half, would result in an increase of cost of care by a staggering 13.5%. Of note, a recent study showed no correlation between shorter LOS and higher readmission rates for hospitalizations of 4 common pediatric illnesses.\(^12\)

Readmission rates are clearly multifactorial and likely outside the influence of hospital care. There is potential cost in blind attempts to reduce readmissions, and thus far data show a lack of correlation with anything within the grasp of hospitals to control. Insurance providers plan to pay less for readmitted patients, arguing without evidence that this is a quality measure. Do we look for quality measures that are tightly associated with actual quality of care, or do we accept lesser payment and hope for the best?

REFERENCES
2. Hansen LO, Young RS, Hinami K, Leung A, Williams MV. Increasing LOS by 4 hours, even if it increased LOS by 4 hours, even if it...
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