

## Toward development of evidenced-based quality parameters: What gets counted and who gets paid?

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A major tenet of the Affordable Care Act (ACA), now 6 y old, is to enforce evidence-based practice and support best outcomes. To optimize value, the ACA provides both incentives and penalties to healthcare networks based on attainment of quality-care parameters (1,2). Two articles from this issue provide insight into potential best-practices and may inform future quality of care measures in pediatrics (3,4). The ACA intent is that by promoting quality care initially via benchmarking, cost savings will be achieved through reduction of complications and resultant expenses (2). These regulations include redistribution of a sliding scale percentage of total Medicare payments to hospitals with low rates of primarily adult hospital-acquired conditions such as Central Line-Associated Bloodstream Infections (CLABSI), select adult readmissions within 30 days, and Catheter-Associated Urinary Tract Infections (2). From years 2010 to 2013, these regulations have contributed to a total decrease of hospital-acquired conditions by 17% resulting in 50,000 fewer deaths and \$12 Billion in saved healthcare costs (5).

To date, child health has escaped significant oversight from federal regulators seeking to apply quality benchmarks and performance-based payments in pediatrics. Since total pediatric healthcare costs represent only 3% of total healthcare spending, there has not been a financial incentive to address cost-containment (6). However, recent data indicate pediatric (0–18 y) spending is increasing faster than total population health spending (6). One percent of children, including extremely low-birth-weight infants, consume 10 times the financial resources, most of which is as a result of in-patient hospitalization (7–11). Further, nearly half of all births are within the Medicaid program, creating a strong federal incentive to regulate neonatal costs and payment (12). Thus, children's hospitals and neonatal intensive care units (NICU) will be a central target of these cost-saving reforms.

In this issue, Chamberlain *et al.* (3) determined via meta-analysis that ultrasound guided placement of central venous catheters significantly increased success rates, reduced the number of attempts, and trended toward decreased risk of unintended arterial puncture. Streamlining the central venous catheters process could reduce infection (13). Given central venous catheters are mainstays of pediatric care and total CLABSI's are already an ACA hospital measure, subgroups

of CLABSI's in neonatal populations may be a potential ACA pediatric measure (2,5,13). CLABSI's in NICUs contribute to morbidities, increase costs, and are amenable to quality improvement initiatives across a variety of Levels of Care (14). While meta-analyses such as this article are helpful in identifying potential improvements in practice, translating this evidence into national policy requires further clinical research including studies of feasibility and cost-effectiveness (3).

Similarly, Dagle *et al.* (4) demonstrate improved growth outcomes in infants at 32–34 wk gestation with peripherally inserted central catheters for provision of supplemental nutritional support. Previous studies have focused primarily on infants born less than 32 wk gestational age with higher rates of growth linked to improved neurodevelopmental outcomes (15). Should neurodevelopment also be related to the growth of 32–34 wk infants, the public health implications may be significant because these infants comprise 1.2% of total live births (16). Before growth in this population is adopted as a quality benchmark, neonatologists should advocate caution and the need for large scale, prospective, longitudinal studies assessing growth, neurodevelopment, and resource utilization.

An opportunity exists to define specific measures of quality for different subgroups, which may prove more useful than the one-size-fits-all approach used for adults. Not all value metrics are systematically preventable. Although certain types of adult readmissions are considered preventable and therefore penalized, many NICU patient readmissions within 30 d are elective undermining its utility as a quality metric (17). Additionally, the majority of planned readmissions for NICU infants were associated with surgical repair, suggesting exclusion of these infants requiring staged-surgery may increase suitability of readmission of a NICU quality metric (17). Prenatal care is another often-cited indicator of the effectiveness of a healthcare system (18). However, data show prenatal care asymmetrically benefits certain populations such as those with low socio-economic status or with chronic disease (19–22). Further, earlier prenatal care (as opposed to total number of visits) benefits mothers engaging in unhealthy behaviors such as smoking more than other groups (23). Tailoring quality measures to be ideally suited to subpopulations may create better indices of care

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and motivate changes in physician behavior and systems-based practice.

Pediatricians must adopt an active role as advisors of these ACA metrics, participating in deliberations about which measures are worth universally adopting. Without pediatric input into these decisions, there is a chance to create a system which rewards metrics over actual patient benefit. Data on pay-for-performance incentives for hypertension management in adults, for example, demonstrated improved compliance with guidelines but no impact on blood pressure levels or rates of stroke (24). Specific patient focused studies on best practice and health care metrics with cost-effectiveness data which are replicable in multiple settings are necessary prior to policy changes.

#### STATEMENT OF FINANCIAL SUPPORT

None.

Disclosures: None.

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