Value-Based Kidney Care: Aligning Metrics and Incentives to Improve the Health of People with Kidney Disease

Pranav S. Garimella1 and Daniel E. Weiner2

1Division of Nephrology-Hypertension, University of California San Diego, San Diego, California; and 2Division of Nephrology, Tufts Medical Center, Boston, Massachusetts

JASN 30: 2282–2284, 2019. doi: https://doi.org/10.1681/ASN.2019101007

CKD is common, impactful, and costly. Health care expenditures attributable to CKD increase as disease severity worsens, with the care of individuals with ESRD accounting for nearly 7% of Medicare expenditures despite comprising <1% of the overall Medicare population.1 Over recent years, there has been particular emphasis on improving the “value” of health care delivered, with a movement away from fee-for-service to value-based payment models.2 In United States legislation, the Medicare Improvements for Patients and Providers Act of 2008 and the Medicare Access and CHIP Reauthorization Act in 2015 both included pay-for-performance systems for providers.3

For value-based systems to be effective, performance must be quantified; this is accomplished through the development and implementation of quality metrics. In 2010, Porter defined value as “health outcomes achieved per dollar spent,”4 which can be simplified as quality divided by cost, such that either improving outcomes achieved per unit cost or reducing the cost associated with desired outcomes results in higher value care. One key challenge is the difficulty with defining “quality” in patient-centered care.

Nephrologists are no strangers to quality metrics given extensive exposure to measures in the ESRD Quality Incentive Program;5 however, very few measures readily apply to nephrology practices and, specifically, to the nondialysis kidney care setting. Many reasons exist for this deficit, including: (1) marked heterogeneity in nephrology practice settings with limited numbers of patients evaluated in each of hospital consultative work, CKD clinics, hypertension clinics, and dialysis facilities; (2) insufficient research regarding optimal care practices in CKD; (3) challenges with attribution; and (4) heterogeneity in desired clinical outcomes for individual patients. A major challenge faced by the kidney community is to identify measurable, meaningful, and modifiable performance metrics that will apply to nephrology practices and can accurately identify high-quality care.5

Desired patient outcomes are often multidimensional and frequently require more than one provider for achievement. With many metrics attributed to a single provider or evaluating a specific care element, organizations and physician groups typically assess performance on aspects of care that are directly within their control rather than evaluating interdependent care activities over time. Existing data suggest that there is considerable room for improvement in CKD care. A study of >95,000 adults with CKD stages 3–4 describes low rates of both albuminuria screening and guideline concordant use of renin-angiotensin-aldosterone system inhibitors and statins,6 with a second study showing little improvement from 2006 to 2014 on measures of statin use, renin-angiotensin-aldosterone system use, glycemic control, BP control, and non-steroidal anti-inflammatory drug dispensation among adults with a billing code for CKD.7 Perhaps the best marker of care limitations remains that 80% of patients rely on a central venous catheter at dialysis initiation, fewer than 10% initiate kidney replacement therapy with home dialysis, and fewer than 3% initiate with a pre-emptive transplant.1

In this issue of JASN, Brady et al. use both quantitative and qualitative research methods to identify care attributes of individual nephrology practices that rank favorably on measures of quality and total cost of care commonly used by payers.8 Using health care and prescription insurance claims data and practice descriptions, the investigators ranked 306 nephrology practices on the basis of risk-adjusted total annual per capita spending. Quality was assessed by performance on nine available measures (Supplemental Table 1). High-value practices ranked in the top quartile on both quality and cost, whereas average-value practices had both cost and quality scores near the median. The investigators then used purposeful sampling to select four high-value and three average-value practices to


EDITORIALS www.jasn.org


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Correspondence: Dr. Daniel E Weiner, Division of Nephrology, Tufts Medical Center, 800 Washington Street, Box #391, Boston, MA 02111. Email: dweiner@tuftsmedicalcenter.org

Published online ahead of print. Publication date available at www.jasn.org.
visit in order to identify care attributes associated with high-value care, with a modified Delphi method subsequently used by three nephrologists to score each attribute on the basis of their opinion of that attribute’s effect on quality, cost, and transferability to less favorably ranked practices. The major limitation of this study is how quality is quantified, specifically that none of the metrics used to identify higher performing clinics are currently endorsed by the National Quality Forum. Additionally, most of the metrics focus on process and, rather than highlighting quality care, may merely identify practices with more robust electronic medical record systems that are responsive to specific metrics. For example, is there any patient receiving nephrology care who has not had serum chemistries assessed at least once in a year?

Compelling findings from the qualitative portion of this study overcome these limitations. Five themes emerged from high-value providers regarding best practices: (1) prevention of costly health deterioration and acute crisis, (2) supporting patient self-care, (3) maximizing effectiveness of office visits, (4) selecting cost-effective diagnostic and treatment options, and (5) developing infrastructure to support high-value care. Four care attributes were identified using the modified Delphi method as having significant potential for adoption by other practices to improve quality and reduce costs: (1) rapidly adjustable office visit frequency for unstable patients, (2) close monitoring and management to preserve kidney function, (3) early planning for vascular access, and (4) education to support self-management at every contact. A consistent finding among practices deemed high value was resource shifting, with these practices utilizing physician extenders and realocating dialysis revenue into advanced CKD care.

This research highlights two issues: the dearth of good quality measures for nondialysis CKD providers and misaligned payment models that require practices to shift resources from dialysis to advanced CKD care to be successful. To achieve high-quality and high-value kidney care both of these issues must be addressed. The Advancing American Kidney Health (AAKH) Initiative was announced on July 10, 2019, with bold goals and objectives for kidney care (Table 1), establishing upon the concepts of quality and value delineated in the Centers for Medicare & Medicaid Services (CMS) Quality Payment Program. Although the terms “quality” and “value” are used frequently within the AAKH Initiative, current quality metrics in kidney care are insufficient to reliably quantify value. The AAKH Initiative specifically highlights the need for “person-centric transitions to safe and effective treatments for kidney failure.” Achieving this goal requires meaningful and valid quality metrics, as accounting both for maximizing societal benefit while incorporating individual choice and individual patient characteristics in metrics is critical for improving patient-centered kidney health. Given the tremendous cost of kidney disease in the United States, developing and validating meaningful, measurable, and modifiable metrics for kidney care, with performance thresholds, exclusions, and risk adjustment strategies that both incentivize desirable outcomes as well as allowing for patient choice and individualized care would be a good investment by CMS.

Brady et al. identified care attributes that, to implement, require financial resources. Current high-performing practices were reallocating hemodialysis income to CKD care, a strategy that makes far less sense than providing sufficient reimbursement for the complex care required by individuals with advanced CKD to prevent them from ever requiring in-center dialysis, help them make a nonemergent patient-centered decision regarding kidney failure care, or, if electing in-center dialysis, initiate as an outpatient with a stable vascular access; all desirable outcomes that require investment in nondialysis CKD care and education to achieve. In contrast, for reallocation of funds from hemodialysis to occur, patients receiving hemodialysis are required, generating a vicious circle of incentives that mandates having a sufficient in-center hemodialysis population to subsidize other activities.

Table 1. Goals and objectives of the AAKH Initiative, 2019

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<td>3. Increase access to and quality of person-centered treatment options</td>
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<td>2. Introduce new value-based kidney disease payment models that align health care provider incentives with patient preferences and improve quality of life</td>
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<td>3. Catalyze the development of innovative therapies... with funding from government, philanthropic and private entities through KidneyX, and coordinating regulatory and payment policies to incentivize innovative product development</td>
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JASN 30: 2279–2286, 2019
In the new world of AAKH, CMS should reimburse more for the nephrologist-led, interdependent care activities that reduce the risk of kidney failure and improve patient and kidney health.

We are in a time of tremendous opportunity to make meaningful differences for people with or at risk for kidney disease. The work by Brady et al. highlights key deficits in the current system. Kidney patients need high-value care, and, as a nephrology community, we can do better. Improvement cannot occur in a vacuum. To truly advance kidney health, we need better tools to assess the quality of the care we deliver and better resources to fund care delivery before kidney failure occurs.

DISCLOSURES

Dr. Ganimella and Dr. Weiner are members of the American Society of Nephrology’s Quality Committee. Dr. Weiner receives funding from Dialysis Clinic, Inc., for research and quality activities. The opinions in this editorial are the authors’ own and may not reflect the views of these organizations.

SUPPLEMENTAL MATERIAL

This article contains the following supplemental material online at http://jasn.asnjournals.org/lookup/suppl/doi:10.1681/ASN.2019101011/-/DCSupplemental.

Supplemental Table 1. Metrics used by Brady et al. to assess the quality of kidney care among nephrology practices.

REFERENCES


See related article, “Exploring Care Attributes of Nephrologists Ranking Favorably on Measures of Value,” on pages 2464–2472.

Competing Risk Modeling: Time to Put it in Our Standard Analytical Toolbox

Liang Li 1, Wei Yang, 2 Brad C. Astor 2, 3 and Tom Greene 4

1Department of Biostatistics, University of Texas MD Anderson Cancer Center, Houston, Texas; 2Department of Biostatistics and Epidemiology, University of Pennsylvania, Philadelphia, Pennsylvania; 3Department of Medicine, University of Wisconsin-Madison, Madison, Wisconsin; and 4Department of Population Health Sciences, University of Utah, Salt Lake City, Utah

doi: https://doi.org/10.1681/ASN.2019101011

Kidney failure is a frequently used clinical end point in CKD studies, and statistical analysis often focuses on the association between exposures, predictors, and the time duration from a designated baseline to that event. Other end points include doubling of serum creatinine in CKD studies and graft failure in kidney transplant studies. Censoring is a common analytical challenge with such outcomes. For example, if a CKD cohort study lasts for 5 years from launch to completion, and patients are enrolled during the first 3 years, then the maximum follow-up time of each patient is between 2 and 5 years, after which the data are censored. Censoring prevents the observation of kidney failure in the sense that there is always a chance that kidney failure occurs after censoring; had the follow-up been longer, more kidney failure events would be observed. Survival analysis techniques, such as Kaplan–Meier analysis and Cox proportional hazard regression, properly account for censoring, and the result can be interpreted relative to a hypothetical but realistic situation where all patients are followed to the end point without censoring.

Death can occur in CKD and it introduces another analytical challenge. Like censoring, it also prevents the observation

Published online ahead of print. Publication date available at www.jasn.org.

Correspondence: Dr. Liang Li, Department of Biostatistics, University of Texas MD Anderson Cancer Center, 1400 Pressler Street, Unit 1411, Houston, TX 77030. Email: LLi15@mdanderson.org

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