Kidney Disease Progression and Screening Cost-Effectiveness among African Americans

Roberto B. Vargas*† and Keith C. Norris*†
*Department of Internal Medicine, David Geffen School of Medicine at University of California, Los Angeles, California; †Medical Sciences Institute, Charles R. Drew University of Medicine and Science, Los Angeles, California; and ‡RAND Corporation, Santa Monica, California


Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?

—T.S. Eliot

The tragedy in the continuing disparities in the progression of CKD to ESRD and cardiovascular events for poor and disadvantaged (often minority) patients has not been so much that disparities exist, but the lack of will to prioritize and implement actions to address the problem.1 This is not to insinuate that there are no initiatives to improve outcomes and reduce disparities, but the level of action pales compared with the magnitude of the problem. This is further complicated when population-level recommendations, such as the lack of sufficient evidence to support screening for CKD,2 are applied to groups for whom the burden of disease is clearly greater. However, the absence of the will to take action on humanistic grounds and the inertia caused by the need for more evidence may be overcome by studies that demonstrate that addressing health disparities can also reduce overall health care costs, as well as uncover new knowledge at the basic, clinical, and community level that will translate to improved outcomes for all CKD patients.

In this issue of JASN, Hoerger and colleagues3 tackle the subject of kidney disease progression and screening cost-effectiveness with a focus on African Americans, addressing the racial/ethnic group at the highest risk for developing ESRD in the nation. Building upon prior cost-effectiveness analyses and simulation models for CKD,4–6 Hoerger et al. contribute to the rational argument for targeting racial and ethnic disparities as a priority in the battle against the larger burden of kidney disease by first calibrating a validated CKD health policy model to more specifically forecast the observed increased ESRD rates for African Americans and then describing the effect of ameliorating this disparate decline in renal function.

For the model to predict the observed greater lifetime risk of ESRD for African Americans it was necessary to impute a 20% faster decline in estimated GFR (eGFR) at stage 3 and a 60% faster decline in eGFR at stage 4. Whether the assumptions made to account for this accelerated decline in eGFR are due to disparities in care, biologic factors, or other unmeasured conditions remains unclear. However, their results support the findings of disparate renal decline in African Americans seen in other analyses of decline in renal function, National Health and Nutrition Examination Survey7 data, and observational studies of cohorts in real-world settings.8 What Hoerger and colleagues attempt to do with this finding is to focus the debate on how we can address disparities, by demonstrating that, compared with usual care, targeted screening of African Americans for microalbuminuria at selected time intervals can be much more cost-effective per quality-adjusted life year than screening for non-African Americans, and that screening African Americans at intervals of 5 or 10 years is highly cost-effective.

In addition to behavioral interventions aimed at prevention, access to care is an essential first step in addressing health crises such as CKD disparities among African Americans. Lack of insurance makes both disease detection and treatment at a universal level in this group unlikely. Given the higher rates of ESRD progression among underinsured or uninsured adults and higher rates of no insurance among minority populations,9,10 the need for a more universal form of health care is critical to the effective implementation of the Hoerger et al. recommendations. In the interim, self-enclosed universal health care systems such as the Veterans Administration, Department of Defense, Medicare, and Kaiser might pilot such a screening plan to validate the real-world efficacy of the model findings.

Beyond access to health insurance, addressing disparities in kidney disease also includes addressing within care drivers of disparities such as racial differences in the receipt of quality health care at the patient, provider, and system levels.9 As such, one challenge has been how to introduce screenings and interventions in a cost-effective manner. The fragmented structure of health care in our nation creates chasms in longitudinal care, often introducing disincentives for screening and early intervention because the patient care and cost benefits of those investments will not be captured by the present provider/insurer. These variations in practice settings and health system structures contribute to different levels of provider interaction that can affect early or delayed detection of CKD.11 Large systems that provide a form of universal access to care for a relatively captured constituency such as Department of Defense beneficiaries have reported improved outcomes and reduced disparities for select indicators of stages 3 and 4 CKD quality care.12 On balance, their findings support the inference that structured performance measures in a universal care type of environment, not only improve quality of care but may reduce and/or eliminate many health care disparities.

However, the role of access to uniform health care on CKD-related disparities should not be overstated, because several studies also suggest that CKD-related outcomes do not always
mirror that of many other commonly measured health parameters. Karter et al. examined select complications such as myocardial infarction, stroke, lower extremity amputation, congestive heart failure, and ESRD in >62,000 ethnically diverse patients with diabetes receiving uniform health care coverage during a 3-year period. They found lower rates of diabetic complications in minority patients for all conditions except for ESRD. Their findings suggest that even in a uniform health care environment, disparities in CKD outcomes may be unique, possibly reflecting a more complex interaction of biology, medical care, and environment.

It should be noted that the presence of proteinuria and/or reduced estimated glomerular filtration rate has also been reported to be a highly predictive screening tool for future cardiovascular events, including stroke. The pooling of CKD/ESRD and cardiovascular events as projected outcomes of albuminuria could further strengthen the case for targeted disease detection efforts and reinforce the need to implement albuminuria screening as an important and effective model to support and advance health policy recommendations. Given the complex nature of CKD outcomes, the consideration of a more aggressive screening approach for high-risk patients is even more imperative as part of a broader health policy approach to reducing CKD progression and complications.

Although an array of screening practices have been shown to effectively identify patients at an early stage of disease where treatment may be more efficacious, the concern of lack of cost-effectiveness (or limited evidence) from many highly visible healthcare screenings has led to the US Preventative Services Task Force recommending against universal CKD screening. This reinforces the importance of establishing the evidence base for both the clinical efficacy and the cost-effectiveness of suggested clinical screenings, with one step toward this being the identification of high-risk groups that may stand to benefit from targeted screenings, modeling the proposed strategies, and, if promising, implementing them with outcome assessment.

As we define our national effectiveness research agenda, detecting differences in subgroups’ treatment response and developing targets for treatment response heterogeneity has been a suggested goal. Although clinical subgroup risk is important, this must also include other high-risk populations that suffer from disparate health outcomes, such as the poor, the uninsured, as well as racial and ethnic minorities. In addition, as we implement new policies, we must also consider the potential effect of decisions of resource allocation, universal screening policies, and targeted approaches on not only the elimination of health disparities but also on overall population health outcomes and expenses. Health policy simulation models offer a window into how information from observational studies and efficacy trials can be used to provide the impetus for next steps in both research as well as targets for current action. Hoerger and colleagues offer such a window in the debate on both the drivers and potential solutions to CKD disparities and the potential universal benefits of targeted approaches.

ACKNOWLEDGMENTS

Support is provided in part by grants from the National Institutes of Health (UL1RR033176 and U54MD007598 to R.B.V., and U54MD007598, UL1RR033176, P30AG021684, and P20-MD000182 to K.C.N.)

DISCLOSURES

None.

REFERENCES

15. Sox H: The patient-centered outcomes research institute should focus on high-impact problems that can be solved quickly. Health Aff (Millwood) 31: 2176–2182, 2012

See related article, “Cost-Effectiveness of Screening for Microalbuminuria among African Americans,” on pages 2035–2041.