

Handing Out Grades for Care in Chronic Kidney Disease: Nephrologists *versus* Non-Nephrologists

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There has been a remarkable increase in the collective awareness of the impact and the extent of chronic kidney disease (CKD) in the United States in the past 5 to 10 yr. When, in the 1990s, nephrology experts were asked to speculate on the size of the CKD population, rarely did any such experts provide an estimate of >1,000,000 US citizens. These estimates were not unreasonable given that approximately 100,000 patients were entering ESRD dialysis programs per year and that the mean duration of antecedent CKD was approximately 10 yr. We are now aware that 15 to 16 million US citizens have stage 2 or 3 CKD, and another 1 million or so are in stages 4 and 5 (1,2). The high prevalence of CKD justifies effort to develop a strategy for dealing with it as a matter of public health. This gives rise to several questions:

1. What is the optimal way to leverage the expertise of nephrologists given that there are more than 2000 patients with CKD stages 2 through 5 for every practicing nephrologist in the United States?
2. At which stage of CKD should patients be referred to a nephrologist?
3. What is the level of expertise that can be expected of general internists or other primary care providers in the management of CKD?
4. What is the best way to involve allied health professionals in multidisciplinary CKD care?
5. Is there a point, before ESRD, at which the nephrologist should assume primary care of a patient with CKD?
6. Should it be the purview of CKD clinics to manage cardiovascular risk, given the high cardiovascular morbidity that is conferred by CKD?

CKD is a multisystem disease, and optimal therapy for CKD will address its many facets. Although the complexity of this may seem daunting, the individual processes are predictable enough to warrant the use of treatment algorithms, which can be updated to reflect new knowledge.

Overcoming the inherent barriers to desired outcomes will

require a combination of (1) further education of doctors and health care professionals, (2) a more preventive medicine- and guideline-driven approach, and (3) potential major restructuring of nephrology practices to multidisciplinary teams (3,4), which will require improved cooperation among caregivers to limit overhead and enhance efficiency of the process.

The study by Patwardhan *et al.* (1) supplies information that is highly pertinent to many but not to all of these questions. Certain conclusions can be drawn with some assurance. First, it is moderately encouraging that 59% of patients with stage 4 CKD actually experienced a significant clinical interaction with a nephrologist. Patients in the sample population had health insurance; this may be representative of the overall CKD population but is likely unrepresentative of the subset of patients who have CKD with forms of kidney disease that are most likely to progress to ESRD. This conclusion may have been substantiated by the observation that only 5% of the population from which full data were available (500,000 patients) exhibited a serum creatinine of >1.5 mg/dl. Second, it is apparent that nephrologists were more likely than non-nephrologists to prescribe care according to current guidelines. The nephrologists were certainly not 100% in compliance, especially in the area of referral for vascular access placement, a somewhat surprisingly low figure (18.1%). No data were available on efficacy of management of hypertension, which has been noted to be low in general among primary caregivers and hopefully was more successfully managed in the nephrology practices. Clearly, the results suggest that there is considerable room for improvement in both non-nephrologist and nephrologist practices as determined by adherence to clinical guidelines.

The authors do supply commentary and suggestions in efforts to correct the problems outlined in their article. The authors suggest, somewhat optimistically, that education through workshops *via* professional societies and governmental agencies will promote awareness of the issues in CKD and promote guideline-driven approaches among non-nephrologists and nephrologists that should delay progression of disease and ease the transition to ESRD. However, is lack of education really the rate-limiting step for non-nephrologists? One might argue that only a modest improvement in care will be achieved from education alone. Other issues come into play when one considers care of patients with CKD in

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the non-nephrology practice setting (5). Primary caregivers often have no more than 8 min to devote to a single patient visit, an encounter far too brief to deliver effective preventive medicine, even when the medical problem has been fully defined by education. Multidisciplinary team CKD clinics have been shown to be highly effective in CKD care and in the prevention of the accompanying cardiovascular outcomes (3,6). The overhead costs of such multidisciplinary teams, including nurse educators/nurse practitioners, pharmacists, nutritionists, and social workers, can be overwhelming and well beyond the scope and budgets of general medicine clinics and small group practices. Even in the more focused setting of nephrology practice, a universal appreciation of the value of multidisciplinary team CKD clinics does not overcome the practical and financial limitations of overhead costs of non-MD health care professionals in CKD care, in part because of the lack of financial incentive for group sessions that are conducted by allied health professionals who focus on preventive medicine- and guideline-driven principles. The absence of sufficient cooperation among nephrology practices also makes such CKD clinics less affordable outside institutional medicine and very large group practices. Such a multidisciplinary approach would also permit a smaller number of nephrologists to influence and even direct the care of larger numbers of patients with CKD. Such advances will require giving up some long-held views of the style of nephrology practice and recognition that doctors, specifically nephrologists, may not be the best provider to deliver care that is essentially preventive medicine.

The study by Patwardhan *et al.* (1) examined the care of patients predominantly within stage 4 CKD, as reflected by the mean estimated GFR of 23.6 ml/min. There is little argument that nephrologists should intervene substantially at this level of care. The results of this study strongly suggest that nephrologists do a better job using adherence to guidelines as an index of success of care. It has been the traditional view that the particular value of nephrology referral in CKD has been to slow the progression of the decline in GFR and provide effective treatment of the accompanying metabolic derangements that characterize CKD. However, given current understanding of the morbidity and mortality characteristics of the CKD population, should the responsibility of nephrologists be limited to these traditional goals? It is far more likely for a patient with CKD to die or be disabled by a cardiovascular event than to progress to ESRD (6–9). If the role of the nephrologist is to prevent overall morbidity and mortality, then one might propose that nephrologists should have an important role at earlier stages of CKD, at least in stage 3. For such to happen, the multidisciplinary team CKD clinic approach is an absolute necessity as is early referral of patients with CKD from non-nephrologists (3,4). If the numbers are against us in this process, then should we select patients who are most likely to benefit from nephrology-directed care? Data in Table 2 from patients with stage 4 CKD suggest that this may already be the normal practice. A total of 88.3% of patients who were cared for by non-nephrologists were older than 65 yr, whereas only 45.8% of patients who encountered a nephrologist were beyond

65 yr (1). If our goal is to prevent adverse cardiovascular outcomes as well as slow disease progression (6–9), then there is some logic to refer younger patients to nephrologist-managed CKD clinics because such patients might derive greater benefit in preventing cardiovascular events. This proposal or conclusion is not generated from age bias but rather from a realistic appraisal of likelihood of demonstrating major benefit from optimal CKD care on prevention of adverse cardiovascular outcomes.

Despite the major growth in awareness of the extent of CKD and the secondary cardiovascular outcomes that accompany this process, there are still major unresolved health care issues related to providing optimal care to this population. Some of these issues relate to finances and organization of care. The study by Patwardhan *et al.* (1) has been helpful in demonstrating that nephrologists do a better job of providing that care than do non-nephrologists, at least in patients with later stages of CKD. However, even nephrologists have room for improvement. Unresolved issues remain as to in which stage of CKD nephrologists should intervene and how we organize ourselves to maximize input of nephrologists early enough in CKD to exert maximal beneficial input into overall health outcomes.

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Disclosures

None.

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See the related article, “Advanced Chronic Kidney Disease Practice Patterns among Nephrologists and Non-Nephrologists,” on pages 277–283.

In this month’s issue of *JASN*, Hemmelgarn *et al.* (pages 993–999) present data suggesting that multidisciplinary care by a team of specialists can benefit patients with chronic kidney disease. This article relates directly to the paper by Patwardhan *et al.* (pages 277–283) and the editorial by Blantz, which give background information about who is actually caring for patients with chronic kidney disease and steps to be taken in the future to maximize outcomes.