

Balancing Nephrology Referrals With Nephrologist Capacity to Decrease Emergency Dialysis Starts



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Dialysis therapy for end-stage kidney disease (ESKD) is available and publicly funded in most industrialized nations. Since the passage of enabling legislation in the United States in 1972, the number of incident dialysis patients has increased from approximately 10,000^{S1} to 124,500^{S2} in 2017. Patients undergoing long-term dialysis have low 1- and 5-year survival rates of 80% and 44.9%, respectively.^{S3} Emergency dialysis starts (EDS) are associated with even higher rates of morbidity and mortality¹ as well as poorer quality of life.² In the United States, one-third of incident ESKD patients have received little or no pre-ESKD care.^{S2} Only 60% of incident long-term dialysis patients in the United States have been seen by a nephrologist for longer than 6 months prior to dialysis initiation,³ a figure that has changed little over the past decade despite increased efforts at dissemination of triggers for nephrology

referral. Late or lack of referral to a nephrologist is associated with poorer patient outcomes and increased costs after dialysis initiation.³ There are many reasons why little progress has been made to correct these deficiencies, but most represent a system-wide failure to support patients, nephrologists, and referring physicians with appropriate tools and pathways to do the right thing.

In this issue of *Kidney International Reports*, Raffray *et al.*⁴ have linked 2 large national registries in France: the Renal Epidemiology and Information Network, which includes data on incident ESKD patients, and the National Health Information System Database, which covers the health care utilization data of the population. EDS is a hard outcome with adverse consequences for all stakeholders: patients, nephrologists, general practitioners (GPs), health care systems, and payers; it was found to occur in approximately 30% patients who started dialysis (2681 of 8856 patients). This is a surprisingly high percentage considering that more than two-thirds of the population reviewed had slow progressive

nephropathy leading to ESKD. The study population was diverse and included those who were independent with minimal or no comorbid conditions as well as patients with multiple comorbid conditions, including cardiovascular disease and poor functional status. The authors note that the care trajectories during the 2 years prior to dialysis initiation were heterogeneous and that patients with less follow-up or lack of follow-up by a nephrologist were more likely to have an EDS, regardless of the frequency of follow-up by a GP. The authors recommend new policies to screen more people for CKD and to refer affected patients to nephrologists. Implementing such recommendations, which are not novel, can be challenging and inevitably must address real-world barriers discussed in detail in the following text and summarized in [Figure 1](#). Any system-level reform must start with evidenced-based models of care championed by all stakeholders. Central to such models are capacity building, enhancing individualized patient education, and improved training of health care workers who manage patients with CKD, including dietitians, social workers, psychologists, and palliative care physicians.

Involvement and Education of the Patient

Involving patients with CKD in their care is an important driver to whether their initiation of dialysis is planned or emergency. It is not uncommon for the nephrologist and GP to have differing perceptions regarding the patient's understanding of their CKD and its consequences. Too often patients are not engaged with the reality regarding their CKD diagnosis, how it may change their life over

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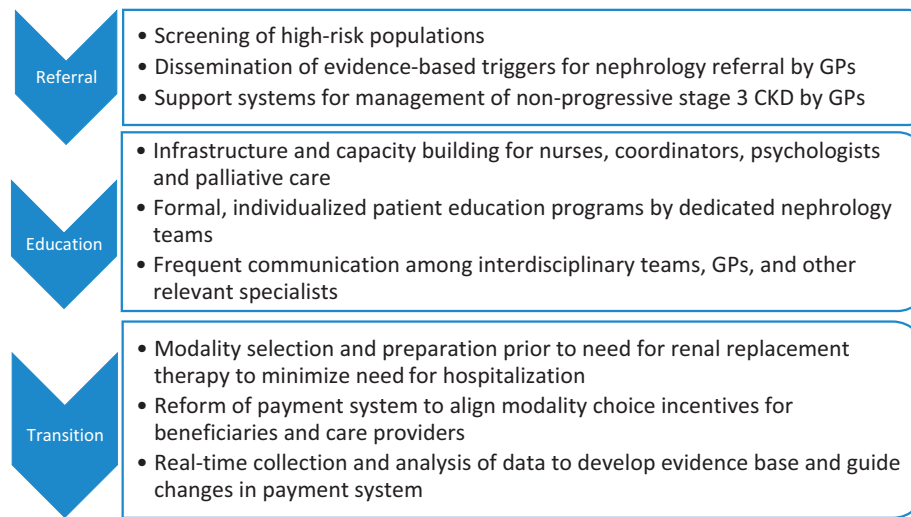


Figure 1. Strategies to improve the care of patients with chronic kidney disease (CKD) and reduce emergency dialysis starts. GP, general practitioner.

the next months to years, and what steps must be taken to achieve the most desirable patient-centered outcomes. This may be due to a number of reasons, including denial, poor health literacy, misconceptions, and a lack of reinforced education. Patients with CKD have a higher burden of mental stress and depression,⁵ leading to denial or behaviors that delay care planning and support activities. A framework to overcome these barriers is lacking with suboptimal dedicated and individualized patient education and follow-up to ensure patients understand the nature of their condition, participate in their care by demonstrating eagerness to progress to the next step, and become partners in their care.⁶

Infrastructure and Capacity Building

Although screening and early nephrology referral may increase the number of people identified with CKD, timing of the referral and the capacity of the nephrologist to successfully manage patients with CKD depend on a number of factors. Patients with CKD have complex illnesses,

multiple comorbid conditions, and a significant number have functional impairment that makes their care challenging. The achievement of optimal outcomes demands an experienced and dedicated team of individuals, including GPs, nurses, nephrologists, and other appropriate specialists, to ensure patients are guided every step of the way. Human resource and capacity building in this aspect of care will leverage and integrate the skills of each team member into a coherent organization that provides all components of the system required to improve the care of individuals with CKD.

Formal Education Programs and Collaboration

Orienting and educating the patient about CKD is fundamental to their care because it gives them ownership of their destiny and leads to informed decision making. Much of the education currently offered to patients with CKD is dated and provides a one-size-fits-all approach that fails to (i) address each patient's individual concerns, apprehensions, goals, and needs or (ii) match their understanding. In an improved

system, once expectations of the patients are explored and realistically discussed with input from their physicians, informed decision making will ensure that patients' wishes are honored in a way consistent with their values, prioritizing what is most important to them. Involvement of palliative care teams when the benefits of dialysis may be limited should be done early so appropriate discussions can take place before the need for renal replacement therapy is imminent.

Timely Nephrology Referral

For the majority of the patients, referral to a nephrologist occurs via GP after abnormal laboratory test results are discovered. Other physicians—including cardiologists and endocrinologists who see individuals with heart failure, coronary artery disease, hypertension, and diabetes, for example—also refer patients to nephrology care. Such referral needs to be structured, with clear guidelines and triggers to provide coordinated management of CKD and its complications and preparation for dialysis, transplantation, or both. Timely nephrology referral has

been shown to lead to significantly better outcomes in short- and long-term mortality, shorter hospital stays, a 3-fold increased chance of permanent vascular access at dialysis initiation, and an increased likelihood to start dialysis with higher hemoglobin levels.⁷ On the other hand, premature referral can overwhelm nephrologists' capacity. It is estimated that stage 3 CKD affects 6% of adults^{S4} (15.3 million) and there are approximately 9500 nephrologists providing patient care in the United States.^{S5} Referral of all patients with stage 3 CKD to a nephrologist—much less all those with stage 1 and 2 CKD with albuminuria—would average more than 1600 referrals per nephrologist, which is clearly not realistic. Moreover, premature nephrology referral may lead to needless patient anxiety regarding kidney disease and subsequent avoidance of the health care system. All patients with CKD stage 4 should be referred (in addition to those with stage 5 CKD if they were not referred at stage 4). Patients with heavy proteinuria, rapidly declining kidney function, poorly controlled hypertension, primary glomerular disease, immunologic disorders such as lupus, and unusual acid-base or electrolyte disorders should be referred before stage 4. Patients with stable stage 3 CKD, mild proteinuria, or both should not be referred so that nephrologists can focus their attention on patients most likely to benefit. An electronic decision support system for management of patients with stage 3 CKD by primary care physicians has shown promising results.⁸

Reforming the Payment System

Several problems exist with the prevalent fee-for-service payment systems for the care of patients

with CKD. These systems reward quantity rather than quality of care; they reward hospitalization with fees for daily hospital visits; and they reward the care of patients with ESKD over those with CKD. Furthermore, these systems fail to share the savings of decreased EDS and hospitalizations to fund the infrastructure and human capital enhancements needed to achieve the objectives outlined earlier. The US Advancing American Kidney Health Initiative attempts to address these system failures by proposing several new payment models for the care of patients with CKD termed Kidney Care First and Comprehensive Kidney Care Contracting.⁹ These models share a capitated payment for Medicare beneficiaries with CKD stages 4 and 5 with bonuses for the achievement of quality metrics, decreased health care utilization costs, and kidney transplantation. This aligns the incentives of the payer to decrease overall costs of care, of the nephrologist to share in these cost savings to fund infrastructure enhancements, and of the patient to achieve the most desirable outcomes, including transplantation and avoiding EDS. There are various levels of financial risk sharing depending on the size of the provider organization. It remains to be seen whether these payment models achieve their quality and financial objectives, and a reliable system will be required to collect data and measure the impact in real time so that midcourse corrections in the models can be made as needed.

EDS constitutes a failure of many national systems to care for patients with CKD at multiple levels. Only a timely, coordinated response in identifying, educating, and referring patients while maintaining continuous communication among all stakeholders will ensure

a planned, seamless, outpatient transition to dialysis or transplant, or both. This requires a partnership among GPs, nephrologists, interventional radiologists, vascular surgeons, cardiologists, diabetologists, patient education staff as well other care providers, each reinforcing with the patient the importance of taking ownership of their health care. Recognizing that every health care system is different, the report from Raffray *et al.*⁴ should serve as a model for similar studies from other countries to identify unique barriers to planned dialysis starts that can be addressed with targeted system-wide reforms specific to the patient demographics, health care provider resources, and payer structure of that country.

DISCLOSURE

JBW has served on advisory boards for AstraZeneca, Akebia, Vifor, Otsuka, and Rockwell Medical. He is a member of the speakers' bureau for AstraZeneca and Akebia. The other author declared no competing interests.

SUPPLEMENTARY MATERIAL

[Supplementary File \(PDF\)](#)

[Supplementary References.](#)

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