Distracted by Dialysis: Effects on Nephrology Fellowship and Careers

By Mary Mallappallil

At the 2017 American Society of Nephrology (ASN) Training Program Directors (TPD) meeting in New Orleans, preliminary information about the nephrology fellowship match predicted that the recent trend of unfilled positions would continue for the present. Despite that information, there was an unambiguous optimism owing to the improvement in job opportunities for new graduates over the past year.

The most recent ASN annual exit survey of nephrology fellows reported that “perceptions of local nephrology job opportunities were much improved compared to earlier years for both US medical graduates and international medical graduates.” Furthermore, new “fellows’ anticipated salaries in 2017 were higher than in previous years.”

The other important information from the survey included concerns that persist, mostly related to lifestyle issues. Weekend duties, overnight calls, location, salary, practice setting, and length of each workday were very important in work selection. Overall, it seemed that 2014 and 2015 were the worst years for nephrology fellowship, with the lowest number of jobs for new graduates. Not surprisingly, during these years, existing nephrology trainees were least likely to advise medical students to enter nephrology as a career. Overall, it seems to be the start of the end of a bleak period for those involved with nephrology fellowship.

How did we get here?

It seems intuitive that fellowship trends would follow the patterns in the specialty with a lag time. To look into the future, a look backward into the past would help explain the trajectory of our cherished field for some actionable insight to sustain nephrology training and careers. Keeping in mind that no authentic progress follows a straight and easy path, this journey too has been in jumps and starts—and at times, even in the wrong direction.

In the early years, nephrology was centered on physiology, the mysteries of fluid, acid-base, and electrolyte metabolism, while delving into the secrets of the kidney. Dialysis therapy was rare and was used for viable patients with acute kidney injury. It was an innovation from World War II, a procedure performed by excited renal fellows who prepared the dialyzer, dialysate, and related equipment and supplies after having dealt with the challenge of temporary vascular access.

Chronic hemodialysis was the culmination of many endeavors, including lasting vascular access, successful anticoagulation, safe and repeated administration of am-bulatory hemodialysis, and federal government funding via the 1972 Social Security amendment allowing for the Medicare kidney disease entitlement provision. Sustainable organs had already been harvested! The increasing cost of caring for renal patients was noted as early as 1973 when a New York newspaper published an editorial about dialysis and named it “Medicarelessness.” The message was: While providing life-sustaining therapy ahead of all other specialties on the one hand, the rest of nephrology needs to be taken with a pinch of salt.

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Fascination with dialysis, secure payments fostered growth

With renal replacement therapy in place, what did we do with it?

The fascination of dialysis was explored in detail, including who, when, and how people should get it, and how much they should get. Secure payments ensured that no one who needed dialysis in the United States would be denied on the basis of cost. The next few decades saw the trainee metamorphose from a physician-scientist to a physician extenders, and growing logistics and regulations. Together, these contributed to the churning out of algorithm-based therapies, use of physician extenders, and growing logistics and regulations.

The unforeseen complication of this cost cutting is the response from potential trainees. Two years after the cuts, there was a drop in nephrology job opportunities, and not medical graduates entered the field.

The way to make a profit was to increase the number of patients on dialysis. With business models describing the number of dialysis patients needed to cover cost, there was a rush to save all patients with kidney failure, which would, in return, sustain the dialysis unit. The available funds attracted industry, including chain dialysis centers, and led to the churning out of algorithm-based therapies, use of physician extenders, and growing logistics and regulations.

In the midst of all this, both science and scientist suffered.

The success of having organ replacement and delving into delivery, payment, and outcome logistics came at the opportunity cost of discovering prevention and cures for kidney failure.

We are actually working backward in nephrology. Most specialties have fractured therapies, and none have so successfully combated organ failure on a commercial level. Yet this preliminary success seems to have become a crutch. If, for example, the heart could be commercially replaced by visiting an outpatient facility, can we be certain that medi-
surprisingly, we saw the highest number of unfilled nephrology fellowship spots. In a field with poor job prospects, only the very dedicated will enter fellowship given the price of uncertainty in future employment.

**Practice patterns**

In addition to lower reimbursements, practice patterns also have resulted in fewer procedures. With trainees focused on dialysis and dialysis delivery, “expectation transfer,” the use of technology in a new way, occurred, with procedures in the realm of nephrology being exported to become integral parts of other fields. The list of procedures that have been lost to other fields is long and growing. Arteriovenous fistulas and grafts, initially placed by nephrologists, were handed off early to vascular surgeons. Hemodialysis catheter placement and kidney biopsies are now frequently performed by interventional radiologists. Peritoneal dialysis catheters are placed by general surgeons. Renal ultrasounds are done by radiologists. Continuous renal replacement therapies have now entered the realm of critical care intensivists, and ultrasound is done in the pathology laboratory.

What is left but dialysis for the nephrologist? It seems that we have completely abandoned our scrubs for suits! The only procedure that we have left seems to be using electronic medical records to put in an order for a 2K dialyze.

This state of affairs has all happened as the nephrology community has been distracted by dialysis. At the 2017 ASN TPD meeting, program directors discussed renal fellows not doing and not needing to do kidney biopsies owing to “logistics.” There was a question about the number of procedures needed to claim that a fellow was board eligible with regard to kidney biopsies. The TPDs split about 50:50 concerning the need for procedural comfort with kidney biopsies. Half of the TPDs at the meeting discussed that, because the procedure was done by radiology in the real world and is now a required procedure for interventional radiology training, it was unrealistic and unfair to have trainees do kidney biopsies in order to be deemed board eligible.

How has all of this change affected trainees? It is not surprising that nephrology is one of the lowest paid specialties, and although nephrology jobs have been lost, ironically, we have created jobs for interventional radiologists. Peritoneal dialysis catheters are placed by general surgeons. Renal ultrasounds are done by radiologists. Continuous renal replacement therapies have now entered the realm of critical care intensivists, and ultrasound is done in the pathology laboratory.

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The emergence of new biomarkers begs to reclassify acute kidney injury, chronic kidney disease, and GN not just temporally but on the basis of why—which is the most important question in science. Work on the “why” is slow to elicit an answer, especially if a distracted community is focused elsewhere.

Greater emphasis on pathophysiology would likely lead to a rethinking of therapy. Biomarkers could cease to be a neglected field of unclear pathophysiology—for example, at what points do dehydration, Meso-American nephropathy, and acute tubular necrosis occur in the setting of volume depletion? Some may argue that this may come at an opportunity cost of both time and expense, which could be well invested in therapeutics, but investment in both our understanding of disease mechanism and therapy is needed. With the data that more healthcare dollars are spent on kidney patients than the entire NIH budget (a wallet-opening fact), the National Institutes of Health announced its intent to launch a Kidney Innovation Accelerator, which would establish a public-private innovation fund for real breakthroughs. With all of these changes, will we survive as a specialty? Will nephrology fellowship continue to exist?

In the process of being torn apart, we often discover that it is just a part of reinventing ourselves. Yet we must be careful to avoid other unintended consequences. With the new seamless care delivery systems, it seems that the nephrologist will also become the primary care doctor for those with chronic kidney disease. There would be an increase in the number of patients and jobs with a change in the role of the nephrologist. Will the former nephrologist, who evolved into a perceived role as a dialysis doctor, now become a new version of a primary care provider? Will the heroic inventions of renal replacement therapy be replaced by mundane medical work?

With the growth and attention to dialysis, the leaders in our field changed from the likes of Kolff, Sarnak, Merill, and Scribner to multinational chain dialysis companies along with regulatory and payment agencies—and with this came a shift toward mundane medical work. Commercialization, other than the obvious economic implications, has also meant a change in our champions.

We have been distracted by dialysis long enough. We need to get our focus back. Let us do more of our own procedures, not fewer procedures. Let us be more ambitious and less easily satisfied. Let us focus on prevention and better treatment of earlier stages of CKD, with new therapies as a key to sustaining our field and its training programs. This year’s March is predicted to be no different with regard to the number of candidates entering nephrology. However, with the decreased supply, the nephrologist’s market seems to be getting better, with more job opportunities for graduating fellows.

The urgency to develop the field is seen from both those entering nephrology and those not entering it. Breakthroughs in physiology over the past decade seem to be reaching the threshold for application in both diagnostics and therapeutics. On the verge of breakthroughs in nephrology, the pendulum seems to have started to swing in the right direction.

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