



## Role of the Nephro-Hospitalist

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### Introduction

Nephrology has evolved dramatically since its inception. The study of kidney physiology predominated early on, but nephrology became an independent clinical specialty with the advent of dialysis in the 1960s. In its clinical infancy, patient care was delivered primarily in hospitals. However, as the population of those suffering with kidney disease grew, dialysis organizations redistributed care to the outpatient setting. The field continues to evolve with a recent emphasis on subspecialized training and expertise including transplantation, interventional, and critical care nephrology.

Concurrently, the workforce has undergone radical changes and the well documented decline in interest among medical trainees for careers in nephrology represents a threat to the field (1). The many reasons for this include a lack of mentorship, intimidation by kidney physiology, and a busy workload that is difficult to balance while juggling patients in hospitals, clinics, and dialysis facilities, among others (2,3). A perception of lower compensation and a lack of innovation in therapies and dialysis also contributes to reduced interest in nephrology as a career (4).

Although incident rates of ESKD have stabilized, inpatient consults continue to grow (5). Most of these consultations are for problems that draw many trainees to nephrology in the first place, such as electrolyte and acid-base disturbances, acute glomerular diseases, and AKI. With only 58% of nephrology training programs filled in the 2019 match (6), programs are increasingly seeking mechanisms to (1) develop new methods to recruit trainees into the field and (2) continue to provide clinical care for inpatients with a reduced fellow-based workforce.

These trends of increased specialization, declining interest in nephrology fellowship, and a desire for improved work–life balance challenge us as a field to envision new ways of attracting trainees into nephrology while preserving what makes nephrology so vibrant. It is with this in mind that the nephrology hospitalist position was created at Washington University in St. Louis. Here, we discuss the model, summarize its benefits and drawbacks, and review other approaches.

### Our Model

Before implementation of a nephrology hospitalist service at our institution, the general nephrology

consult service comprised three teams, each staffed in the traditional way with one attending, one fellow, and a varying number of medical students and residents. In 2011, a nephrology hospitalist service was created with a single attending physician who held particular interests in inpatient care and medical education. Because of this interest, medical students and rotating internal medicine residents were preferentially placed on this service. The system launched with a “1 month on, 1 month off” alternating schedule. The addition of another like-minded nephrology attending in 2012 allowed the nephrology hospitalist service to function year-round, with each individual alternating on service every 4 weeks. Neither attending was required to do any clinical work at outpatient dialysis facilities, and patient care was exclusively delivered at Barnes-Jewish Hospital (BJH).

The hospitalist attending provided all clinical care during the daytime (without a fellow but with medical students and medical residents), with after-hours coverage for the service’s patients provided by fellows on call. New patients seen overnight were staffed with the attending the following morning. Weekend coverage was similar to other consult services (one out of every three weekends on call). Likewise, patients triaged to this service were similar to the other general nephrology services and included both floor and intensive care unit consults. The service provided care for approximately one third of all general nephrology and intensive-care patients within BJH. In 2015, the most frequently billed diagnoses were AKI (1781 encounters, 38.5% of total consults), ESKD (1767 encounters, 38% of total consults), and hypertension (471 encounters, 10.1% of total consults). The nephrology hospitalist service saw over 800 new patients, with approximately 4600 total patient encounters, and over 1300 dialysis procedures billed. The average census for the service was approximately 15 patients.

In 2015, the two attending physicians comprising this service accepted different positions that precluded continuation of the program (one relocated to another academic center and the other transitioned to a position with protected time in education at Washington University). This was unrelated to the financial performance of the service.

### Benefits

There were distinct advantages of this new model for the division. A primary advantage was improved

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teaching and mentorship of rotating residents and medical students. As both nephrology hospitalists were passionate about education, working one-on-one with students and residents allowed for individualized bedside and didactic teaching that could be directed toward their training level. The importance of this direct mentorship should be underscored. In a survey of adult nephrology fellows, one of the primary reasons for their career choice was the influence of a nephrologist role model or mentor. Similarly, when internal medicine subspecialty fellows who had not applied to nephrology were polled, roughly one third of respondents noted the absence of a nephrology mentor (2,4).

From a fellow's education perspective, the new service also allowed unloading of clinical work on the other consult services and increased elective time. Not surprisingly, this mirrors the time frame where similar pushes for duty hours and outpatient opportunities were being mandated by the Accreditation Council for Graduate Medical Education (7).

Both physicians within this hospitalist model were also able to foster interests that shaped their later careers. The model was purposefully flexible enough to allow for career development when not on service. One attending took a more active role in medical student education and nephrology's exciting social media presence. The other fostered an interest in home modalities and served as site principal investigator for studies in peritoneal and home dialysis.

### Downsides

Despite the advantage described above, our service had shortcomings. We do not have objective data demonstrating an increase in nephrology applicants from within the residency as a result of implementing this model. Over the 4 years that this service existed, three Washington University house staff went into nephrology—one stayed at our institution, and two went to other programs. Additionally, an every other month schedule was required to prevent burnout; this could serve as a hindrance for individuals who need several consecutive months off service to further their research and thus this system is best suited for faculty on the clinician-educator track.

There are likely no particular financial advantages to our model. The two positions were salaried and paid for by the Division of Nephrology and were roughly break-even. Any loss would be paid for by the division. As there was a net even number of attendings required to run the service, it was a neutral endeavor compared with the traditional structure. Advanced practice practitioners (*e.g.*, nurse practitioners, physician assistants) also allow for unburdening of fellow workload, are less expensive, and would be a financial incentive for the division. However, they do not typically provide the same quality of teaching and they serve as role models for advanced practice practitioners rather than nephrologists. Academic hospitals should consider supporting these services because they provide an optimal teaching and mentoring environment to recruit nephrology applicants even if they do not maximize revenue.

An argument could be made that there is little advantage to being a nephrology hospitalist compared with a general

medical hospitalist. After all, a traditional hospitalist needs 2 years less of training and allows for similar work-life balance. However, much of what trainees find exciting about nephrology is encountered in the inpatient, rather than the maintenance dialysis setting. Care for our outpatient ESKD population is vitally important, but is typically not what drives enthusiasm to nephrology; this career path provides an alternative with unique appeal for trainees.

### Other Models

Other academic institutions have utilized similar formats with varying success. The Cleveland Clinic hired nephrologists to cover overnight primary and consultative hospital services. This effectively decreased the large number of handoffs and led to improved patient satisfaction scores and decreased length of stays. Additionally, educational experiences for fellows were improved by having an attending physician in the hospital at all times. However, these benefits were counterbalanced by the financial burden of the positions that led to the program ending (J. Simon, personal communication).

Interestingly, private practices are also exploring a division of labor between hospitals and large dialysis organizations. A well described factor that increases burnout rates in nephrology is "windshield time," which is spent driving between multiple dialysis units and hospitals (8). Compounding this is the use of multiple electronic health record systems between multiple corporate dialysis organizations and privately owned facilities (9). Private practices may be turning to a nephrology hospitalist model to mitigate these issues, boost productivity, and improve job satisfaction.

### Future Directions

Our workforce struggles present a challenge to change the ways we expose trainees to our field with the goal of recruiting future nephrologists. Some academic programs have seen interest in nephrology increase by creating robust outpatient opportunities that demonstrate the breadth of our specialty, for example (10). Just as new endeavors like KidneyX aim to innovate in kidney disease prevention and treatment, we need to innovate in inpatient nephrology education to expose trainees to the unique satisfactions of our field (8). A nephrology hospitalist model can be an additive and unique piece in this puzzle by increasing attending contact and mentorship for residents and medical students.

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