

Brief Summary

The US Nephrology Workforce: Developments and Trends

Prepared for
The American Society of Nephrology

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Executive Summary

For many years the nephrology community has been concerned with three important workforce questions:

- » Will the United States have an adequate supply of nephrologists to assure access to needed care?
- » Will nephrology be able to continue to attract highly qualified applicants?
- » Will nephrology continue to produce investigators, particularly physician-scientists?

A number of recent developments, including the steady growth in fellowship positions, a 12-year decline in US medical school graduates (USMGs) selecting nephrology, and changing organization and reimbursement for nephrology services, have increased interest in these questions and the urgency of trying to answer them.

In 2014, the American Society of Nephrology (ASN) asked researchers at George Washington University (GWU) to review recent trends and developments in order to help the specialty answer these questions and to identify options for matching future supply and distribution with future needs with the ultimate goal of assuring access to high-quality kidney care for all Americans. This report provides an overview of the nephrology workforce and factors influencing supply, demand, and use. Additional reports are planned for the next several years.

Based on the review of the key sources of data, a survey of nephrology fellows, and a literature review, our research identified a number of important developments and trends impacting on the nephrology workforce:

The number of fellowship positions has increased over the past several decades; this will lead to substantial future increases in supply. According to the Accreditation Council for Graduate Medical Education (ACGME) there were 473 1st-year fellows and 457 2nd-year fellows in the 2013–2014 academic year (AY). The 930 fellows-in-training represent a 49% increase from the 626 in 2000. This will lead to a growing supply of nephrologists for many years to come.

The percentage and number of USMGs selecting nephrology has been decreasing. The percentage of USMGs entering the specialty is lower now than it has been for decades despite an increase in US medical and osteopathic graduates. According to the ACGME, 68% of nephrology fellows in AY 2013–2014 were international medical school graduates (IMGs) compared to <40% a decade earlier. Between 2002 and 2006 nephrology recruited a higher percent of USMGs than general internal medicine (IM), but since 2006 the proportion of USMGs in IM has been increasing at the same time their proportion has been decreasing in nephrology.

The 2014 nephrology fellows survey conducted for this study indicates the current job market for new nephrologists is limited, especially for IMGs. As noted later in this report, the job market appears tight, especially for IMGs, many of whom must practice in federally designated underserved areas in order to obtain a visa allowing them to stay in the United States. More than 56% of IMGs with at least 2 years of training reported difficulties finding a satisfactory position compared to only 22% of USMGs. The job market may be particularly tight near training sites, as fellows have a more positive impression of the national job market than the local job market. Despite the tight job market, there appear to be jobs available if nephrologists are willing to relocate to less-attractive areas. On a positive note, 83% of USMGs indicated they would recommend nephrology to medical students and residents.

Nephrology appears to be recruiting a reasonable share of women and osteopaths to the specialty. Historically, the percentage of women in nephrology has been lower than in general IM residency programs. However, as of 2012, the percentage of female nephrology fellows was very similar to IM. Similarly, the percentage of osteopathic graduates selecting nephrology was consistent with IM. Given that the number of female medical school graduates is growing, this is an encouraging trend.



The number of applicants to nephrology through the National Residency Match Program (NRMP) is decreasing; many programs did not fill through the NRMP Match. The number of total applicants to nephrology through the NRMP Specialties Matching Service has decreased steadily over the past 5 years. In 2010, there were 1.5 applicants for available slots, but in 2014 only 0.8 applicants for each fellowship position.

While the cause of the drop in interest by USMGs is probably multifactorial, a soft job market appears to be playing an important role. As noted above, the nephrology fellows survey results suggest limited job opportunities, which is consistent with studies included in the literature review. It is also consistent with the results of University at Albany Center for Health Workforce Studies (CHWS) NY State survey of residents and fellows completing training in the state, which found that the demand for nephrology fellows completing training in AY 2002–2004 was relatively high, but by AY 2012 had fallen to 22nd of the 25 specialties reported.

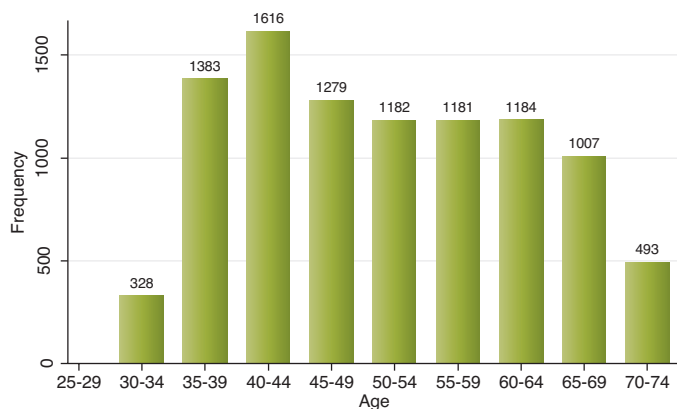
The Demographics and Distribution of the Current Nephrology Workforce

According to the AMA Masterfile, as of April 15, 2014, there were 9,653 physicians in the Masterfile actively practicing in adult nephrology >20 hours per week. Of these, 9,006 physicians were primarily engaged in direct patient care and 647 primarily engaged in teaching, research, and/or administration.

Age

As indicated in Exhibit 1, the largest 5-year age cohort for nephrologists is the 40–44 years age group followed by the 35–39 years. Although this reflects an increased number of fellows entering the specialty, the high number of active nephrologists >60 years (2,684 [28%]) also indicates that there will be a fair amount of turnover in the specialty over the next several years.

Exhibit 1. Age Distribution of Nephrologists



Source: AMA Masterfile 2014

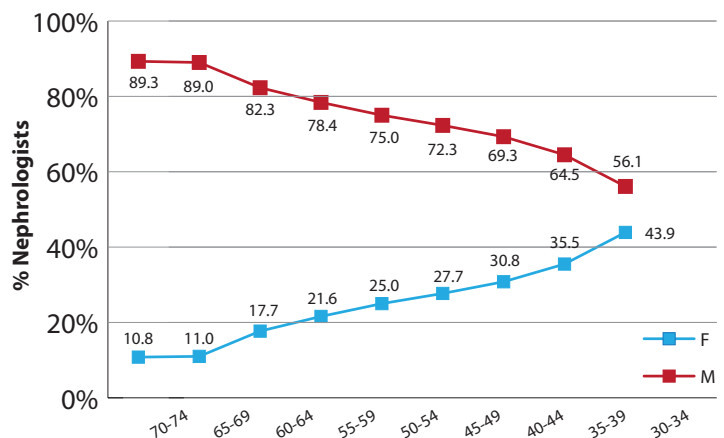
The demand for care related to kidney disease and injury is increasing. All indications—including an aging population, increased life expectancy, and an increasing incidence and prevalence of kidney disease and injury—indicate the need for nephrology services is likely to continue increasing.

The patient care delivery system for kidney disease and injury is evolving with pressure to constrain growth in expenditures. The delivery system transformation, spurred on in part by the efforts to constrain the growth in Medicare costs, is likely to affect the use and demand for nephrologists. The significant and growing role of for-profit organizations, new Medicare policies, as well as the increasing use of other health professionals in the kidney care team are contributing to the transformation of care.

Sex

Exhibit 2 shows the sex distribution of nephrologists across 5-year age categories. (Note that for this figure, the older age categories are shown on the left and the younger categories are shown on the right to show the progression over time.) The percentage of women in nephrology has steadily increased reflecting both the increase of women in medicine and the increase of those selecting the specialty.

Exhibit 2. Distribution of Practicing Nephrologists by Sex and Age Category

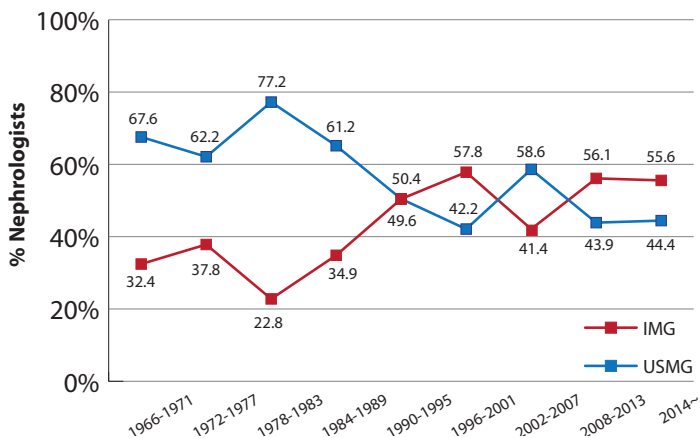


Source: AMA Masterfile 2014

Medical Education Type and Location

Prior to 1990 new nephrologists were far more likely to be US medical and osteopathic graduates, but this changed with the 1990–1995 cohort and has varied since then. The percentage of new nephrologists who are USMGs has continued to drop further in recent years.

Exhibit 3. Percentage of USMG and IMG Nephrologists by Training Cohort

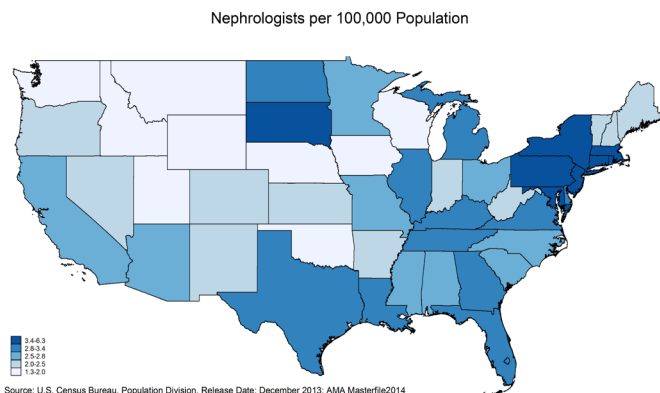


Source: AMA Masterfile 2014

Geographic Distribution

Exhibit 4 shows the distribution of nephrologists per 100,000 population in the contiguous 48 US states. The darkest color indicates the most nephrologists/population (highest quintile) and the lightest color indicates the fewest nephrologists/population (lowest quintile). This varies substantially by state—from a high of 6.3 in the District of Columbia to a low of 1.3 in Iowa. This variation will need to be reviewed closely. It is possible for a specialty to have an adequate national supply in total but still have major shortages within many communities across the country.

Exhibit 4. Number of Nephrologists per 100,000 by State, 2014



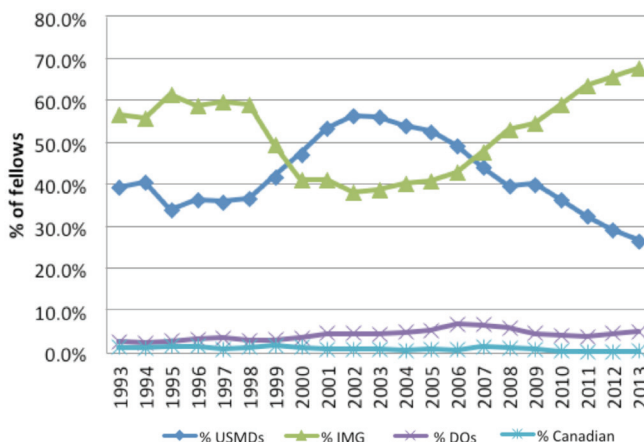
The Nephrology Pipeline: Fellows and Training Programs

The current cadre of physicians training in nephrology and recent trends provide a picture of the future nephrology workforce. ACGME data on fellows and accredited nephrology training programs shows the overall number of nephrology fellowship programs shrank from 141 in 1993 to 127 in 2000 before increasing to 147 in 2012. The growth between 2000 and 2012 may reflect the prevailing belief that more nephrologists were needed to meet the expected increase in patients with CKD and ESRD.

Over the same period of time, the number of fellowship positions has exhibited a different pattern than fellowship programs, growing steadily from 628 in 1993 to 930 in 2013—a 49% increase. The average number of fellows per program has also grown over time from 4.45 fellows/program in 1993 to 6.33 fellows/program in 2013.

It is apparent that the location of medical education of the majority of nephrology fellows has changed over time: IMGs were most prominent in the 1990s, while USMGs were the largest group in the early 2000s. Since 2007, the number and proportion of IMGs has grown to unprecedented levels. In 2013, more than two-thirds of nephrology fellows were IMGs.

Exhibit 5. Location and Type of Education of Nephrology Fellows over Time (% of Fellows)



Source: Graduate Medical Education data from JAMA 1993-2012; ACGME Data Book for 2013.

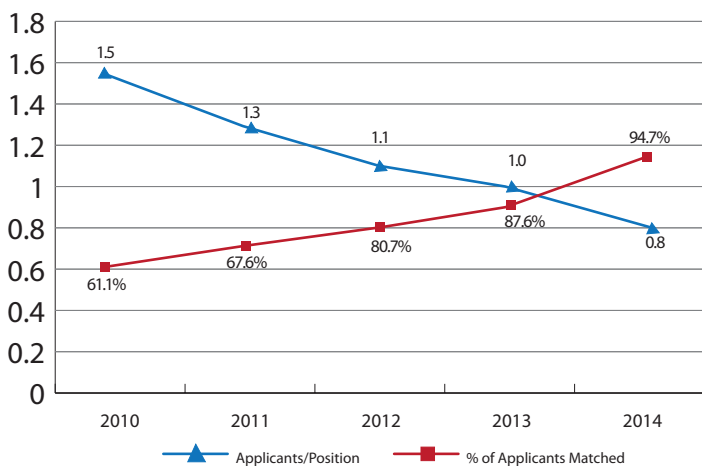
Results from the NRMP Specialties Matching Service

Data from the NRMP for AY 2014–2015 also provides information on the nephrology pipeline including the attractiveness of the specialty. While the number of nephrology fellowship programs counted by NRMP has remained nearly steady between 2010 and 2014, the figure shows a sharp increase in the number of unfilled programs, from 15 unfilled programs (10.6% of 142) in 2010 to 64 unfilled programs (44.1% of 145) in 2014.

The same trend is demonstrated in unfilled nephrology fellowship positions with the proportion of unfilled positions increasing from 5.9% in 2010 (22 unfilled positions of 374) to 24.1% in 2014 (97 unfilled positions of 403). The number of unfilled fellowship program positions doubled in just one year—from 47 in 2013 to 97 in 2014.

This increase in unfilled positions corresponded to a decline in the number of fellowship applicants—from 576 in 2010 to 323 in 2014. Only 323 individuals applied for 403 nephrology fellowship positions in 2014, a ratio of 0.8 applicants per position. Nephrology fellowship programs have become significantly less selective since 2010, when only 61.1% of applicants matched into programs. In 2014, the figure was 94.7%, with only 17 applicants failing to match, leaving 97 positions unfilled.

Exhibit 6. NRMP Nephrology Fellowship Match Statistics over Time



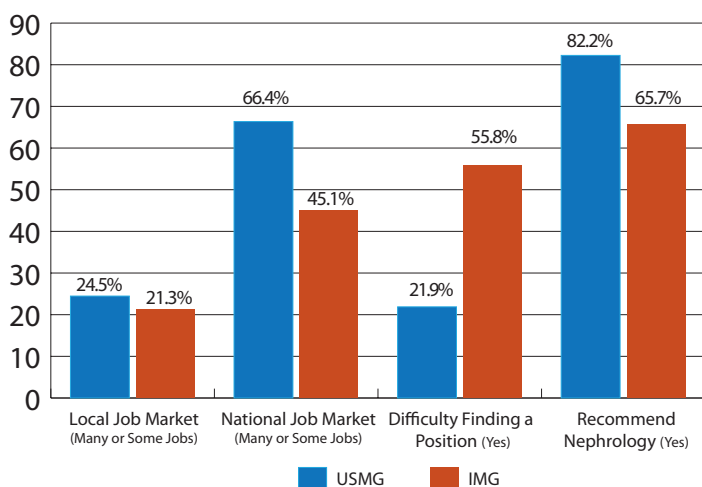
Source: NRMP.

Findings from the Nephrology Fellows Survey: Job Market Experiences

We conducted an online survey to obtain direct insights from current nephrology fellows and trainees on recent developments affecting new nephrologists, including training backgrounds, educational debt, and factors influencing job opportunities and choices. The survey tool—adapted from the University at Albany Center for Health Workforce Studies (CHWS) annual NY State Resident Exit Survey—was distributed to the 1530 ASN nephrology fellow/trainee members (to whom ASN offers free membership) in June and July 2014. Of these, 534 fellows/trainees responded and provided informed consent (34.9% response rate).

The full findings from the nephrology fellows survey will be detailed in a future report, but the following presents findings related to nephrology fellows' job market experiences to add insight to the data from other sources presented above.

Exhibit 18. Comparison of USMG and IMG Fellows' Job Market Experiences



Source: 2014 Nephrology Fellows Survey

Discussion

The issues of training an appropriate number of nephrologists for the need/demand for nephrology care and the attractiveness of the specialty to clinicians and physician-scientists are related. The recent increase in the number of fellowship positions at a time when Medicare, the major source of funding for nephrology care, has been taking steps to constrain rising costs of care appears to have led to a softening job market for new nephrologists. This in turn appears to be contributing to a decrease in applications to nephrology fellowship programs. This is consistent with findings from recent studies showing significant concern by residents and fellows about both job opportunities and compensation in nephrology.

While the belief that the United States will need more services for kidney-related conditions appears accurate, changes in the delivery system combined with and driven by changes in reimbursement policies may mean that increased service need may not translate into as much of an increase in the demand for nephrologists as previously expected. In fact, it is possible that the recent increase in nephrology fellowship positions has more than met the growing demand. This suggests a moderation in the number of fellowship positions may be warranted. However, it is important to look beyond today's marketplace to assess whether the current level of production is appropriate for future needs; in other words, is the current soft job market temporary, reflecting uncertainties in a time of delivery transformation?

These developments raise a number of questions the answers to which will impact on the supply, demand, and use of nephrologists. These key questions will be further explored by the GWU research team.

- » How is the evolving delivery system going to affect the use and demand for nephrologists?
- » Does the apparent adequacy of the national supply mask serious maldistribution of the existing supply?
- » Is the soft job market temporary? Will demand exceed supply in a few years?
- » Should ASN and the nephrology community be encouraging a decrease in the number of programs and fellows?
- » Are there specific nephrology subspecialty areas and geographic areas where the demand and job opportunities are different than for nephrology as a whole?
- » What can be done to increase diversity of the specialty?
- » What can be done to increase interest in the specialty?

