

The Influence of Medical School Debt on Career Choices in Nephrology

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Every summer, as nephrology fellowship applications begin, research-oriented academic nephrology programs across the United States search the nation for something that has become extremely rare, an internal medicine resident who is interested in a career in nephrology as a physician scientist. Although the causes of the dearth of applicants into nephrology are multifactorial and have been explored extensively (1), the burden of increasing medical school debt in the United States has become especially challenging, and is likely a driver of the discrepant interest in this field, compared with the rest of the world (2). Here, I review how medical school debt and nephrology compensation in the United States have changed over the last decade, and offer potential solutions to combat the rising debt burden and stimulate scientific careers.

Medical school in the United States is becoming more expensive. According to the Association of American Medical Colleges, the average cost of tuition and housing for an out-of-state applicant to a private medical school was \$43,393 in 2011–2012. Last year, this number rose to \$62,230 (3). This represents a 41% rise in annual costs or, put another way, the costs of tuition have outpaced inflation by about four-fold over the last decade. As the cost of education grows, medical student debt typically grows as well. Indeed, over the same time, average medical school debt has increased from approximately \$170,000 to \$200,000 (18%) (4). Importantly, while the total cost of 4 years of medical school tuition increased by over \$75,000, debt increased by only \$30,000 (2). This may represent either increased scholarship opportunities or selection of wealthier students who can afford debt while losing those with fewer financial means, which may often include minority group candidates (5).

As medical school tuition and debt have increased, nephrology salaries have similarly changed over the last decade. According to Medscape, nephrologists' salaries increased by approximately 29% between 2012 and 2019, from approximately \$236,000/year to \$305,000/year (6). This may lead one to conclude that the rising debt has been matched by rising salaries, and thus, nephrologists need not be concerned with these debt increases. However, the American Society of Nephrology found that salary growth has occurred

largely among nephrologists in private practice who have had an established practice for a number of years. Among recent nephrology fellowship graduates (who graduated in the last 5 years), mean salaries in private practice were approximately \$228,000/year, and among nephrologists who chose a career in academic centers, mean salaries were approximately \$166,000/year. This has direct implications for physician scientists interested in nephrology (7,8).

Imagine a graduating nephrology fellow interested in a career with a focus on clinical research along with clinical care. The fellow may have graduated with approximately \$200,000 of debt. The interest on Stafford loans is currently 4.3%. Assuming 6 years of training between residency and fellowship, in which minimal debt is likely to have been paid down, the individual will be facing about \$250,000 in principal debt, and an interest cost of approximately \$11,000/year at the juncture when he or she must decide whether to pursue a career in academia (starting salary approximately \$166,000/year) or full-time clinical care outside of academia (starting salary approximately \$228,000/year). At the approximate age of 28 years or older, many such individuals already have a young family, or are planning to have one in the next few years. Figure 1 depicts a projected budget for such a graduate, living in Virginia, which has about average state income tax rates. Assuming the aforementioned salaries, and a maximal 401K contribution, the net monthly income for the academic and private nephrologist would be approximately \$9243 and \$12,864, respectively. On the basis of these estimates, a graduating fellow taking a job in academia would need to save up for about 2 years after graduation to buy a \$500,000 house (with a 20% down payment) assuming the individual has no children and does not take vacations or eat out frequently. A colleague going into private practice could make the same purchase within a year. Similarly, a physician scientist would have only about \$2500/month in discretionary income after the home purchase (again assuming no childcare or vacations), compared with around \$6100/month for the nephrologist in practice. Some believe the lure of academia should overcome this, but that ignores the realities and life needs of a more comfortable earnings-to-debt ratio. Notably, these kinds of budget

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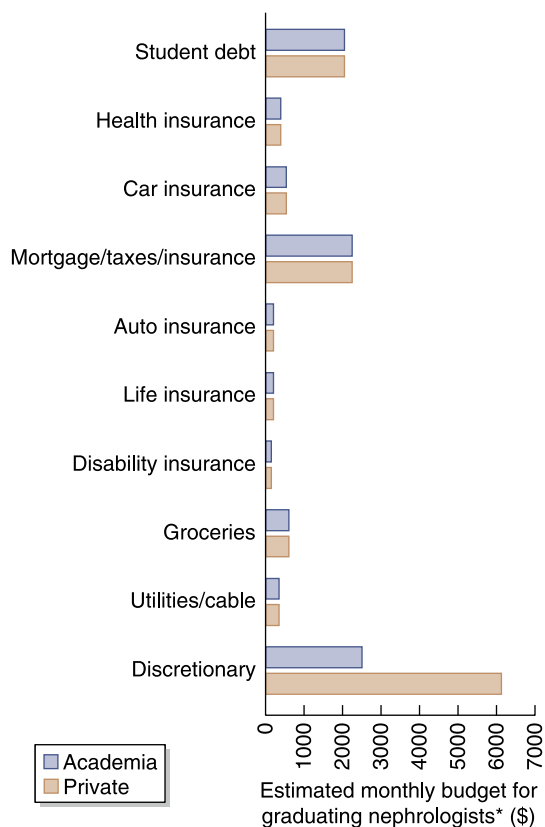


Figure 1. | Estimated monthly budget for graduating nephrologists.

Data presented here assume \$200,000 in medical school debt, with a 4.3% interest rate under a standard repayment plan. Tax, home, and insurance estimates are on the basis of the state of Virginia due to Virginia having median state income tax rates in 2020 (6–8).

calculations are likely being made not only by graduates, but also active physician scientists on faculty in academic institutions, and this has likely led many to leave academic jobs for more lucrative private practice positions.

Thankfully, some potential solutions exist, but they are not widely sought after. Possibly the best opportunity to convince potential physician scientists to pursue their research aspirations is to introduce potential fellows to the National Institutes of Health (NIH) Loan Repayment Program during their residency training. The Loan Repayment Program is a program in which persons with student debt, who will dedicate at least 20 hours/week to research, can be awarded \$50,000 in debt relief per year for up to 2 years at a time. This amount was increased this past year from \$35,000 due to the growing student debt crisis. First-time applicants typically apply as “mentored” and are required to have a faculty member oversee their research and time commitments; however, one can also apply as an “independent investigator.” Multiple types of research can qualify for the Loan Repayment Program, including clinical, pediatric, health disparities, and contraception research, as well as a clinical-research program for scientists from disadvantaged backgrounds. Considering that fellows who complete a combined 3-year clinical and research fellowship program already have 2 years of research built into their fellowship, this program can contribute up to \$100,000 in debt relief, without any

additional time or research requirements. One can then apply for renewal of the Loan Repayment Program, either for 1- or 2-year terms, and if awarded, can be used to pay off one’s education debt entirely. According to the NIH Loan Repayment Program leadership, applicant success rates are near 50%, far better than typical NIH grants (9). Additionally, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has increased the number of awardees over the last 6 years by 34% (from 64 to 86) (10). Lastly, the NIH pays federal taxes on this income. Unfortunately, state tax is not included and varies by state, but even in states with high income taxes, this is easily offset by the debt relief the Loan Repayment Program provides. If our imaginary fellow applied to this program as a first year, he or she would approach the time of these career decisions with potentially \$150,000 of debt instead of \$250,000, and a chance to earn an extra \$50,000/year toward debt relief.

The Loan Repayment Program is not the only option for debt relief. The federal Public Service Loan Forgiveness (PSLF) program is another important opportunity for nephrologists interested in academic careers. Fellows working for either nonprofit academic centers or government-owned centers qualify for PSLF. This program allows those with student debt to make monthly payments that are on the basis of their income instead of their total debt. If 120 monthly payments (10 years) are made while working for a qualifying organization, the remainder of their debt can be forgiven. Considering residency and fellowships at most academic centers qualify, nephrology fellows typically could obtain 6 years of credit by the time they start their first day as faculty or in practice. There have been many alarming news stories stating 99% rejection rates for this program, when applicants have come up to be forgiven; however, this was largely due to structural issues with the repayment plans that did not qualify in the first year or two of loan forgiveness back in 2007–2009. Thus, borrowers who graduated in the last 5 years should have success rates far higher than are being reported. Nothing prevents participation in both the PSLF and the Loan Repayment Program concurrently, so it is feasible that Loan Repayment Program payoffs could qualify as monthly payments toward PSLF on the quarterly months that the Loan Repayment Program pays out.

Finally, if a potential physician scientist does not secure a Loan Repayment Program award or is not able to qualify for PSLF, there are many local programs that may be of assistance. Many states have debt-relief programs for persons with a large debt burden. For example, California has a program to provide loan forgiveness for physicians who provide $\geq 30\%$ of their caseload to California Medicaid patients (Medi-Cal). Other state and federal programs exist for former military personnel, or for persons working in underserved areas. More recently, the American Society of Nephrology announced a Loan Mitigation Pilot program, which at least initially will focus on persons with an underrepresented minority background.

One population of physicians that may have the least amount of resources to combat debt are international medical graduates (IMG) and persons on H-1 and J-1 visas. The Loan Repayment Program and PSLF are available only to US citizens or permanent residents, and unfortunately, the same is true for most state relief programs. IMG debt is less

well studied and is typically not a result of medical school tuition, as medical school tuition outside of the United States is generally considerably cheaper (11). IMG debt may be more of a consequence of the need for widespread training applications and travel costs associated with getting into an American training program and relocating. Unfortunately, this kind of private debt is less amenable to government-sponsored debt relief programs. Notably, the aforementioned California state-relief program does not require a green card or citizenship, but applies only to educational debt.

In summary, although our future fellows face an increasing debt burden along with large salary discrepancies between academic and private practice positions, we must educate future nephrologists about these unique programs early in their careers. Too often, we shy away from discussions of debt, only to find out that by the time our fellows are graduating, they are forced to make decisions on the basis of stark financial realities instead of their aspirations. I was fortunate to have strong financial guidance as I entered training. Despite graduating from residency with over \$220,000 in debt, I have been able to obtain \$190,000 in debt relief from the Loan Repayment Program and I am enrolled in PSLF. These two programs have allowed me to pursue my research without the fear of being unable to provide for my loved ones. We must make our trainees aware of the same opportunities that were given to me. This will drive future innovation and new treatments, which will benefit our field and our patients alike.

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