

The Art and Science of Medicine ... and Standardized Test Scores

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For the past decade, there has been much discussion about declining interest in nephrology careers.¹ The special article from Berns *et al.*² about nephrology board scores opens with a comment about this trend and discusses it as a potential reason for declining scores.

However, over the past 18 months, we have witnessed increased interest in our specialty while training programs and academic institutions have been appropriately consumed by coronavirus disease 2019 and focused on dismantling systemic racism. From 2019 to 2021, the numbers of applicants to nephrology fellowship training programs have increased (<https://asndataanalytics.github.io/AY-2020-Nephrology-Match/>), with IMG and USMG applicant numbers rising.

What has led to this positive change? In 2019, new kidney-targeted therapies began to emerge, including SGLT2 inhibitors and nonsteroidal mineralocorticoid receptor antagonists, potentially transforming the course of kidney diseases for millions. During the first peak of the pandemic in 2020, the world watched as the international kidney community addressed some of the most difficult problems related to that crisis, resolving resource shortages and developing new protocols to treat kidney failure. During the past year, the nephrology community also addressed pressing societal issues that have clinical consequences, becoming the first medical specialty to rigorously study and recommend a unified solution to remove race from a clinical algorithm—the kidney function estimating equation (eGFR).³

Perhaps medical students and residents saw that nephrology does not shy away from complex problems but that it unites, charges forward, and solves them.

Berns *et al.*² focused on understanding the reasons for lower American Board of Internal Medicine (ABIM) certifying examination pass rates from 2010 to 2019. They performed a retrospective observational analysis of first-time nephrology board test takers ($n=4079$) from 150 accredited nephrology fellowship programs in the United States. They relied on data from ABIM and the Accreditation Council for Graduate Medical Education (ACGME) and identified associations between self-reported characteristics of nephrology fellows (age, sex, IMG/USMG status, birthplace, and prior internal medicine [IM] certifying score) and of the nephrology programs (geography, size of the program [three or more defined as large], university versus non-university based, and mean ABIM IM examination scores by tertile).

The investigators found that the IM certifying score was the dominant determinant associated with the ABIM nephrology board examination score. To educators, this finding comes as no surprise. Standardized tests, within and outside medicine, exhibit widely recognized associations with socioeconomic status and scores as well as racial and ethnic bias.^{4,5}

The unintended and still unresolved negative consequence(s) of standardized test flaws affect college and medical school students as well as people in other positions.⁶ To address that bias and recruit the best future physicians, many medical

schools and training programs have adopted a more holistic review process, assessing applicants' experiences, attributes, and academic metrics to begin to eliminate inequity and promote justice.⁷

Because IM test scores are not available to nephrology training program directors at the time of fellowship application, Berns *et al.*² suggest identifying resident characteristics that track with IM certifying examination performance to predict trainee success. However, test-taking ability should not be the only measure to predict success. Indeed, it should not be given more weight than other applicant qualities that help us choose the best future physicians and nephrologists. When the American Society of Nephrology launched a loan mitigation program (<https://www.asn-online.org/education/training/lmp.aspx>), the society chose to exclude board certification as a criterion for initial eligibility, given the evidence that standardized testing has a negative effect.

Similarly, the association between older age of trainees at the time of the qualifying examination and lower test

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scores is not surprising and has been previously reported.⁸ Women and IMG trainees were also reported to have poorer test performance. IMG test scores declined over the past decade, whereas scores among women remained relatively unchanged. As a woman trainee in nephrology, I (S.E.Q.) vividly recall flying back to my home province to take my nephrology boards with my 3-month-old son on my lap battling his first viral infection. Sleep deprived and focused on my toddler back home with my partner and my sick newborn, I remember waking up in the middle of the night realizing I had entered an incorrect answer to a simple examination question. Parenting mitigated my once-prized perfectionism—and provided experience that allowed me to grow as a physician.

Our specialty boasts more diverse trainees and a higher percentage of those traditionally excluded from medical training than do most other IM specialties.⁹ As with women and older trainees, IMGs bring different perspectives to our field and advance our profession. Evaluating performance on examinations or better yet, the content of the examinations themselves must account for influences of diverse candidate backgrounds. Berns *et al.*² recognize that they did not measure additional confounding factors. Similar to the case with the data on sex, the report does not provide insight into why IMG scores are lower than USMG scores. There are no data on English as a first language, circumstances that might have brought trainees to the United States, age confounding, or family commitments. Interestingly, a recent report from Abood *et al.*¹⁰ highlighted the changing demographics of funded physician-scientists pursuing kidney research in the United States—with increasing numbers of women and IMGs underscoring how these groups advance our field.

Berns *et al.*² raise an important point for training programs and our field. It is unacceptable that in 2019, only 62 (57%) ACGME nephrology programs had a 3-year aggregate pass rate of >80%, compared with 108 (86%) in 2012. How do we appropriately reassess what is being taught in our fellowship curricula?

Nephrology has advanced at a faster rate than many other specialties, with new genetic and molecular insights and new drugs, while still providing longitudinal patient care and mastery of traditional aspects of medicine and physiology.

Unfortunately, it is not possible to identify from the data provided in this report which programs have failed our trainees. The report did find an association of lower pass rate in programs with fewer than three trainees, as well as with nonuniversity-based programs. Smaller programs (for example, programs that serve rural communities) may have busier clinical loads for trainees and less peer-to-peer mentorship, and they may support a more limited range of educational opportunities. Nonetheless, these programs may serve important needs.

Through ACGME, we must hold training programs accountable. Institutional and program resources must support trainees' needs, protect their time, and ensure education is prioritized. The pandemic improved virtual platforms for education; all training programs should adopt technologies that ensure fellows receive full access to high-quality educational material.

Additionally, we must hold ourselves accountable for fair, comprehensive assessment of candidates. Perhaps the most important statement relative to this report's limitations is that ABIM test scores have not been demonstrated to correlate with patient care.

To meet the new opportunities that have emerged in our specialty, we must commit to recognizing everything applicants may bring to our field, to understanding testing as a component of comprehensive assessment, and to fully evaluating the potential of those who will advance kidney care.

Recently, I (S.E.Q.) met a hospital patient for the first time. The primary team had written that the patient is a poor historian. My fellow, an IMG, introduced us to the patient—in Spanish. The patient's face lit up, and he began an animated conversation about his symptoms, history, and what had led to the current admission. The fellow quickly made the correct diagnosis and

devised a plan. The patient requested to follow with the fellow in her clinic. We left the room knowing this patient's journey had just become easier.

Let us remember and respect the passion and dedication our trainees exhibit before they ever apply to training programs and learn to better identify all those who will harmonize the art and science of medicine.

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