



An Interview with Jordan G. Nestor, MD, the second-place winner of the 2020 CJASN Trainee of the Year competition.

CJASN Editor-in-Chief Rajnish Mehrotra interviewed Jordan G. Nestor on the findings from her CJASN article, "[Pilot Study of Return of Genetic Results to Patients in Adult Nephrology](#)," as well as what sparked her interest in the field and where her research will take her. [Listen now!](#)

Jordan G. Nestor, MD, is an instructor of medicine at Columbia University. She aspires to become an independent translational genomics investigator and make meaningful contributions toward eliminating the inequities that contribute to higher rates of kidney disease among communities of color. Her research focuses on strategies for making genomic medicine more accessible to nephrologists and inclusive of diverse patient populations in hopes of improving the long-term health outcomes of these communities through personalized nephrology care. She holds a doctorate from Albert Einstein College of Medicine and completed her internal medicine residency at Weill Cornell and her Nephrology and Precision Medicine fellowships at Columbia University.

RM: Can you briefly introduce yourself to the CJASN audience?

JN: Thank you for this opportunity. My name is Jordan Nestor. I am an instructor of medicine at Columbia University. In 2016, I completed my first year of nephrology fellowship, and I was able to join my mentor's laboratory, Dr. Ali Gharavi. I spent 4 years there as a postdoc. I learned about molecular genomics and hereditary nephropathies. My research focuses on the implementation of genomic data in order to deliver more personalized nephrology care, but also to increase nephrologists' engagement in our precision medicine initiatives.

RM: What sparked your interest in patient-centered research in genetics as it relates to kidney disease?

JN: Prior to attending medical school, I worked in an inner-city emergency department recruiting patients for studies relating to health disparities, and, overwhelming, the patients I saw were Black and Latino, mostly Spanish-speaking Latino, patients. These patients were presenting to emergency departments for care, and most of them were disenfranchised, chronically ill patients. I was able to see there how research was really intended to advance their medical care. That's when I wanted to become a physician scientist.

Then when I was at Einstein as a medical student, I had the opportunity to follow these dialysis patients, most of them, again, were Black and African American and Latino patients. Most of them had family histories of kidney disease. Because I was able to follow them for so long, and see that their families were also—it wasn't just their burden, but their families were also burdened by their illness—that coincided with *APOL1* risk variants being discovered around 2010, and it was the first time it really sparked my interest in how genetic factors may contribute to disproportionately higher rates of kidney disease among Black and African

American and Latino patients, especially Afro-Latino patients. Before that, it was more about socioeconomic factors that may contribute to that, but now it's all about the genetic contribution. It's also what led me to want to come to Columbia so that I could join Dr. Gharavi's laboratory.

RM: What is the gap in our knowledge that you hoped to bridge with your work?

JN: Emily Groopman from our laboratory completed a large exome study. After that work was completed, it became clear that the next step was for us to notify nephrologists and their patients who had undergone sequencing through our biobank and were found to have potentially medically actionable genetic findings. But at the time, there were no guidelines for how to return results to nephrology patients, how to recontact patients from a biobank, how to clinically confirm research-level findings, or how to communicate those findings to patients and to their providers. So, we set out to develop a pipeline for the return of actionable results to nephrology biobank participants.

RM: What were your key findings?

JN: After we decided we would return primary diagnostic findings in genes that were associated with kidney phenotypes and for patients who had clinical phenotypes that matched the described phenotype of that genetic disorder—and also decided that we would return medically actionable genetic findings in genes that the American College of Medical Genetics recommended for return as medically actionable—we approached our clinical faculty about returning them to our nephrology patients. But they were initially very apprehensive about it. Through qualitative interviews, we identified what some of their concerns were; there were specific informational workflow needs that we first had to address, sufficiently, to get their buy-in so that they could help us in these efforts.

One of the things we had to do in this project was to designate a point person, a liaison, who was me, to do the entire return of results effort, liaise between faculty, scientists, and patients. What we also did was develop an educational curriculum to help faculty and participants with certain knowledge gaps related to genomics. We held regular case conferences, where we had cases that described core genomic concepts for faculty, scientists, medical students, residents, and fellows. We formalized pre- and post-test genetic counseling sessions for our patients, and we developed these easy-to-follow, easily digestible nephro-genetic consultation notes that highlighted for the provider these next steps in management. It was easy for them to follow who then they should refer patients to and how then to communicate the results to their patients.

RM: Your work so far focuses on monogenic diseases. What work remains to be done, if any, before we can contemplate returning genetic results for say *APOL1*? For polygenic diseases?

JN: I believe nephrologists will increasingly be called upon to act upon patients who present with these genomic findings. And whether it's, for example, a transplant provider who has

ordered *APOL1* testing for someone they think to be at high risk as a potential living donor, or if it's a nephrologist who encountered someone with maybe unsolicited pharmacogenomic findings in the EHR, a polygenic risk score that is presented to them in the EHR, or even if they sought testing for suspected monogenetic nephropathy and now have a diagnostic or nondiagnostic finding, they may feel quite uneasy applying that information in their patient's care.

So, we need to identify what their informational and workflow needs are, so nephrologists encountering patients across a wide array of practice settings can know what to do and feel comfortable doing it, so we can empower them. I think we need to do this through formal needs assessments before we can go forward with greater efforts of electronic health records integration of genomics information and these larger precision medicine initiatives.

RM: How does your work in kidney disease fit in the larger body of work outside nephrology in returning genetic results to patients?

JN: Unlike pediatrics, oncology, and maybe neurology, which are fields that utilize genetic testing more routinely in their clinical evaluations, broader uses of clinical genomics is still pretty new in medicine and subspecialties of medicine. As we know from our study, the lack of expertise in genomics can impede nephrologists' use of genomic data. And because physicians' exposure to education in genomics may be variable, minimal, or nonexistent, most providers across different subspecialties may also feel ill equipped to utilize genetic data to inform their patient's care. Unfortunately, there's also this critical shortage of genetic professionals to assist providers using genetic information for personalized medicine. And so, our efforts to characterize nephrologists' needs and make relevant interventions that support their medical decision making, I would assume would be of value for physicians in fields outside of nephrology.

RM: What are the next steps in your research? Or, more broadly, for the field?

JN: I think developing bioinformatic solutions that address knowledge gaps in genomics that are readily available at the point of care and are adaptable across diverse clinical settings are the next steps in operationalizing broader use of genomic data to inform clinical care. We are currently working on assessing providers' educational needs to guide the development of these tailored clinical decision support tools that will be embedded in the electronic health record that address specific knowledge gaps and promote responsible use of clinically valid genomic data for patient care. I was also awarded an institutional career development award that will allow me to gain more expertise in biomedical informatics and continue to build upon earlier work where I've developed electronic health record-based decision support tools specifically intended to guide nongenomic experts managing patients who come across these unsolicited genetic findings or genetic diagnoses in participants that either participated in research or come to them with new genetic information, maybe from a third-party commercial laboratory, which we increasingly see now with patients undergoing sequencing through 23andMe and hereditary ethnicity services.

RM: Congratulations again! What words of advice or wisdom do you have for people that are contemplating or just starting their research training with a focus on kidney diseases?

JN: Even though I am very early in my research career, it took many years to get to this point professionally. I was a nontraditional student, and it took me 5 years to finally be able to go to medical school. I just completed 12 years of medical education and training, which happened of course during a pandemic, which has led to me being very reflective of this point of my career. I believe what has gotten to me to this stage has been a focus on service.

I advise all students and trainees, whenever I speak to them, to decide what it is they want, write it down, make a plan, and work on it every day. I was inspired to work toward advancing the care of marginalized patients because I witnessed the higher burden of chronic illnesses and learned about the worse health outcomes endured by individuals in underrepresented communities, and that seemed plainly unjust to me. I believe it was my desire to improve the lives of nephrology patients that helped me ambitiously pursue Dr. Gharavi as my research mentor, and, I think, until now, has kept my training and research pursuits in line with my overall professional purpose. I think that if I didn't have this, I would have been limited by personal insecurities and fear of failure. And this focus is what helped me shake off some of the earlier challenges and setbacks I faced in pursuing a research career. Because I strongly believe that research is how we will help advance the care and improve the lives of patients with kidney diseases, our field needs more people to serve patients through research careers. I'm always available to help any early trainee, medical student, resident, or fellow who is interested in pursuing a research career to just talk about it if it's something they feel they're interested in but don't even know where to start. I didn't know where to start, but I may have some advice that I can offer, so I encourage you to reach out to me. I would be more than happy to help.