



Although it tends to fly under the radar, CKD affects more than 30 million Americans, most of whom will show no symptoms until they need dialysis or a kidney transplant due to kidney failure. It's common among adults with diabetes and high blood pressure and disproportionately affects African Americans, Hispanics, and Native Americans.

“When I started researching kidney disease, the majority of clinical research was on end-stage renal disease (ESRD) or transplant. Our biggest contribution has been earlier detection and prevention,” says Michael Shlipak, MD, MPH, chief of the Division of General Internal Medicine at the SFVAHCS and co-founder of the KHRC.

Building a Team

As a general internist, Shlipak recognized early on that he would need to partner with a nephrologist. His opportunity came in 2004, when Carmen Peralta, MD, MAS, arrived at UCSF as a nephrology fellow.

“Carmen was explosive with ideas,” says Shlipak.

“He was such a generous mentor,” says Peralta of Shlipak. She eventually co-founded the KHRC and now serves as its executive director. “We come from very different backgrounds, but he helped me explore different ideas, and the hierarchy always stopped when we were having a scientific discussion.”



Michelle Estrella, MD, MHS

In academia, talented young researchers like Peralta often move to other institutions to begin independent research careers, including forming their own research groups. However, Peralta and Shlipak felt that their opportunity to change the lives of people with CKD was simply too great to break up the team. Ultimately, they decided to merge their budgets around CKD research to create the KHRC.

“Within a year, my partner [an experienced operations and marketing professional] told me we really needed to expand and scale our work,” says Peralta.

In part, that meant growing the capacity of the KHRC to serve as an incubator for career building. “Younger people tend to have the best ideas, and talented learners force you to think deeper,” says Shlipak. “The value of an idea here is not tied to seniority.”

In addition, the two are in absolute agreement about the need for diversity at the KHRC. “If we don’t draw from diverse backgrounds, the questions will not be diverse, and that’s especially important for a disease like this,” says Peralta.

Those principles have driven the KHRC’s growth. In less than a decade, with support from the Department of Medicine and the SFVAHCS, the group has nurtured four new academic faculty members, and served as the home for six NIH K awards for career development, eight NIH R-level (research grant) funded investigations, and three major foundation awards. Its output has been equally impressive, with more than 300 published journal articles. Nephrologist Michelle Estrella, MD, MHS, who joined the KHRC faculty in 2016, is an NIH-funded researcher with expertise in advanced kidney injury and adds another experienced person to the team.

“In only one year, she has established herself as an excellent project leader and mentor,” says Peralta.

Today’s Work

The KHRC’s work began with Shlipak’s successful effort to establish the links between CKD and cardiovascular disease. Today, its focus has expanded dramatically.

For primary prevention, projects include the development of tests that draw on novel biomarkers in urine and blood for detection of early kidney damage and injury. This includes exploring whether it’s possible to create a kind of “noninvasive biopsy” that measures specific proteins in the urine to quantify and localize damage within the kidney, such as medication toxicity, a major contributor to CKD.

For secondary prevention, the group has developed a “triple-marker” testing strategy to identify persons at highest risk for CKD complications. It recently completed the first randomized clinical trial of this test to evaluate the efficacy of screening for kidney disease among veterans with hypertension who do not have diabetes. “Twenty percent had kidney disease, and neither they nor their doctors knew it,” says Shlipak.

The KHRC is also pioneering two trials around the use of EHRs, including one, says Peralta, “that uses automated algorithms to prioritize screening tests and then connects test results to the proper treatment – again, with the aim to catch the disease much earlier than we do today.”

Other research efforts include understanding and working to eliminate health disparities in CKD, and studying the complex interactions between CKD and hypertension, cardiovascular risk, and other chronic diseases, including HIV.

“We formed the KHRC because there’s no way we can do this work on our own,” says Peralta. “The knowledge around kidney disease remains dangerously low, and if we’re going to change that, we need to continue to grow.”



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VASANTHA JOTWANI, MD



**Nephrologist
Vasantha Jotwani, MD,
Joins the KHRC Team**

Mike Shlipak, and we did a small study that eventually led to many other projects, mostly about HIV and kidney disease.

During my NIH-funded research fellowship, we studied risk factors for kidney disease in people with HIV, with the understanding that as people with HIV infection live longer, they develop comorbidities, including CKD. This includes the fact that some antiretroviral medications could be a major contributing factor to CKD. We began using newer urine biomarkers to detect earlier injury, and had some really exciting preliminary findings: We may be able to detect specific kinds of injury and associate them with specific causes.

I really appreciated the hands-on, comprehensive mentorship that I received from the get-go. There was so much honest, constructive feedback, as well as opportunities and introductions, which have helped me to collaborate with other leaders in the field. And as I've developed my own interests and pursued them, KHRC leadership has offered nothing but support. Yet what's really kept me here is the team dynamic: getting paid to work with people I have a lot of fun with.

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