

Kaiser Permanente Research



Clinician investigators

On the front lines of patient care and research

Cardiac surgery patients travel to the Kaiser Permanente Los Angeles Medical Center from all parts of the Southern California Region. That can mean long-distance travel for follow-up care. Raymond Chen, MD, DPhil, a cardiac surgeon at the Los Angeles Medical Center, wondered if there was a better way.

"If a patient comes from Lancaster, that can take several hours," he said. "Just walking from the parking lot is hard if you are already short of breath."

Video conference visits struck Dr. Chen as an enticing alternative. He hypothesized that, beyond convenience, video visits might reduce hospital readmissions.

Wound infection and heart failure are two of the top causes of readmission after cardiac surgery. Surgeons can spot early signs of complications during follow-up visits. But traveling for an in-person visit can be difficult for patients. And telephone consults don't provide enough visual information.

"A patient may tell me their wound is a little red. But they can't always describe it well," said Dr. Chen. "It is really helpful to be able to see the wound directly."

Dr. Chen regularly communicates with family using a video chat app on his smartphone. It occurred to him that he might be able to use the same tools in his practice.

"The technology is so prevalent, and it works so well," he said. "Why not put that to use for medical care?"

Clinician Investigator Program launches

The Clinician Investigator Program, which launched late in 2015, gave Dr. Chen the time to explore his question.

"One of the big challenges for clinicians who want to do research is carving out the time," said William Towner, MD, who heads the Southern California Division of Clinical Trials Research and developed and oversees the Clinician Investigator Program. "This program gives them extra time to devote to research."

Selection is highly competitive. More than 50 physicians applied when the program first called for candidates in fall 2015. Dr. Chen was one of the first 4 chosen.

A question becomes a trial

Time was just what Dr. Chen needed to turn his question into a randomized trial. Within 6 months, nearly 600 patients had been recruited.

"When a patient asks for a video conference call, I call them back the same day," said Dr. Chen. "The video images are amazingly clear. I can see how incisions are healing. I can see how my patients are breathing."

Seeing his patients at home also gives Dr. Chen a sense of their activity level.

"If I video conference with a patient 2 days in a row, I might see that he hasn't moved," he said. "That gives me a chance to encourage him to get out of bed, to walk or just take a few steps. That's very important to recovery."

Is there a decrease in readmissions?

"We're still analyzing the data, so we don't know yet," said Dr. Chen. "Anecdotally, I would say patient satisfaction is improving. Patients love that they don't have to make an appointment, drive here, park, and wait to be seen."

Opportunity in an integrated system

Women with ovarian cancer navigate a complex path from diagnosis through treatment. A primary care physician or gynecologist may be the first to note symptoms, prompting a referral to a specialist. Once a patient is diagnosed, treatment almost always includes surgery. It can also involve chemotherapy or radiation therapy.

Devansu Tewari, MD, MBA, a gynecologic oncologist at Kaiser Permanente Orange County, firmly believes patient outcomes are linked to timely care.

"Ten years ago when I joined SCPMG, the patients had large-volume cancers that required more complicated procedures and longer surgeries," he said. "These cancers are considered to grow faster than others, so I set a target to see these patients quickly after referral and target surgery within 2 weeks. Subjectively, I started noticing that the volume of cancer and complexity of surgery started to decrease."

While exchanging data with colleagues, he realized others were taking similar steps to improve timeliness of care. He also realized that there was sparse evidence on what constituted timely care for ovarian cancer.

Dr. Tewari became interested in examining the relationship between outcomes and improved access to gynecologic oncologists and surgery. This spurred him to apply to the Clinician Investigator Program. He was accepted to the program in the fall of 2015, along with Dr. Chen.

"My goal is to break down the entire care pathway, from an abnormal imaging exam that prompts a referral to the gynecologic oncologist to the time to surgery, recovery, and initiation of chemotherapy," he said.

In addition to providing time for research, the program offers biostatistician support. Dr. Tewari teamed up with Michael Batech, DrPH, a biostatistician in the Department of Research & Evaluation. Together, they



Dr. Devansu Tewari, Dr. Michael Batech

are working to map out the timeline for care and analyze patient outcomes throughout the care pathway for ovarian cancer.

Findings from this research could have benefits to the community. Dr. Tewari, who sits on the National Quality and Outcomes Committee for the Society of Gynecologic Oncology, often hears frustration from his colleagues from other institutions about gaps in what they know about their patients' histories or outcomes.

"University hospitals and cancer centers don't always have detailed records of what happened with their patients before they were referred," he said. "They also have challenges tracking their patients after treatment."

An integrated care delivery system with extensive electronic health records, like Kaiser Permanente, offers distinct advantages. In addition, KPSC members have access to gynecologic oncologists and health care coverage, which are often cited as barriers to care for women with ovarian cancer care nationally.

"Here we have everyone under one tent—the hospital, the different departments, and the doctors connected under one digital platform," he said. "We can provide insights that few other places in the country can."

A portfolio of ideas from practice

The opportunity to practice in an integrated care system beckoned to Hui Xue, MD, MMSc. In 2014, Dr. Xue left a more traditional academic role to join the Nephrology Department at Kaiser Permanente's San Diego Medical Center.

The move meant taking on a busy clinical practice. But Dr. Xue has remained focused on building a robust clinical research portfolio alongside her clinical practice.

In her application to the Clinician Investigator Program, Dr. Xue outlined 4 proposed projects, spanning observational studies to clinical trials. Though diverse in topic and methodology, her research ideas sprang from a

common motivation: the desire to improve survival rates and quality of life for patients with advanced and end-stage kidney disease.

Shortly after joining the program, Dr. Xue launched her first study. It focused on survival and outcomes among people ages 75 years and older with advanced kidney disease. The project arose from her own long-standing research interests but also reflected the curiosity of her nephrologist colleagues.

"They had a wealth of study questions," she said. "But they didn't have the experience in study design to deliver a publishable product."

Dr. Xue has been fascinated by science since childhood. She started working in a lab at age 17, and in medical school, she received a Howard Hughes fellowship in cell biology. During her nephrology fellowship, Dr. Xue earned a master's degree in clinical science at Harvard.

That background helped Dr. Xue turn her colleagues' questions into a scientific study. She recently presented preliminary findings to the KPSC 2017 Nephrology Symposium. She is now working on a manuscript.

In the meantime, Dr. Xue is steadily building her research portfolio. Her second project was a funded clinical trial at the Los Angeles Medical Center. She is in discussion with an industry sponsor for a third project, and is working to get internal funding for a fourth.

She also recently collaborated with Kristi Reynolds, PhD, MPH, director of epidemiologic research at R&E, on a multi-site research project cooperative agreement. Even if the grant is not funded, Dr. Xue found this collaboration to be a valuable learning experience.

"Dr. Reynolds has the experience with leading a project involving recruitment and I brought the experience with clinical management," she said. "That's a perfect partnership, when a clinician investigator and a more traditional scientist work together."

Insights to improve quality programs

John Sim, MD, a nephrologist at the Los Angeles Medical Center, sees research as an opportunity to have a bigger impact on health and quality of care.

"Caring for my patients' health is my main responsibility," said Dr. Sim, who was also one of the first group of clinician investigators. "Research gives you an opportunity to improve patient care beyond what you can do on your own, and to improve care for patients beyond your own panel—and even your own organization."

Dr. Sim's recent research has focused on a patient safety program called the Creatinine SureNet program. The program follows up on abnormal creatinine tests, which can indicate kidney disease.



Dr. John Sim, Dr. Hui Xue

In an initial study published in *The American Journal of Medicine*, Dr. Sim and his co-authors described the Creatinine SureNet program and documented its impact. They also noted potential areas of improvement, prompting a follow-up study.

"We found that the equation we're using to estimate the kidney function is probably overestimating the number of people who need follow-up," he said. "Another commonly used equation would have captured about 44% fewer patients."

The alternate equation, the Chronic Kidney Disease Epidemiology Collaboration equation (CKD-EPI), has been shown to be more appropriate in screening applications than the equation that was used by the SureNet program (the Modification Diet in Renal Diseases, or MDRD equation).

Unnecessary follow-up can take a psychological toll on patients, who may worry that they have chronic kidney disease. Tracking a smaller group of patients would also mean fewer resources.

Findings of the study were published in *The Permanente Journal* early in 2017. The SureNet program is in the process of adopting the CKD-EPI equation, according to Mark Rutkowski, MD, the chairman of the Regional CKD Committee and a nephrologist at the Kaiser Permanente Baldwin Park Medical Center.

"The study helped build the case for making the change in the estimating equation," said Dr. Rutkowski, who was a co-author on both papers.

The study also found that even among patients diagnosed with chronic kidney disease, the rate of testing urine for protein was low.

"It also pointed out the need for a more effective process for obtaining urine albumin or protein measurements in our patients," he said.

"We had assumed that the usual batch lab program for members with chronic kidney disease, which includes a urine albumin test yearly, would be sufficient. However, this study showed us that this process isn't sufficient to get timely urine albumin or protein measurements for members who are newly identified as having CKD," Dr. Rutkowski said.

Physician research as a tool for change

SCPMG's leadership believes our physicians can make a unique contribution to research.

"When our physicians are involved, it helps us make sure our research addresses problems that have an impact on practice," said Michael Kanter, MD, regional medical director of Quality and Clinical Analysis, SCPMG. "They see the issues, and they know where the gaps are in the literature. They can also envision how to change practice with the results of the study."

SCPMG physicians have previously had informal pathways to participate in research. Those include running clinical trials, applying for funding through the Regional Research Committee, or mentoring residents and fellows during their research projects.

The Clinician Investigator Program provides a more formal pathway for clinicians to integrate research into their clinical careers.

"The support from regional and medical center leaders and our SCPMG board has been critical to getting this program going," said Dr. Towner.

A second group of 4 joined the Clinician Investigator Program late in 2016: Casey Ng, MD, a urologist at the Panorama City Medical Center; Navdeep Sangha, MD, a neurologist at the Los Angeles Medical Center; Emily Whitcomb, MD, MAS, a urogynecologist at Kaiser Permanente Orange County; and Bechien Wu, MD, MPH, a gastroenterologist at the Los Angeles Medical Center.

"Our clinician investigators are hitting the ground running," said Dr. Jacobsen. "The extra time has helped them bring projects to completion or move them along at a much quicker pace. That's a tangible measure of success. With continued support from leadership, I am optimistic this success will continue to grow."