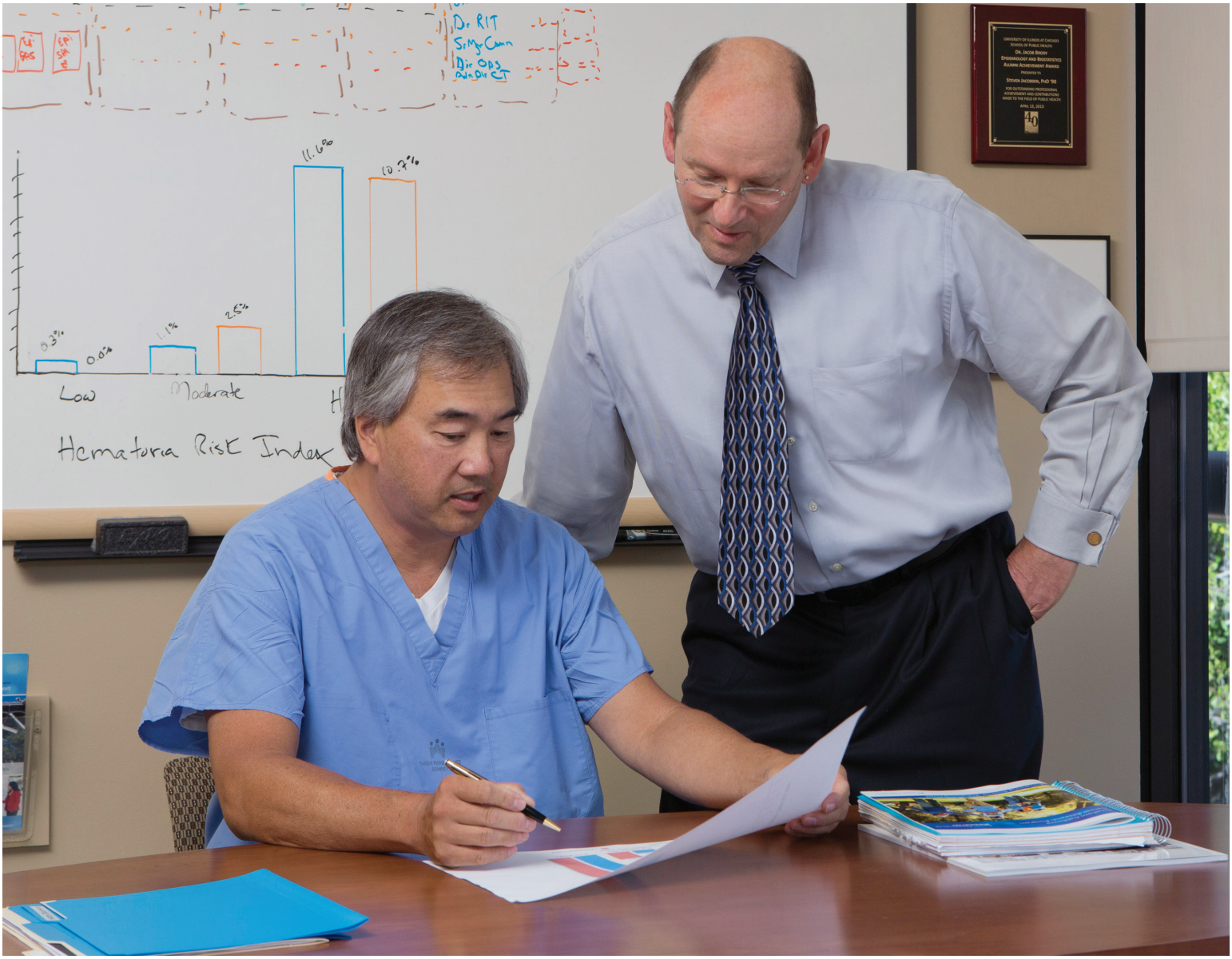
Kaiser Permanente
Research

To test or not to test?

Patients with Asymptomatic Microscopic Hematuria



KAISER PERMANENTE®

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Patients with Asymptomatic Microscopic Hematuria

Clinicians and researchers at Kaiser Permanente Southern California collaborated from day one on a study to identify patients who could safely avoid unnecessary radiation and instrumentation after the detection of microscopic hematuria (blood in the urine that can't be seen by the naked eye). Their work has already changed clinical practice at Kaiser Permanente Southern California and promises to have worldwide implications for the workup of patients with asymptomatic microscopic hematuria.

How did Kaiser Permanente's clinicians and researchers come together to do this study?

Ronald Loo, MD, *Regional Coordinating Chief of Urology, Kaiser Permanente Southern California:*

Dr. Jacobsen and I first met informally when he became the new head of research for Kaiser Permanente Southern California in 2006. He'd come from the Mayo Clinic and had a reputation as a world-renowned researcher in my specialty of urology, so I wanted to meet him. As soon as we started talking I knew that we had similar ideas about using research as a way to effect change in clinical practice.

Steven Jacobsen, MD, PhD, *Senior Director of Research, Kaiser Permanente Southern California:*

Soon after we met, Dr. Loo invited me to the interregional chiefs of urology meeting. He thought it might be interesting for me to hear their conversation and to see what might transpire.

Dr. Loo: So he was there with all of Kaiser Permanente's clinical leaders for urology from across the country as an equal partner.

Dr. Jacobsen: I listened as the chiefs talked about some of the most burning questions in their practices and how they wished there was more definitive evidence to answer those questions. That launched a discussion about how we might work together to address a question that would have a direct impact on clinical care.

Dr. Loo: And the issue of microscopic hematuria came up. It's important to understand that many healthy people—up to 18% of the population—can actually have microscopic hematuria.

> At the time, the American Urological Association recommended follow-up evaluations for microscopic hematuria that included urine testing, CT scans, X-rays, renal ultrasound, and cystoscopy. The risks associated with these procedures include radiation exposure, urinary tract infections, and sepsis.

Dr. Loo: Everybody sitting around the table knew that these practice guidelines were not right. The likelihood that these tests will find cancer is very low since the prevalence of urinary tract cancer in the general population is only 0.01% to 3%.

Dr. Jacobsen: We all agreed these evaluations resulted in a lot of instrumentation and radiation exposure with very low yield.

Dr. Loo: In other words, we all had concerns that we could potentially cause more harm than good.

Dr. Jacobsen: So they thought it would be really helpful to have some evidence about which patients with microscopic hematuria needed an extensive workup versus those who didn't.

Dr. Loo: Fortunately, we had the luxury of having a researcher at the table who could help us devise and conduct a study with an eye toward developing a better way to work up patients with microscopic hematuria.

> The observational study that grew out of this clinician/researcher partnership examined the electronic health records of more than 4,000 patients with microscopic hematuria between January 2009 and August 2011. The study found that an extremely small proportion of these patients was subsequently discovered to have cancer; only 2.3% were diagnosed with bladder cancer and only 0.2% had a pathologically confirmed diagnosis of renal cancer.
>
> The findings, published in the journal *Mayo Clinic Proceedings* in 2013, suggest that microscopic hematuria is an unreliable indicator of urinary tract malignancy. The researchers conclude that patients with microscopic hematuria may not benefit from further evaluation and therefore could avoid further routine tests.
>
> Investigators used the findings to create and validate a screening tool called the Hematuria Risk Index to more accurately predict renal and bladder cancer risk. The Hematuria Risk Index uses age and gross hematuria (visible blood in the urine) as the strongest predictors of cancer, but also factors in other risk factors including male sex and smoking history.

On the cover: Ronald Loo and Steven Jacobsen

Opposite: Ronald Loo with Russell McMillan (from behind)

Did the study lead to a change in clinical practice guidelines?

Dr. Loo: The short answer is yes. The long answer is that it took us 3 years, 2 publications, and a whole lot of evidence review, a whole lot of education, and a whole lot of work in our electronic health record to change the guidelines and change the practice.

Dr. Jacobsen: Even so, we were able to do it in about half the time it would have taken elsewhere because these data were generated internally, we knew the results of the study, and we had the risk score in hand. We shared all this with our guidelines development people at the same time that our findings were published in *Mayo Clinic Proceedings,* so there wasn't the typical 6-to-12-month lag from the publication of a practice-changing article to really effecting a change in guidelines.

Dr. Loo: So yes, Kaiser Permanente has changed its clinical practice guidelines to reduce unnecessary testing. In the most simplistic terms, we use the Hematuria Risk Index to find the patients who need further workup and those who can safely avoid it. It really comes down to a few demographics and a simple question—have you seen blood in your urine in the last 6 months? If the answer is yes, then we need to see you.

Dr. Jacobsen: The study is also now beginning to influence how this condition is worked up outside of Kaiser Permanente, so we view this work as potentially having worldwide implications as to how the practice should change.

Dr. Loo: This shows the value of clinicians and researchers working together and it doesn't happen often enough.

Dr. Jacobsen: Agreed! There's a great advantage of researchers talking to the physicians on the front line and thinking about a problem for which there isn't adequate evidence.

Dr. Loo: If Kaiser Permanente's mission is to be the answer to health care, it makes sense that our research has direct implications on patient care. You try to answer the questions that are the most relevant, that are going to have the most impact, that are going to affect the most people.

Dr. Jacobsen: Our investigators are actually very self-motivated to reach out to our clinicians to understand the burning issues for which research findings could actually effect a change in practice. I encourage them to do this.

Dr. Loo: I believe that only about half the medicine we practice in this country is based on good evidence, and we can do a whole lot better. There are a number of fundamental clinical issues that we need to address, and if we're really going to be serious and do this, we need to do it the right way and we need to have our clinicians work closely with our researchers to make sure that we can actually go in to answer these questions and change the way we practice.

Jeff Slezak, Ronald Loo, and Steven Jacobsen

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For more information, contact research-communications@kp.org or visit kp.org/research.