AN INTERVIEW WITH...

Karen Woo, MD, PhD, DFSVS, FACS

Dr. Woo shares insights on her health services and outcomes research, her desire to improve the patient experience of vascular access, updates on current projects and leadership roles, and how physicians can advocate for an equitable health care environment.

One of your many areas of focus is on health services. As a relatively young field, can you walk us through what this type of research looks like for you? Why was this a desired research path?

The definition of health services research (HSR) is constantly evolving and varies depending on who you talk to. I personally like the comprehensiveness of the Institute of Medicine (IOM) definition of HSR: "A multidisciplinary field of inquiry, both basic and applied, that examines access to, and the use, costs, quality, delivery, organization, financing, and outcomes of health care services to produce new knowledge about the structure, processes, and effects of health services for individuals and populations."[1] My own HSR work has focused on the quality and outcomes part of the IOM definition.

I chose HSR for a number of reasons. My primary objective with performing research is to do work that can improve the patient experience of health care. I love the idea of potentially being able to improve the care of manyfold more patients as a researcher than I can touch individually with my hands as a surgeon. I found out as an undergraduate that I do not have the patience for bench research. I also discovered early on that I get excited about developing a hypothesis, crunching the numbers, and poring through the results to see whether my hypothesis is correct. When I started out, I exclusively used quantitative methodology. As time went on, I found myself increasingly unsatisfied with just the numbers and wanting to make my research more patient-centered by incorporating the patient voice. Through the training grant I received from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I was able to learn qualitative methods, which I have now included in my armamentarium. The combination of quantitative and qualitative methods, termed "mixed methods," is a powerful approach that can produce results that significantly impact patient experience and outcomes and improve quality of care in a highly patient-centered way.

Two of your more recent research grants involve the recommendation of an individualized end-stage kidney disease (ESKD) life plan and outcomes of vascular dialysis access in the elderly from the National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI) clinical practice guideline for vascular access.[2] Can you share any updates on these projects?

The outcomes research that we did, which was supported by the Society for Vascular Surgery (SVS) and NIDDK, highlighted variations in outcomes of hemodialysis vascular access by certain patient characteristics, such as age, with elderly patients having significantly worse outcomes after vascular access creation than younger patients.[3,4] These results support the pivot in the updated KDOQI guidelines away from the "one-size-fits-all," fistula-first approach and toward the ESKD life plan, which calls for multidisciplinary shared decision-making with the patient.[2] In conjunction with our quantitative work, we performed a qualitative study on decision-making in vascular access. We found that the study participants were minimally engaged in vascular access decision-making.[5] This creates a challenge for implementation of the ESKD life plan, and those results laid the foundation for our current work, which aims to creating a toolkit for patients and clinicians to help in the implementation of the ESKD life plan. We have interviewed a number of patients with ESKD and clinicians from varied specialties who are involved in the care of patients with ESKD. Based on our interviews, we have developed a prototype toolkit that we are preparing to refine through further interviews.

On a related note, what's your process for determining what you want to study when pursuing a grant?

I initially chose hemodialysis vascular access as a research focus because of the magnitude of the gap in knowledge regarding vascular access outcomes and the slow pace of innovation in the area, the combination of which creates the potential for significant impact.

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In taking care of patients with ESKD, I see the enormous challenges that these patients face on a daily basis. I am continually awestruck by the perseverance, resilience, and determination that these patients embody in living with ESKD. In our qualitative study, I spoke with 16 patients with ESKD for an average of 1 hour each, listened to their stories of life with ESKD, and gained deep insights into their struggles. This heightened my respect for what patients with ESKD endure and how they overcome challenges. Based on my experiences as a clinician and a researcher, the primary objective of every grant I write is to accomplish something that will improve the patient experience of vascular access and/or outcomes in a significant, meaningful, and patient-centered way.

Also in the dialysis realm, you are the Hemodialysis Access Chair for the SVS Vascular Quality Initiative (VQI). What does the work group have in store for 2022?

We released a completely revamped hemodialysis access registry in late 2019. Our goal with the overhaul was to create data points that allow us to granularly assess quality of care and factors associated with outcomes of vascular access. Previously, our only quality measure was the percentage of fistulas created, which is not necessarily the optimal measure of quality, as the updated KDOQI guidelines indicate. Now that we have accumulated some data with the revised registry, we plan to take a look at those data and create new quality measures that are more patient centered. We will assess participant performance with those new quality measures and identify quality improvement initiatives that can be implemented around vascular access.

With the Vascular Low Frequency Disease Consortium (VLFDC), for which you are Associate Director, you assess uncommon vascular diseases using multi-institutional collaboration. How would you summarize the main inspiration behind the group's existence? From your time with the group, have there been any surprising discoveries?

The VLFDC is the brainchild of Dr. Peter Lawrence, who envisioned the VLFDC as the counterpart to registries such as the VQI and the National Surgical Quality Improvement Program. While those registries track common disease processes and procedures, the VLFDC fills the gap that they leave and examines uncommon vascular diseases. We estimate that at University of California, Los Angeles, uncommon diseases constitute approximately 30% of our tertiary referral center's practice. In managing these uncommon diseases, due to their nature, oftentimes the only evidence that exists to guide our management are case reports, small series, and the occasional meta-analysis. Our objective with the VLFDC is to fill an evidence gap by compiling multi-institutional standardized data to achieve a sample size that is large enough to draw meaningful conclusions.

I would not necessarily say that there have been any "surprising" discoveries, but we have made a number of significant contributions to the literature. For example, the historical recommendation for repair of isolated femoral artery aneurysm was at a diameter of 2.5 cm. A VLFDC study demonstrated that no acute complications occurred at < 3.5 cm, suggesting that the historical guideline was too aggressive for the natural history.[6] Similarly, the historical recommendation for repair of renal artery aneurysm was at 2 cm. Another VLFDC study demonstrated that all ruptured renal artery aneurysms were > 3 cm in diameter, again suggesting that the threshold for treatment should be increased.[7]

Among your various roles with SVS, you are Chair of the intermittent claudication appropriate use criteria (AUC) writing panel. What effect do you hope the eventual published manuscript has on patients? On physicians?

The intermittent claudication AUC will be the inaugural AUC for the SVS. As vascular surgeons, we take pride in being able to provide comprehensive vascular care that includes medical management of vascular disease and surgical and endovascular interventions when necessary. This puts the SVS in an optimal position to lead the conversation on AUC in vascular care. In this intermittent claudication AUC, SVS partnered with our colleagues in the Society for Interventional Radiology and the American College of Cardiology to create a set of AUC that prioritizes the patient's best interest. These AUC carefully and thoughtfully weigh the risks and benefits of invasive intervention for intermittent claudication, a disease manifestation that can significantly impact quality of life but, at the same time, is associated with an exceptionally low risk of limb loss. These AUC embody a number of key concepts: (1) improving on the already low risk of limb loss is nearly impossible; (2) we have effective noninvasive therapies for intermittent claudication; (3) achieving durable, long-lasting relief of intermittent claudication symptoms through invasive intervention is challenging with our current armamentarium; and (4) ultimately, every invasive intervention carries risk, and

the last thing that we want to do is cause harm to our patients. The writers and panelists who developed these AUC hope that patients and physicians will use them as a catalyst for shared decision-making that involves careful consideration and honest, balanced discussions when contemplating invasive intervention for intermittent claudication.

As At-Large Director of the Surgical Outcomes Club (SOC), what are the potential practical implications of the group's work? What effect do you hope the group has on surgical practice?

The SOC is a unique multispecialty, multidisciplinary consortium of surgeons and scientists committed to advancing health services and outcomes research in surgery. The SOC facilitates networking among surgical health services researchers, provides a platform for fostering collaborations, and creates opportunities for young investigators through programs such as the Michael Zinner HSR Fellowship. In addition, the SOC provides educational programming through its annual scientific sessions and methodology series webinars. Through these programs, the primary objective of the SOC is to encourage and enable the execution of HSR that advances the practice of surgery, improves surgical outcomes, and, most importantly, improves the patient experience of receiving surgical care.

You have been a champion for increasing the representation of women in vascular surgery and supporting and encouraging both current and future vascular surgeons. Along with the crucial practice of ensuring panels and research projects are inclusive, what other steps can physicians take to ensure equitable environments in everyday settings? What is your favorite part of being a woman in vascular surgery?

Together with my wonderful colleagues, Drs. Laura Drudi, Kenneth Ziegler, and Leigh Ann O'Banion, we published, "Professionalism in (vascular) surgery: What does it mean?" in the *Journal of Vascular Surgery* supplement "Creating Success in Comprehensive Vascular Surgical Care Through Diversity, Equity and Inclusion."[8] In the article, we described respect as a core concept of professionalism in medicine. This includes "respect for self, colleagues, and patients, in all environments, including the office, hospital, operating room, in print, in speech and on social media." We emphasized the fact that the definition of professionalism will "vary slightly for each person," making the most important concept to embrace "acknowledging each person's right to individuality." I firmly believe that if every physician abided by these concepts in each everyday setting, we would make great strides toward a more equitable health care environment.

We can further work toward equity by practicing advocacy: the act of arguing, supporting, and defending on behalf of others. We have created a very special community of women in vascular surgery who I have had the privilege of getting to know and collaborating with over the last few years. My favorite part of being a woman in vascular surgery is the ability to advocate for other women in our community. I am grateful for each person who has given me the opportunities that have enabled me to accomplish what I have accomplished thus far. Whenever I can, I offer as many women as possible the opportunity to lead, speak, or otherwise serve in a capacity that will help them realize their ambitions. We stand on the shoulders of the women in vascular surgery who came before us and forged the path. My hope is that I can pay it forward, lift up future generations, and make it a bit easier for those who come after me to achieve their goals. ■

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