

Putting the pieces of health care together

Health systems science will help ASU Health students make most of their careers

By Scott Bordow, ASU News
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ASU Health has embarked on its mission to transform health care and create a new kind of health professional.

ASU Health includes four academic units — two of which are new to the university ecosystem. The [John Shufeldt School of Medicine and Medical Engineering](#) and the [School of Technology for Public Health](#) join the [Edson College of Nursing and Health Innovation](#) and the [College of Health Solutions](#) to form the educational foundation for ASU Health.

In addition, the [Health Observatory](#) builds on ASU's existing relationship with Mayo Clinic to develop a better understanding of community health in Arizona, and the [Medical Master's Institute](#) creates opportunities for health professionals and medical students to upskill in areas like pediatrics, gerontology, advanced nursing and nutrition.

In the final entry of a five-part series, ASU talked to [Swapna Reddy](#) and [Kristen Will](#), co-course directors for health systems science at the John Shufeldt School of Medicine and Medical Engineering, about what health systems science is and how it will impact ASU Health moving forward.

Note: Answers have been edited for length and/or clarity.

Question: The first question is an obvious one. What is health systems science?

Swapna Reddy: It is really a foundational platform and framework for the study and understanding of how care is delivered, how health professionals work together to deliver that care, and how the health system can improve patient care and health care delivery. It's making (health professionals) more aware, more competent and more ready to be able to function effectively within the health care systems that they're entering.

I think if you talk to many practicing physicians or other health care professionals today that maybe have been out working 20 or 30 years, most of them will say they never received any education on some basics like health insurance. But once they're actively practicing, health insurance is actually a critical aspect of their practice. So (they need to know) about the actual sort of (information) that patients need in order to access their care, be able to get the medication, be able to continue with the treatment, the changes in insurance policies, and also how they as health professionals, how

they as physicians could actually help influence those policies and act as advocates.

Q: So how does health systems science fit into the ASU Health ecosystem?

Kristen Will: I'll start with the more tangible implementation. That would be its direct implementation into the new curriculum for the medical school. Swapna and I have been teaching this curriculum for 10 years in the College of Health Solutions, and we've been teaching it to pre-professional students and professional students. We're also planning on implementing some new program in collaboration with our schools and colleges at ASU. Some of the focus will be on team-based care as part of the health system science lens.

Q: What precisely will be taught from that lens?

Reddy: When we think about health systems science, we're thinking about the larger health care system that these future health professionals will go work in. Let's talk about the medical school, for instance. If we talk about the medical school, it's teaching and training future clinicians and future clinician engineers. We understand that. But they're going to be practicing within a U.S. health care system. And the practice of medicine, especially in the current world of medicine, is not simply the clinical piece, but it is also learning how to navigate that system. So, understanding the economics piece, understanding the policy piece, using systems thinking for quality improvement, for process engineering, to benefit their direct patients, to benefit the communities that they're serving and to benefit medicine as a whole. It's the kind of the ecosystem that future health professionals are going to go into.

So, from the medical school perspective, that content and that curriculum is now inserted within the larger required curriculum for all of our future medical students, for years one through four.

So, it's really a better understanding of the systems in which they're actually going to go and practice in. And those systems could be within your department, within a particular health organization or the larger kind of city, state or federal system.

Q: Can we break it down even further? What sort of core concepts make up health systems science?

Will: The framework has six domains that are tangible areas of discipline. Health policy, economics, clinical informatics, population health, value, quality in health care, which includes quality improvement and patient safety, and that's intertwined with health systems improvement, which is the fifth, and the last one is just understanding structure and the processes that are actually within a health system so that we can understand why we're getting the outcomes we do, and we can improve those outcomes.

So those are the six core areas. Also, team-based care is the area that I kind of lead and oversee at the medical school. And at ASU Health, a very important functionality of a healthy system is that we have healthy teams, and we deliver care in a team-based care approach. So, that kind of gives you a sense of how we break down the curriculum and exactly what we're teaching.

Q: I would imagine as you train these future health care professionals to be more adept at handling all these situations, they should in turn be able to offer better patient care, right?

Will: That's the main goal. I also would say that we're trying to not only improve patient outcomes, but we're also trying to impact current or future provider well-being. And of course, improving population health. And at some point, lowering cost.

There's a very important framework out there called the Triple Aim — enhancing the patient experience of care, improving the health of populations and reducing the per capita cost of health care. If we do all this right, and we work at improving the system, then we want to achieve those main outcomes.

One thing I wanted to mention that's very important as well is the fact that our medical school is teaching students to not only become physicians but training them to become future physician engineers. And engineers are systems thinkers. They think in systems, they learn in systems, they work in systems. Systems science has a definite component of that. So, it aligns extremely well with the engineering curriculum and how we want our future medical students and future physicians to think.

Q: Is ASU taking a unique approach by integrating health systems science into its curriculum?

Reddy: Where I think our innovation is and where we're really creating a new space is really built off what Kristen just said, which is that collaboration with engineering. I don't know of many other curriculums around the country where you're looking at health systems science from an engineering perspective. I think that approach is really inventive and innovative.

Q: As we've talked, I keep thinking about how jobs can be overwhelming when you first start them because there's so much to learn. Essentially, health systems science is making it easier for future health care professionals to do their jobs well and not be so overwhelmed, right?

Will: Absolutely. It's giving them more tools in their toolbox, and it's teaching them that it's very important that you're focused on the person in front of you. But it's also teaching you that the person in front of you has a lot of other issues going on around them that intersect with their health and their well-being. So, it is your responsibility as part of the system to help improve that.

Reddy: A lot of times (health care professionals) will say, "Well, I'm supposed to treat the patient, and I'm supposed to understand insurance, and I'm supposed to understand food security, and I'm supposed to understand community advocacy, all of these things." And what we're saying is being aware of those concepts, understanding the role of those concepts and the health of a patient in a community is really what we are trying to teach.

What's also critical is understanding their role in a health care team. And that includes lots of different disciplines: physicians, nurses and a wide variety of health professions and expertise. We're talking about PAs (physician assistants), we're talking about MAs (medical assistants), we're talking about pharmacists, nutritionists, social workers and health care administration. We're thinking about the administrators that make many of those economic and process decisions within a venue that can be really critical in being problem solvers.

What we really try to think about is who are the health professionals we need for the health problems we have? And that's the approach that we're taking here.

Learn more in our 5-part ASU Health series

Feb. 27 — Heather Clark: [Why health and engineering go hand in hand](#)

March 6 — Jordan Coulston: [The role innovation and entrepreneurship will play in ASU Health](#)

March 13 — Cora Fox: [The intersection of humanities and medical care](#)

March 20 — Jyoti Pathak: [Ways that AI could transform our health system](#)

March 27 — Swapna Reddy and Kristen Will: What health systems science is and how it will impact ASU Health

This story originally appeared on [ASU News](#).

Main image



Swapna Reddy (left) and Kristen Will are co-course directors for health systems science at the John Shufeldt School of Medicine and Medical Engineering. Graphic by Chad Musch/ASU