



[Jared Magnani](#) is an Associate Professor of Medicine at the University of Pittsburgh's [Heart and Vascular Institute](#). Before moving to Pittsburgh in 2016, Dr. Magnani was a faculty member at Boston University and an investigator at the [Framingham Heart Study](#), where he completed a research fellowship. His research focuses on identifying social determinants of health and their relation to cardiovascular disease. He is currently using a smartphone-based relational agent to create a patient-facing avenue of care for people with atrial fibrillation (AF). The Center's [Sarah Crowe](#) had the opportunity to speak with Dr. Magnani about his work with social determinants of health, health literacy, and the relational agent.



What brought you to Pittsburgh?

My family and I moved to Pittsburgh from Boston about three years ago. My wife and I had both been at the same institutions for 14 years and were really excited about making a change. [Dr. Mark Gladwin](#), in particular, made the university feel inviting and like a very interactive place to work. So many things are blossoming here, and I appreciate that we are experiencing the intersection of innovation and the renewal of this city. I also think that people here are committed to civic engagement, which I think can happen in a city of this size. In Boston, there was civic engagement, but the intersection of different organizations and groups of people was not as apparent to us. The academic, religious, and community-based aspects of Pittsburgh that I know all intersect.



Can you tell me about what inspired your initial interest in studying social determinants of health and improving patient-centered outcomes?

I became interested in social determinants of health as I witnessed the cost that chronic disease had for my patients. I think that when you train in the medical system, you rapidly learn to appreciate that it may not be patient-facing. Very frequently medical care is not set up to address the social causes of chronic disease. Medical care can be frustrating even for people who have resources, such as spouses or partners, wealth, English fluency, and high health literacy. People routinely struggle with negotiating and understanding the rationale of testing and treatments. It's also immensely challenging to adhere to long-term treatment that requires people to incorporate something into their lives every single day. And then, of course, so many patients are dealing with very evident disadvantages, like a lack of financial resources, transportation, and limited health literacy, all of which may be exacerbated – especially in cardiovascular disease – by multiple other chronic conditions. So, for example, I can write a prescription for a patient, but unless the patient has transportation to get to the pharmacy and the few dollars for a copay, she still won't get the treatment that she needs. I think of my focus in health services research as finding avenues to address these upstream factors that make people do poorly in terms of their health outcomes.

I know that you have done a lot of work around health literacy specifically. How do you think low health literacy affects patients who visit cardiologists?

Health literacy is fundamental to how people experience chronic disease. It may be appreciated as the degree to which people can understand their healthcare and the rationale for their treatment and their doctor's decision-making. In cardiology, symptoms can happen at any time, and they often feel very foreign and very scary to a patient. I have been particularly focusing on AF, which can be unsettling and which can be challenging for people to understand. Most of the terminology that we use in cardiology is difficult for patients to understand, and we often do not invest in understanding

how patients experience cardiovascular disease. For example, a patient once asked me what heart failure is. “Am I a failure?” he asked. We need to find ways to improve our communication with patients, so that they can understand their choices and engage in shared decision-making. Also, if we communicate well, we can ask people about the social determinants and learn how those can influence and impact patients’ self-care.

How do you try to improve the experiences of patients with low health literacy?

There are several strategies that have been validated and that we can incorporate right in our clinics. It’s very important to use short sentences, the [teach-back method](#), and as little jargon as possible. When I meet with a patient and talk to them about heart disease, I also try to remember to ask them if they have questions. If somebody tells me that they can’t think of any questions, it could very well be a signal that they don’t know how to ask a question or that they don’t know what to ask because they’re feeling overwhelmed. At that point, I usually acknowledge that the information they just received can be a lot for them to take in and ask them how they’re feeling about it. This allows me as a clinician to begin to understand the patient’s experience of the disease and to learn how to break it down a little bit better for the patient. I think that the overall goal when speaking to a patient, regardless of health literacy level, is to make it a collaboration. The patient brings expertise to the encounter – be it about their symptoms or their lives – that the physician cannot inherently know.



Relational agent to be used in the [Atrial Fibrillation Health Literacy Information Technology Trial \(AFib-LITT\)](#)

I know that you’re working on a project that aims to [enhance self-care among patients with AF by using a relational agent](#). Can you tell me more about this?

As we’ve discussed, there are enormous deficits in patient-facing avenues for care in our healthcare system. A relational agent is a low-cost, scalable means of providing people with patient-centered contact in which they have a coach, an advocate, and a resource. Our goal is to enhance the safety net of vulnerable patient populations and to show people how to improve their self-care. We have already tested a pilot version of the agent, and we have secured more mature funding so that we can develop an in-depth relational agent that will be delivered over a four-month period in a randomized clinical trial. We will give smartphones to both the control and experimental group, and the experimental group will have regular contact with the relational agent. The agent includes an enormous range of different modules so that the content can go very deep with people. For example, we have adherence tracking for anticoagulation medication, symptom monitoring and a variety of responses to symptoms, and self-care suggestions like socializing, exercising, and even prayer. We also have coaching on how to approach the medical encounter, and we have a way to build a list of questions for the doctor as the patient is moving through the modules. It’s been an immense amount of work to create this but very rewarding and fun.

How do you anticipate that we might use relational agents in healthcare in the future?

I think that we need to be very careful about how we think about relational agents, especially versus speech recognition devices like Siri and Alexa. When we are dealing with health outcomes, we need to be very deliberate with how we are guiding people. That being said, I think that relational agents are accessible and scalable for a variety of different health conditions. I think that they contrast with telehealth for the kinds of issues that I’m talking about, because they don’t require a person, and so they may be accessible and cost-effective. If people have a smartphone, they can use a relational agent any time that they would like. Patients really appreciate having a resource at their fingertips.

