Jacob Kariuki is an Assistant Professor of Health & Community Systems at the University of Pittsburgh School of Nursing. Before moving to Pittsburgh in 2016, Dr. Kariuki completed his PhD in population health and health policy at the University of Massachusetts Boston. His research focuses on reducing the risk of cardiometabolic diseases by helping underserved populations increase their physical activity using web-based interventions. The Center's Program Administrator, Sarah Crowe, spoke with Dr. Kariuki about his path to Pittsburgh and his work.

You were born and raised in Kenya, where you also did your undergraduate training. How did you become interested in nursing?
When I was a junior in high school, I met a college student in a BSN program who talked a lot about anatomy and other subjects I found fascinating, and I started to think that maybe I could be like him. I also had an aunt who was an RN in the United Kingdom that I really looked up to as well. I ended up attending the same BSN program as my friend, and after four years of training and a year of residency, I got a job at a private hospital. I quickly discovered that I was more interested in research than most people there, so I began to teach a research class.

What brought you to the United States and to Pittsburgh?
While I was working at the private hospital, a team from the University of Massachusetts Boston led by Eileen Stuart-Shor worked with us to study hypertension, diabetes, and heart disease in central Kenya. At first I was skeptical of their proposal, because we were much more concerned about infectious diseases and didn't think that these chronic conditions were a community problem. The following summer, however, we screened 200 people and found about 40% had hypertension and 10% had diabetes. After a year, Dr. Stuart-Shor encouraged me to apply to graduate school in the U.S. When I finished my PhD at the University of Massachusetts Boston, I was torn between going back home to Kenya and staying in the U.S., but decided I wanted to go to a research-intensive institution where I could get mentorship and gain more clinical research skills. That's how I ended up in Pittsburgh!

Lora Burke, PhD
Professor of Epidemiology and Health and Community Systems

Who are your mentors? How have they influenced you?
My primary mentor is Lora Burke in the School of Nursing. She is a phenomenal human being and is involved in so many aspects of my work. When I started at Pitt, Dr. Burke gave me access to everything her team was doing, which allowed me to learn how to conduct clinical trials and utilize mobile interventions. She has also given me support and feedback on all of my ideas and grant proposals and has been an integral part of my time here. My other mentors include Dr. Bethany Gibbs who is an Associate Professor of Health and Physical Activity, and Dr. Kirk Erickson who is a Professor in the Department of Psychology.

Your PhD research focused on making cardiovascular risk assessment more accessible to underserved communities. Can you tell readers more about your projects?

Most evidence-based guidelines recommend that interventions to prevent heart disease be tailored based on a person's total cardiovascular risk score. By the time I started working on my dissertation, there were over 100 tools that had been developed to screen for total cardiovascular risk score. Most of these tools required labs and/or other sophisticated measures. As a result, most of the tools were inaccessible in underserved areas where the equipment or extra resources needed to generate these measures may be difficult to obtain. For my dissertation, I compared risk scoring instruments to see if those that could be done at the point of care without labs were as valid as those that required labs. We found that a tool developed by the Framingham team that includes just six components (blood pressure, BMI, smoking status, diabetes status, age, and gender) would be much easier to use in communities with few resources and had similar prognostic characteristics as more complicated prediction tools.

Tell me about your current research on a web-based intervention to help people in underserved communities increase their physical activity?

After studying risk scoring instruments, I began to wonder what we should do with people who are identified as being at high risk for cardiovascular disease in underserved and minority communities. I focused on physical activity, because it is one of the most straightforward, common sense things that you can do to improve your health.

I began to conduct focus groups with African Americans from underserved neighborhoods who reported low levels of physical activity. Interestingly, they said that one of their main challenges with exercising is that they don't see people who look like them in regards to body shape and fitness status engaging in physical activity. They also felt out of place when they visited gyms or structured exercise classes due to body image concerns. Some lived in neighborhoods that aren't walkable and tended to have inflexible schedules due to hourly jobs or single parenting. All of this made us want to create an online program with workout videos that featured individuals with diverse body shapes, age and fitness levels exercising. My research team reviewed over 300 videos out of which we identified 72 workout videos that we vetted and curated in our mobile website. We then invited two focus groups of African American men and women to review our web prototype and provide feedback. We used the feedback to enrich our content and optimize our platform, We are currently testing the technical aspects of our platform in community settings. We have also secured funding for two pilot studies designed to evaluate whether our intervention is feasible in a diverse population, and if it can help people add at least 60 minutes of physical activity into their weekly routine.

What has been the most rewarding part of your work in this research field?

The best part has been the potential for actual impact that you see when you're working in the community. I think it's more helpful to empower people to do what they know is best for them. Making it easier for people to engage in physical activity is more fun and rewarding than judging them. It might not seem like a big deal to help someone move for ten more minutes, but it could reduce his or her chance of having a heart attack in five years, which I think is very rewarding.