

Over the past six years as a Research Assistant Professor at SIU School of Medicine, I have grown as a scientist and increased my academic footprint considerably. Before coming to SIU, I pursued research in wildlife disease ecology. As an NIH-funded postdoc in the Research and Policy in Infectious Disease Dynamics (RAPIDD) Program, I developed national and international collaborations addressing a range of host-pathogen systems. Through these collaborations, I was able to employ cutting edge statistical and mathematical tools using a diversity of data streams, while coordinating with world-renowned experts in disease ecology. It was in this quantitative research that I gained a reputation for high quality scholarship and an ability to apply output from complex statistical models to address the economic and ecological impacts of infectious disease spread. As a central Illinois native, however, it was my desire to return and contribute to the region that had given me so much. In considering a faculty position in the Department of Internal Medicine (IM) and the Center for Clinical Research (CCR), there was a sizable shift in my research focus from wildlife disease ecology to clinical data analysis. However, I was excited about the CCR's support of research across the school and the chance to apply my skillset to help fulfill the School of Medicine's mission. Indeed, my ability to seamlessly adapt to new questions and projects has enabled me to flourish in my role at SIU.

At SIU, my research has continued to focus on the application of cutting-edge statistical techniques to questions with direct application to health outcomes. This has led to a burgeoning expertise in hypertension, where I have led data analysis efforts for IM's hypertension research team. These collaborative efforts have led to five publications, including two in *Hypertension*, which is the pre-eminent hypertension journal in the world. In addition, I was instrumental as a co-investigator in preparing five grant applications for external funding. Although these efforts have been thus far unsuccessful, they have led to a successful internal Seed Grant application with myself as Principal Investigator. This work is developing tools to screen for antihypertensive medications in blood samples, which will enhance future external grant applications. Developing the ability to conduct funded prospective studies that employ biochemical and physiological measurements will complement ongoing retrospective research that is the foundation of my research at SIU. Of particular note, my retrospective research includes the development of the SIU Primary Aldosteronism Registry, which tracks diagnosis, treatment, and outcomes in over 500 patients screened for primary aldosteronism at the SIU Hypertension Clinic. The scope of this effort is unique to the field of hypertension and should generate sizable external interest by filling a critical need to better understand a key cause of secondary hypertension. Despite my relatively short time in hypertension research, the quality of my work in the field has been recognized with my recent appointment to the Editorial Board at the *American Journal of Hypertension* in addition to serving as a moderator at the American Heart Association/American College of Cardiology Hypertension Scientific Sessions annual meeting.

Beyond my hypertension research, I have had a broad impact on research efforts across the school. I provide expertise in research design, data management, statistical analysis, and scientific communication within IM as well as the Departments of Pediatrics, Neurology, Population Science and Policy, Pharmacology, and Medical Microbiology, Immunology, and Cell Biology. This broad involvement across the school has allowed me to impact a diverse range of questions. In my own work, I have played an instrumental role in 47 SIU Medicine Institutional Review Board approved research protocols as a principal investigator, co/sub-investigator, and biostatistician. In promoting research at the School of Medicine, I have made key contributions to 21 published manuscripts, including three first author publications, and 23 presentations at national meetings. Despite the shift in research focus, this output is consistent with my research output before arriving at SIU

demonstrating a continued ability to maintain a robust research program. Over the course of my entire career, my work has generated 725 citations with a h-index of 17 (<https://scholar.google.com/citations?user=Ke9FETkAAAAJ&hl=en&oi=ao>). With 13 years of scientific activity, this h-index characterizes a successful scientist and is in line with, if not slightly above, typical values for advancement to associate professor at major research universities. (<https://www.pnas.org/doi/10.1073/pnas.0507655102>).

My expertise in statistical analysis, research design, and the research process has enhanced my educational footprint as I grow from collaborator to mentor. I have had the pleasure of serving as the primary mentor for one post-doctoral fellow, one resident, and two medical students. Most notably, I guided a medical student to join the inaugural Research Scholars Track cohort and take ownership of a research project, encompassing literature review, data collection, analysis, and presentation of results. I also encouraged development of statistical expertise in my postdoctoral fellow, who progressed from limited confidence in his quantitative abilities to shifting his career focus to positions that require statistical knowledge. In addition, I have co-mentored numerous other medical students, residents, and fellows, and in sum, I have co-authored 11 manuscripts and 23 presentation abstracts with trainees during my time at SIU. To complement trainee mentorship, I was also instrumental in planning the IM Faculty Research Development Course as both a course development committee member and an instructor. Faculty surveys administered by the IM Research Committee indicated insufficient time and knowledge as key barriers to research participation by clinical faculty at SIU. This new course provides junior faculty members with the tools necessary to conduct research by leveraging available resources within SIU to maximize limited time availability. Other didactic sessions have also provided valuable insight into the research process to a diverse array of learners. However, as a guest lecturer, evaluations are mostly unavailable to quantify their impact.

In addition to applying my quantitative expertise to research and education at SIU, I have been able to leverage these skills in service to the broader mission of SIU. Of particular note, I led the effort to streamline research reporting out of the electronic health record. By leveraging resources in the CCR, I have been successful at reducing wait times down to one to two weeks on research reports in order to provide quicker assessments of research feasibility, near real-time identification of patients eligible for clinical trials, and high-quality research datasets for retrospective studies. This reporting work has also spawned successful quality improvement initiatives focused on improving care for primary aldosteronism in the Hypertension and Endocrinology Clinics as well as developing a pediatric outpatient antibiotic stewardship program. While these and other service activities have been vital at serving the community within SIU, I have also engaged in review activities in order to serve the broader research community and to grow the reputation of SIU School of Medicine. This includes conducting 18 peer reviews during my time at SIU, including multiple reviews for field-leading journals (i.e., *Hypertension*, *BMC Medicine*, *Ecology*, *Ecology Letters*). Coupled with my work as a statistical editor and editorial board member at the *American Journal of Hypertension*, this work shows my commitment to service of scientific endeavors both locally and nationally.

I am deeply proud of my work at SIU over the past 6 years. I often introduce myself as a statistician to colleagues, and while true, it is the combination of this role with my roles as scientist and educator that has allowed me to impact the mission of SIU School of Medicine both locally and nationally. Whether through my scholarship, mentoring the next generation of clinical researchers,

or service to this institution and the broader scientific community, this work has been rewarding in ways I could not begin to understand when making the switch to pursue my career at SIU.