A Warm Welcome to Garth Walker

Garth Walker, MD MPH, joins us for the next year as a T37 trainee in the Northwestern University Minority Health and Health Disparities Research Training Program. He recently completed his emergency medicine residency at the University of Chicago. During his fellowship year he will be mentored by faculty in the Buehler Center as he studies health disparities in gun violence and opioid overdose. Dr. Walker was recently named one of the National Minority Quality Forum’s 2020 40 under 40 Leaders in Health Award. Among the achievements that earned him that accolade are being a cofounder of Clinify Inc (a tech platform that uses social determinants of health indicators to improve patient engagement and outcomes) and serving as a board member for American Foundation for Firearm Injury Reduction in Medicine (AFFIRM).

COVID-19 Research Updates

The coronavirus pandemic has ignited research on many fronts. The global effort to understand and curb the virus has in turn increased collaboration and this is true in EM as in other specialties. Northwestern Medicine is already enrolling patients in multiple clinical trials for COVID-19 treatment, including Remdesivir and Sarilumab, with other trials, such as convalescent serum treatment, on the horizon. Closer to home, our Emergency Medicine faculty and residents have been contributing scholarly work on a variety of topics including: the development of an incident command structure, the personal protective equipment "burn" rate in the hospital, and the rapid construction of open-air and neutral airflow rooms in the ED. Many other studies are in early stages, including evaluations of how COVID-19 has changed patterns of overdose and violence, the mental health of frontline workers, and changes in ED use patterns related to COVID.

I look forward to seeing the outcomes of these studies and more in the coming months as we all learn together in this unprecedented time.

– Dr. Danielle McCarthy
You had an early interest in research and pursued an MPH while in medical school with Dr. Kyriacou serving as your thesis mentor. How did you first become interested in emergency medicine research?

I knew by my third year of med school that I was going to go into emergency medicine. Since I needed to complete an MPH thesis, I got hooked up with Dr. Kyriacou as a thesis advisor. I really enjoyed working with him and the other researchers in EM, so it seemed natural to continue projects going into residency. It was great to have positive role models who encouraged me to do public health research focused within EM.

How did your residency experience contribute to your decision to pursue a research career after residency?

My feelings in residency regarding research swung pretty wildly. When I started intern year, I was fresh out of my MPH and thought it would be important to continue to do at least some research throughout my career. By my second year in residency, I was really focused on clinical medicine and research seemed like it would be more of a distraction; for a while I thought I’d probably be focused more on a purely clinical career. As I continued through residency my interest in research gradually increased again and I became involved in a couple of data analysis projects that really got me interested in the promise of using EHR generated data to improve patient care.
As faculty at University of Wisconsin, you have been very successful, with more than 18 publications since joining the faculty in 2013 (and six first or senior author pubs in 2019 alone!). Tell us about one of your favorite recent publications.

My favorite recent publication is “Training and Interpreting Machine Learning Algorithms to Evaluate Fall Risk After Emergency Department Visits.” The emphasis in this paper is on interpreting the results of our predictive model for falls risk. There is a lot of literature right now focused on theoretically demonstrating that machine learning models can predict patients’ risk for a lot of health outcomes. This data is not particularly useful without some concrete way of intervening to prevent these outcomes. In this study we tried to go a bit further and generate some projections for the real-world impact of pairing a known intervention (referral to a falls risk clinic) with our model output. We projected performance in terms of Number Needed to Treat (NNT) so we could easily communicate our results with both clinicians and policymakers. We’re currently piloting the model now at UWH, so stay tuned to see if our predictions were close.

You have also been successful in obtaining grant funding and are currently in the middle of a 5-year K-award (career development award) from the Agency for Healthcare Research and Quality. What research question(s) are you seeking to answer with your K-award and what have you found so far?

The K award supports the falls risk project in the above paper. It has three aims: using natural language processing to identify fall risk factors in clinical notes, using machine learning to automatically stratify older adults for fall risk, and piloting a program where we use a decision support tool to facilitate referral for high risk patients. One of the major goals of a K grant is to get training in techniques as you complete a project, and I feel like I’ve learned a lot from mentors in computer science and engineering. My naïve assumption had been that all of my work would be on the computer science side developing the risk stratification tool, but it turned out that predicting outcomes is often the easy part. So far for us the more challenging task has been to get our results back into workflows in the emergency department in a way clinicians find helpful.

You have recently taken on the inaugural role as the Physician Informatics Director of Predictive Analytics, what made you connect informatics with your health services research?

Initially I was interested in more traditional health services research and became involved in EHR data extraction mostly to try to get granular data on utilization patterns in the ED. As I started that work, I had the opportunity to meet and collaborate with mentors who have a more informatics-based approach. Gradually I’ve become more and more interested not just in extracting data from the EHR but in using it to move towards a learning health system: one that can take insights from the data we generate through our clinical practice to improve patient care. I’ve found that having an operational role in the health system complements my research work by giving me an outlet to try to affect the type of change I’m preaching on the research side.

What are your future research and career plans?

I am interested in continuing to take on projects which demonstrate and build on our capabilities to use existing data to improve patient care both during and after emergency department visits. I’m hopeful that individual projects like our falls risk model will lead to more broadly applicable procedures for deriving predictive models, and more importantly translating these models into clinical practice in a way that helps improve both patient outcomes and improve provider burden.
Faculty and Fellow Focus

Dr. Danielle McCarthy was recently named an Outstanding Peer Reviewer for AEM 2019. This annual designation was given to just 8 people for their excellent reviews and their exceptional guidance to academic contributions in research.

The below were all accepted but unable to present at this year’s conference:

**Lo AX**, Archual G, Hemmert KC, Kenny JF, Schmitz TW, **Desden SM**, Southerland LT. “Grandma’s 2-Day ED Stay: Adapting ED Operations and Bench-marking Metrics for Older Adults”

**Lo AX**, **Courtney DM**. “Pursuing a Research Career in EM: Preparation, Employment Options, Marketability, Career Trajectories and Myths.”


**Conrardy M**, Fant A, **Malik S**, Tyler D, Cruz D, Lank P, **Howard KS**. “Midazolam vs Lorazepam for Agitation: Effect on Emergency Department Length of Stay”

Hwang MI, **Powell EP**, Bond WF. “Automated alerts for septic patients in the Emergency Department: A systematic review of screening test accuracy and quality measure studies.”

**Howard KS**. Additional presenters; **McCarthey DM**, Lin M, Rising K, **Courtney DM**. “Demystifying Patient-Centered Research and Incorporating Patient-Reported Outcomes Into Your Research Approach”

**Akhetuamhen A**, Ibiebele A, **Bailitz J**. “Creating an Emergency Medicine Resident Cultural Competency Curriculum: Results of a Validated Needs Assessment”
Publications Update

Published since November 2019

Kim HS, Samuels EA. Overcoming barriers to prescribing buprenorphine in the emergency department. *JAMA Netw Open*. 2020 May 11;3(5). PMID: 32391889


Lu DW, Lall MD, Mitzman J, Heron S, Pierce A, Hartman ND, McCarthy DM, Jauregui J, Strout TD. #MeToo in EM: A Multicenter Survey of Academic Emergency Medicine Faculty on Their Experiences with Gender Discrimination and


