

RESEARCH NEWSLETTER

Northwestern University Feinberg School of Medicine
Department of Emergency Medicine

Fall 2020

Research Productivity Overview

Below is a snapshot of the recent publications and grant applications from the department. In addition to our publications, we have been very active in grant applications. The bar graph represents the grant proposals submitted over the past four years and, as you can see, our research program has progressively increased its applications. See page 5 for some of the recently funded awards that resulted from these applications.



291
peer-reviewed
publications



23
non peer-reviewed
publications



411
oral or poster
presentations at regional
or national conferences



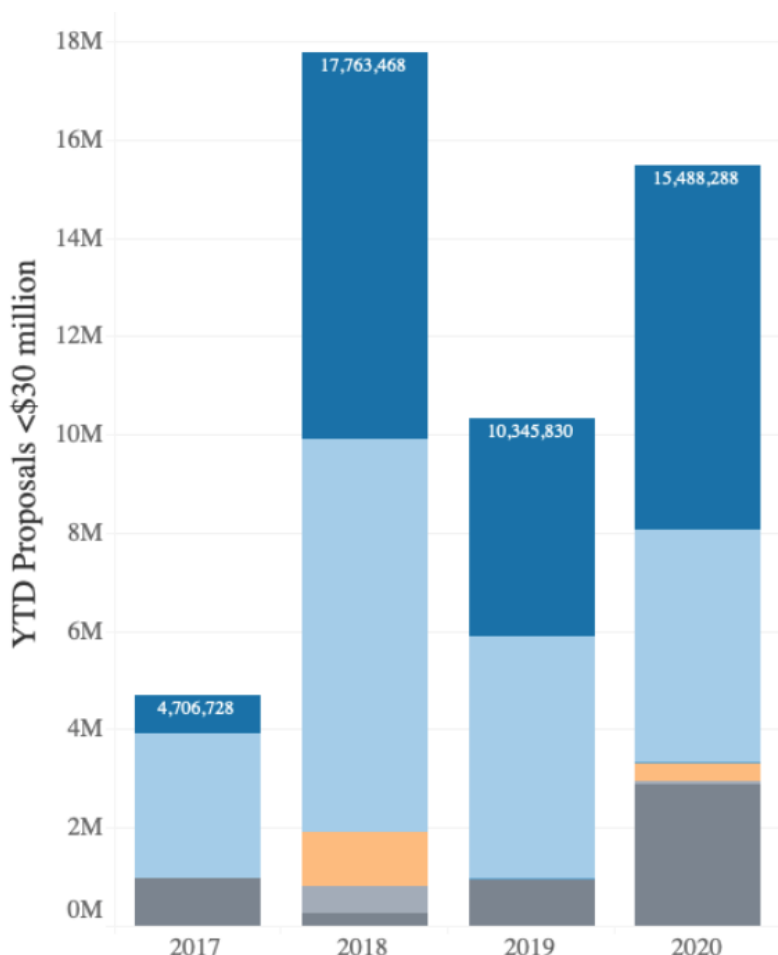
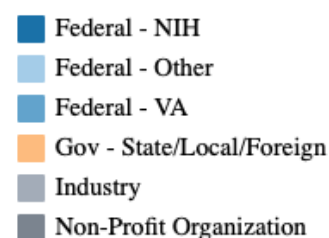
23
book chapters



62
senior author peer-
reviewed publications
over the past 5 years



59
first author peer-reviewed
publications over the past
5 years



*Thank you to Chelsea Harrison for creating and sharing the above graphic.

Q&A with Howard Kim, MD, MS



Howard Kim, MD MS, received his Bachelor's from Yale University, his MD from Duke University, and completed his EM residency at Denver Health. He then came to Northwestern, where he received his MS and completed a T32 research fellowship.

Since coming to Northwestern, Dr. Kim has continued to hone his research skills and build an impressive CV of academically accepted research articles, presentations, and funded grants.

Congratulations on your newly funded R01 award! Before talking about the award itself, can you tell us about your path to research? When did you first become interested in being a researcher as part of your career?

I was first bit by the research bug in medical school at Duke, where students are required to spend their entire third year away from the classroom/wards to conduct a mentored research project. However, I wasn't sure that research would be a major part of my career until halfway through residency, when I found myself questioning more and more why we always did things a certain way. I realized that I wanted to be a part of questioning the existing care paradigm and finding evidence for new practices.

How did you ultimately land upon your current areas of research focus (acute pain management, alternatives to opioids, treatment of opioid use disorder)?

The attendings I connected with the most in residency were the toxicologists, and they were naturally conducting research on substance use including opioids and marijuana. One of the questions I asked was why we always prescribed opioids in combination with benzodiazepines for low back pain, because this combination is uniquely harmful to patients. It turns out that low back pain is one of the biggest "black holes" in emergency medicine; there are very few evidence-based therapies, which frustrates both patients and physicians. Long story short: we're now looking at an innovative model of physical therapy in the ED for a variety of conditions, including low back pain.

I became interested in treatment for opioid use disorder because of frustrations in my clinical work. At all of the hospitals I've worked at in my career, our approach to managing substance use disorder has been the same: print out the little sheet of paper with the names/numbers of local clinics, and hand them to the patient as you discharge them. It astonished me that when patients come to the ED for stroke-like symptoms or chest pain, we have numerous different clinical pathways to ensure that these patients receive a timely diagnosis and effective intervention. Yet when a patient with opioid use disorder comes into the ED asking for help, we just hand them a piece of paper and say 'good luck'. I have never felt more ineffective as a physician, and I decided that we needed to do better.

Q&A Continued

And so, thus far at Northwestern, we've built a take-home naloxone program that provides free naloxone kits to at-risk patients, and we've built the infrastructure for an ED-initiated buprenorphine program. We've published on these topics and we are now participating in a large NIDA-funded clinical trial investigating extended-release buprenorphine.

You conducted several studies that served as preliminary data and supported your application for the AHRQ R01. What were the major findings from those studies?

We compared ED patients with low back pain who received ED physical therapy (ED-PT) to those that did not receive physical therapy (usual care). Over three months of follow-up, we found that patients receiving ED-PT had greater improvements in pain-related functioning and had lower use of pain medications, such as opioids and benzodiazepines. In an accompanying qualitative study, we found that patients found ED-PT to be beneficial because it provided them with a plan going forward and helped them to make sense of the chaos and uncertainty of their severe back pain and ED visit.

Tell us about the R01 that you received.

We received a five-year R01 grant from the Agency for Healthcare Research and Quality (AHRQ) to conduct a cluster-randomized trial of ED-initiated physical therapy for acute low back pain. Essentially, we will be randomizing individual ED attending physicians to be paired with an "embedded" ED physical therapist during their shifts. The physical therapist will be a part of the primary ED treatment team and will evaluate patients with low back pain as part of routine care, rather than waiting for a specific consult request. We hypothesize that earlier integration of an ED physical therapist into a patient's treatment course will have greater clinical benefit and might actually improve the physician's operational efficiency.

In addition to leading your own research projects, you serve as the site lead for a number of large multi-center research projects. Please tell us a bit about those projects and the experience of working with these large collaborative groups.

The first project is an AHRQ-funded study at Vanderbilt evaluating whether "safe harbor" guidelines can reduce unnecessary imaging in the ED. The second is a multi-site clinical trial network called EPPIC-NET that will serve as the foundation for clinical trials of interventions for acute and chronic pain. The final project is a NIDA-funded clinical trial at 30 EDs around the country investigating the effectiveness of an extended-release buprenorphine injection for moderate-severe opioid withdrawal. Collaborating with other groups on these multi-site studies has been an interesting and educational experience for me. Participating in someone else's multi-site trial is a little different than working on your own study, as there is less room for independence/creativity and more reporting back to a "boss" – but it's been great meeting other EM investigators around the country and getting some insight into what makes them so successful and impactful. I would say the biggest reason we participate in multi-site studies is because we fundamentally believe in the mission and importance of the project, and we know that the most generalizable research comes from multi-site studies.

Media Watch



James Adams, MD and EM Chair, commented as a representative of the healthcare industry as part of a RoAI Institute analysis meeting, on Return On Investment for Artificial Intelligence.



Alex Lo, MD, talks about his editorial that accompanied an article challenging the “scoop-and-run” model for out-of-hospital cardiac arrests.



Dr. Lo is quoted here as well, advocating for “more definitive studies” before making any permanent changes to the “scoop-and-run” method.



Maryann Mason, PhD, authored an article bringing attention to the increased number of fatalities due to drug overdoses during the pandemic, and what tools are available to help.

Resident Research



Congratulations to Peter Serina (PGY-3), on his recently awarded Emergency Medicine Foundation (EMF) grant, “Development and validation of the Admission for Geriatric patients in the Emergency Department (AGED) score”.

The Geriatric Emergency Department (GED) Guidelines recommend screening older adults in the emergency department (ED) to identify patients at high risk for geriatric syndromes or other complications. The goal of this research is to develop a prognostic screening tool to identify older adults who might benefit from GED interventions early during an ED visit. We plan to develop a brief, accurate assessment of risk which predicts key outcomes of health services use including hospitalization, repeat ED visits, and rehospitalization. Preliminary data demonstrates that Clinical Frailty Scale (CFS) is associated with admission rates, however, our data shows that the CFS has limited predictive accuracy. We hypothesize that we can improve this predictive accuracy by creating a geriatric risk score incorporating data available upon initial assessment of patients.

Research Opportunities: The research group has compiled a google document with projects on which faculty would be willing to add a resident. Please reach out to [Kate Bruni](#) if you would like to get involved.

Newly Funded Grants



Scott Dresden, MD MS, and Director,
Geriatric Emergency Department
Innovations (GEDI)

GEAR 1.0, Phase 2, R21/R33

The “Geriatric Emergency Care Applied Research Network (GEAR)”, R21/R33 grant is moving into the R33 phase of this National Institute of Aging (NIA) award. During the R21 phase, the GEAR Task Force developed consensus papers and an overall research map for Geriatric Emergency Medicine focusing on five domains—cognitive impairment, medication safety, elder abuse, falls, and care transitions. Now during the R33 phase, Northwestern is participating in a multi-site study which will evaluate older adults in the ED along these five domains and follow their outcomes for 90 days after their ED visit.

GEAR 2.0, Phase 1, R61/R33

“The Geriatric Emergency Care Applied Research Network 2.0 - Advancing Dementia Care (GEAR 2.0 ADC)” is a National Institute on Aging R61/R33 award to advance the science supporting emergency care for people with dementia. This 5-year grant will identify knowledge gaps and research priorities in emergency care for people who have dementia (Phase 1) and support research to improve emergency care for people who have dementia (Phase 2).

During Phase 1, the evidence supporting emergency care for people with dementia will be reviewed focusing on: 1) emergency clinical care, 2) care transitions, 3) identifying ED patients who may have dementia, and 4) communication and decision making. A task force will be convened to develop consensus on the most important research questions related to each area. During Phase 2, \$1.1 Million in partnered research funding support to address research priorities identified during Phase 1 will be awarded to advance research in emergency care for people with dementia and their caregivers.

IMPACT, U54

As part of the National Institute on Aging's IMbedded Pragmatic Alzheimer's disease and related dementias Clinical Trials (IMPACT) U54, Northwestern is participating in a Pilot Study "Pathways to Detection & Differentiation of Delirium & Dementia in the Emergency Department (PD4ED)". This pilot study will use the Delirium Triage Screen and brief Confusion Assessment Method to identify older adults in the emergency department who may have cognitive impairment. Enrolled patients will be referred to Geriatrics clinic for additional testing for dementia.



Howard Kim, MD MS

NEED-PT

Howard Kim is the principal investigator of a \$1.84 million five year grant from the Agency for Healthcare Research and Quality (AHRQ) entitled "A Cluster-Randomized Trial of the Northwestern Embedded Emergency Department Physical Therapy (NEED-PT) Protocol for Acute Low Back Pain." This project will develop and test an innovative model of an emergency department "embedded" physical therapist to evaluate and treat patients with acute low back pain. We hypothesize that the embedded physical therapy intervention will improve patient functioning, reduce opioid use, and decrease unnecessary testing.



Danielle McCarthy, MD MS, and Vice Chair of Research

Project RECOVER

Northwestern is participating in The Multicenter REgistry of potential COVID-19 in emERgency care (Project RECOVER). Project RECOVER is designed to acquire data from patients who visited a U.S. emergency department and were tested in the next 14 days for SARS-CoV-2. The study, led by Drs. Jeffrey Kline and Alfred Wang at Indiana University, is believed to be the world's largest repository of clinical features of COVID-19. The primary research tool is a 169-item data collection instrument that collects symptoms, signs, medical history, laboratory and radiographic results, and outcomes up to 30 days after testing. The registry will include at least 500 patients tested for SARS-CoV-2 from over 40 institutions representing 26 states and the District of Columbia. To date, the registry has enrolled over 22,000 patients. Approximately 1/3 of the database is expected to be comprised of COVID-19 positive patients. The aims are to develop a scoring system to estimate the probability of a patient having COVID-19 and to develop the COVID Rule-out Criteria (the CORC rule) to permit exclusion of COVID-19 at the bedside. A third aim will produce a prognostic rule for COVID-19 positive patients.