



## Message from the Executive Director

It has been a wonderful spring here in Durham. The weather is beautiful, the campus is full of energy, and Durham continues to grow as a vibrant city with new restaurants and business opening each week.

We are excited to be joining in this revitalization of downtown Durham. This month, we broke ground on a new building that will soon allow us to fulfill our long-term goal of reuniting the entire organization in one beautiful location. By 2018, we will be moving from Pratt Street into a brand new building in the Durham Innovation District, right next to our current Durham Centre building.

I also just returned from the American College of Cardiology's annual Scientific Sessions and could not be prouder of the DCRI's contributions. DCRI faculty and fellows led multiple late-breaking presentations. Much of this work was through collaborations with many of you.

We thank you for your continued support and we highlight some of this innovative work in this edition of the newsletter, including new research and interventions for patients with hypertension, coronary disease, and stroke.

I want to thank you for your continued collaboration and support of our mission, and I look forward to working with you in 2017 to improve the care of patients here in Durham and around the world.



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## The DCRI at ACC 2017

DCRI faculty, staff, and fellows were well-represented at this year's annual Scientific Sessions of the American College of Cardiology in Washington, D.C. Visit <https://dcri.org/dcric-acc> to see news stories, videos, presentations, and more from the meeting.





## FEATURE

### Determining the Difference

Black and female patients are more likely to report persistent angina symptoms following hospitalization for heart attack, according to a new study by DCRI researchers.

Race and gender disparities in cardiac care have been well-documented, but until now there has been little research into angina symptom frequency and rehospitalization risk following a heart attack. More than 1.5 million Americans experience a heart attack each year, and many of these patients experience angina symptoms afterwards. These symptoms usually include pain or tightness in the chest.

In this study, DCRI researchers and their colleagues analyzed data from the TRANSLATE-ACS study

(Treatment with Adenosine Diphosphate Receptor Inhibitors: Longitudinal Assessment of Treatment Patterns and Events after Acute Coronary Syndrome).

Compared to white patients, black patients were more likely to have angina at 6 weeks (female: 44.2 percent versus 31.8 percent; male: 33.5 percent versus 27.1 percent) and 1 year (female: 49.4 percent versus 38.9 percent; male: 46.3 percent versus 31.1 percent). Rates of 1-year unplanned rehospitalization were highest among black female patients (44.1 percent), followed by white female patients (38.4 percent), black male patients (36.4 percent), and white male patients (30.2 percent). [Read more here.](#)

### Making Improvements

A new DCRI-led program is looking for ways to improve systems of stroke care across North Carolina and beyond.

Stroke kills more than 130,000 Americans each year, making it the fifth-leading cause of death in the nation. Every year, more than 795,000 people in the United States have a stroke. Many of these strokes occur in the southeastern United States, in an 11-state region known as “the stroke belt.” North Carolina, which occupies the middle of this region, is sometimes described as the “buckle” of the belt.

The IMPROVE Stroke Care program was created to develop a regional integrated stroke system in North Carolina that identifies, classifies, and treats patients with acute ischemic stroke more rapidly and effectively with reperfusion therapy. Based on similar programs developed to improve systems of care around heart attacks, IMPROVE Stroke Care will develop a network of stroke centers and other hospitals to implement best practices and integrate state of the art technologies

into regional systems of stroke care. The DCRI’s System and Implementation Research and Outcomes operations teams will provide expertise in health system engineering and data reports to share across the program to improve process and clinical outcomes.

The DCRI’s Bradley Kolls, MD, PhD, and Carmelo Graffagnino, MD, medical director of the Duke Comprehensive Stroke Center, will serve as principal investigators for the project.



**Bradley Kolls, MD, PhD**



**Carmelo Graffagnino, MD**

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## FEATURE

### Making Improvements (cont'd)

One of IMPROVE Stroke Care’s novel elements is the use of new data capture technologies. Key data elements will be defined, collected, and fed back in real time to drive practice improvement. Participating centers will have real-time feedback on their performance metrics, utilizing novel data capture methods and mobile applications that operate independently of existing

electronic health records or primary databases but are able to interact with them.

“We’ve come up with an innovative way of capturing data automatically through the Telestroke Network,” Kolls said. “This is a new strategy for collecting data on the systems of care throughout the state.” [Read more here.](#)

### Get Up and Go



The Pokémon Go craze that spurred millions of people to collect virtual monsters via a smart phone app might have also had a health benefit by encouraging people to get up and walk.

A small study at Duke Health found that some people who played the game added thousands of steps a day. The finding — presented at the American Heart Association’s Epidemiology and Prevention / Lifestyle and Cardiometabolic Health meeting in Portland, Ore. —

suggests that it’s possible to design fun ways to increase physical activity.

The Duke team recruited 167 iPhone users who had played Pokémon Go in July 2016. The researchers designed an online survey and asked participants to provide screenshots of their daily steps reported by the iPhone Health app between June 15 and July 31, 2016. They then compared their daily steps before and after playing Pokémon Go.

They found that participants were twice as likely to reach 10,000 steps a day after playing Pokémon Go than they were before playing the game. The percentage of days in which the 10,000-daily step goal was reached increased from 15.3 percent before playing Pokémon Go to 27.5 percent after playing the game.

The findings were particularly encouraging among participants who had low activity levels or were overweight before playing Pokémon Go, with these players adding nearly 3,000 steps a day after playing the game. [Read more here.](#)



## FEATURE

### Take Care

More than 80 percent of stroke patients with a history of atrial fibrillation either received not enough or no anticoagulation therapy prior to having a stroke, despite the drugs' proven record of reducing stroke risk, according to a DCRI study.

"Atrial fibrillation is very common, and people with the condition are at a much higher risk of having stroke," said lead author Ying Xian, MD, PhD, assistant professor of neurology at Duke and member of the DCRI. "Treatment guidelines call for these patients to receive an anticoagulant such as warfarin at a therapeutic dose or a non-vitamin K antagonist oral anticoagulant (NOAC), so it's surprising that this is not occurring in the vast majority of cases that occur in community settings."

The study included more than 94,000 patients with atrial fibrillation from the American Heart Association's

"Get With The Guidelines-Stroke" registry who had had an acute ischemic stroke. The analysis was sponsored by the Patient-Centered Outcomes Research Institute to inform patients, physicians and others about optimal stroke care.

The researchers found that only 16 percent of patients with atrial fibrillation had received the recommended anticoagulation medication prior to having a stroke. These medications include therapeutic levels of warfarin or NOAC. [Read more here.](#)



**Ying Xian, MD, PhD**

### Management Methods

Providing fewer total opioids over a longer period of time is associated with lower overall costs and utilization for hip surgery patients, according to a new study by DCRI researchers.

With opioid overdoses and abuse a subject of growing concern for public health agencies, the Centers for Disease Control issued a series of guidelines in 2016 intended to improve communication between clinicians and patients about the risks and benefits of opioid drug therapy. While these guidelines included recommendations for acute, general surgery opioid management, there has been little research into management strategies for intermediate- to long-term post-surgical musculoskeletal pain.

In an observational cohort study, the DCRI's Chad Cook, PhD, and his colleagues sought to analyze post-operative opioid prescription strategies and measure direct and

indirect health care utilization and costs in individuals undergoing non-arthroplasty orthopedic hip surgery.

Using data from the Military Health System Data Repository (MDR), which serves as the centralized data repository for all Defense Health Agency corporate health care data, the researchers identified 1,219 patients who received hip surgery between 2003 and 2015. The dataset included information on opioid management for 12 months before and 24 months after surgery.

Using cluster analysis, Cook and his study team then identified two distinct post-operative opioid prescription



**Chad Cook, PhD**

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## FEATURE

### Management Methods (cont'd)

subgroups: patients who received a high total number of opioids over a short period of time (850 patients), and those who received fewer total opioids over a longer period of time (369 patients). The researchers then

used linear mixed effects modeling to examine opioid prescription pattern subgroups and identify subgroup differences in health care utilization and costs. [Read more here.](#)



## SELECTED PUBLICATIONS

**[Choice of agreement indices for assessing and improving measurement reproducibility in a core laboratory setting.](#)**

Barnhart HX, Yow E, Crowley AL, Daubert MA, Rabineau D, Bigelow R, Pencina M, Douglas PS. *Stat Methods Med Res.* 2016 Dec;25(6):2939-2958.

**[Stroke risk assessment in atrial fibrillation: risk factors and markers of atrial myopathy.](#)**

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**[Association of practice-level hospital use with end-of-life outcomes, readmission, and weekend hospitalization among Medicare beneficiaries with cancer.](#)**

Clough JD, Strawbridge LM, Leblanc TW, Hammill BG, Kamal AH. *J Oncol Pract.* 2016 Oct;12(10):e933-e943.

**[Evidence-based strategies for shortening informed consent forms in clinical research.](#)**

Corneli A, Namey E, Mueller MP, Tharaldson J, Sortijas S, Grey T, Sugarman J. *J Empir Res Hum Res Ethics.* 2017 Feb;12(1):14-25.

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**[Intensive care unit utilization and mortality among Medicare patients hospitalized with non-ST-segment elevation myocardial infarction.](#)**

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**[Comparing inverse probability of treatment weighting and instrumental variable methods for the evaluation of adenosine diphosphate receptor inhibitors after percutaneous coronary intervention.](#)**

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**[Enhancing the value of clinical trials: The role of data sharing.](#)**

Granger CB, Ohman EM. *Nat Rev Cardiol.* 2016 Nov;13(11):629-630.

**[Ticagrelor versus clopidogrel in symptomatic peripheral artery disease.](#)**

Hiatt WR, Fowkes FG, Heizer G, Berger JS, Baumgartner I, Held P, Katona BG, Mahaffey KW, Norgren L, Jones WS, Blomster J, Millegard M, Reist C, Patel MR. *N Engl J Med.* 2017 Jan 5;376(1):32-40.

**[The changing landscape of randomized clinical trials in cardiovascular disease.](#)**

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**[U.S. Preventive Services Task Force approach to child cognitive and behavioral health.](#)**

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**[Levosimendan in patients with left ventricular systolic dysfunction undergoing cardiac surgery on cardiopulmonary bypass: Rationale and study design of the](#)**

**[Levosimendan in Patients with Left Ventricular Systolic Dysfunction Undergoing Cardiac Surgery Requiring Cardiopulmonary Bypass \(LEVO-CTS\) trial.](#)**

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**[Depressive symptoms and early mortality following lung transplantation: A pilot study.](#)**

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