Digital Promise
Study Tests 'Translation' of Asthma Aid to Teens

Asthma patient Dedrick Reed, 17, checks out the mobile asthma app that Tamara Perry, M.D., is testing with 400 asthmatic Arkansas teenagers.

Tamara Perry, M.D., grew up with asthma in Helena-West Helena, where there were no asthma specialists. She still remembers the fear of an asthma attack, and the long trips to Mississippi, the closest place with an asthma specialist.

"The most vivid memory I have is just feeling scared," said Perry, an associate professor of pediatrics in the UAMS College of Medicine. "Asthma symptoms can occur really quickly and abruptly. You can be fine one minute and five or 10 minutes later you can't breathe."

TRI AND ACRI SUPPORT

Her experience, she said, is one of the main reasons she has always wanted to study asthma and make improvements for patients with asthma. About six years ago she began exploring the use of digital health technology to reach underserved children in rural areas like her former Mississippi Delta home. In 2012, the Translational Research Institute (TRI) awarded her pilot funds to develop and test the feasibility of an app to help adolescents manage their asthma.

Digital Health Research Gains Traction

Dear Colleagues,

Innovation is at the heart of our mission at TRI. That's why we are excited about some recent digital health developments. As you will read in this issue, Tamara Perry, M.D., is using digital health to significantly improve the lives of asthmatic children. After receiving a TRI pilot award and support from our Community Engagement team, she has secured an NIH grant to test her mobile asthma app in 400 Arkansas teenagers. It will be the first asthma app out of hundreds on the market to be so rigorously studied.

As a supporter of the next generation of medicine, TRI is also proud to have a role in the success of Carolyn Greene, Ph.D., (page 3) and her digital health study aimed at helping people with mild to moderate depression. Dr. Greene was able to jump-start her recruitment of this difficult to reach population using the ARresearch registry of volunteers, and she is ahead of her enrollment schedule.

TRI has been an enthusiastic co-sponsor of digital health meetings (previously referred to as mHealth) to promote collaboration internally and with other academic institutions and commercial entities. These gatherings will culminate this fall in the first Digital Health Conference sponsored by the Office of Interprofessional Education on Nov. 30. We hope to see you there!

Sincerely,

Laura James, M.D.
Director, TRI
Associate Vice Chancellor for Clinical and Translational Research, UAMS

Digital Promise

The support led to the prototype for an app that she's now testing with a five-year, $3.1 million NIH grant.

"I'm super excited," she said. "I've wanted to do this project for a really long time."

After testing of the feasibility and usability of the prototype app, TRI helped create her first Community Advisory Board. The board, made up of teenagers, guided Perry on whether to pursue the app and suggested some improvements.

Perry, who is medical director of the Arkansas Children's Telemedicine program, built on her early research with a second pilot from the Arkansas Children's Research Institute, which strengthened her application with the NIH.

STANDING OUT

The primary aim of the NIH-funded project is to help teenagers improve their asthma self-management skills so they can learn to be more in control of their condition.

With testing planned in 400 patients, her app should stand out among the hundreds of mobile asthma apps on the market.

"None of the asthma apps currently available have been rigorously studied," she said. "That's one of the major challenges with medical applications in general."

Perry's co-investigator and app developer is Jiang Bian, Ph.D., assistant professor of Health Outcomes & Biomedical Informatics at the University of Florida.

The app will provide real-time, personalized instructions for patients having symptoms, with features for quickly dialing their doctor or 9-1-1, or finding the nearest hospital. "The application provides quick access to the patient's asthma action plan, so they can quickly find instructions from their doctor," Perry said.

DATA FOR PCPS

An arm of the study includes sending an auto-generated monthly report to each patient's doctor. It will include information such as how many times their patients had an asthma emergency or had to take a rescue medication.

"We wanted to test if primary care physicians could use that data to help their patients better manage their asthma," Perry said.

Despite advances in asthma treatments since she was a child, Perry said those advances aren't yet reaching patients.

"That's the whole premise behind the Translational Research Institute, to try to translate science into the community, and we really haven't done a great job of that with asthma, especially in areas that are medically underserved," she said.

A mobile app obviously won't replace a specialist, she noted, but it can help fill some gaps, such as answering patients' questions about medications and teaching them what to do when they are having asthma symptoms or an emergency

Perry said she still has asthma and remains mindful of it at all times.

"That part of it never changes. We're hoping the application will help instill those lifelong habits of making sure you are aware of your asthma, stay away from your triggers and take your medication as prescribed."

Researcher Profile

Tamara T. Perry, M.D., FAAP

*Associate Professor of Pediatrics
Allergy and Immunology Division
University of Arkansas for Medical
Sciences, College of Medicine*

*Medical Director, Telemedicine
Department, Arkansas Children's*

What inspired you to become a researcher?

I was intrigued by my first experience with research as a 2nd year medical student through my participation in a summer science program. My love for research grew during my residency and fellowship training as I realized the importance of scientific discoveries in improving medical practice and outcomes for patients.

What do you like most about your area of research?

I like being able to help patients by designing innovative ways to utilize the technology that is a part of our everyday lives. Almost everyone has a smartphone or computer, so it's imperative that biomedical researchers take advantage of the technology that is preferred by patients and used every day.

What career would you have chosen if not research?

I would have still chosen a career as a doctor but I would spend all of my time on my clinical work.

What current or former biomedical researcher (from anywhere) do you admire most? Why?

My mentors from fellowship, Drs. Peyton Eggleston and Robert Wood of Johns Hopkins Allergy/Immunology (AI), Baltimore, MD. Both are world renowned researchers in the AI field of pediatric asthma (Eggleston) and food allergy (Wood). They are pioneers in the field who emphasize the importance of medical discovery and finding the best solutions for patient outcomes. They had totally different mentoring styles, which worked to my advantage because they each taught me different aspects of having a successful career in academic medicine and research.

ARresearch 'Kick-Starts' Digital Health Study Enrollment

Carolyn Greene, Ph.D., talks about her digital health/depression study at a summer gathering of digital health researchers and other leaders in the field.

A UAMS NIH-funded digital health study needed 128 participants with mild to moderate depression. Within 10 weeks, it had 103, well ahead of schedule, said Carolyn Greene, Ph.D., who is leading the study. TRI's ARresearch registry of volunteers, she said, has provided about 20 participants.

"That was a good way for us to kick-start this study," said Greene, associate professor in the Department of Psychiatry, Division of Health Services Research.

Greene's study is targeting UAMS primary care patients with untreated depression. She said finding such patients for her study is difficult because they may not be coming in for regular doctor visits, or may not feel comfortable discussing their mental health with their doctors.

"That's where the ARresearch database was extremely helpful to us," she said.

Greene, who is also the national manager of Mental Health Web Services at the Department of Veterans Affairs, said the study is conducted online or over the phone, from screening to receipt of a gift card for participants.

For eight weeks, a coach will help patients with downloading and using a portfolio of mobile apps, and provide encouragement.

The apps use evidence-based cognitive behavioral tools and have shown that they can help significantly reduce depression. Greene's study will address how the apps, combined with a coach, could fit into UAMS' system of care.

"The goal isn't for the coach to replace a therapist, but to help them use the apps to learn skills and tools to become their own therapist," Greene said.

The study includes gathering input from clinicians and administrators.

"Our goal is to solve a problem for the primary care clinics, which have many patients with mild to moderate depression but not a lot of resources to provide interventions," she said.

Research on the Horizon: TRI Study of the Month

Rohit Dhall, M.D., (left) with TRI's Mtonya Hunter-Lewis, MBA, associate director, regulatory support, and Cindy Witkowski, R.N., director of clinical trials.

■ **UAMS Principal Investigator:** Rohit Dhall, M.D., MSPH, Associate Professor, Department of Neurology, College of Medicine

■ **Summary:** Phase 3, multi-site, multi-national clinical trial to determine the efficacy, safety and tolerability of P2B001 once daily compared to its individual components in subjects with early Parkinson's disease (newly diagnosed and having received no treatment prior to the study) and to a calibration arm of Pramipexole ER.

■ **Significance:** As many as 1 million Americans live with Parkinson's disease. Treatment often requires multiple doses a day of one or more medicines often with significant side effects, even in mild Parkinson's. A combination, extended-release pill using low doses of two FDA-approved medications such as P2B001 could significantly benefit patients.

■ **TRI Services:** Medicare coverage analysis, study budget review and negotiation, IRB submission, completion of sponsor's regulatory startup packet, training for study staff/investigators, oversight of enrollment startup, and research nurse coordinator services.

■ **Sponsor:** Pharma Two B

TRIbutes

The following UAMS researchers cited the Translational Research Institute (TRI) in publications after utilizing TRI resources or funding:

Brown C, Nevola A and Martin BC. "Lack of Impact of the 2009 Uspstf Guidelines on Rates of Mammography Screening." *J Womens Health (Larchmt)* 2018 Jul **27**(7): 875-884.

Bush KA, Gardner J, Privratsky A, Chung MH, James GA and Kilts CD. "Brain States That Encode Perceived Emotion Are Reproducible but Their Classification Accuracy Is Stimulus-Dependent." *Front Hum Neurosci* 2018 **12**: 262.

McElfish PA, Purvis RS and Long CR. "Researchers' Experiences with and Perceptions of Returning Results to Participants: Study Protocol." *Contemp Clin Trials Commun* 2018 Sep 11: 95-98.

Meeker DG, Wang T, Harrington WN, Zharov VP, Johnson SA, Jenkins SV, Oyibo SE, Walker CM, Mills WB, Shirtliff ME, Beenken KE, Chen J and Smeltzer MS. "Versatility of Targeted Antibiotic-Loaded Gold Nanoconstructs for the Treatment of Biofilm-Associated Bacterial Infections." *Int J Hyperthermia* 2018 Mar **34**(2): 209-219.

Thank you for remembering to cite TRI in your publications resulting from studies that receive TRI support. Find the appropriate citation language at **tri.uams.edu/about-tri-2/cite-tri.**

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Digital Health Conference November 30, 2018

Save the date for the Digital Health Conference on Nov. 30 at Reynolds Institute on Aging. Hear from leaders in the field how emerging digital technologies, such as mobile apps, wearable biomonitors, predictive analytics and artificial intelligence, are transforming health care. The conference is sponsored by the UAMS Office of Interprofessional Education, with support from the South Central Telehealth Resource Center and TRI. Stay tuned for registration and other details!