

THE TRIBUNE

APRIL 2019

Positive Thoughts

ARresearch Registry for Brain Imaging Study Is a 'Dream'



Keith Bush, Ph.D., is ahead of his participant enrollment goals for two studies thanks to the ARresearch volunteer registry.

With two studies on deck in 2017, UAMS' Keith Bush, Ph.D., was wondering how to meet his participant recruitment goals. He needed 81 healthy adults for a National Science Foundation-funded study, and another 40 for a study funded by the Brain & Behavior Research Foundation.

His studies require volunteers to spend time in an MRI, where Bush measures their responses to positive and negative stimuli, and tests their ability to regulate emotions without stimuli.

"Getting people to come in the door to help us is really hard," said Bush, an assistant professor in the Department of Psychiatry. "You can only get so much traction by posting recruitment flyers."

He inquired about the ARresearch registry as soon as he heard about it. Once he started using it, he saw that it would meet his recruitment needs, and then some.

This April marks the three-year anniversary of TRI's launch of ARresearch.org, a website that hosts the participant registry. Nearly 6,000 Arkansans have joined as potential volunteers, and the registry is offered as a free service to investigators.

(Continued on page 2)

At 3-Year Mark, TRI's ARresearch Registry Continues to Grow, Benefit Researchers



Dear Colleagues,

The Translational Research Institute (TRI) has a mandate to help investigators overcome barriers that slow or even stop their research in its tracks. The catchphrases, "accelerating discovery" or "speeding the pace of research" are well-known tenants of all Clinical and Translational Science Awards (CTSA) Program institutions.

Participant recruitment is possibly the most serious universal barrier for researchers who depend on volunteers. In fact, 48% of studies do not meet accrual goals, and 11% fail to enroll a single patient.

TRI committed to addressing the issue with the April 2016 establishment of the ARresearch.org website and registry of potential volunteers. Since then nearly 6,000 registrants from all 75 Arkansas counties have signed

up. Our recruitment team led by Dr. Jean McSweeney has done outstanding work and continues to increase enrollment, providing researchers with a diverse pool of registrants to contact.

Dr. Keith Bush, whose research and use of ARresearch is highlighted in this issue, tells us the registry has helped him exceed his accrual goals. He is among 40 researchers who have requested use of the registry. We have the capacity to serve more, so if you need study participants, consider utilizing this free resource. Please visit TRI.uams.edu to learn more, or contact Sandra Hatley, HatleySandraE@uams.edu.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura James, M.D." with a stylized flourish at the end.

Laura James, M.D.
Director, TRI

Associate Vice Chancellor for Clinical and Translational Research, UAMS

Positive Thoughts

(Continued from page 1)

There were about 2,000 total registrants when Bush acquired his list two years ago, and it continues to bear fruit. He sends about 20 emails each week to prospective volunteers.

"I'm finding people for my studies with very low effort, which is kind of the dream," said Bush, who conducts research in the Brain Imaging Research Center at the UAMS Psychiatric Research Institute. "It allows me to focus on other things like actually doing the analysis on the backend and writing more grants."

EMOTIONS ON SCREEN

Comparing his work to analyzing a grandfather clock, Bush said he hopes to find a common set of gears people use to regulate their emotions. He can isolate them with the MRI.

"We can actually show the person their emotions as they're feeling in real time," Bush said. "We project those feelings onto a screen so they can use it kind of like a speedometer, and we tell them, 'be happy, be sad, be aroused, be calm.'"

He is also testing - for the first time - whether thinking positively really helps people improve their mental well-being, even in negative situations.

"If you create positive stimuli in your own mind, is that protective? Because that's what you would be doing in the real world," he said. "I can test it because of our real-time technology."

He hopes his research will also lead to a tool for therapists to help patients better regulate their emotions and to see for themselves if they can. Some are much better at it than others.

"Right now, therapists don't really know what their patients are feeling; they don't really know if they're trying to feel or change their feelings," Bush said. The technology he is building could change that.

ADVOCATING ARRESEARCH

Thanks to the ARresearch registry, Bush is ahead of his recruitment goals and is an enthusiastic advocate: "I love this service," he said.

The registry database is available to all UAMS faculty, including those at Arkansas Children's Research Institute and the Central Arkansas Veterans Healthcare System. Interested researchers can request access to the database through TRI's website, TRI.uams.edu. Once there, click the "Request Services" button, then the "Go to Services Form" button.

Researchers may contact registrants based on their health interest choices, which they select from a list of 29 general disease categories. Registrants' top five health interest selections are:

- Weight Management: 2,908
- Mental Health: 2,470
- Healthy Volunteer: 2,272
- Heart Disease: 2,209
- Sleep Disorders: 2,141

"These people have already said they want to do research," Bush said. "That's the biggest hurdle. So matching them up with the needs of the investigators is really nice."

Questions? Contact **Sandra Hatley**,
HatleySandraE@uams.edu.

Researcher Profile



Keith Bush, Ph.D.

Assistant Professor

Brain Imaging
Research Center

Psychiatric Research Institute
UAMS College of Medicine

What inspired you to become a clinical researcher?

I study the brain mechanisms underlying emotion. Everyone has had a time in their life when their emotions drove them to dysfunctional or destructive behavior, often with serious consequences. Deficits in emotion processing touch nearly every aspect of mental health and well-being. My inspiration to study this problem comes from the notion that even small improvements in our understanding of these mechanisms have an enormous potential human health benefit.

What do you like most about your area of research?

Emotions, and their role in human behavior, are mathematically poorly described. My background in engineering and computer science allows me to contribute to overcoming this gap in our knowledge. This is exciting because mathematical descriptions of emotion could better link our deep mathematical knowledge of decision-making and learning (i.e., artificial intelligence) with human behavior.

What career would you have chosen if not research?

I would likely be trying to run a startup company building technology to improve brain-computer interactions.

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

Danielle Bassett, Ph.D., Associate Professor of Bioengineering at the University of Pennsylvania. Dr. Bassett is a physicist by training (and the youngest ever MacArthur Fellow) who has revolutionized the study of neuroscience by applying network science to characterize brain function.

PCORI Funds Multistate Transgender Project Led by UAMS Researchers



(L-R) Kate Stewart, M.D., M.P.H., meets with Krystopher Stephens and Alex Marshall, Ph.D., M.P.H.



Anneliese Singh, Ph.D., M.S.



Tonia Poteat, Ph.D., M.P.H., M.M.Sc.

The national Patient Centered Outcomes Research Institute (PCORI) is supporting a unique multistate project that builds on its previously funded work in Arkansas to address health care discrimination for transgender/nonbinary individuals – those whose gender identity differs from the sex they were assigned at birth.

The two-year, \$249,892 Engagement Award is co-led by Kate Stewart, M.D., M.P.H., a TRI-supported community engagement leader, and Alex Marshall, Ph.D., M.P.H., at the UAMS Fay W. Boozman College of Public Health. Working together with co-investigators at the University of North Carolina and University of Georgia, they will lead development of a Regional Transgender Health Research and Education Collaborative with community collaborators.

“We’re very excited to receive this award and to have such distinguished research collaborators,” Stewart said. Tonia Poteat, Ph.D., M.P.H., M.M.Sc., at North Carolina, has focused her research, teaching and clinical practice on HIV and transgender health disparities. Anneliese Singh, Ph.D., M.S., at Georgia, is a psychotherapist and has research expertise in numerous areas of transgender health.

Key transgender community partners include the Arkansas Transgender Equality Coalition, led by Krystopher Stephens, LaGender Inc. (GA), and Triangle Empowerment (NC). The award will provide stipend support for transgender individuals who participate.

The collaborative’s work is in the South where transgender people are more likely to experience health care discrimination, such as being refused care.

Research on the Horizon: New TRI Study of the Month



Clare Nesmith, M.D., meets with TRI’s Kennetha Newman, CRS, program coordinator, and Tara Venable, M.D.

- **UAMS Principal Investigator:** Clare Nesmith, M.D., assistant professor, Department of Pediatrics, College of Medicine
- **Summary:** A pilot study of withdrawal syndrome in newborns whose mothers are taking methadone or buprenorphine as maintenance for opioid dependency. The study will increase understanding of opioid blood levels on neonates’ health and inform treatment.
- **Significance:** More than 160 babies are born at UAMS each year to mothers with opioid dependence. Nationally, a baby is born every 15 minutes with opioid withdrawal syndrome.
- **TRI Services:** Assistance with IRB submission, training for study staff/investigators, oversight of enrollment startup, and research nurse coordinator services.
- **Sponsor:** UAMS Office of Vice Chancellor for Research

TRIBUTES

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

Byrum SD, Loughran AJ, Beenken KE, Orr LM, Storey AJ, Mackintosh SG, Edmondson RD, Tackett AJ and Smeltzer MS. "Label-Free Proteomic Approach to Characterize Protease-Dependent and -Independent Effects of Sara Inactivation on the Staphylococcus Aureus Exoproteome." *J Proteome Res* 2018 Oct 5 **17**(10): 3384-3395.

Cheema AK, Byrum SD, Sharma NK, Altadill T, Kumar VP, Biswas S, Balgley BM, Hauer-Jensen M, Tackett AJ and Ghosh SP. "Proteomic Changes in Mouse Spleen after Radiation-Induced Injury and Its Modulation by Gamma-Tocotrienol." *Radiat Res* 2018 Nov **190**(5): 449-463.

Coker JL, Catlin D, Ray-Griffith S, Knight B and Stowe ZN. "Buprenorphine Medication-Assisted Treatment During Pregnancy: An Exploratory Factor Analysis Associated with Adherence." *Drug Alcohol Depend* 2018 Nov 1 **192**: 146-149.
Dinwiddie DL, Denson JL and

Kennedy JL. "Role of the Airway Microbiome in Respiratory Infections and Asthma in Children." *Pediatr Allergy Immunol Pulmonol* 2018 Dec 1 **31**(4): 236-240.

Felix HC, Bradway C, Bird TM, Pradhan R and Weech-Maldonado R. "Safety of Obese Persons in Nursing Homes." *Med Care* 2018 Dec **56**(12): 1032-1034.

Long CR, Rowland B, Langston K, Faitak B, Sparks K, Rowe V and McElfish PA. "Reducing the Intake of Sodium in Community Settings: Evaluation of Year One Activities in the Sodium Reduction in Communities Program, Arkansas, 2016-2017." *Prev Chronic Dis* 2018 Dec 20 **15**: E160.

Martins BS, Caceda R, Cisler JM, Kilts CD and James GA. "The Neural Representation of the Association between Comorbid Drug Use Disorders and Childhood Maltreatment." *Drug Alcohol Depend* 2018 Nov 1 **192**: 215-222.

Nowak G and Bakajsova-Takacsova D. "Protein Kinase Cepsilon Targets Respiratory Chain and Mitochondrial Membrane Potential but Not FO F1 -Atpase in Renal Cells Injured by Oxidant." *J Cell Biochem* 2018 Nov **119**(11): 9394-9407.

Zielinski MJ, Privratsky AA, Smitherman S, Kilts CD, Herringa RJ and Cisler JM. "Does Development Moderate the Effect of Early Life Assaultive Violence on Resting-State Networks? An Exploratory Study." *Psychiatry Res Neuroimaging* 2018 Nov 30 **281**: 69-77.

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.

The **TRIBUNE** is produced by the UAMS Translational Research Institute (TRI).
It is supported by grant U54TR001629 through the National Center for Advancing Translational Sciences of the National Institutes of Health (NIH). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

WEBSITE:
tri.uams.edu

EMAIL:
TRI@uams.edu

TRI MAIN NUMBER:
(501) 614-2287

Editor
David Robinson
Designer
Leslie Norris
TRI Director
Laura James, M.D.