

University
of Arkansas
for Medical
Sciences
(UAMS)

TRI

Translational Research Institute



2020
Annual Report

University of Arkansas for Medical Sciences (UAMS)



UAMS TRANSLATIONAL RESEARCH INSTITUTE / TRI.UAMS.EDU



UAMS



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THE TRANSLATIONAL RESEARCH INSTITUTE IS SUPPORTED BY THE NATIONAL INSTITUTES OF HEALTH (NIH) NATIONAL CENTER FOR ADVANCING TRANSLATIONAL SCIENCES (NCATS), CLINICAL AND TRANSLATIONAL SCIENCE AWARDS (CTSA) PROGRAM UL1 TR003107, KL2 TR003108 AND TL1 TR003109.

Translational Research Institute (TRI)

TRI PROVIDES SERVICES AND RESOURCES TO ENSURE THE SWIFT TRANSLATION OF RESEARCH INTO HEALTH CARE ADVANCES. THIS SUPPORT IS AVAILABLE TO RESEARCHERS AT UAMS, ARKANSAS CHILDREN'S HOSPITAL AND RESEARCH INSTITUTE, AND THE CENTRAL ARKANSAS VETERANS HEALTHCARE SYSTEM (TRI HUB PARTNERS).

Mission Statement

OUR MISSION IS TO DEVELOP NEW KNOWLEDGE AND NOVEL APPROACHES THAT WILL MEASURABLY ADDRESS THE COMPLEX HEALTH CHALLENGES OF RURAL AND UNDERREPRESENTED POPULATIONS.

Vision Statement

OUR VISION IS TO BE A THRIVING TRANSLATIONAL RESEARCH ECOSYSTEM THAT CATALYZES DISCOVERIES INTO HEALTH SOLUTIONS FOR RURAL AND UNDERREPRESENTED POPULATIONS.

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Message from the Director

We are pleased to share the second annual report from the Translational Research Institute (TRI).

This has been an exciting year for TRI. In July 2019, we received five years of funding from the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health. Our team has moved quickly to pioneer initiatives that expand on TRI's foundational efforts, including our KL2 training and pilot study programs, which date to our first Clinical and Translational Science Award (CTSA) in 2009. The investments are seeding translational research and helping junior faculty become the next generation of translational researchers.

I am particularly excited about the successful launch of four innovative research training programs, which were created by leveraging the research expertise of several UAMS faculty and are now engaging junior faculty across colleges and campuses within our CTSA.

What has really been gratifying for me is to see the words on a grant submission leap to life as envisioned, with programs releasing applications for participation and being met with large, competitive fields of applicants.

These new programs include our Implementation Science Scholars program (described on pages 19-21), Data Scholars Program (page 34), TL1 program (pages 5-7), and Team Science vouchers (pages 33-34).

Our successful CTSA application has provided a roadmap for faculty development in research, and we are now enjoying seeing faculty jump on those activities with a new passion for research. I look forward to seeing these research initiatives positively impact the health of Arkansans.

Sincerely,

Laura James, M.D.

Director, Translational Research Institute
Associate Vice Chancellor for Clinical and Translational Research, UAMS



"As translational researchers, we're focused on quickly moving biomedical innovations and new technologies into everyday practice."

- Nancy Rusch, Ph.D.



From Discovery to Market

NEW PROGRAM AIMS TO DEVELOP ENTREPRENEURSHIP SKILLS

When TRI received its CTSA funding on July 1, 2019, one of its first acts was to announce recipients of a long-planned Health Science Innovation & Entrepreneurship (HSIE) Postdoctoral Scholars Program.

The first-of-its-kind training program, which is a partnership between UAMS and the Sam M. Walton College of Business at the University of Arkansas (UA), Fayetteville, is teaching promising innovators how to move their health-science technologies into the marketplace.

"As translational researchers, we're focused on quickly moving biomedical innovations and new technologies into everyday practice," said Nancy Rusch, Ph.D., the program's co-director, and professor and chair of the Department of Pharmacology and Toxicology in the UAMS College of Medicine.

The UAMS awardees will work with UA MBA student teams to develop commercialization plans for health-science technologies conceived at UAMS. **The inaugural class and their research interests are below.**

Rusch said she is especially excited to partner with Carol Reeves, Ph.D., known nationally for developing entrepreneurs at the Walton College of Business.

Reeves, UA associate vice chancellor for Entrepreneurship and Innovation, said the Scholars Program is a great complement to the UA's MBA program and graduate certificate in entrepreneurship. "It's an exciting addition that strengthens both institutions," she said.

The HSIE Scholars Program is part of TRI's CTSA-funded TL1 Program. In addition to Rusch, the program's leadership team includes Nancy Gray, Ph.D., president of BioVentures, Kevin Sexton, M.D., a surgeon and assistant professor in the College of Medicine, and Jay Gandy, Ph.D., chair of the program's Internal Advisory Committee. Gandy is professor and chair of the Department of Environmental and Occupational Health in the College of Public Health and associate provost at the UAMS Northwest Regional Campus.



SAMIR JENKINS, PH.D.
NANOMATERIALS AND STEM CELL DIFFERENTIATION



ASTHA MALHOTRA, PH.D.
3-D PRINTING AND TISSUE REGENERATION



MELODY PENNING, PH.D.
ALGORITHMS TO PREDICT ADVERSE EVENTS IN HEALTH CARE



AARON STOREY, PH.D.
PROTEOMIC PROFILING OF CLINICAL SAMPLES TO IDENTIFY DRUG TARGETS

Data Sense

HSIE AWARDEE COMBINES SKILLS
TO SPEED PACE OF RESEARCH

Aaron Storey, Ph.D., begins each day ready to innovate.

Armed with a unique combination of skills, he can make sense of complex molecular data, and he has a knack for solving problems that hinder research.

Storey is versed in R and Python computer programming languages as well as proteomics and mass spectrometry - powerful tools for understanding disease and finding treatments at the molecular level.

After receiving his doctorate in 2017 at UAMS, he has become a valued member of multiple study teams. He is also one of four inaugural recipients of the 2019 TRI Health Science Innovation and Entrepreneurship (HSIE) Scholar Awards.

"What excites me most is that I am in a position to innovate," Storey said. "I'm able to improve the way we conduct research, and we can apply the innovations to a large number of projects."

In 2019 he built an interactive online tool - a dashboard - to help him and his collaborators make sense of an unprecedented amount of proteomics data.

"We were generating data much faster than we were making sense of it," Storey said. "If you can't make sense of the data, then what use is the experiment?"

The dashboard provided an interactive product that helped the team understand the molecular pathways in clinical samples so they could identify possible drug targets. It also helped earn him the HSIE Award.

Storey welcomes the increasing speed of tissue analysis and the oncoming tidal wave of data.

"My goal is to apply the technology to clinically relevant tissue samples because that's as close as you can get to the bedside," he said. "We'll build proteomic profiles of thousands of tumor samples because they hold information that can help us fight those cancers."

When Storey completes the HSIE program in 2021, he will know how to identify marketable discoveries and develop commercialization strategies.

"The HSIE program has given me a skillset that complements my Ph.D. studies," he said. "It has helped me see that business and science are very interconnected."

"The HSIE program has given me a skillset that complements my Ph.D. studies."

- Aaron Storey, Ph.D.



A New Class of Researchers

PROGRAM FOR EARLY-CAREER INVESTIGATORS BUILDS ON SUCCESS

It has been a year of firsts for TRI's KL2 Mentored Research Career Development Program.

Designed to help launch careers in clinical and translational research, the program's recent KL2 graduates are notching important milestones toward that goal.

Lisa Brents, Ph.D., a 2019 KL2 graduate, had two firsts: Her first NIH grant, awarded on her first application submission - a feat for any investigator. (Story page 9)

Sufna John, Ph.D., a 2019 KL2 graduate, received U.S. Department of Justice funding. It was her first application submission. (Story, page 10)

Taren Swindle, Ph.D., a 2016 KL2 graduate, achieved a perfect score on her NIH application - a first for any KL2 graduate. (Story, page 11)

UAMS' W. Brooks Gentry, M.D., and Elisabet Borsheim, Ph.D., began their first year as co-directors of the KL2 program. Both professors in the College of Medicine, they bring distinguished careers in translational research and a strong reputation for mentorship.

Gentry and Borsheim oversaw selection of the program's largest class since it began in 2009. The class has its first KL2 recipient based at the UAMS Northwest Regional Campus and first from the UAMS College of Health Professions.

"Our KL2s are well represented in clinical and basic (lab based) sciences with a broad range of research that is all translational," Gentry said.



TARA JOHNSON, M.D.; College of Medicine; "IMPLEMENTATION AND QUANTIFICATION OF THE GENERAL MOVEMENT ASSESSMENT FOR EARLY DETECTION OF NEURODEVELOPMENTAL DISABILITIES IN INFANTS"



STEFANIE KENNON-MCGILL, PH.D.; College of Public Health; "FETAL EXPOSURE TO CANNABINOIDS: EXPOSURE, METHYLATION AND NEURODEVELOPMENTAL EFFECTS"



PEARMAN PARKER, PH.D., M.P.H., RN; College of Nursing; "AN EXPLORATION OF THE MENTAL HEALTH NEEDS OF YOUNG WOMEN WITH BREAST CANCER AND IMPLICATIONS FOR DEVELOPING PATIENT EDUCATIONAL MATERIALS"



ISABELLE RACINE MIOUSSE, PH.D.; College of Medicine; "DECREASING METHIONINE INTAKE TO IMPROVE SURVIVAL IN PATIENTS WITH METASTATIC MELANOMA"



JENNIFER VINCENZO, PH.D., M.P.H., PT; College of Health Professions; "DEVELOPMENT OF A FALLS PREVENTION SELF-MANAGEMENT PLAN TO IMPROVE OLDER ADULTS ADHERENCE TO PREVENTION STRATEGIES AFTER COMMUNITY-BASED FALLS RISK SCREENINGS"

TRI's KL2 Mentored Research Career Development Program provides promising early-career researchers with two years of research funding, salary support and mentoring.

The 2019 KL2s, their college and project titles are:

2019 KL2 Graduates Set Pace



"TRI really made a difference in providing the guidance I needed for a successful NIH application."

- Lisa Brents, Ph.D.

FIRST NIH GRANT PUTS OPIOID STUDY ON SOLID GROUND

Newborns of women with an opioid addiction often begin life with agonizing opioid withdrawal symptoms.

It is a heartbreaking outcome that motivates UAMS researcher Lisa Brents, Ph.D.

As a TRI KL2 Mentored Research Career Development Program recipient, Brents' work has shown the potential for reducing withdrawal effects caused by buprenorphine, a common drug treatment to help people beat their addiction.

Her findings led to her first NIH grant on her first try - a rare feat. An assistant professor in the College of Medicine, she

received a two-year, \$225,000 grant in August 2019 just as her KL2 was ending.

Buprenorphine produces an active metabolite in the body that can make the fetus physically dependent. Brents and her team are testing ways to reduce formation of the metabolite and to determine if this reduction improves child outcomes.

Her dream is to develop a medication that pregnant women could take to treat opioid addiction with no side effects for the fetus.



Sufna John, Ph.D., is using her new translational research skills to ensure that abused children receive coordinated mental health care.

Translational Science Helping Child Abuse Victims

As a child psychologist, Sufna John, Ph.D., recognized a community-wide issue that undercuts the treatment for abused and neglected children.

"Over and over again, I noticed that the best practices I was teaching caregivers in my clinic were not always carrying over to the other adults in the child's life," said John, an assistant professor in the College of Medicine.

She is addressing the problem using skills she acquired as a TRI KL2 Mentored Research Career Development awardee. During the two-year program, John said she received valuable training from the TRI-supported Center for Implementation Research (story, pages 19-21) as she developed, implemented and refined models for cross-community care.

Her successful KL2 project helped her land her first big grant from outside UAMS on her first try – an uncommon achievement. In October 2019, she became principal investigator for a Department of Justice Victims of Crime grant totaling \$242,166 per year for two years.

The grant will allow John to implement better care coordination across the state.

Nearly 9,000 children in Arkansas experience abuse and neglect every year.

"My goal is to use all my skills to help these children and surround them with therapists, teachers, and caregivers who use best practices," she said.



Taren Swindle, Ph.D., left, and Carla Robinson, an assistant teacher at UAMS Head Start, talk about WISE eating with a student.

WISE Eating

KL2 GRAD PARTNERS WITH TEACHERS TO IMPROVE PRESCHOOLERS' DIETS

Taren Swindle, Ph.D., is the first KL2 graduate to earn A perfect score on an NIH grant application.

The WISE program, now licensed by BioVentures, has reached **417** early care and education classrooms across **32** agencies in Arkansas and three other states.

Since her research career began to soar 10 years ago, Taren Swindle, Ph.D., has had a constant partner in Windy WISE.

Granted, Windy is a hand-puppet owl, but the friendly mascot for healthy eating helped put Swindle in position to earn a KL2 Mentored Research Career Development Award in 2014.

Swindle, who co-created Windy WISE (We Inspire Smart Eating), has trained hundreds of early care and education teachers how to use the intervention.

As she conducted the trainings from 2010-2013, she noticed that teachers eat with the students at least two or three times a day. And sometimes teacher-child interactions, impacted by teaching in settings affected by poverty, contradicted Swindle's WISE lessons that were part of a United States Department of Agriculture-funded project in UAMS Head Start classrooms.

Swindle and her colleagues saw the potential for an evidence-based intervention with those teachers. It inspired her application for the two-year KL2 Award.

Swindle joined UAMS in the College of Medicine Department of Family and

Preventive Medicine in 2010 and became a faculty member in 2013.

Her high-quality KL2 work allowed her to immediately pursue a larger project with NIH support. By 2019, she had received \$992,730 in federal funding.

Swindle is grateful for the KL2 and training by the TRI-supported Center for Implementation Research (story, pages 19-21). She is using these new skills to implement peer-to-peer nutrition training among teachers.

"Having the implementation science framework has really opened up my scientific world," Swindle said.

In 2020 Swindle became the first KL2 graduate to earn a perfect score on an NIH grant application, which garnered \$403,550 for two years.

The grant supports a collaboration with Colorado State University, which has a similar early childhood nutritional and physical activity intervention. The study will look at factors that affect sustainability of the WISE and CSU Food Friends and Mighty Moves programs.

Mentoring Matters



Reza Hakkak, Ph.D., and Beatrice Boateng, Ph.D., confer during the workshop.

Diversity and inclusion can be a delicate topic when inviting audience participation; people tend to fall silent. Not so in the hands of Erick Messias, M.D., Ph.D., M.P.H., who led discussion on the issue during TRI's Mentoring Matters Workshop for researchers.

Messias, associate dean for Faculty Affairs in the College of Medicine, was part of a highly regarded

group of UAMS mentors who engaged and enlightened the audience with stories about real-life mentoring experiences.

Attendees praised Messias in their reviews. "His insight, experience and ability to deliver knowledge is amazing," wrote one.

NEW AND VETERAN FACULTY DRAW LESSONS FROM WORKSHOP



Workshop attendee Rosemary Nabaweesi, Ph.D., center, is a TRI KLz Program graduate.

The workshop organized by TRI Evaluation Director Beatrice Boateng, Ph.D., a certified mentor trainer, drew more than 30 faculty from all five UAMS colleges. In addition to Messias, Boateng, a professor in the College of Medicine, was joined by workshop facilitators Elisabet Borsheim, Ph.D., Reza Hakkak, Ph.D., Kevin Sexton, M.D., and Mick Tilford, Ph.D.

Mentor training plays a key role in developing a robust scientific workforce, Messias said. "TRI is helping us retain our research faculty by supporting them through innovative programs such as this."

Hakkak brought more than 30 years of mentoring experience

as he led discussion on effective communication. He echoed his co-facilitators who applauded the workshop's uniqueness and effectiveness.

"I think that TRI and Dr. Boateng did a great job putting this workshop together," said Hakkak, associate dean for Research in the College of Health Professions and professor and chair of the college's Department of Dietetics and Nutrition. "I think every single one of the attendees took home a lot of insight - I got a lot of positive feedback."

As the youngest workshop facilitator, Sexton, associate professor of Surgery in the College of Medicine, said his

relative youth helped him identify with the junior faculty.

"My takeaway from the workshop is there is a significant interest and commitment from UAMS faculty at all levels who want to be better leaders," said Sexton, who also has leadership roles in biomedical entrepreneurship. "The room was full - all the available slots were taken."

Leadership training has been a passion, he said, and the mentoring workshop ranks high on his list of learning experiences.

"It was very helpful to hear the strategies used by the other facilitators who have lived through some of the difficult situations that were discussed," he said.



"TRI is helping us retain our research faculty by supporting them through innovative programs such as this."

– Erick Messias, M.D., Ph.D., M.P.H.

Deeper Engagement

COMMUNITY SCIENTIST ACADEMY DELIVERS FOR RESEARCHERS



High school students who graduated from TRI's Community Scientist Academy helped Jessica Snowden, M.D., develop appropriate materials to recruit for a pediatric asthma/vitamin D study.

As Jessica Snowden, M.D., was preparing to recruit asthmatic children into a vitamin D study, she needed feedback on the recruitment materials.

The input had to come from her target audience, not adults, said Snowden, associate professor and vice chair of Research in the Department of Pediatrics, College of Medicine.

Snowden is leading the Vitamin D Supplementation in Children With Obesity-Related Asthma (VDORA1) study. Arkansas is one of 15 states in the study sponsored by the IDeA States Clinical Trials Pediatric Network.

She didn't have to look far to find the perfect group to assist: high school students who had recently graduated TRI's Community Scientist Academy. The 24 Little Rock School District EXCEL students in the Advanced Medical Sciences Program attended the 10-week course conducted by TRI's Community Engagement Program. They learned about the research process and met with UAMS researchers.

The academy, typically a six-week program for adults, aims to foster community partnerships with UAMS research. It was a hit with the EXCEL students. Eight became enthusiastic participants in a focus

group style meeting with Snowden, coordinated by TRI's community engagement team.

The students dove into the recruitment materials, helping Snowden better frame tricky concepts, such as communicating about obesity.

"It was insanely helpful," Snowden said. "They told me, you need to fix this part of this language and this part of this graphic. They noticed things I didn't notice at all."

"The Community Scientist Academy is a really nice way to partner research resources to get a bigger bang for our buck."

- Jessica Snowden, M.D.

Zoe Holland, one of the students, said the work with Snowden was meaningful. "I like being part of something that's creating change for the good," she said.

Sixteen of the students also participated in a study related to teen pregnancy, helping assess existing teen pregnancy prevention program materials.

The students' participation in both studies represents an exciting new phase of deeper engagement, said Kate Stewart, M.D., M.P.H., director of the Community Engagement Program.

"We wouldn't have had those relationships without the academy," she said. "The students gained an understanding of the value of research and how they could play a role."



Kate Stewart, M.D., M.P.H.

Making a Difference

NEW CPEARL PROGRAM HELPS COMMUNITY GROUPS ADDRESS HEALTH

THE CPEARL AWARDEE ORGANIZATIONS ARE:

Arkansas Hispanic Health Coalition

Arkansas Prostate Cancer Foundation

Better Community Development, Inc.

Difference Makers of Hot Springs

Leaping Beyond

Our House

Health disparities have common threads that are plain to see for the Rev. Willie Wade and Esther Dixon.

"We've conducted three focus groups, which tell us that access is the key," said Wade, who founded the nonprofit Difference Makers of Hot Springs in 2014. Lack of access to health care involves many barriers, but transportation is a big one, he said.

Dixon, executive director of Difference Makers, and Wade have been refining their approach to the issue with assistance from TRI. They both attended TRI's first Community Scientist Academy in 2016 and gained insights that helped them draw a tighter focus on their wide-ranging community advocacy.

This year they are part of the inaugural class of Community Partners Educated as Arkansas Research Leaders (CPEARL), offered by TRI's Community Engagement Program in partnership with the Arkansas Department of Health.

The CPEARL program includes a 6-week course targeting leaders at community-based

organizations in Arkansas. It is designed to nurture research partnerships and teach skills that will help the organizations be more effective. The participating organizations also receive up to \$2,500 in seed funding to implement a real-world project.

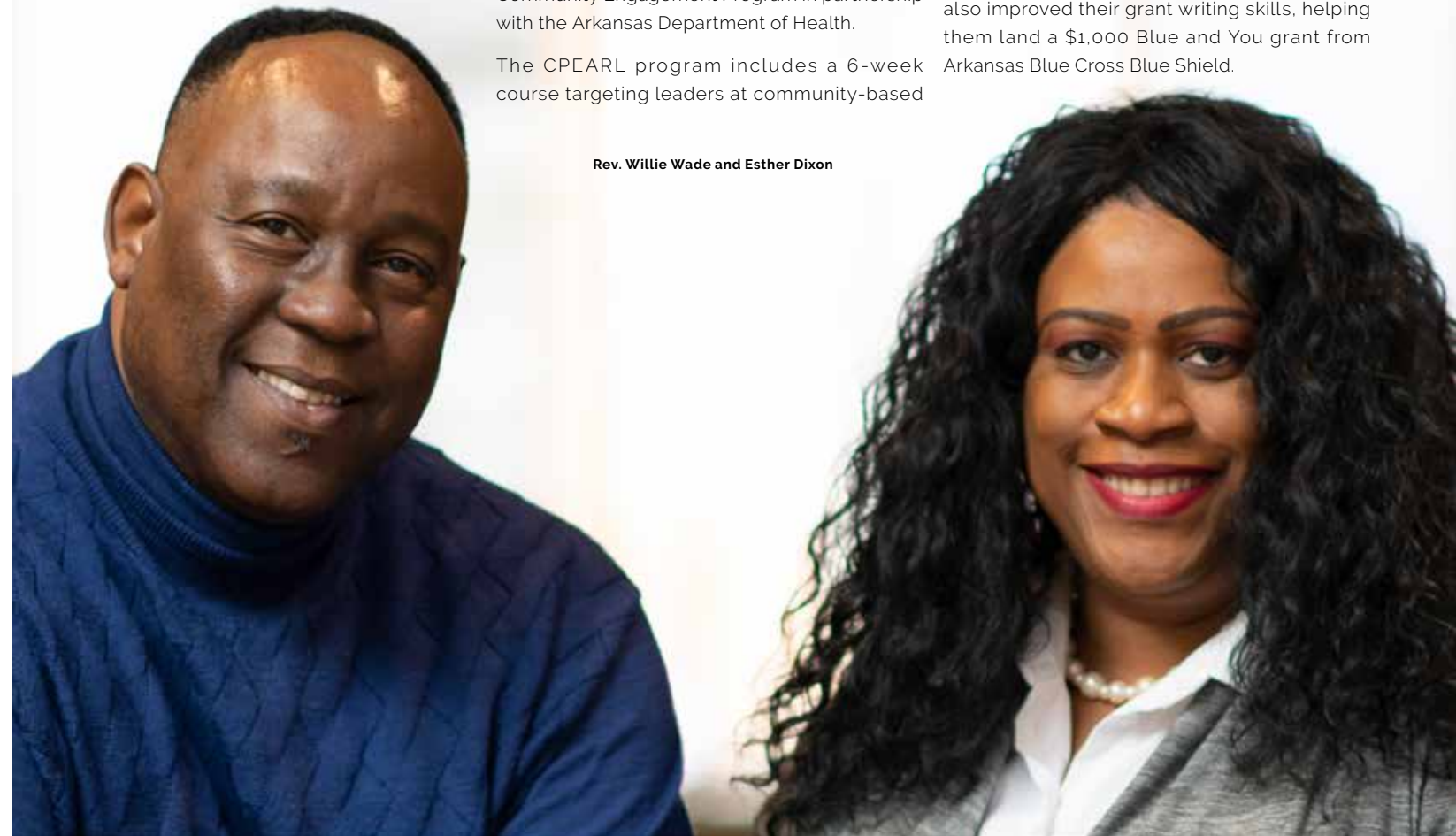
Not yet midway through the program, Dixon said it had already helped hone her survey development skills.

"I have been able to use what I learned to perfect and build on the survey that we're putting out now," said Dixon, who was elected to the Garland County Quorum Court in 2018. "It has helped us to more systematically determine our target audience."

The survey will be used to determine residents' top five health concerns. An action plan for addressing those health concerns will follow.

Dixon and Wade said the CPEARL program had also improved their grant writing skills, helping them land a \$1,000 Blue and You grant from Arkansas Blue Cross Blue Shield.

Rev. Willie Wade and Esther Dixon



Arkansas has the **sixth** highest obesity rate in the nation and the **fourth** highest rate of type 2 diabetes.

The Mother of Invention

LOW-COST STRATEGIES HELP VULNERABLE POPULATIONS ACCESS NUTRITIOUS FOODS



Big problems do not always require expensive solutions.

Researchers at the UAMS Northwest Regional Campus have found this to be true as they tackle the state's obesity and diabetes epidemic.

Public school and food pantry budgets are tight; fresh fruits and vegetables can be expensive.

"Arkansas is among the states hit hardest by obesity and diabetes, so healthier diets are crucial to improving health," said Christopher Long, Ph.D., senior director of Research & Evaluation, Office of Community Health & Research at the UAMS campus in Fayetteville.

Long and his colleagues, led by Pearl McElfish, Ph.D., MBA, vice chancellor for the UAMS Northwest Regional Campus, have focused on improving access to nutritious food and nutrition education to Hispanic, Marshallese and rural populations, as well as schools.

"We spend a lot of time talking with people who work in school nutrition, food pantries, and food banks, who have consistently told us that solutions have to be relatively easy to implement, sustainable and scalable," Long said. "It's not feasible for organizations on tight budgets to implement elaborate programs that are expensive in terms of money or labor."

Grants from the Centers for Disease Control and Prevention (CDC), U.S. Department of Agriculture and the Patient Centered Outcomes Research Institute (PCORI) are funding further testing and expansion of their interventions. Along with TRI's pilot funding, salary support and equipment, Gov. Asa Hutchinson's office is supporting the team's collaboration with food pantries statewide, and the Alice L. Walton Foundation is supporting its work to improve nutrition in schools.

Their work has been cited in Congressional testimony and published by prestigious journals such as the CDC's *Preventing Chronic Disease*; *Journal of the Academy of Nutrition and Dietetics*; and *Diabetes Care*.

"We have leveraged TRI support to develop innovative natural experiments and show the promise of policies, systems and environmental interventions as we continue to strive to make Arkansas a healthier place," McElfish said.



Christopher Long, Ph.D.



Pearl McElfish, Ph.D., MBA

A UAMS NW study supported by the CDC leveraged food pantries in Hispanic and Pacific Islander communities to increase fresh fruit and vegetable servings from **0.22 to 3.33 per person** per household.



Health Literacy's Potential

ONE QUESTION
YIELDS RESEARCH
OPPORTUNITIES

"I think the possibilities are endless."

- Alison Caballero, M.P.H.

Patients' answers to one simple question are starting to generate exciting new ideas for researchers.

More than 100,000 UAMS patients have responded to the question: "How confident are you filling out medical forms by yourself?"

A review of the validated literacy screening question data shows that about 21 percent of patients answered "Somewhat," "A little," or "Not at all," indicating they are at risk for limited health literacy.

At UAMS clinics, the information can immediately help physicians adapt their approach.

For researchers, the patients' responses open the door to a range of queries.

"I think the possibilities are endless," said Alison Caballero, M.P.H., director of the TRI-supported UAMS Center for Health Literacy. "It's a rich dataset, and investigators are beginning to see the many ways it can be used to test interventions that improve health outcomes."

The data is available to researchers in the TRI-supported Arkansas Clinical Data Repository in the Department of Biomedical Informatics.

In 2019, the dataset was tapped by the Department of Orthopaedic Surgery's Asa Shnaekel, M.D., a resident, and Lowry Barnes, M.D., department chair, for development of an intervention for African-American patients with osteoarthritis of the knee, including those with limited health literacy.

Data shows that African-American patients are less likely to elect total knee arthroplasty, a procedure that could significantly improve their quality of life.

As part of the project, the Center for Health Literacy convened groups of patients identified by the dataset and included them in focus groups to evaluate new plain language patient material.

Caballero's team used a novel, evidence-based method developed at the center to elicit meaningful feedback from an often hard-to-engage group.

"Thanks to the Center for Health Literacy and our focus groups, we now have a tailored educational product to help patients at all health literacy levels better understand the surgery and its benefit to their quality of life," Shnaekel said.

CHL Focus Group

TRI supports the Center for Health Literacy as a resource for researchers, providing plain-language materials, consultations and other support.

The Science of Care

UNIQUE DISCIPLINE
STOKES CLINICAL
IMPROVEMENTS

The 2019 launch of the TRI-supported Implementation Science Scholars Program revealed pent-up demand.

Nineteen UAMS clinical faculty, including from Arkansas Children's Hospital, applied for the two-year program. The five who were chosen have quality improvement experience, which makes them a good fit for an introduction to implementation science.

"We're really excited about their projects," said Geoff Curran, Ph.D., director of the TRI-Supported Center for Implementation Research.

The diverse group of College of Medicine faculty will receive 20% salary support to cover their time.

Considered vital to improving health outcomes, evidence-based health care is a priority for UAMS and the CTSA Program. The Center for Implementation Research is one of the few in the country with a scholars program.

"We hope to provide a spark for our scholars to gain an interest in implementation science, explore grant funding, and move to producing generalizable knowledge in this area," Curran said.

The Center for Implementation Research, also supported by the colleges of Pharmacy and Medicine, has a growing national reputation, with many invitations for presentations and faculty consultations at other institutions.

Established in 2014, the center developed formal graduate coursework for the discipline and is anticipating approval of its graduate certificate this year.

"We want to create a community of implementation researchers and translate what we learn to the front lines of clinical practice," Curran said.

In 2019, the TRI-supported Center for Implementation Research provided consultations on **63** study proposals, and **19** have received funding. In addition, **249** mentoring sessions were provided to faculty and trainees in implementation science research.

The scholars and their project titles:

KAPIL ARYA, M.D., PEDIATRIC NEUROLOGY, UAMS/ACH;
"IMPLEMENTATION OF NEWBORN SCREENING (NBS) FOR SPINAL MUSCULAR ATROPHY (SMA) AND OPERATIONALIZING APPROPRIATE PATIENT MANAGEMENT"

JOHNATHAN GOREE, M.D., DIRECTOR, DIVISION OF CHRONIC PAIN, ANESTHESIOLOGY, UAMS;
"IMPLEMENTATION OF SAFE POST-OPERATIVE OPIOID PRESCRIBING AT UAMS"

EMILY KOCUREK, M.D., PULMONARY & CRITICAL CARE MEDICINE, UAMS;
"IMPLEMENTATION OF AN ICU LIBERATION BUNDLE"

DEBOPAM SAMANTA, M.D., INTERIM SECTION/SERVICE CHIEF, PEDIATRIC NEUROLOGY, UAMS/ACH;
"REDUCING QUALITY/IMPLEMENTATION GAPS IN EPILEPSY SURGERY EVALUATION"

MEGHA SHARMA, M.D., FAAP, NEONATOLOGY, PEDIATRICS, UAMS/ACH;
"MINIMIZING LATROGENIC BLOOD LOSS AND REDUCING COST OF LAB TESTING IN VERY LOW BIRTH WEIGHT (VLBW) NEONATES BY RAISING STAFF AWARENESS AND OPTIMAL USE OF EMR"



Center for Implementation Research faculty (top row, l-r), Jeremy Thomas, Pharm.D., Sara Landes, Ph.D., Benjamin Teeter, Ph.D., Geoff Curran, Ph.D. (director) Scholars (bottom row, l-r), Kapil Arya, M.D., Debopam Samanta, M.D., Megha Sharma, M.D., Emily Kocurek, M.D., and Johnathan Goree, M.D.

Lifesaving

RESEARCHER IMPLEMENTS OPIOID INTERVENTION FOR PHARMACIES

Benjamin Teeter, Ph.D., noticed something peculiar after Arkansas made it legal for pharmacists to prescribe and dispense naloxone in 2017.

Despite the lifesaving policy change, few pharmacies were selling the antidote for opioid overdose, which killed 208 Arkansans

in 2018. Teeter, an assistant professor in the College of Pharmacy, found that passive advertisements did not prompt patients to request it and pharmacists were unlikely to approach patients about it. With low demand, many pharmacies stopped carrying the drug.

A core faculty member at the TRI-supported Center for Implementation Research, Teeter utilized an Evidence-Based Quality Improvement strategy to design a potential solution. It called for pharmacists to talk with patients at risk for overdose. More importantly, it provided tools to help pharmacists effectively communicate with those patients.

Supported by a TRI pilot award, the intervention included pamphlets, posters and talking points. Teeter partnered with two rural pharmacies and found that about a third of patients left with naloxone after the pharmacist spoke with them.

Andy Roller, Pharm.D., pharmacy manager at Harp's Foods in Morrilton, was one of the collaborators.

"We wanted to have that conversation about naloxone, and this study helped that happen," he said. "It was very successful."

At three months, Teeter followed up with the pharmacists and found that cost was another barrier, with copays up to \$90. He secured additional funds from TRI to test what would



"We wanted to have that conversation about naloxone, and this study helped that happen."

**- Andy Roller, Pharm.D.,
Pharmacy Manager,
Harp's Foods, Morrilton**

Benjamin Teeter, Ph.D.

happen if patients who wanted naloxone could get it for free. That resulted in 67% of patients going home with the drug.

"Those were big findings," Teeter said.

Roller said most patients are receptive to the naloxone discussions.

"Having these hard conversations creates trust because they realize that you care about them and their family," he said.

Roller shared his experience at a statewide pharmacy conference, and many pharmacists in attendance requested copies of the talking points, brochures and other information.

Teeter is applying for an NIH grant that would allow study of the intervention in rural pharmacies across the Southeastern U.S.

Plain & Simple

PUTTING RESEARCH PARTICIPANTS FIRST

Long before becoming a nationally recognized expert and speaker on health literacy, a law school class revealed to TRI's Christopher Trudeau, J.D., that he had a knack for plain language legal writing.

His childhood experiences, he said, have always underpinned his interest.

"I grew up poor and still have family that struggle with literacy," said Trudeau, who leads TRI's Regulatory Knowledge & Support function. "The concept of explaining something difficult in a clear manner that everyone can understand has always resonated with me."

His clear writing skills have been a cornerstone of his legal career, and over the years he developed a passion for health literacy. Since 2017, he has split time between UAMS and UALR, where he is an associate professor at the Bowen School of Law.

At TRI, Trudeau develops tools to help researchers better connect with research participants while still complying with the complex regulatory scheme.

"Connecting while complying," he said. "That's kind of my new tagline."

Trudeau is involved in important health literacy initiatives for TRI and is part of national efforts as well. Examples include:

- A remake of the Arkansas Community Researcher Training (ArCRT). This video-based human subjects research training is designed for research community partners who don't have a science background. ArCRT is available online and replaces a more difficult training required of researchers. Trudeau hopes the next generation of the already innovative ArCRT will be a model for other CTSAs.
- Working closely with Harvard University to produce the Health Literacy in Clinical Research website. Trudeau is part of a five-person project team for the Multi-Regional Clinical Trials Center of Brigham and Womens Medical Center and Harvard.
- Devising new ways to help researchers comply with the Revised Common Rule (U.S. ethics rules in biomedical and behavioral research involving human subjects). Trudeau's focus is on ensuring that participants fully understand the informed consent forms they must sign before entering a study. He continues to work with the UAMS Institutional Review Board (IRB) developing informed consent templates that researchers can use for a broad range of studies.
- Conducting trainings locally and nationally on the Revised Common Rule. Trudeau has presented at UAMS and research centers such as Tufts University, Michigan State University and the University of North Texas Health Science Center.

"Connecting while complying. That's kind of my new tagline."
- Christopher Trudeau, J.D.



"This is a game changer."
- Heather Douglas, TRI

Custom Built UAMS CREATES TIME- AND MONEY-SAVING SYSTEM

UAMS research leaders and administrators are applauding a new, homegrown software system's ability to shrink hours-long jobs to minutes, reduce human error, and save money.

As part of a TRI-supported project, UAMS IT Research Systems last year finished the first phase of a custom built Clinical Research Accounting System.

The new system offers a consistent, uniform approach to clinical research billing, said Angie Smith, M.S., director of UAMS IT Research Systems, which built the copyrighted system. Commercialization opportunities are being pursued with assistance from BioVentures, LLC.

Smith said her department had to build the system because there are no available systems on the market that could be adapted to UAMS' unique structure. A second phase providing additional functionality was implemented in March 2020.

The system's notable innovation is its ability to interface with multiple other UAMS systems, including the Clinical Trials Management System (AR-CRIS), the finance system (SAP), and Clinical Research Administration system.

"This is a game changer," said Heather Douglas, TRI Clinical Research Finance administrator and member of a 29-member Stakeholder Workgroup involved in the project. "It makes all the difference in my day-to-day job."

"We can now complete a very simple report in five minutes," said Sandy Annis, executive director of Cancer Clinical Trials and member of the Clinical Research Accounting System Steering Committee. "Before, when I had to prepare a clinical trial revenue

report, it would take much longer because I had to pull spreadsheets and calculate it by hand."

The project is a hallmark of translational research, with collaboration among disparate UAMS operations to improve research quality and efficiency. As UAMS' primary clinical trials administrators, TRI and the Winthrop P. Rockefeller Cancer Institute were instrumental as collaborators on the project, Smith said.

Its success required the involvement of numerous UAMS leaders and stakeholders, including clinical research billing, finance, grants accounting and TRI's Clinical Trials Innovation Unit.

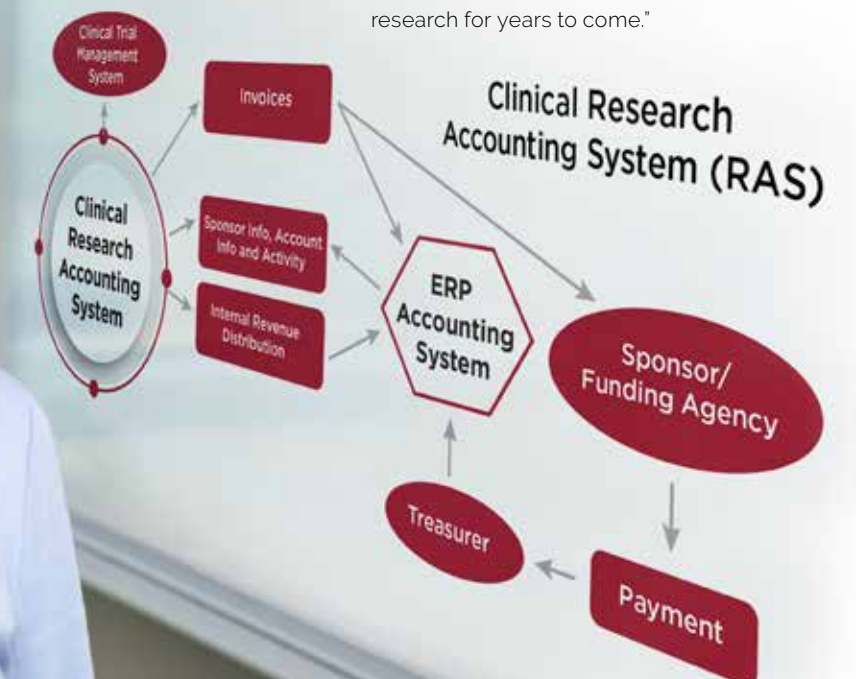
"Everyone came together with a single-minded purpose to make sure we got it right," said TRI Director Laura James, M.D., a member of the Steering Committee. "The collaboration enabled the IT Research Systems team to produce a state-of-the-art system that will benefit UAMS clinical research for years to come."

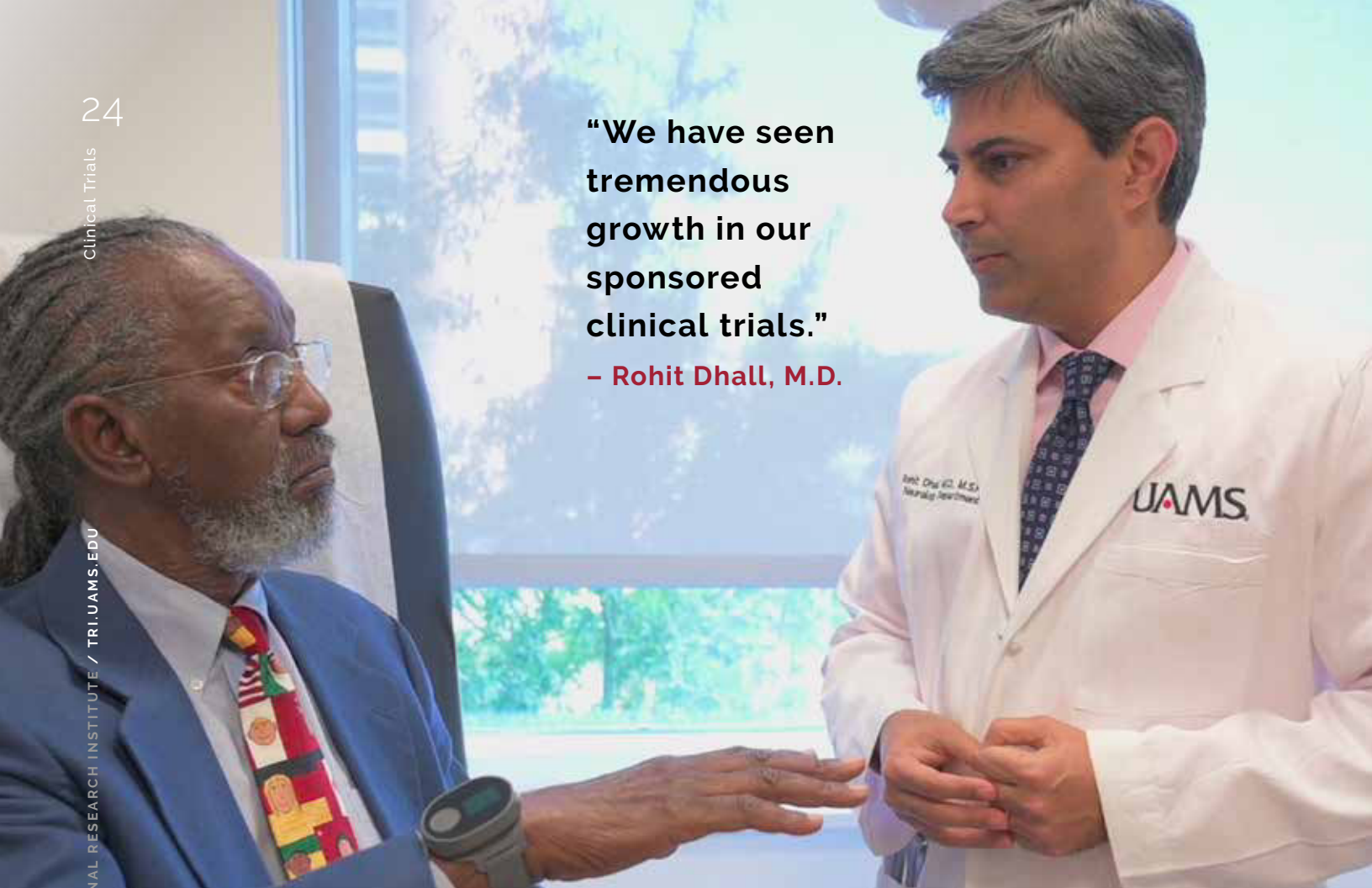


Sandy Annis



Angie Smith, M.S.





“We have seen tremendous growth in our sponsored clinical trials.”

– Rohit Dhall, M.D.

First TRI Medical Director Gives Patients Hope through Clinical Trials

Rohit Dhall, M.D., did a quick tally of research studies that he has either led or contributed to since 2004. He counted 60-plus neurology studies, which have netted more than a dozen new therapies. The treatments have helped patients with Parkinson's disease, essential tremor, dystonia, stroke and other neurological conditions.

Such advances inspire Dhall's ongoing research, and in 2019 he became the first medical director for the TRI Clinical Trials Innovation Unit (CTIU), allowing him to share his experience and expertise on a broader scale.

TRI provided services for **92** clinical trials in 2019 compared to 69 in 2018.

Before joining UAMS in 2015, Dhall directed clinical trials at the Parkinson's Institute in Northern California, and led the National Parkinson Foundation Center of Excellence.

Several thousand diseases affect humans, but only about 500 have any FDA-approved treatment, according to the National Center for Advancing Translational Sciences (NCATS).

“This goes to my personal beliefs about providing the best care for our patients,” said Dhall, an associate professor of Neurology. “As clinicians, we diagnose and treat our patients and we provide them with hope for the future, but for some of the diseases that I see, there are no available treatments. That's why having robust translational research is really critical in giving patients hope for new therapies.”

As CTIU medical director, he is a facilitator and sometimes mentor for other investigators across UAMS and Arkansas Children's Hospital, helping them leverage TRI resources to conduct industry sponsored clinical trials.

Dhall has helped the CTIU with key upgrades to optimize and streamline CTIU processes to support the increasing number of studies.

“We have seen tremendous growth in our sponsored clinical trials,” he said. “As a university, for us to provide the leading edge of treatment options to our patients in Arkansas, we need a healthy, thriving sponsored-clinical trials unit.”

“It's a really nice way to be able utilize the CTSA system as a whole for clinical trials.”

– John Arthur, M.D., Ph.D., TRI Associate Director

New Possibilities

CTSA NETWORK OPENS DOORS FOR UAMS RESEARCHERS

With an idea in mind for a clinical trial, Atul Kothari, M.D., attended a seminar about the Trial Innovation Network (TIN), hoping to glean information that might be helpful. It did not disappoint, he said.

TRI hosted two TIN seminars in December 2019, one on the main UAMS campus and one at Arkansas Children's Research Institute (ACRI). Kothari, along with about 45 other attendees, learned that the TIN is available to help strengthen their clinical studies by finding collaborators at other CTSA Program sites.

The TIN offers researchers access to the entire CTSA consortium, more than 60 institutions and 500 affiliated hospitals across the country.

Attendees were encouraged by Dixie Thompson, B.S.N., RN, TIN lead for the Network Liaison Team Committee, to submit their clinical trials for possible collaboration opportunities, even if only in the idea stage. Thompson is associate director of the Clinical Trials Support Foundation at the University of Utah Center for Clinical and Translational Science.

TRI Director Laura James, M.D., and Associate Director John Arthur, M.D., Ph.D., began offering Listening Sessions for UAMS researchers interested in leading clinical trials with an eye

toward a TIN-facilitated collaboration. Working in partnership with TRI, Department of Pediatrics Professor Stacie Jones, M.D., and ACRI's Janet Stormont are also providing Listening Sessions for researchers on their campus.

Kothari, an infectious diseases specialist and researcher, was among the first from UAMS to submit a clinical trial idea and have it accepted for TIN assistance.



Stacie Jones, M.D.

A TIN-affiliated trial is also ongoing at ACH under the leadership of Katherine Irby, M.D., a pediatric intensivist.

The TIN, Arthur said, is successfully addressing the challenges of clinical trial design, particularly related to enrollment.

“It's a really nice way to be able utilize the CTSA system as a whole for clinical trials,” he said.

James said the TIN can provide consultation on novel clinical trial designs and seeks to promote innovation in clinical trial approaches. She also noted that investigators across CTSA hubs like UAMS are beginning to use the TIN for consultation prior to clinical trial-associated grant submissions.



Atul Kothari, M.D., meeting with TRI Associate Director John Arthur, M.D., Ph.D., was among the first UAMS researchers to vet his study idea with TRI for possible multisite collaboration in the Trial Innovation Network.

Translating Data

BIostatISTICS TEAM HELPS RESEARCHERS ANSWER COMPLEX QUESTIONS



Mark Smeltzer, Ph.D.



Paula Roberson, Ph.D.



Clare Nesmith, M.D.

In 2019, TRI's biostatistics program responded to 61 requests for help through TRI's online Research Services Portal.

Trey Spencer, M.S., problem solving.

Eleven years ago, UAMS researcher Mark Smeltzer, Ph.D., was stumped. He needed a sophisticated study design in his bacteriology lab to help answer a complex question.

"I had no hope from a statistics point of view," he said.

He called the UAMS Department of Biostatistics, chaired by Paula Roberson, Ph.D., who also directs TRI's Biostatistics, Epidemiology, Research and Design (BERD) program. Trey Spencer, M.S., one of eight TRI-supported biostatisticians, got on the phone.

Spencer, he learned, could help design the study and analyze its data when finished.

"He came over and explained to me why he did what he did, and that gave me confidence in the scientific integrity of his work," said Smeltzer, a professor in the College of Medicine Department of Microbiology and Immunology.

Finding Spencer, Smeltzer said, was a revelation and the beginning of a partnership that continues to this day. Over the years, Spencer has been co-author on 15 of Smeltzer's peer-reviewed manuscripts.

"Typically I'm comparing A to Z, and the readout is anything but simple," Smeltzer said. "Having someone who really understands

statistics and all the nuances, variations and how to apply them to a particular problem is literally invaluable."

Smeltzer has received \$21 million from the NIH Centers of Biomedical Research Excellence (COBRE) since 2012. It was a priority, he said, to make Spencer part of the COBRE team.

"His work is helping us understand and potentially develop improved methods for the management of infectious diseases," Smeltzer said.

Clare Nesmith, M.D., called on the BERD program last year when she began her first research study.

"I know what is relevant for clinical practice; I do not know statistics," said Nesmith, an associate professor in the College of Medicine who led a TRI pilot study of opioid levels in newborns.

"He can take the information I have and say, 'okay, this is how many research participants you're going to need; these are the things you can compare; this is what you're missing; this is what we've found, so maybe this is what you should do next,'" Nesmith said. "Biostatisticians are essential for establishing evidence-based medicine."

"Biostatisticians are essential for establishing evidence-based medicine."

– Clare Nesmith, M.D.



"To see something like this succeed, it's like I had a hand in potentially helping come up with the next cancer treatment or the next COVID-19 cure."

– Maryam Garza, M.M.Ci., M.P.H.



Warriors Behind the Curtain

COLLABORATORS IN NCATS-SUPPORTED STUDY BATTLE BARRIERS TO CURES, VACCINES

In the age of COVID-19, a biomedical informatics research project at UAMS has never been more vital.

Maryam Garza, M.M.Ci., M.P.H., and her biomedical informatics collaborators don't study COVID-19, but they are working toward overcoming data-related barriers that slow the search for cures and vaccines.

"We're the warriors behind the curtain," said Michael Rutherford, a biomedical informatics Ph.D. student assisting Garza on an NCATS-supported multisite project to accelerate clinical research.

The project, initiated in 2019 with collaborators at Duke, Wake Forest, University of Texas Health Science Center and Oregon Health & Science University, has a simple goal: to develop a tool that enables the transfer of health care data to clinical research systems.



Michael Rutherford

For those on the frontlines of research across the country, it would translate to significant time savings and more accurate data.

Study coordinators have to pull data from a study participants' electronic health record, such as medical history and lists of medications.

"They're reviewing the data and then working with paper forms or electronic case report forms and re-entering that data manually," said Garza, an instructor in the Department of Biomedical Informatics. "It's tedious and time-consuming. It's also error-prone because you have the human in the middle; digits can get transposed."

The ultimate goal is for the research coordinator to click a button and have the study participant's electronic health record transfer automatically. Had such a tool been in place when COVID-19 hit, Garza said, it could have shaved months off the development of a vaccine and treatment.

The project team is conducting data mapping, identifying gaps and building a proof of concept to test alongside a clinical trial.

Although Garza and her team work mostly behind the scenes, she is fulfilled by her role.

"To see something like this succeed, it's like I had a hand in potentially helping come up with the next cancer treatment or the next COVID-19 cure," she said. "It's something that I can leave and our group can leave for the world."

Fellowship Pioneers

UAMS, ACH LAUNCH NATIONALLY ACCREDITED CLINICAL INFORMATICS PROGRAM

Medical doctors often further their expertise and burnish their credentials with fellowship training and board certification in highly specialized medical fields. Now they can do the same in clinical informatics at UAMS and Arkansas Children's Hospital (ACH).

The American Board of Medical Specialties recognized clinical informatics as a medical subspecialty only seven years ago.

"We're part of a pioneering group of more than 30 institutions that offer this fellowship," said Feliciano "Pele" Yu, Jr., M.D., M.S.H.I., M.S.P.H., director of the UAMS Clinical Informatics Fellowship Program.

Yu, based at ACH, led development of the program with support from Fred Prior, Ph.D., who leads TRI's Comprehensive Informatics Resource Center and is professor and chair of the Department of Biomedical Informatics in the College of Medicine; and UAMS Health.

Beginning July 1, 2020, two clinicians per year will participate in the two-year fellowship program. Completion of the Accreditation Council for Graduate Medical Education (ACGME)-approved program will allow the fellows to seek board certification.

"The purpose of the fellowship is to develop the clinical informatics leadership

and workforce as well as to advance the science of clinical informatics," Yu said.

Practitioners have the skills to innovate new approaches to health information technology and knowledge management in biomedical research, clinical care and public health.

Also in 2019, Yu became instrumental in leading work on a subaward of TRI's CTSA to help UAMS faculty at ACH access de-identified clinical data for research. The informatics platform, already available at UAMS, is known as Informatics for Integrating Biology & the Bedside, or i2b2.

"It is important because i2b2 is readily available and allows researchers to utilize standard datasets that are built for instant query," Yu said.

Once established at ACH, it will provide de-identified pediatric clinical data to the national CTSA Program's Accrual to Clinical Trials (ACT) Network, which enables data sharing across institutions.

The i2b2 initiative also includes a support team subsidized by TRI and ACRI.

"This is another great new tool that will help our investigators collaborate in research nationally," Prior said.

Fred Prior, Ph.D., (TOP) and Feliciano "Pele" Yu, Jr., M.D., M.S.H.I., M.S.P.H.



TRI-supported UAMS-ACH collaborations mark another leap forward for biomedical informatics in Arkansas.

Piloting Innovation

GRANT PROGRAM SPURS RESEARCH IN RURAL, SPECIAL POPULATIONS

Many rural Arkansans may not know it, but they are at the heart of TRI's efforts to improve health in the state.

One of TRI's most important rural health initiatives is its Pilot Award Program. Researchers compete for one-year, \$50,000 grants that focus on rural and special populations. These pilot awards help researchers find evidence-based solutions to health issues that disproportionately affect rural communities.



Donald Mock, M.D., Ph.D.

Under the direction of Donald Mock, M.D., Ph.D., innovation has been a hallmark of the pilot program. Researchers at UAMS and its hub partners, Arkansas Children's Hospital and Central Arkansas Veterans Healthcare System, are invited to apply for pilot awards twice a year. The focus of these pilot proposals rotates among four themes: rural and underrepresented populations; translational biomedical informatics approaches to rural health; implementation science; and community/stakeholder collaborations.

In its annual performance critique, TRI's External Advisory Committee, made up of CTSA institution leaders from across the U.S., noted in its March 2020 report that TRI "is leading in the areas of pilots in several areas."

As an example, all pilot applicants must produce short videos summarizing their study proposals in plain language. "The use of video summaries both facilitates community participation in the reviews and facilitates learning by investigators in clear, broad scientific communication," the committee reported.

The National Center for Advancing Translational Sciences (NCATS, the branch of NIH that oversees CTSA's) is also supporting a multisite study that is testing feasibility and generalizability of the TRI process for involving the public in deciding which grant applications get funded. (story, page 32)

"Given Dr. Mock's distinguished career and 35-plus years of NIH funding, it's not surprising that our pilot program has matured into one that other CTSA's want to replicate," said TRI Director Laura James, M.D.

In 2019, TRI conducted two rounds of pilot funding. The first was for health challenges of rural and underrepresented populations.

SPECIAL POPULATIONS are groups that have been underrepresented in health research or excluded altogether.

The awardees and their project titles are:

CODY ASHBY, PH.D., ASSISTANT PROFESSOR, BIOMEDICAL INFORMATICS, "RACIAL DIFFERENCES IN MULTIPLE MYELOMA GENOMICS AND OUTCOME IN RURAL POPULATIONS"

SARA LANDES, PH.D., "EVALUATING RURAL COMMUNITY PHARMACISTS' PERCEPTIONS OF INTEGRATING MENTAL HEALTH SERVICES TO REACH UNDERSERVED POPULATIONS"

PEARL MCELFIH PH.D., MBA; "DSMES+SHES TO REDUCE HEALTH DISPARITIES AMONG RURAL, MINORITY PARTICIPANTS"

ROBERT PESEK, M.D., "COMPARISON BETWEEN TELEMEDICINE AND IN-HOME ASTHMA ASSESSMENTS FOR IDENTIFICATION AND REDUCTION OF ASTHMA TRIGGERS"

THERESA PREWITT, DR.P.H.; "EXAMINING NATIONAL DIABETES PREVENTION PROGRAM IMPLEMENTATION IN A RURAL FEDERALLY QUALIFIED HEALTH CENTER NETWORK"

LEANNE WHITESIDE-MANSELL, ED.D.; "ADVERSE CHILDHOOD EXPERIENCES OF RURAL AND UNDERSERVED ARKANSANS: IDENTIFICATION OF RISK AND LINKS TO OUTCOMES"

The second round of pilots was for a broader group of special populations including children, older adults, minorities, underserved communities, and rural communities.

The awardees and their project titles are:

HENRY K. WONG, M.D., PH.D., "TARGETING THE CTCL (CUTANEOUS T CELL LYMPHOMA) MICROENVIRONMENT FOR GROWTH CONTROL."

MELISSA ZIELINSKI, PH.D.; "INCARCERATED PREGNANT WOMEN IN ARKANSAS: INCREASING RESEARCH CAPACITY AND PILOTING LACTATION AND DOULA SUPPORT SERVICES."

KRISTIN ZORN, M.D.; "ASSESSING STATEWIDE VARIATION IN HEREDITARY CANCER CARE UTILIZATION IN ARKANSAS."

"Having the CTSA and TRI has been very helpful in getting my career off the ground."

- Johnathan Goree, M.D.

Johnathan Goree, M.D., in his opioid educational video.

Video Guidance

PILOT STUDY PART OF LARGER STRATEGY TO STEM CHRONIC OPIOID USE

Surgery patients may leave the hospital with an opioid prescription, but they may not understand their risk of addiction.

"If a patient gets a seven-day opioid prescription, there's a one in 10 chance they're going to become chronic opioid users or have opioid use disorder," said Johnathan Goree, M.D., director of UAMS Chronic Pain Division and chair of the UAMS Opioid Stewardship Committee. In hopes of preventing such an outcome, Goree, an associate professor in the College of Medicine, used a 2018 TRI pilot grant to create and test an education video for surgery patients. He collaborated on its development with the TRI-supported UAMS Center for Health Literacy, which ensured a fifth-grade reading level for the video script.

One hundred and ten patients participated and were randomized so

that half of the patients saw the video. Shown prior to surgery, the video covers how patients' pain would be controlled during and after surgery. It provides instructions on safe use of opioids, alternative pain medications, and safe disposal of remaining pills.

"We followed up by phone and found that participants appreciated education in this way," Goree said. "Participants who viewed the video had a statistically significant improvement in self-rated knowledge of opioid use and safety." Goree found that participants who were randomized to the video were 64% less likely to continue opioid use at 90 days after their surgery.

"This was a pilot study and the results are very promising. I'm very excited about a future, larger study to confirm these findings," he said.

In the meantime, Goree is expanding his translational research knowledge as a TRI Implementation Science Scholar Program awardee. The funding is helping him further explore how to promote safe prescribing in the UAMS hospital system.

The larger implementation strategy for the hospital is being developed with his project mentor, Geoffrey Curran, Ph.D., director of the TRI-supported Center for Implementation Research.

"The implementation strategy will include the opioid video, and we hope to continue to demonstrate the effectiveness of education in this manner," Goree said.

Willing Partners

TRI HELPS CTSAs FIND GRANT APPLICATION REVIEWERS

TRI is helping tackle a problem that affects academic research centers large and small: finding all the researchers needed to review pilot grant applications.

Because UAMS is relatively small, it would be nearly impossible to recruit enough qualified researchers without potential bias to review dozens of TRI pilot grant applications every year.

The problem was addressed in 2017, when TRI became a founding member of the CTSAs External Reviewer Exchange Consortium (CEREC). The nine institutions that make up CEREC share reviewers, ensuring unbiased evaluations of their pilot grant applications.

It is among the first formalized reviewer exchanges with an online dashboard developed by the University of California, Irvine, a CEREC member. All nine members use the dashboard to submit reviewer requests, and it tracks the status of all of the exchanges in real time.

"The dashboard does a great job limiting any confusion when emails are flying around with all these requests," said Nia Indelicato, M.N.O., TRI assistant director of programs.



Nia Indelicato, M.N.O.

Other CEREC members include Harvard University, Medical College of Wisconsin,

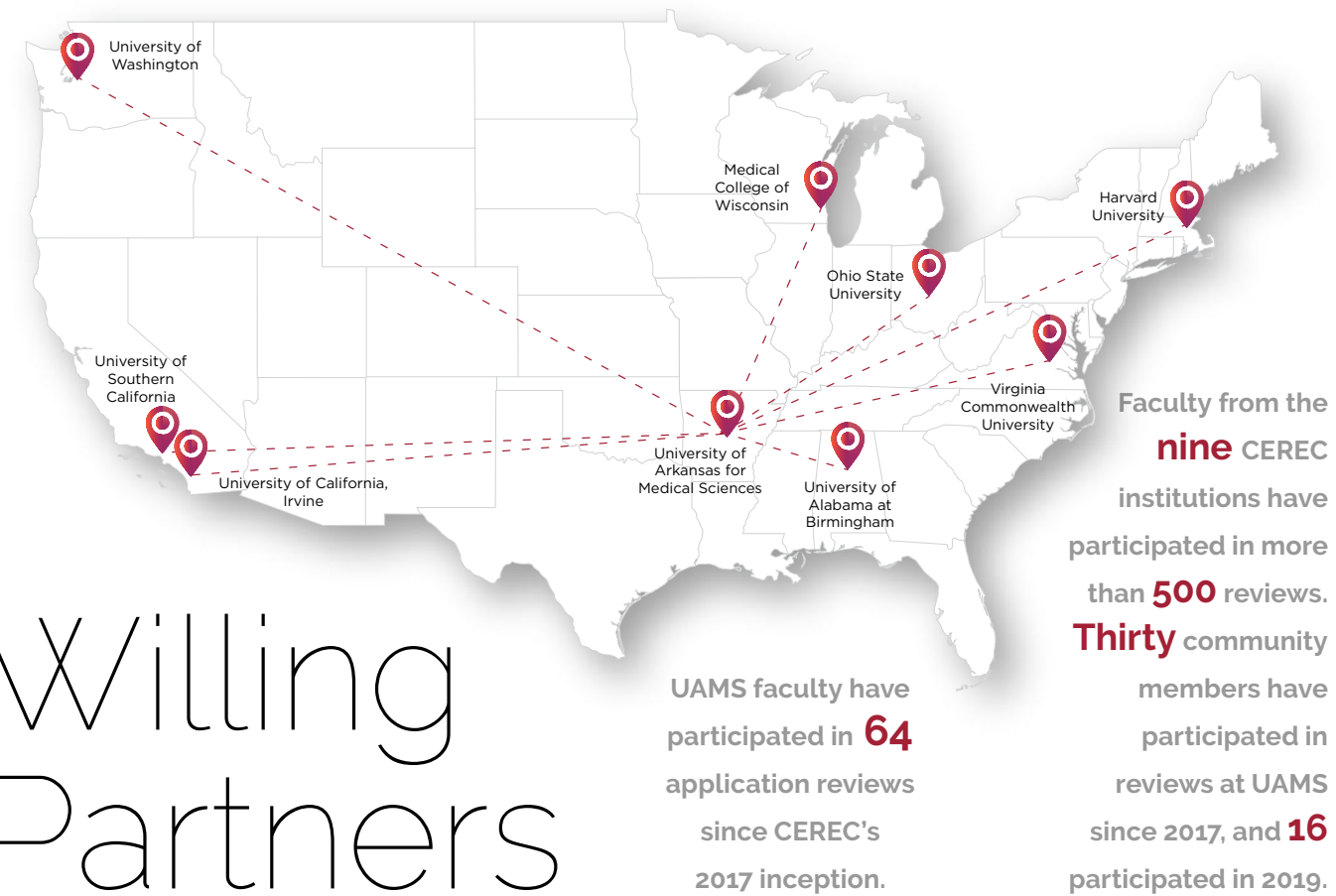
Ohio State University, University of Alabama at Birmingham, University of Southern California, University of Washington, and Virginia Commonwealth University.

Even with a good system, CEREC depends on faculty who are willing to contribute their time and talent.

"The reviewers not only submit a review, but they also participate remotely in the study section that assigns the consensus merit of the proposals," said Donald Mock, M.D., Ph.D., who directs TRI's Pilot Award Program. "The review and participation take several hours for each reviewer. We really appreciate that they can take time to provide their special expertise."

The reviewer exchange is supported by a supplemental grant from NCATS.

In 2019, NCATS funded a study of TRI's innovative training model for involving community members as grant reviewers. Five of the nine CEREC institutions are part of the one-year study, developed in collaboration with Kate Stewart, M.D., M.P.H., TRI Community Engagement Program director, along with Mock and Indelicato.



Team Science 101

TRI PUTS NEW FOCUS ON INTERDISCIPLINARY RESEARCH

As the leader of TRI's Collaboration and Multidisciplinary Team Science Program, Carolyn Greene, Ph.D., promotes team science to various groups by first making sure everyone understands what it is.

She incorporates popular culture and hit movies, like "Ocean's 11," to illustrate how the specific skills of each team member can help tackle complex problems.

"The health issues TRI is trying to solve are extremely complex," Greene said. "They cannot be solved by a single scientist or even a single discipline. It takes a team-based approach with diverse expertise to create the type of comprehensive solutions these issues require."

Team Science focuses on developing multi-disciplinary research teams and maximizing their scientific potential. Making the practice of team science more common will mean changing the culture of research and teaching researchers how to make it work.

"To be successful, teams have to know how to communicate. There is extensive research showing that it is critical that team members feel that they can trust one another," Greene said. "There's a science to learning how to do all this."

Team science is also a priority for federal research funding agencies, she noted. "That's where the dollars are."

Team science became a focal point of TRI's mission in 2019 with a new CTSAs grant starting July 1. Three initiatives were launched:

- ▶ **Team Science Voucher Awards**, which support the formation of multidisciplinary research teams. Seven recipients received awards up to \$50,000 for projects.
- ▶ **Data Scholars Program**, which is led by Bradley Martin, Pharm.D., Ph.D., provides 20% salary support and tuition costs for training in data analytics with mentored support of a data-oriented project.
- ▶ **Team Science Mini Symposium in October 2019** featuring nationally recognized experts on the science of team science: Stephen M. Fiore, Ph.D., from the University of Central Florida, and Elizabeth A. Krupinski, Ph.D., from Emory University School of Medicine.

continues on next page

RECIPIENTS OF THE TEAM SCIENCE VOUCHER AWARDS AND THEIR PROJECT TITLES ARE:

DAVID BUMPASS, M.D., "ESTABLISHMENT OF A CENTER FOR MUSCULOSKELETAL VALUE AND OUTCOMES RESEARCH"

COREY HAYES, PHARM.D., PH.D., "DEVELOPING AND VALIDATING PREMMAT, A PREDICTIVE MODEL FOR MAT DROPOUT, AMONG VETERANS WITH AN OPIOID USE DISORDER"

LINDA LARSON-PRIOR, PH.D., "A TRANS-DISCIPLINARY APPROACH TO REDUCING CAREGIVER BURDEN IN ARKANSAS"

NALIN PAYAKACHAT, PH.D., B.PHARM., "THE TIME IS NOW! INTEGRATING PAIN-RELATED ELECTRONIC PATIENT-REPORTED OUTCOMES DATA IN ELECTRONIC HEALTH RECORD (IPRO-PAIN)"

CRAIG PORTER, PH.D., "DEVELOPMENT OF A TRANSLATIONAL BURN RESEARCH TEAM AT UAMS"

KATE STEWART, M.D., M.P.H., "A TEAM SCIENCE APPROACH TO EVALUATION: PARTICIPATORY OBSERVATION OF THE DEVELOPMENT AND IMPLEMENTATION OF THE TRI'S COMMUNITY-BASED PARTICIPATORY RESEARCH (CBPR) SCHOLARS PROGRAM"

ARAVINDHAN VEERAPANDIYAN, M.D., "PERCEIVED ATTITUDES, PARENTING PRACTICES, AND BELIEFS OF NUTRITION AND PSYCHOSOCIAL INTERPLAY IN FAMILIES OF CHILDREN WITH DUCHENNE MUSCULAR DYSTROPHY"



“The health issues TRI is trying to solve are extremely complex. They cannot be solved by a single scientist or even a single discipline.”

– Carolyn Greene, Ph.D.

Team Science 101

continued

“The Data Scholars,” Greene said, “are part of the Team Science Program because data analysis is such a critical skill to address the complex health issues we commonly see today. It’s a skillset that we need to strengthen.”

THE DATA SCHOLARS AND THEIR PROJECT TITLES ARE:

ENISHANK JAIN, M.D., M.P.H., “PREDICTORS OF BLEEDING IN PATIENTS ON CHRONIC DIALYSIS ON P2Y12 INHIBITORS (PREDICT BLEED STUDY)”

MARGARETE KULIK, PH.D., M.SC., M.A., “USING (ARKANSAS) ALL-PAYER CLAIMS DATA TO EXAMINE UTILIZATION AND PRESCRIPTION PATTERNS OF TOBACCO CESSATION TREATMENTS AMONG MEDICAID ENROLLEES IN ARKANSAS”

YASIR RAHMATALLAH, PH.D., “TEMPORAL TRAJECTORY ANALYSIS PROMOTES DATA-DRIVEN KNOWLEDGE EXTRACTION AND IDENTIFIES CRITICAL INTERVENTION POINTS TO DISRUPT DISEASE PROGRESSION PATHWAYS”

TRI LEADERSHIP

Laura James, M.D., Principal Investigator and Director; Associate Vice Chancellor for Clinical and Translational Research, UAMS; Professor, Department of Pediatrics, College of Medicine

John Arthur, M.D., Ph.D., Associate Director; Local Medical Director, Trial Innovation Network; Professor, Department of Internal Medicine; Director, Division of Nephrology, College of Medicine

Amy Jo Jenkins, M.S., CCRP, CCRC, CCRA, TRI Executive Director

Beatrice Boateng, Ph.D., Director, Evaluation; Professor, Department of Pediatrics, Assistant Dean for Faculty Assessment and Evaluation, College of Medicine

Elisabet Borsheim, Ph.D., Co-Director, KL2 Mentored Research Career Development Award Program; Professor, departments of Pediatrics and Geriatrics, College of Medicine; Director, Arkansas Children’s Nutrition Center Physical Activity Core Laboratory

Geoffrey Curran, Ph.D., Director, Optional Module – Implementation Science; Professor, Department of Pharmacy Practice, College of Pharmacy; Research Health Scientist, Central Arkansas Veterans Healthcare System; Director, Center for Implementation Research

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* These board members rotated off effective January 2020.

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A Peek in the Portal

TRI has streamlined access to resources for researchers at UAMS, Arkansas Children’s Hospital and its Research Institute, and Central Arkansas Veterans Healthcare System with its Request Services Portal on the TRI website, TRI.UAMS.EDU.

The web-based service increased to **744** research-related service requests in 2019 compared to **556** the previous year.

Total publications citing TRI for its assistance since 2009: **735**

TOP THREE REQUESTS:

Help with research study protocol development	Access to Arkansas Clinical Data Repository (AR-CDR)	Biostatistics (study design) support
152	120	85

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