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Time to Shine

UAMS Aids National Research Bid to Unify COVID-19 Data

When COVID-19 arrived in the United States, the ongoing ambitious efforts to harmonize clinical data for research across institutions rose from a major priority to an urgent necessity.

The situation also created a unique opportunity for UAMS to shine. With its robust TRI-supported biomedical informatics programs, UAMS became an immediate contributor.

At the forefront of the national strategy has been the Center for Data to Health (CD2H), funded by the NIH National Center for Advancing Translational Sciences (NCATS).

“The CD2H program has been working to unify clinical data from many sources into a common data model,” said UAMS’ Fred Prior, Ph.D., who leads TRI’s Comprehensive Informatics Resource Center (CIRC) and has national roles related to CD2H’s efforts. “When COVID-19 hit, NCATS kicked that program into high gear and the National COVID Cohort Collaborative (N3C) was created.”

N3C, which opened to researchers in September, is a centralized database with de-identified health records from people tested for COVID-19 or whose symptoms are consistent with the virus.



Fred Prior, Ph.D., is leading UAMS’ contributions to national COVID-19 clinical data sharing platforms for research.

(Continued on page 2)



UAMS among First of 72 Data Sharing Institutions for COVID-19 Research

Dear Colleagues,

Informatics is a major cornerstone and approach for research conducted by TRI and other Clinical and Translational Science Awards (CTSA) programs across the United States. Using transformative approaches, such as national data sharing platforms, we can jump-start our understanding of the impact of the COVID-19 pandemic on

individuals across race, ethnicity and age.

This issue of *The Tribune* provides updates of the national data sharing effort, led by the National COVID Cohort Collaborative (N3C). Now available to researchers, the clinical data repository is supported by the NIH National Center for Advancing Translational Sciences (NCATS), the funder of our CTSA.

We are excited to report that UAMS is among the trailblazing institutions sharing de-identified COVID-19 data with the N3C.

Dr. Fred Prior and Dr. Ahmad Baghal have led the efforts to securely link UAMS COVID-19 patient data to the N3C platform. Dr. Prior’s NCI-funded The Cancer Imaging Archive (TCIA) is also a national repository for COVID-19 clinical images, and he is finalizing plans with NCATS to link TCIA images to the N3C platform.

As we look to 2021, we’re keeping our eye on the ball. At TRI, that means continuing to provide the tools and resources you need to accelerate discoveries. More information on the N3C is available at ncats.nih.gov/n3c.

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

Time to Shine

(Continued from page 1)

It also includes data of those infected with pathogens such as SARS 1, MERS and H1N1, which can support comparative studies. Learn more at: ncats.nih.gov/n3c.

Prior, who chairs the College of Medicine Department of Biomedical Informatics, points to the work of Ahmad Baghal, M.D., Ph.D., a department faculty member who helped UAMS become one of the first institutions in the country to begin sharing de-identified clinical data with the N3C enclave. Baghal directs the TRI-supported Arkansas Clinical Data Repository (AR-CDR), which makes de-identified clinical data available to UAMS-affiliated researchers.



Ahmad Baghal, M.D., Ph.D.

Prior's role as principal investigator for The Cancer Imaging Archive (TCIA) has also put UAMS in the spotlight for COVID-19-related research. The National Cancer Institute, which funds the TCIA, has designated it as a repository to accelerate the nationwide

sharing of de-identified COVID-19 clinical images.

UAMS was the first institution in the U.S. to upload de-identified COVID-19 images to TCIA.

"My group became engaged when NIH realized that radiology images were important for COVID-19 diagnosis and treatment and they needed a place to gather, curate and distribute images," Prior said. "NCI took on responsibility for images because TCIA was shovel ready to immediately gather image data."

The journal *Nature* has accepted two papers related to the effort. One was published in November, rdcu.be/cbeUZ, describing the Arkansas images, which include

radiologic images and genomic sequences of SARS-CoV2 from Arkansas patients seen at UAMS. The other paper is an analysis of the sequence findings.

Prior's team is also finalizing a contract with NCATS to link the UAMS COVID-19 images with the UAMS clinical data that is regularly uploaded to N3C.

"It is significant because the images will remain in TCIA and be pulled into N3C as needed for analysis," Prior said. "TCIA will be the first external data repository linked to N3C, but not the last."

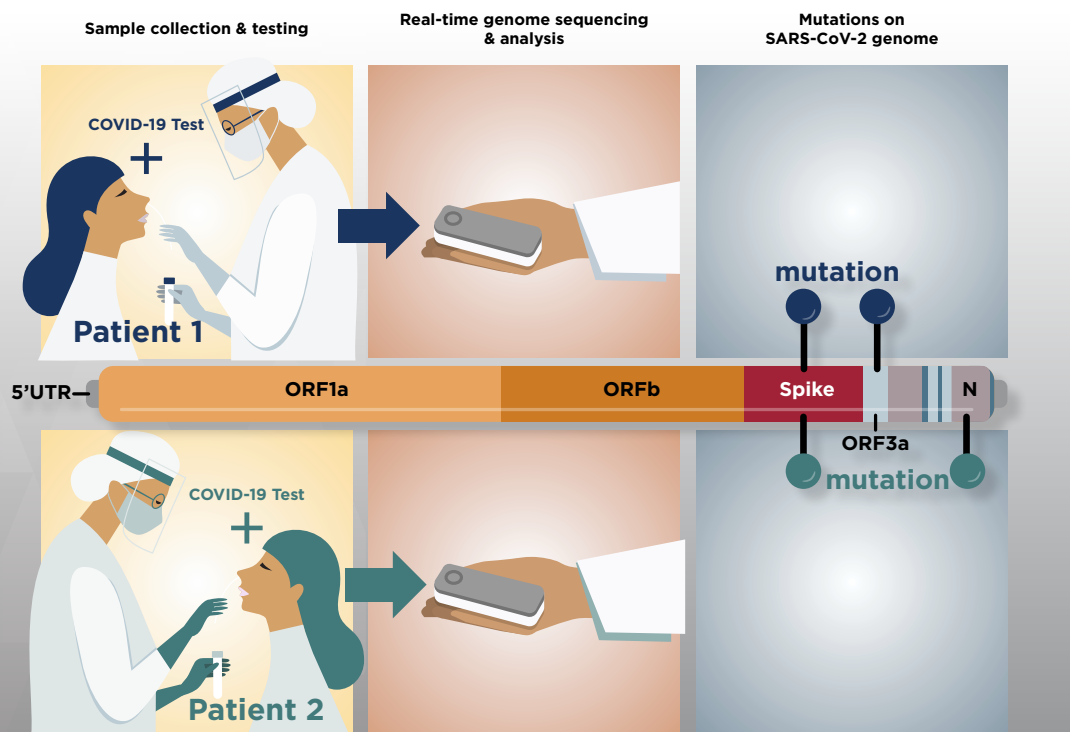
By mid-November, N3C had 1.8 million total patients, including 247,822 COVID-19 positive patients, and 1.8 billion rows of data.

Even with the urgency of COVID-19, getting the N3C Data Enclave positioned for COVID-19 research has required patience. Building a standardized data-sharing platform is an enormous challenge given there are no common data storage protocols and the data comes from a fragmented health care system.

"It has taken time because we are inventing a lot of the techniques, policies and procedures as we go," said Prior, who serves on the NCATS Governance Working Group and Tools Working Group. "We are building infrastructure that will be here in the long-term, and having the ability to rapidly marshal massive amounts of data will leave us much better prepared for a potential future pandemic."

Researchers interested in accessing UAMS clinical data can request help through the TRI Services Portal at tri.uams.edu. Researchers interested in learning more about N3C should review the COVID N3C website, covid.cd2h.org, or email Prior at FWPrior@uams.edu.

Sequencing data and images from UAMS are among the contributions to the N3C repository and The Cancer Imaging Archive, now a storage site for COVID-19 images. This illustration represents genomic sequencing of the SARS-CoV-2 genome in two UAMS patients by UAMS' Thidathip Wongsurawat, Ph.D., and Piroon Jenjaroenpun, Ph.D.



NCATS Supports Telehealth Study of Rural Pregnant Women



Hari Eswaran, Ph.D.

UAMS researchers will use a \$228,000 federal grant to test telehealth as a way to improve Arkansas' death rate among pregnant women, which ranks fifth nationally.

Led by Hari Eswaran, Ph.D., a professor in the College of Medicine Department of Obstetrics and Gynecology, the research team will focus on remote health monitoring of pregnant women in rural areas with few health providers or resources. The goal is to determine if remote health monitoring can improve care for rural pregnant women with high blood pressure.

The one-year grant is funded by the NIH National Center for Advancing Translational Sciences (NCATS). The funding was awarded as a supplement to TRI's NCATS-funded Clinical and Translational Science Award (CTSA) UL1 TR003107.

The team will recruit 50 pregnant women to test whether patient care can be improved using telemedicine with UAMS maternal-fetal specialists; remote health monitoring, and the UAMS Institute for Digital Health & Innovation Call Center.

"By identifying these at-risk women early in their pregnancy, we can potentially help provide timely medical care using telehealth technology," Eswaran said. "This would help prevent illness and death, shorten hospital stays and reduce health care costs."

TRI Study of the Month

■ UAMS Principal Investigator:

Allen C. Sherman, Ph.D., Professor, Otolaryngology; Director, Behavioral Medicine; Chair, UAMS Institutional Review Board.

■ **Summary:** This study examined daily burdens and disruptions experienced by Arkansans as a result of the COVID-19 pandemic. Using validated measures, the survey evaluated important psychosocial difficulties such as depression, anxiety, trauma and alcohol abuse, and how these might be related to salient risk factors and resource variables.

■ **Significance:** The project begins to address an urgent public health need regarding psychosocial adaptation to the pandemic. Relative to earlier studies, novel features include the focus on residents' experience in a rural Southern region during a period of gradual reopening.

■ **TRI Services:** Participant recruitment using TRI's ARresearch registry of potential research volunteers.



Allen Sherman, Ph.D., recruited participants for his study from the ARresearch registry with assistance from TRI Senior Program Manager Sandra Hatley, M.H.A., CRS.

TRIBUTES

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

McElfish PA, Long CR, Scott AJ, Hudson JS, Haggard-Duff L, Holland A, Schulz TK, Wilmoth RO, Selig JP. Pilot Implementation of Adapted-Family Diabetes Self-Management Education into a Clinical Setting. *J Prim Care Community Health*. 2020 Jan-Dec; 11:2150132720931289. doi: 10.1177/2150132720931289. PMID: 32517573; PMCID: PMC7288836.

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Zielinski MJ, Allison MK, Roberts LT, Karlsson ME, Bridges AJ, Kirchner JE. Implementing and Sustaining SHARE: An Exposure-Based Psychotherapy Group for Incarcerated Women Survivors of Sexual Violence. *Am J Community Psychol*. 2020 Sep 28. doi: 10.1002/ajcp.12461. Epub ahead of print. PMID: 32985702.

Zielinski MJ, Allison MK, Brinkley-Rubinstein L, Curran G, Zaller ND, Kirchner JAE. Making change happen in criminal justice settings: leveraging implementation science to improve mental health care. *Health Justice*. 2020 Sep 6;8(1):21. doi: 10.1186/s40352-020-00122-6. PMID: 32892276; PMCID: PMC7487468.

TRI Welcomes Executive Director Robin Liston, M.P.H.

Robin Liston, M.P.H., joined TRI on Nov. 16 from Frontiers: University of Kansas Clinical and Translational Science Institute, where she was the assistant administrative director.

“After an extensive search with many excellent candidates, we are excited to have Robin as part of our team,” said TRI Director Laura James, M.D. “Robin’s diverse skillset developed over the last 18 years in research management helped set her apart. Her proven leadership within a Clinical and Translational Science Awards (CTSA) Program will ensure the highest degree of efficiency and professionalism in our delivery of resources and services to all UAMS-affiliated investigators.”

Please help TRI welcome Robin! She can be reached at rliston@uams.edu.



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