

CTSC supported open-source informatics tools instrumental in successful Agency for Healthcare Research and Quality (AHRQ) grant at University Hospitals to create a Center to Improve Clinical Diagnosis

Demonstration projects to focus on important healthcare concerns in our local community

Dr. Goutham Rao, division chief of family medicine at University Hospitals, and a team of multidisciplinary PIs and colleagues at UH and CWRU, were recently awarded a 4-year \$4 million grant from AHRQ for a Center to Improve Clinical Diagnosis at UH. Diagnostic errors in medicine are common and frequently extremely serious, and, unfortunately, strategies to identify diagnostic standards and best diagnostic practices for a variety of problems are scarce. The focus of this center is to tackle diagnostic problems using a data and consensus driven approach. Specifically, the center will develop recommended practices including 1) identifying problems which are common, associated with high rates of diagnostic error, and for which guidance is lacking, 2) identifying current diagnostic practice (or practices in response to diagnostic interventions), 3) identifying outcomes of diagnostic practices, 4) in collaboration with a panel of diagnosticians, reviewing data about practice and outcomes and formulating recommendations, and 5) implementing recommendations and monitoring their impact.

The research team has chosen three problems as demonstration projects based on how common and serious they are, especially in the community we serve, and the expertise and experience of the research team: 1) the best approach to identifying and evaluating unintentional weight loss in adults, 2) the best approach to screening for hypertension in African American adolescents using home-BP devices, and 3) improved diagnosis of sepsis in children in community emergency department (ED) settings, and adults in community (ED) and inpatient settings through implementation and most importantly, refinement of electronic sepsis trigger tools.

To support the AHRQ center application, the CTSC CWRU informatics core and Dr. Rao's research team in Family Medicine (Kelsey Ufholz, PhD), in collaboration with the Cleveland Institute for Computational Biology (CICB), piloted an IRB approved study looking at unintentional weight loss (UWL) and the degree of recognition of UWL by primary care physicians. The teams utilized temporal structured queries of structured health data (i.e., discrete data elements in the EHR) in combination with the rapid review of unstructured chart data (i.e., notes) to look for UWL over a two-year period. The UH OHSDI/OMOP Common Data Model data mart and the Electronic Medical Search Engine (EMERSE) were used iteratively to perform the structured and unstructured analyses, respectively. The preliminary results of this study were presented at the fall meeting of the Society to Improve Diagnosis in Medicine (SiDM, October 2022), and the formal results of this work are currently under review. Importantly, the combination of having both open-source informatics platforms (i.e., OMOP and EMERSE) was indicated as a strength of the successful AHRQ proposal due to the ability of the center to be able to share informatics algorithmic results and strategies across other AHRQ centers, and, indeed, with other healthcare systems and providers.



**Agency for Healthcare
Research and Quality**

