Needing Big Data for a Grant? CIRD just may be your "Holy Grail"

Justin Moroney, Ph.D. Candidate
GRIP T-32
Graduate School of Biomedical Sciences
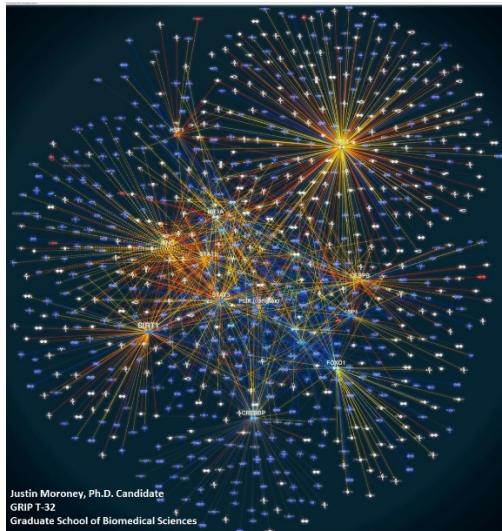
For more than a decade, the NIH Road Map for Medical Research has driven initiatives designed to advance discovery and translation in the biomedical field. Leveraging big biomedical data, the Clinical Informatics Research Division (CIRD) advances these initiatives by using technology, electronic health records (EHRs), U.S. Census Bureau data and interdisciplinary approaches. CIRD curates a massive data warehouse that is accessible to researchers through multiple software tools, such as i2b2, TriNetX, and others for data query and data extraction.

Amelie G Ramirez, Dr. P.H., interim chair of the Department of Epidemiology and Biostatistics at the Joe R. and Teresa Lozano Long School of Medicine, noted CIRD's mission is to develop and enhance

Overview of CIRD Services and Platforms

	PLATFORM USED	DATA WAREHOUSE USED	NEEDED FORM	BENEFITS
Self-Serve	TriNetX, i2b2 interface	i2b2	System Access form	Investigator has control
				Can assess study feasibility before IRB submission
				Describe patient populations for grant proposals
CIRD Guided Service	i2b2, Common Data Model, SHRINE	i2b2 PCRF/PCORnet Greater Plains Collaborative Network	System Access & Project Request form	Access to a wider net of data
				Deidentified data
				Retrospective studies typically come out of these datasets
				CIRD will develop queries to extract data using more complicated interfaces

population-based, clinical and translational research in clinical and community settings. Researchers have access to multicenter databases containing de-identified EHR data from both University Health System (UHS) and UTMed built and maintained by CIRD. CIRD offers assistance to researchers on how to access the data and develop queries. Benefits of utilizing these services include: accessing copious amounts of clinical data, generating preparatory data for grants, characterizing patient cohorts, and conducting retrospective studies.

To better understand how CIRD expertise assists investigators in their translational research, Paula K. Shireman, M.D., professor of surgery and of microbiology, immunology and molecular genetics at the Long School of Medicine shared how she uses the database and services for her U01 multicenter (University of Pittsburgh and UT Health Houston) collaborative grant.

Encompassing a more comprehensive approach to patient care is challenging because traditional medical risk models do not consider social risk factors such as race or socioeconomic status for predicting patient outcomes such as hospital readmission or mortality. CIRD is piloting the acquisition and processing of U.S. Census Bureau data utilizing geocoded addresses from UTMed and UHS patients to provide block level census information about socioeconomic factors. The team will generate a new risk model that includes social risk factors coupled with clinical risk factors to better inform patients in need of surgical intervention. Patients, especially those who are vulnerable to potentially negative outcomes due to social risks or poor health, can be better informed about their risk for readmission into long-term care when considering surgery. In addition, at the health policy level, these data could help to recruit much needed hospital resources for safety-net hospitals, leading to better care pathways for disadvantaged and vulnerable patients.

"A relatively untapped jewel at UT Health San Antonio," said Dr. Shireman, "CIRD has the potential to change the landscape of healthcare delivery by offering evidence-based, novel approaches in translational medicine that can impact patient care and population health."

CIRD plays a principal role supporting major initiatives including the Claude D. Pepper Older Americans Independence Center at the Barshop Institute, Clinical and Translational Science Award at the Institute for Integration of Medicine and Science, and the Greater Plains Collaborative PCRF/PCORnet data network.

Paula Shireman, M.D. meets regularly with CIRD team members Laura Manuel (standing) and Oliva Ellsmore.