Search for the Director, Center for Health Services Research
University Hospitals Health System and Case Western Reserve University School of Medicine

Cleveland, Ohio

THE SEARCH

University Hospitals Health System (UH) and Case Western Reserve University (CWRU) seek a highly accomplished and nationally and internationally recognized clinician scientist to serve as the inaugural Director for the UH & CWRU Center for Health Services Research, a newly formed research center that will organize and catalyze the growing portfolio of health services, health outcomes, population health, and implementation science research at University Hospitals Health System. The Center is the latest in a long-standing and successful partnership between UH and CWRU, and the Director will collaborate closely with the leaders of UH Academic and Clinical Affairs and the CWRU School of Medicine and Basic Science Departments.

UH has a cadre of funded scientists in a broad range of thematic areas and has seen significant growth in its sponsored portfolio since 2020. At present, UH has $82.5M in health services research (HSR) and UH HSR researchers currently collaborate across multiple units and disciplines. The Director will guide the integration of research activities into a center model with strong research, education/training, and community engagement. The Center will also house a portfolio of core services and supports required for health services research and will coordinate across UH and CWRU to organize further services and supports that will be needed. Over time, the Director will bring on deputies to support the mission of improving healthcare delivery in the Cleveland and Northeast Ohio and the Center will work to determine key performance indicators to make a measurable impact on health outcomes and health disparities in the community.

The Director will lead and develop a strategic direction for UH/CWRU Health Services Research and partner across UH and CWRU leadership to build the Center. UH HSR researchers have been engaging in research largely within their own departments and this new Center, and the Director will facilitate increased collaboration and coordination among researchers to increase funding and successful grant attainment. This person will build and maintain a talented team and associated infrastructure to support research with a focus on developing strong biostatistics and informatics cores. The Cleveland area has tremendous depth in healthcare research, and this Director will work to develop appropriate partnerships across the region including but not limited to partnerships with Metro Health, Cleveland Clinic, Case

Western Reserve University, the Department of Veterans Affairs, and city and county public health programs.

The successful candidate will bring evidence of leading, coordinating, and facilitating interdisciplinary research teams, be a clinician scientist (MD, MD/PhD, PhD), and will bring strong expertise in health services research. The Center Director will have appointments at UH and within the CWRU School of Medicine, in the appropriate department and with the appropriate rank based on the candidate's research background. The candidate should bring expertise in nationally and internationally recognized health services research, along with a strong record of scholarly, peer-reviewed publications.

University Hospitals Health System and Case Western Reserve University have retained Isaacson, Miller, a national executive search firm, to assist in the recruitment of the Director, the Center for Health Services Research. All inquiries, nominations, and applications should be directed in confidence as noted at the end of this document.

HEALTH SERVICES RESEARCH AT UNIVERSITY HOSPITALS AND CASE WESTERN RESERVE UNIVERSITY MEDICAL SCHOOL

Cleveland and Northeast Ohio provide a unique opportunity to test innovative models of healthcare delivery in a diverse setting, and UH is well-positioned to play an increasingly important role in addressing the region's public health priorities. UH is designated as an Accountable Care Organization (ACO) by the Centers for Medicare and Medicaid Services and serves 600,000 patients with a 16-county reach and is the leading community-focused healthcare provider in Northeast Ohio and engages on numerous fronts to improve the livelihood of the community it serves. Despite having strong healthcare facilities, Cleveland ranks second in the United States for worst health disparities and this new Center for Health Services Research and the health services researchers at UH serve as key contributors to the efforts to strengthen health outcomes and lessen health disparities in the region.

UH's Health Services, Health Outcomes, and Implementation Science grant portfolio has experienced explosive growth over the last several years with $82.5M grant attainment spanning 2019 and 2026. At present, there are 29 scientists with funded HSR projects and 12 of those scientists had more than $100K in annual funding in FY21. UH is the coordinating center for a $48.5M HRSA grant to support healthcare infrastructure to prepare and respond to the needs of children every day and during disasters and global health threats, including pandemics. UH-CWRU was awarded $17M as one of only 15 RECOVER (Researching COVID to Enhance Recovery) sites in the U.S. Recently, the CDC recognized UH with a $12.5M grant as one of the sites of the U.S. Flu Vaccine Effectiveness (VE) network, designed to evaluate the effectiveness of respiratory vaccines and the impact of social determinants of health.

CENTER FOR HEALTH SERVICES RESEARCH

The Center for Health Services Research is a newly formed center based at UH and the CWRU School of Medicine. Incorporating both clinical and basic science researchers, the Center will catalyze excellence

and national leadership in the science of creating, translating, evaluating, and broadly disseminating foundational evidence and policy recommendations for patient and population health interventions that improve health and health care for all. The Center will house all core services and supports required to coordinate grant efforts across UH and CWRU. The Center has been organized around four main objectives:

1. Organize and Grow Funded Investigators in HSR
2. Catalyze Innovation through Research Support Infrastructure
3. Build Capacity for Education and Training
4. Build Capacity for Community Impact

COMMUNITY IMPACT

UH has engaged in a variety of projects in its continued effort to address health and economic disparities in Cleveland and Northeast Ohio. Over the past ten years, UH has invested $3.5B in community benefit expenditures. In 2021, the health system community benefit expenditures totaled $531M. Some key efforts in this area can be found in the Appendix.

UNIVERSITY HOSPITALS PARTNERSHIP WITH CASE WESTERN RESERVE UNIVERSITY

University Hospitals and Case Western Reserve University School of Medicine have a longstanding relationship dating back to 1895. In 2021 with the most recent affiliation agreement, UH has multi-affiliate standing, like other hospitals and health systems affiliated with the School of Medicine. This affiliation agreement also expanded the opportunities for both institutions to advance education, research, and clinical care. All UH physicians in the University Hospitals Medical Group have primary faculty appointments at Case Western Reserve's School of Medicine.

The Center for Health Services Research will be a joint endeavor between the two institutions and will continue a legacy of collaboration and advancing the well-being of the community and advancement of the health sciences. Other notable collaborations between UH and CWRU include but are not limited to the NCI-designated Case Comprehensive Cancer Center, the National Center for Regenerative Medicine, and University Hospitals Clinical Research Center. In the most recent affiliation agreement, population health was cited as a priority for the partnership between the new institutions, and there is support and enthusiasm for the development of this Center from both institutions.

THE ROLE

The Director will lead the research mission for HSR, developing a strategic plan for furthering the success of HSR at UH. This includes building a scientific and administrative infrastructure and services and the recruitment of related staff to support the research mission, recruiting exceptional research faculty in collaboration with the clinical departments at UH, and establishing collaborations across the UH system

and more broadly with other health systems across Cleveland and Cuyahoga County. This position will report to the President of Academic & External Affairs and Chief Science Officer at University Hospitals and to the Dean at the Case Western Reserve School of Medicine.

OPPORTUNITIES AND CHALLENGES

Develop a vision and strategy for the Center

As the leader of this initiative, the inaugural Director will provide vision and leadership to guide the Center to meet the needs for health services research at UH. Building on a strong foundation of health services and population health research at UH and at CWRU, the Director with identify possible innovations and collaborations while creating a centralized research infrastructure for the growing health services portfolio. In addition, the inaugural Director will actively pursue funding and build a talented team of research faculty to advance research productivity and support the Center's strategic vision.

The Director will work in partnership with UH leadership to identify new opportunities for partnerships and collaborations and will serve as a thought partner and network builder for the clinicians and investigators interfacing with the center.

Build research infrastructure to support the research enterprise

Currently, health services researchers do not have centralized support in quantitative and data sciences; support for biostatistics and other crucial research functions comes from a variety of departments and centers across UH. The Director will centralize these key functions to promote the efficiency and success of HSR. The Director will build new cores in Quantitative and Data Sciences and will lead the recruitment effort for leaders of both of those units. Building these cores and availing them to investigators will allow for the pursuit of new projects and will position UH to pursue more innovative funding opportunities.

In addition, working closely with the leads of the Quantitative and Data Sciences cores, the Director will create a structure to connect currently embedded biostatisticians, quantitative scientists, and data scientists across the UH Clinical Departments to the new Core and provide a collaborative team structure and clear opportunities for advancement and professional growth.

Leverage UH and CWRU's existing strengths and recruit faculty to deepen the research impact and effectiveness

The Director will serve as a connector and builder of teams and will work with existing faculty pursuing grant-funded research in HSR to develop and support new projects and increase funded projects for the center and for UH. At present, many health services researchers are working within their clinical departments, and this Director will pull together investigators from across clinical divisions to support innovative research projects. In service to the development of teams, the Director will develop and implement a faculty recruitment effort in collaboration with the UH Clinical Departments to further

develop the cadre of active research faculty and externally sponsored research awards from diverse sponsors.

Increase Philanthropic Support and Research Funding

In partnership with the UH Development office, the Director will develop and execute a philanthropic strategy to support the Center and its research priorities and will serve as an advocate and champion for the Center both internally and externally. The Director will also work closely with the UH Corporate and Foundation Relations Office to identify and pursue a broader portfolio of competitive grants from national and international funders including but not limited to NIH, HRSA, and PCORI grants. Using their knowledge of the field and investigators in the system, the Director will work in partnership with the office of institutional giving to increase response to solicitations from national funders for research. The Director will also work to increase the success of grant applications by mentoring faculty on grant applications, and availing faculty and investigators to the Center's research infrastructure.

Forge partnerships with external research entities and with key community leaders

University Hospitals and Case Western Reserve University contain myriad pockets of relevant research and there are numerous faculty and clinicians working on population health, health services research, health outcomes, and studies on social determinants of health. The Director will serve as a chief connector of people, working across departments and specialties, and will build effective and diverse research teams capable of taking on topics of importance for UH and for the broader community. The Center also sits in a region with tremendous opportunity for external collaboration; the Director will work with the related and relevant programs at Metro Health, the Department of Veterans' Affairs, and the Cleveland Clinic to pursue collaborative opportunities and identify areas of shared priority.

In addition to collaborations across health systems, the Director will also partner with the community outreach programs at UH and CWRU to build capacity for community-engaged research with key community leaders and groups. In time, the Director will recruit an Associate Director of Community Engaged Research and will establish and work closely with a dedicated Community Council to deepen community collaborations and ensure community input in the direction and research mission of the Center.

THE SUCCESSFUL CANDIDATE: QUALIFICATIONS

The Director will be a clinician scientist (MD, MD/PhD, PhD) with a track record of success in one or more Health Service Research disciplines and will have a portfolio of research on major federal or national foundation grants relevant to topics on health services, health equity, health outcomes, or population health. While no candidate will possess all these characteristics, the ideal candidate will possess many of the following professional experiences and personal characteristics:

- A track record of externally funded research in health services, population health, or health outcomes, with national recognition including but not limited to authorship in leading journals, awards, and prominent appointments

- A proven track record of providing short and long-term strategic and institutional vision and implementation; ideally, experience in the establishment of a new endeavor or research enterprise

- A focus on and commitment to health disparities or social determinants of health research with a particular focus on issues of poverty, urban health inequities, and minority health

- Experience hiring in faculty recruitment, faculty development, and mentorship of faculty, staff scientists, and students

- Experience building collaborative teams and with a strong ability to work across departments and institutions

- Experience working with informatics, data analytics, and electronic health records

- A high degree of emotional intelligence and the ability to connect to people across a variety of diverse backgrounds

- A dedication to the principles of diversity, equity, and inclusion and an understanding of the importance of diversity in clinical and research settings

TO APPLY

University Hospitals Health System and Case Western Reserve University have engaged executive search firm Isaacson, Miller to assist in the search. Inquiries, nominations, and applications (including CV and a cover letter) should be sent in confidence to:

Ariannah Mirick, Partner

Haley Burrowes, Senior Associate

https://www.imsearch.com/open-searches/university-hospitals-health-system-case-western-reserve-university-medical-school

Appendix

Key Efforts by UH to Address Health and Economic Disparities in Cleveland and Northeast Ohio:

UH Office of Community Impact, Equity, Diversity, and Inclusion (CEDI): CEDI is responsible for supporting, promoting, and implementing programs that maintain an inclusive, equitable, and diverse environment that provides culturally relevant patient care. CEDI initiatives include:

- Online and in-person trainings for clinical and non-clinical staff (Cultural Insight, Cultural Humility, Unconscious Bias, Privilege, and Health Disparities/Equity
- Minority House Officers (MHO) – Underrepresented minority residents and fellows work to ensure that their professional needs are being met by UH
- Satcher Clerkships – Support for underrepresented minority medical students to complete a clinical rotation at UH.
- Partnerships with local non-profit health initiatives to promote wellness in all our communities
- Recruitment, Retention, Talent Development, and Promotion
- Scholars Pipeline efforts – six programs for high school students
- Medical models that address the healthcare needs of populations where they are (Men's Health, LGBTQIA+, and community health centers)

CEDI also oversees the UH Food for Life program, a medically based nutrition program that addresses food insecurity coupled with dietary education for patients. Across the UH system, Food for Life Markets are stocked with a variety of nutritious foods, provided by the Cleveland Foodbank and in partnership with other local partners. Through work with primary care providers, patients identified as food insecure can receive a referral to the market for a family of four. Patients can visit for up to six months, which can be extended if needed. While shopping, a dietician works with the patient providing consultation and healthy recipes. Since opening in 2018, the markets have provided more than 185,000 pounds of food to more than 11,200 patients and family members.

UH Rainbow Ahuja Center for Women and Children: A hub of coordinated, family-focused care, opened in July 2018 with an ambitious vision to address the health and social needs of patients and families in a one-stop location embedded within the community it serves. Designed in collaboration with members of the community, the 40,000-square-foot facility offers both traditional medicine and community services that are specifically focused on meeting the needs of the neighborhood, including the non-medical, social determinants of health. Located at the corner of Euclid Avenue and E. 59th Street, the center is home to outpatient pediatric and OB/GYN care and co-locates a range of programs and services that impact overall health, such as mental and behavioral health services; dietary and food planning; a full-service vision clinic; dental screening and cleaning; an on-site WIC office; Legal Aid services; social work; financial counselors; and a pharmacy. Since its opening, the center has served more than 114,000 patients. Through its unique model of care, UH is working to lower pre-term birth and infant mortality rates, in part, by preventing and appropriately managing gestational diabetes and hypertension.

UH Cutler Center for Men: To close a historical healthcare gap where men are 33% less likely to go to the doctor than women are, UH established the UH Cutler Center for Men. To design an integrated healthcare experience that addresses men's unique cultural and medical wants and needs, UH Cutler

Center for Men team and UH Ventures brought patients, providers, and community members into the conversation via a unique co-design process. Through a series of group design exercises, participants were asked to imagine an experience – digital and physical – that maximizes the sense of confidence, connection, and customization that patients can feel in healthcare interactions. Bringing prospective users into the fold, men were able to identify features and traits most important to them, helping set the framework for a healthcare experience sure to elicit behavior change. The multi-faceted engagement strategy approaches men's health from more than just a clinical perspective. It expands the definition of health care, supporting men in areas such as mental health, financial well-being, relationships, and parenthood. For this work, UH was recognized in 2022 by two international design organizations: the Design Management Institute and the Service Design Network.

Mission-Related Investing: Lead Safe Cleveland: As part of its Community Health Investment Strategy to improve community conditions and population health, UH committed $1.2M to the Lead Safe Cleveland Coalition, the public-private partnership that was formed to address and prevent lead exposure and poisoning.

A Collaborative Effort to Improve Cardiovascular Health Equity: Research shows that a person's socioeconomic status, education, geography and environmental factors–known collectively as social determinants of health–contribute significantly to heart disease in the U.S. This is especially true among Black people, whose rates of heart disease death are 30 percent higher than other groups. Supported by an $18.2M grant from the National Institutes of Health, the endeavor "ACHIEVE GreatER" stands for Addressing Cardiometabolic Health Inequities by Early PreVEntion in the Great LakEs Region. The program aims to reduce cardiovascular complications and hospitalizations by improving blood pressure, lipids and glucose targets for Black patients at risk of heart health issues.

Minority Faculty Career Development: The UH Minority Faculty Career Development Award was established in order to provide research funds to early-career faculty who are underrepresented in the field of medicine, and who are working to develop an independent research project. The award is sponsored by the UH Research & Education Institute and the Office of Community Impact, Equity, Diversity and Inclusion. It supports research investigators with an opportunity for career advancement. Since its inception, there have been nine award recipients.

Volunteer Time Off Program for Caregivers: The UH Volunteer Time Off (VTO) Program gives caregivers the chance to make a difference in the communities that UH serves outside of hospital walls. Caregivers are paid for a half-day to volunteer at designated non-profits. The program was announced in 2021 and kicked off in 2022, and within the first six months, 130 caregivers participated. Two noteworthy events kicked off the year. The Homeless Stand Down drew about 1,000 guests and 80 UH volunteers to First Energy Stadium, where guests received access to social service providers, medical screenings, personal hygiene kits, bus passes and meals. The second event drew about 50 volunteers from UH and other volunteers from across Northeast Ohio to Greater Cleveland Food Bank's Emergency Food Box Distribution, a weekly event in the North Coast Municipal Parking Lot downtown that draws about 2,000 people in need.

First Mobile Clinical Research Unit in Northeast Ohio: Ensuring diverse populations are represented in clinical trials means being proactive, and UH enhanced that effort with the launch of its Mobile Research Unit in October 2021. A customized 38-foot Winnebago was equipped with a range of medical equipment so it can travel to rural and under-resourced neighborhoods where residents may not have reliable transportation. The mobile unit is also used to educate people in Northeast Ohio about research trials, the need for diversity, and makes the idea of participating in one far less intimidating. In addition to providing clinical trial resources, the unit also provides services such as flu shots to patients who are unable to leave their homes or care facilities.

Key Resources and Programs at the Cleveland Institute for Computational Biology

Cleveland Institute for Computational Biology

The Cleveland Institute for Computational Biology (CICB) is a partnership between Case Western Reserve University and University Hospitals of Cleveland comprised of faculty and staff directors, research scientists/associates, and data architects/programmers with a mission to advance our fundamental knowledge of human health and disease through the application of computational methods to large and diverse data. The ever-increasing depth and breadth of health-relevant data, collected and stored in a wide variety of formats, provide a rich resource for discoveries impacting human health.   The CICB strives to integrate and analyze these data to impact everyone's health positively and equitably.

The CICB supports its mission through the implementation of graduate education programs in biomedical health informatics (Ph.D., M.S., and certificate), medical education programs (ACGME accredited clinical informatics fellowship program), community outreach (locally, nationally, and internationally), and cores for bioinformatics, computational phenotyping, and data management. Primary CICB faculty research is focused on the genetics of complex human traits and computational phenotyping.

CICB also provides computational and analytical support for a variety of investigator-initiated grants, supports data processing, statistical analyses, and multi-site study participation for University Hospitals, Cleveland Clinic, MetroHealth, and the Veterans Administration hospitals.

Finally, the CICB develops and deploys informatics infrastructure through collaborations with open-source healthcare informatics consortia. These consortia develop and extend informatics tools that include clinical characterizations, population level estimations, patient level predictions, cohort selections, pragmatic clinical trials, and rapid chart review retrospective studies.

Informatics infrastructure set up at University Hospitals by the CICB include:

Electronic Medical Record Search Engine (EMERSE): EMERSE is a search engine that facilitates the use of free text documents (i.e. clinical, radiology, pathology, etc. notes) in medical records. Developed at the University of Michigan, it supports clinical and translational research, internal quality improvement and quality assurance initiatives, complex case review, examination of patient-related outcomes,

creation or support of cancer and other clinical registries, and clinical pharmacology. The rationale for using EMERSE is that >50% of information regarding the clinical phenotype of patients is not recorded via structured codes, but rather is present as free text. Importantly, EMERSE fills in the gaps that exist in structured/coded patient data (e.g. social determinants of health data only found through notes, procedures done at another hospital system that are only charted in the clinical notes taken at the time of the history and physical exam). While Natural Language Processing (NLP) has frequently been used as a text-mining tool, EMERSE makes it easier to identify cases, and put together longitudinal trajectories of patient records via simple searches, rather than through extensive programming.

The EMERSE tool is open-source and the CICB is a partner in this endeavor, together with an expanding group of consortium members (University of Cincinnati, University of North Carolina, Columbia University, the University of Kentucky, Dana Farber Cancer Institute, MD Anderson, City of Hope, and UCSD), allowing us to quickly implement cohort building. Our local implementation of EMERSE covers almost 1.7 million patients and contains over 48 million searchable clinical notes which are updated via nightly feeds from the EHR.   In addition to data in patient notes, our implementation contains structured data allowing for searching against standard medical ontologies (e.g. ICD10). The search engine allows for patient searches using specified parameters, including advanced searches based on Boolean Logic. The inclusion of a clinically curated set of >2 million terms and phrases (i.e. synonyms) allows investigators to search across the entire patient population in one pass rather than having to perform and then combine the results of multiple searches. The exclusion of search terms is included with EMERSE and is part of the search specifications.

UH OMOP Data Mart and Tools*:* The UH OMOP Data Mart comprises a relational database of patient data covering the start of 2016 through present for over 1.8 million University Hospitals patients. Structured/coded clinical data has been extracted from the heterogeneous electronic health record systems at UH and harmonized to the OMOP common data model. This research resource is available to UH and CWRU researchers and informatics teams for the purposes of clinical characterizations, population level-estimation studies, patient-level prediction studies, and collaborative research studies with other healthcare providers and academic medical centers that are a part of the OHDSI (Observational Health Data Sciences and Informatics) collaborative. Self-service and/or informatics assisted queries to this data mart that create an initial cohort of patients can be passed into the EMERSE application where cohort refinement occurs. The combination of the UH OMOP data mart and the EMERSE tool allows for true longitudinal studies, with a high level of data completeness, across the UH patient population.

CICB Cancer Data Expertise: CICB has joined with the Case Comprehensive Cancer Center (CCCC) to create and mature an R Shiny user interface entitled the Northeast Ohio Cancer Risk Assessment and Surveillance Engine (NEO-CASE) with data mapping visualizations and selection criteria filters, focused on incidence, diagnosis, treatment, and survivorship (ie., places and populations, predictive factors, impact of interventions, and disseination of proven practices). Utilizing CICB's technical expertise of ETL (extract, transform, load) and data linkage, the current Shiny model includes OCISS data linked to the census data at three levels: ZCTA (zip code tabulation area), block, and census.

Secure Research Environment (SRE): The CICB and CWRU Technology Services have aligned to develop, manage, and maintain a secure research environment (SRE) for computing, governed by a risk-based security program that includes implementation of controls that meet recommendations or requirements of regulatory and information security standards (including HIPAA Security, FISMA, and SANS/ISO

recommendations). These key stakeholders recognize that improved data management, monitoring, and control capabilities are mandatory to ensure the ability to appropriately acquire, manage, and analyze research data efficiency, accuracy, and trustworthiness. Authorized electronic access is controlled at both the SRE and internal applications levels, and oversight for all CICB Clinical Informatics activities is provided by a multi-department, multi-institution Governance Committee and Advisors, including experts in data security, regulatory compliance, IRB requirements, quality, and research best practices.

The SRE is hosted in a professionally managed Tier III datacenter with physical and software security technologies, hardware/software failover redundancy, and daily backup routines with encrypted and redundant off-site storage. The datacenter is access controlled with 24x7x365 oversight and monitoring and contains proper power and cooling equipment for high availability. All systems in the SRE are actively monitored and maintained by dedicated and credentialed (security and technology) staff, and data transmissions inside and outside the datacenter are encrypted using SSL public key encryption, with file level encryption technologies utilized when appropriate.

System users, including data coordinators, research nurses, investigators, and others, are trained according to their role and system needs prior to accessing the SRE. Additional logistic support and data management education are available by appointment, online training, and documentation, as processes or systems are updated. Urgent concerns are addressed by contacting CWRU University Technology Services.

Data Storage and Sharing: CWRU (Case Western Reserve University) UTech (University Technology) provides centrally managed storage services available for use by faculty, staff, and students for research and instructional purposes.

Safely Held Electronic Data (SHED) platform: The SHED platform exists within the SRE and provides authorized access to Labmatrix™, Oracle Application Express (APEX) and other CICB software tools utilized by modern translational research activities.

Labmatrix: Labmarix is a web-based software application, developed by BioFortis, Inc., used to enter, track and manage 1) human patient registry data containing demographic, phenotypic, and other clinical research & treatment information, 2) characterization, biorepository storage locations, physical transfers, and chain of custody information of all collected primary and derivative patient bio-specimens, and 3) clinical, molecular, genomic, proteomic and other 'omic' data, as well as statistical findings. In addition to a browser-based graphical user interface, Labmatrix has multiple system-level interface options that can facilitate the exchange of all appropriate patient and bio specimen data. Labmatrix includes Qiagram, a powerful drag-and-drop query interface allowing complex analyses to be performed on data within studies and across related studies (e.g. registries and ancillary).

CICB personnel provide Labmatrix data management and integration support to multi-center grants and contracts such as the Cleveland Alzheimer's Disease Research Center (CADRC), and International Age-related Macular Degeneration Genomics Consortium (IAMDGC). CICB also supports the National PRION Disease Pathology Surveillance Center (NPDPSC) which uses Labmatrix under the annual CICB license agreement with BioFortis. The CICB also develops methodologies that allow the bulk import of data into

the Labmatrix application, such as from another data collection instrument such as REDCap or Excel, as well as the bulk export of data from Labmatrix to centralized data coordinating centers.

REDCap: The CICB provides direct support of REDCap for multi-site studies such as CADRC and the Patient-Centered Outcomes of Sacrocolpopexy versus Uterosacral Ligament Suspension for the Treatment of Uterovaginal Prolapse (PREMIER) trial being conducted at Case Western Reserve University, University Hospitals, the Cleveland Clinic, Duke University Medical Center, the University of Pittsburgh Medical Center, and the MetroHealth System.

REDCap is a secure web platform for building and managing online databases and surveys. REDCap's streamlined process for rapidly creating and designing projects offers a vast array of tools that can be tailored to virtually any data collection strategy. REDCap provides automated export procedures for seamless data downloads to Excel and common statistical packages (SPSS, SAS, Stata, R), as well as a built-in project calendar, a scheduling module, ad hoc reporting tools, and advanced features, such as branching logic, file uploading, and calculated fields.

The CICB works with study teams to develop the front-end data capture requirements and forms, the ETL (extract-transfer-load) support to transfer data from REDCap to the LabMatrix platform for advanced subject and biospecimen data management (CADRC), and the data ETL processes to regularly submit data to national data coordinating centers (e.g., the National Alzheimer's Coordinating Center, NACC).