

Facilities and Resources: Informatics

The **Washington University Institute for Informatics (I²)** provides an academic and professional home for informatics science and practice at WU. I² spans the WU School of Medicine (WUSM) as well as partnerships with the McKelvey School of Engineering and Applied Science, the Institute for Public Health, the Brown School of Social Work, the Olin School of Business, the Innovations Incubator at BJC HealthCare, and the Cortex Innovation District. The institute engages in innovative research, workforce development, and informatics service delivery targeting a variety of critical areas of need, including:

- **The integration and dissemination of heterogeneous data, information, and knowledge resources;**
- Computational approaches to the **interpretation of bio-molecular, image, and clinical phenotypes to inform precision medicine;**
- **The acceleration of clinical and translational research** through the systematic management of study protocols, data resources, and analytical pipelines;
- The **creation of learning healthcare systems** in which cyclical evidence generation and application becomes integral to care delivery;
- The use of ubiquitous computing and sensing technologies capable of facilitating **population health monitoring and intervention strategies;** and
- Methodological and technical approaches to enable and enhance **research reproducibility and rigor.**

I² is led by Dr. Philip Payne and draws upon a multi-disciplinary team of faculty investigators, technical staff, and trainees affiliated with the departments and institutes comprising the WUSM and partnering academic units from throughout WU. In this way, the institute spans traditional organizational boundaries and provides for a crosscutting community-of-practice that enhances and extends the academic and operational strengths of WU and that leverages the unique living laboratory afforded by the WU, BJC, and the Cortex Innovation District (an information technology and life sciences innovation community located adjacent to WUSM).

Informatics Core Services (ICS): ICS handles clinical data warehousing, data brokerage, electronic data capture, and custom application development services to support clinical and translational research broadly at WU and across BJC HealthCare. As part of these services, ICS operates the **Research Data Core (RDC)** and provides access to clinical data from the electronic medical record and Tumor Registry data on behalf of researchers at WU/BJC HealthCare. The RDC is an OMOP-based comprehensive research data warehouse that is fed by enterprise-wide clinical information systems and optimized for secondary use purposes. The RDC includes data from various EHR domains, including, but not limited to demographics, visits, lab tests, medication orders, vitals, documents, illicit drug use, current census, and allergies. These electronic clinical data date back to 1992, collected during inpatient and some outpatient clinical visits at 13 area hospitals under the umbrella of the BJC HealthCare, Washington University, and other healthcare institutes. Access to detailed cohort and/or patient-level data, with appropriate project-specific IRB approval, is provided via a consultative process involving “Data Brokers” resident within I², who have data-level expertise and can design and execute such queries, providing ensuing data products to requestors via a secure fulfillment process. ICS also operates **REDCap** to provide electronic data capture services to researchers at WU and collaborators around the world. In addition to the typical REDCap functionality available at other CTSA hubs, our REDCap team is capable of developing and deploying customized modules, hooks, and dashboards on top of REDCap.

Office and Laboratory Space: I² is located in over 9,000 sq. ft. of space on the 6th floor of the 4444 Forrest Parkway Building, co-located with the McDonnell Genome Institute (MGI), and situated in the core of the WUSM campus. Additional office and “dry laboratory” space in support of the Institute’s activities are located in the Bernard Becker Medical Library and Taylor Avenue Building, as well as the proximal Cortex Innovation District. In total, these locations comprise nearly 12,000 square feet of assigned space. All such assigned

space in a mixture of private and open-office workspaces, collaboration “zones”, formal and informal meeting venues, and common areas, that collectively comprise a dynamic and “Activity-Based Workspace (ABW)” wherein teams of trainees, staff, and faculty can variably utilize a variety of environmental settings suitable for the types of work they are engaged in.