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SHRINE: EHR data querying network for advancing patient cohort discovery

Patient Cohort discovery, data sharing, and integration across multiple healthcare institutions is a challenge. Accrual of sufficient numbers of patients for rarer diseases clinical trials further compounds the challenge. The barriers arise due to variability in the source electronic health record (EHR) systems, in semantic interoperability and consistency of data elements, and in governance and regulatory policies across institutions. The Shared Health Research Information Network ('SHRINE'), a Harvard Catalyst's open source application, provides investigators with the ability to perform population based research and feasibility studies across multi-hospital institutions. The SHRINE web-based query tool returns aggregate numbers of patients across all sites with user-defined characteristics, currently demographics, diagnoses, medications, and selected lab values. The project leverages the use of the Informatics for Integrating Biology and the Bedside ('i2b2') Hive software, an open source scalable informatics framework, which enables a common platform and clinical data model at each institution to be networked across the web. Using federated search architecture, real-time queries can be performed across collaborating institutions, each with their own locally managed patient datasets. An example of SHRINE network is the Harvard Medical School affiliated participating institutions: Beth Israel Deaconess Medical Center, Brigham and Women's Hospital, Children's Hospital Boston, and Massachusetts General Hospital. Over 5.0 million patients, 890 million facts, and 4 categories of over 18,000 terms make up this instance of SHRINE.

Biography

Bhanu Bahl is Director for Informatics at Harvard Clinical and Translational Science Center. She is Director of the eagle-i semantic-search platform facilitating discovery of biomedical resources for translational science research across 38 academic/ not-for profit institutions. She is also Director of software Quality Assurance Shared Services (QASS) at Harvard Catalyst supporting manual and automation QA needs for +37 informatics projects leveraging best practices, technology and process optimization. She is also Director of Shared Health Research Information Network ('SHRINE'), a federated query application, which provides investigators the ability to perform population based research and feasibility studies across multi-hospital institutions. She is a physician with a broad informatics background and has over 15 years of experience in overseeing technology projects in clinical and biological data repository; master data management; data standards; and content management.

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