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Sample Location and Enhanced Distribution (SLED): An informatics for integrating biology and the bedside (i2b2)-based system for biorepository data management

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During the past 20 years, sample and data repository evolution has contributed to rapid biomedical research growth. Much effort has been directed toward customizing information and communication technology platforms to integrate and make available normalized clinical and research data for big data sharing among researchers to advance discoveries and translation to clinical practice. Here, we adapted the Informatics for Integrating Biology and the Bedside (i2b2) platform to manage clinical, genomic, and other study participant-related data for a biorepository at The University of Texas Health Science Center at Houston (UTHealth) to facilitate collaborative sharing of samples and data by researchers. We developed our customized Sample Location and Enhanced Distribution (SLED) application to run on i2b2 open source code. Clinical diagnoses, demographics, medical histories, sample types, and other de-identified data from 10,221 consenting study participants were imported into SLED, which researchers now use to query data and submit requests for samples and data to the UT Health Center for Clinical and Translational Sciences (CCTS) Biobank. Query results are relayed to researchers within seconds and submitted requests are delivered immediately to the Biobank. Since SLED production implementation, we have documented 156 logins by 25 distinct users, with 81 queries run, and 6 requests for samples or data submitted via SLED. In summary, SLED provides automated management of integrated clinical and research data at the UTHealth CCTS Biobank, including researcher queries and requests. The i2b2-based SLED design may be suitable for others seeking to customize a scalable and portable application for managing biorepository data.

Biography

Mary A Hall completed her PhD from Southern Illinois University at Carbondale in Molecular Biology, Microbiology, and Biochemistry, with a focus in Neuroendocrine Immunology; and MBA from the University of Houston, with focus in business administration, management, and marketing. Her Post-doctoral research was conducted at Research Inc., Veterans Affairs Medical Center in Memphis, TN; and the Department of Immunology, MD Anderson Cancer Center in Houston, TX. He is the Program Manager at the Center for Clinical and Translational Sciences (CCTS) Biobank at The University of Texas Health Science Center at Houston (UTHealth).

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