OHDSI Software Demonstrations

12:15-2:45pm

HERMES for vocabulary exploration

HERMES (Health Entity Relationship and Metadata Exploration System) is a web based tool for searching and navigating the vocabulary within the OMOP Common Data Model (CDM). In addition to the search and navigation capabilities, HERMES also provides features to curate and export custom sets concept identifiers for use in cohort definitions.

Presenter: Frank DeFalco, Associate Director of Epidemiology Analytics, Janssen Research and Development

CALYPSO for study population exploration

CALYPSO (Criteria Assessment Logic for Your Population Study in Observational data) is a web user interface to define, instantiate and evaluate a study population and the implications of inclusion criteria

Presenter: Christopher Knoll, Manager of Epidemiology Analytics, Janssen Research and Development

CIRCE for cohort definition

CIRCE (Cohort Inclusion and Restriction Criteria Expression) is a cohort definition and syntax compiler tool for the latest version of the OMOP common data model

Presenter: Christopher Knoll, Manager of Epidemiology Analytics, Janssen Research and Development

HERACLES for quality of care

HERACLES (Health Enterprise Resource And Care Learning Exploration System) is an application that allows you to explore healthcare quality, cost, and practice patterns using the OMOP Common Data Model. HERACLES provides high-level visualization tools and deep-dive capabilities to look at standardized quality metrics (e.g., NQF) as well as utilization across a variety of patient cohorts.

Presenter: Jon Duke, MD, Senior Scientist, Regenstrief Institute

ACHILLES for data characterization

ACHILLES (Automated Characterization of Health Information at Large-scale Longitudinal Evidence Systems) is a platform which enables the characterization, quality assessment and visualization of observational health databases. ACHILLES provides users with an interactive, exploratory framework to assess patient demographics, the prevalence of conditions, drugs and procedures, and to evaluate the distribution of values for clinical observations.

Presenter: Lee Evans, Owner, LTS Computing LLC

Methods Library

We are developing a library of open-source tools for large-scale analytics, including population-level estimation and patient-level prediction. Our population-level estimation work is focused on developing open-source software for safety surveillance and comparative effectiveness. Already available is a tool

for new-user cohort studies using propensity and outcome models generated through large-scale regularized regressions. Still under development but soon available are tools for patient-level prediction and other study designs such as self-controlled case series and self-controlled cohorts, as well as tools for evaluating and calibrating population-level estimation methods

Presenters:

Martijn Schuemie, PhD, Director of Epidemiology Analytics, Janssen Research and Development

Marc Suchard, MD, PhD, Professor, Department of Biomathematics, David Geffen School of Medicine, University of California, Los Angeles

Vocabulary Resources

The Standard Vocabulary is a foundational tool initially developed by some of us at OMOP that enables transparent and consistent content across disparate observational databases, and serves to support the OHDSI research community in conducting efficient and reproducible observational research.

Presenter: Christian Reich, MD, PhD, Vice President of Real World Evidence Systems, IMS Health

Nick Puntikov, CEO, Odysseus Data Services, Inc

LAERTES Knowledge Base

Our knowledge base workgroup is developing an open-source repository of standardized evidence about drug-outcome relationships from disparate sources, including published literature, product labeling, spontaneous adverse event reporting, and existing bio-medical ontologies. The knowledge base will serve as the primary source to enable the construction of test cases (positive controls and negative controls) to facilitate systematic evaluation of method performance.

Presenter: Richard D. Boyce, PhD, Assistant Professor of Biomedical Informatics, University of Pittsburgh School of Medicine

APHRODITE for phenotype development

APHRODITE (Automated PHenotype Routine for Observational Definition Identification Training and Evaluation). Typically, patient groups corresponding to a phenotype are selected by rule-based definitions, whose development is time-consuming. Machine learning approaches, which are an alternative approach for electronic phenotyping, are hampered by the paucity of manually labeled gold standard corpora for training. Aphrodite uses to OHDSI standard concept ids specific to the phenotype of interest to create "silver standard" training corpora to construct phenotype models. Aphrodite uses such silver standard corpora, in conjunction with expert knowledge codified in existing ontologies and a comprehensive representation of the patient clinical record, to learn phenotype models.

Presenter: Juan M. Banda, PhD, Postdoctoral Scholar – Center for Biomedical Informatics Research, Stanford University School of Medicine