

# OHDSI Europe Software Demonstrations

## 1. Arachne – Distributed OHDSI Research Network

ARACHNE Research Network platform enables a consistent, transparent, secure and compliant observational research process. It brings participating organizations, e.g. data providers, investigators, sponsors and data scientists, into a single, collaborative study team and facilitates an end-to-end observational study. ARACHNE can be used internally within an organizational network and firewall boundaries (ARACHNE Workflow Suite), or across firewalls accessing databases in other organizations (ARACHNE Research Collaboration Network) deployed as a cloud-based SaaS platform. The software demo will demonstrate the execution of an end-to-end study utilizing ARACHNE.

*Presenter: Gregory Klebanov, Odysseus Data Services*

## 2. Cohort Characterization in ATLAS with Standardized Feature Generation

ATLAS is a web-based integrated platform for database exploration, standardized vocabulary browsing, cohort definition and population-level analysis. ATLAS recently incorporated a new enhancement to cohort generation which uses OHDSI Feature Extraction to calculate the prevalence of binary covariates within a population within different time windows. This allows a researcher to understand the characteristics of the population they have defined. The purpose of this demonstration is to demonstrate the population-level characteristics of several cohort definitions.

*Presenter: Erica Voss, Janssen Research & Development*

## 3. AEGIS: Tool for semi-automatic creating medical map based on GUI (Graphic User Interface)

We have developed a tool, named Application for Epidemiology Geographic Information System (AEGIS), that enables Geographic Information System visualization and spatial statistics analysis of cohort data based on the OMOP-CDM. We used cohort data generated by the ATLAS and the Global Administrative Areas (GADM) database. The AEGIS provides a graphic user interface that allows users to visualize the disease risk information by region and to check statistical significance through the shiny R package. It can serve as a tool for a geographical epidemiological research across the countries.

*Presenter: Jaehyeong Cho, Ajou University*

## 4. EMIF Catalogue meets OHDSI – Semi-automatic queries over distributed OMOP CDM Databases

EMIF Catalogue is an online platform that integrates and enables the discovery and reuse of heterogeneous biomedical databases. Additionally, it integrates ATLAS as a plugin that allows researchers to conduct scientific analyses on biomedical databases that have been converted to the OMOP Common Data Model. This interrelation led to the development of a steady methodology that allows clinical researchers not only to discover otherwise dispersed and heterogeneous biomedical databases, as well as to query them and eventually give them a secondary use, while keeping health data private in each healthcare institution.

*Presenter: Alina Trifan, Universidade de Aveiro*

## **5. Patient-Level Prediction Package Demo**

The Patient Level Prediction R package is a novel large-scale analytics platform for developing personalized risk prediction models in observational data. The standardized framework addresses problems of the form “Amongst <target population>, which patients will develop <an outcome> during <a time-at-risk period>?” and enables predictive model fitting using an array of machine learning approaches- including regularized regression, gradient boosting machines, random forest, K-nearest neighbors, and neural networks- and applies a systematic evaluation to determine model validity based on measures of calibration, discrimination, and generalizability.

*Presenter: Jenna Reys, Janssen Research & Development*