OHDSI 2023 Abstract

Standardized Business Intelligence (BI) Dashboards with OMOP

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Background

OHDSI OMOP common data model (CDM) is a representation of biomedical data that standardizes entities, attributes, and relationships across multiple sources. The use of OMOP-formatted data permits researchers across the OHDSI network to generate meaningfully comparable inferences from the same analyses.

One of the biggest promises of OMOP is not only a standardized way to store and organize the healthcare data to make it data analytics ready but also an ability to easily create a standardized view and visualization on such data, including with mature open source and commercial Business Intelligence (BI) platform such as Apache Superset, Microsoft Power BI, Qlik, Tableau and Spotfire.

Methods

Since the healthcare data is consistently organized in every OMOP CDM database, it creates a possibility to design and develop effective re-usable dashboards with open source and commercial BI platforms. Not only it would allow a business user to get a high-level view on data, but also enable them to drill down into the details of data as desired. The following use cases are becoming possible:

- Full database characterization reports (aka ACHILLES) with an ability to see one or or compare multiple databases side by side.
- Cohort (incl. ATLAS) characterizations including demographics, conditions, drugs and other characteristics as well as comparing multiple cohorts.
- Feasibility analysis e.g. looking for a quick count of patients with certain attributes and characteristics.
- Views on a drug, condition (Fig. 1) or patient/cohort of patient.
- Use case views e.g. adherence by HCPs to process/policy, temporal trends such as prescriptions

of specific drug for a specific condition over time, geospatial mappings and many more.

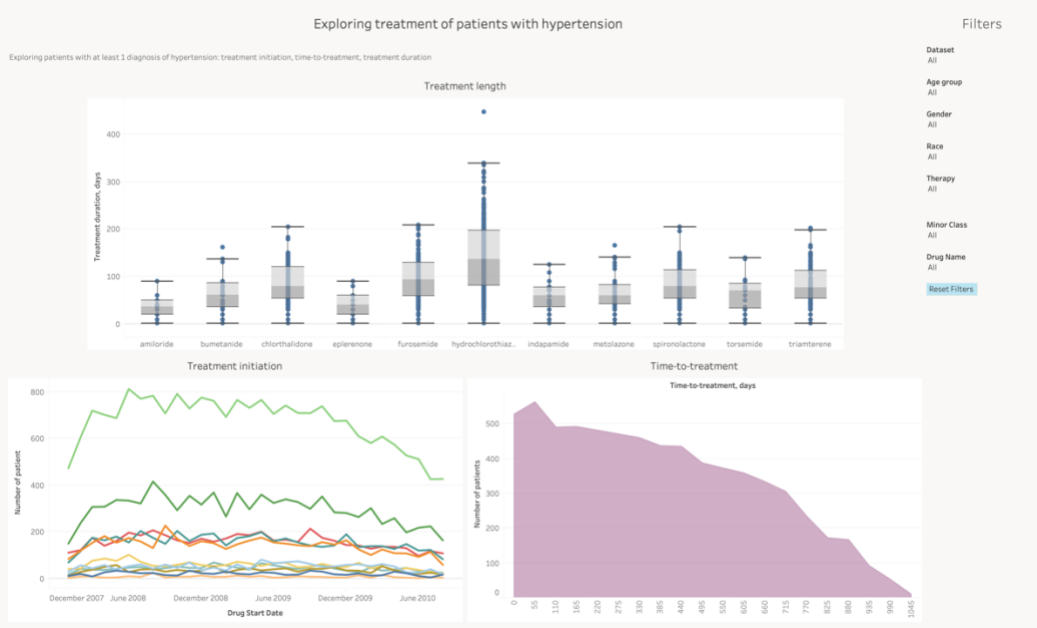

Fig. 1 – condition view on data (Hypertension)

With certain data analytics pre-calculated, it also enables a number of more complex use cases, including:

- incidence rate analysis
- drug safety and effectiveness comparison

Results

By enabling a library of re-usable BI standardized dashboards, it will not only provide business with out-of-the-box view on data but also enable a non-technical user to perform multiple self-service tasks:

- Perform drill down and explore data details.
- Rapidly create new dashboards utilizing effective visual designer features of these platform

These BI dashboards can also serve as an effective Data Consult service tool to enable rapid question-answer informatics service.

Conclusions

The OMOP CDM enables a standardized way to organize data as well as the standardized data analytics and data visualizations.