

IDR Research Data Services

Intro to OMOP and ATLAS

Objectives




- Review the roles and services of Integrated Data Repository (IDR) research data services
- Define types of data delivery with a focus on self-service tools
- Introduction to the OHDSI community and OMOP common data model
- Demonstrate use of ATLAS to query OMOP data

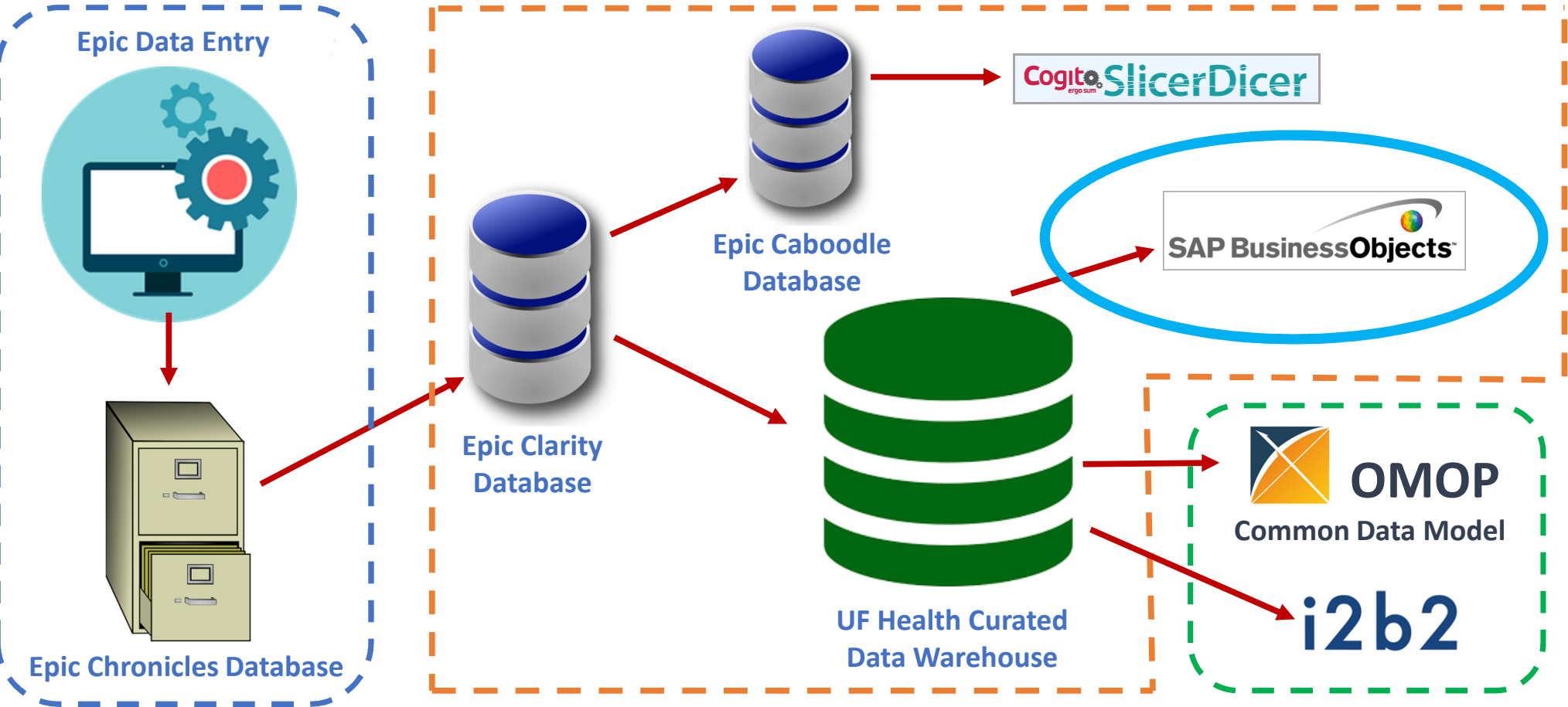
UF Clinical Data Warehouse

- Large-scale clinical data warehouse (CDW)
- UF Health data
 - ~2.5 million patients
- Developed over decades by Shands and UF Health decision support services/IT analytics, and CTSI.
- Supports both Epic-generated and non-Epic generated data
- Supports clinical, operational, and research missions



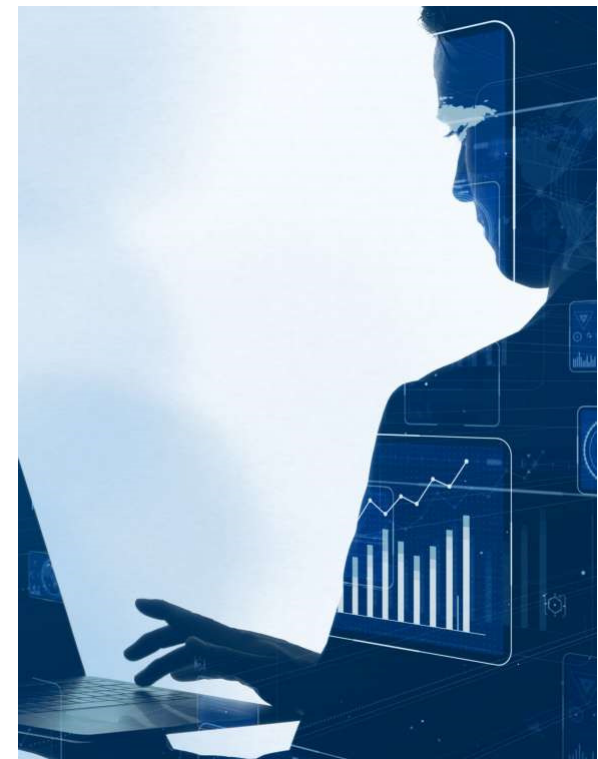
Data lineage

- Instant data load 
- Overnight data load 
- Quarterly data load 

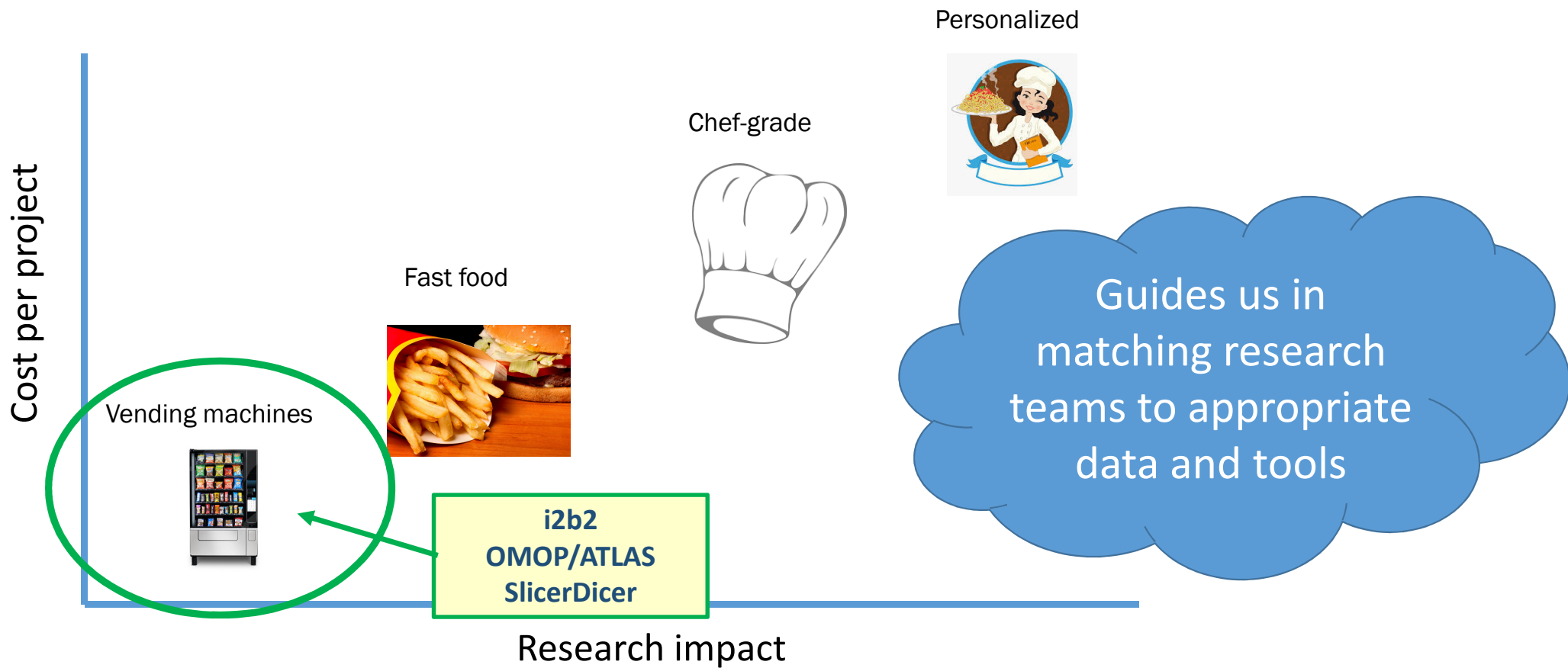


IDR Research Data Services

1. Consultation
2. Feasibility and Cohort discovery
3. Recruitment Support (C2S)
4. Research data
5. OMOP/ATLAS support



The Process: Levels of Service



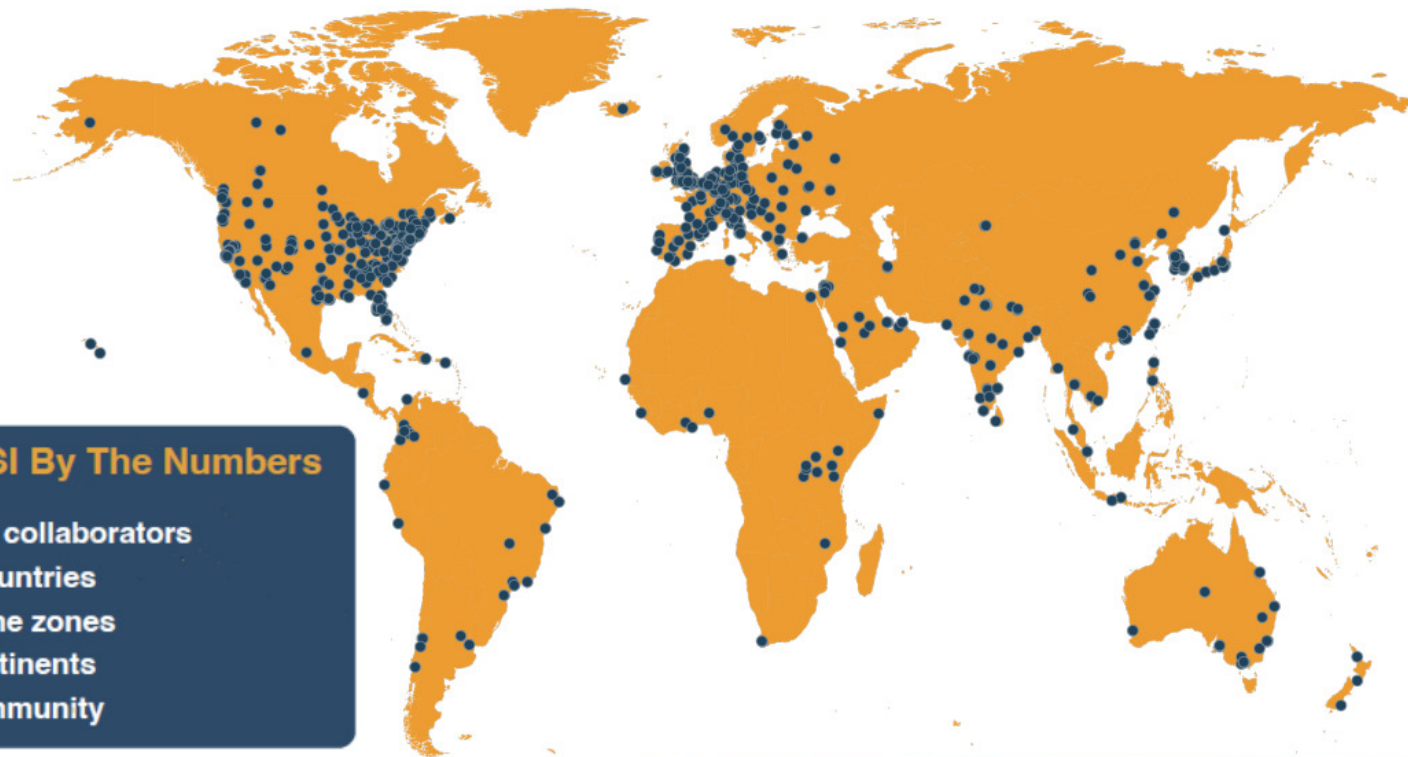
Building a research data community

- Observational Medical Outcomes Partnership (OMOP)
- Global community of interdisciplinary data users
- Transforming data into
 - Common format (i.e., data model)
 - Common representation (i.e., terminologies, vocabularies, codes)
- Enhances sharing and collaboration





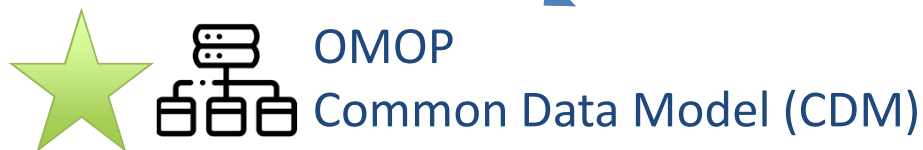
Map of collaborators



OHDSI By The Numbers

- 3,758 collaborators
- 83 countries
- 21 time zones
- 6 continents
- 1 community

What is OMOP?



Analytical tools
ATLAS

What?

- A standardized way to represent data structure (CDM) and content (terminologies, vocabularies, coding scheme)
- One model to accommodate data coming from disparate data sources

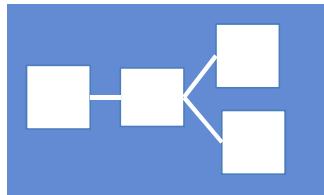
Why?

- Enable standardization of structure and content
- Support collaborative research

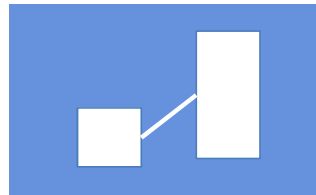
OMOP Common Data Model

Data sources
with different
data model

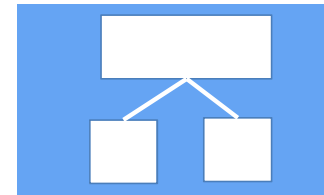
EHR



Claims data

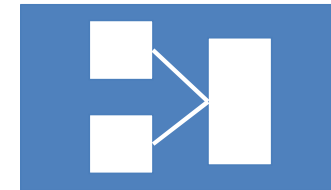
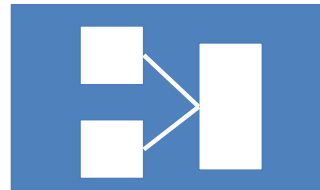
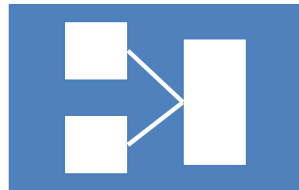


Other sources



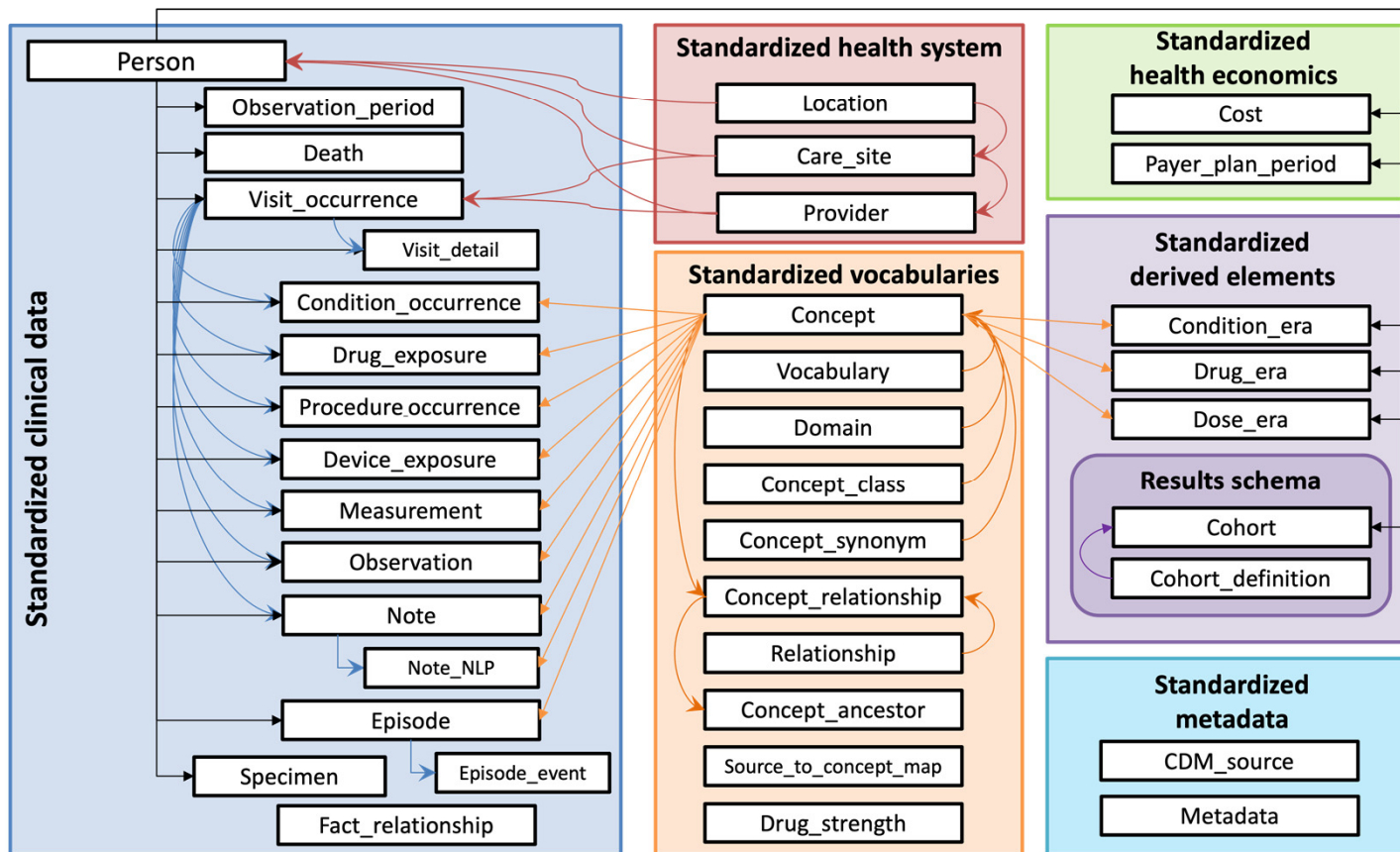
Harmonization to OMOP common data model

Data in same
data model



Standardized analysis methods

OMOP Common Data Model



Data

- Inclusion:
 - UF Health patient with at least one encounter in GNV or JAX since 1/1/2012



2.5million+



3 billion+



Iterative approach

- Data elements:

past and present medical history since 1/1/2012

Demographics

Vitals

Vital status

Labs

Conditions

Assessment Scales

Procedures

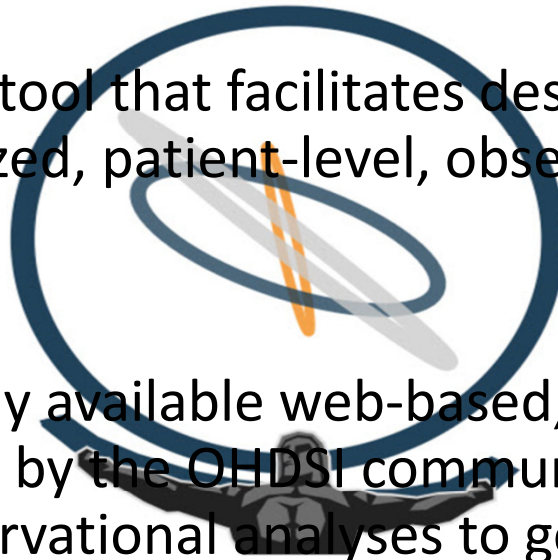
Social Hx

Medications

Encounters

What is ATLAS?

- ATLAS is a web-based tool that facilitates design and execution of analyses on standardized, patient-level, observational data in OMOP CDM format
- ATLAS is a free, publicly available web-based, open-source software application developed by the OHDSI community to support the design and execution of observational analyses to generate real world evidence from patient level observational data.



ATLAS Analytic Options

The screenshot displays the ATLAS web application interface. On the left, a dark green navigation sidebar is highlighted with a red border, containing the following menu items: Home, Data Sources, Search, Concept Sets, Cohort Definitions, Characterizations, Cohort Pathways, Incidence Rates, Profiles, Estimation, Prediction, Reusables, Jobs, Configuration, and Feedback. The main content area is titled 'Home' and includes a welcome message, a brief description of ATLAS, and links to documentation and getting started guides. Two prominent green buttons are visible: 'Define a New Cohort' and 'Search the Vocabulary'. Below these, there is a 'Release Notes' section with links for 'ATLAS Version 2.12.1 Release Notes' and 'WebAPI Version 2.12.1 Release Notes'. A list of release notes follows, detailing various bug fixes and enhancements. At the bottom left, there is a footer for Apache 2.0 open source software provided by OHDSI, with the tagline 'join the journey'.

ATLAS

English

Home

Welcome to ATLAS.

ATLAS is an open source application developed as a part of OHDSI intended to provide a unified interface to patient level data and analytics.

Documentation

The ATLAS user guide can be found [here](#).

Getting Started

[Define a New Cohort](#) Begin performing research by defining the group of people you intend to study

[Search the Vocabulary](#) Search the different ontologies used to describe patient level data around the world

Release Notes

[ATLAS Version 2.12.1 Release Notes](#)

[WebAPI Version 2.12.1 Release Notes](#)

This latest release contains **10** feature enhancements and issue resolutions:

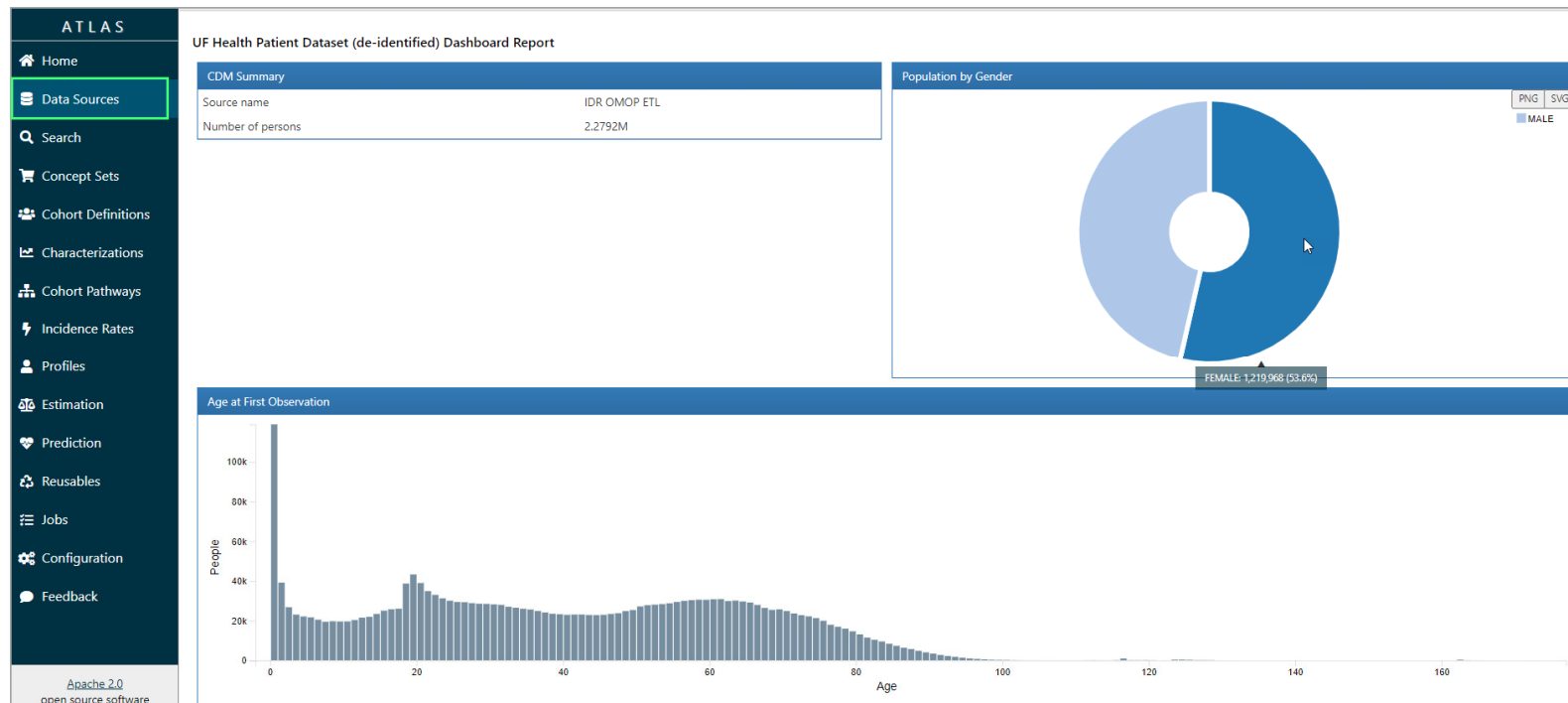
- Executing a Cohort Pathway on an IBM Netezza Data Source fails while creating a temp table
- Heracles reports do not insert final results when using Spark
- /ddl/achilles endpoint is closed by authentication
- PLP package generated by WebAPI v2.12.0 fails on reinv
- 403 error when removing IR generation result not displaying properly
- Tags table rendering error
- Moderator cannot delete reusable despite reusable:*delete permission
- Cannot delete a datasource if the source on the connection string does not exists
- Executing an Incidence Rate Analysis on an IBM Netezza Data Source fails while creating a temp table
- java.lang.reflect.UndeclaredThrowableException when download PLP

Apache 2.0
open source software

provided by
OHDSI
join the journey

Data Sources & Dashboard Report

- High level overview of the characteristics of database
- Provides insight into distributions within the data model
- Hover over chart/table elements for details



ATLAS Cohort Discovery (demo)

ATLAS English bstale

Cohort #13
created by bstale on 2023-08-14 13:19, modified by bstale on 2023-11-15 15:26

Warfarin in Afib

Definition | Concept Sets | Generation | Samples | Reporting | Export | Versions | Messages 4

Enter a cohort definition description here

Cohort Entry Events

Events having any of the following criteria:

- a drug exposure of **Warfarin** for the first time in the person's history

with continuous observation of at least 365 days before and 0 days after event index date

Limit initial events to: earliest event per person.

Inclusion Criteria

New inclusion criteria

- Age greater than/equal to 18
- With prior non-valvular atrial fibrillation
- Moderate to high risk of stroke
CHADS2 Score of at least 2

Limit qualifying events to: all events per person.



ATLAS

- **OMOP Database is ready!**
- **OMOP/ATLAS instance has been setup**
- **Research Use: Available broadly to research investigators in the HiPerGator environment**

How to access ATLAS

<https://idr.ufhealth.org/research-services/data-request-form/>

IDR Request Form

Request Type *

The initial 2 hours of services are provided at no charge, following that, the hourly rate of \$90/hr for analyst time applies. For more information regarding our research services please visit: <https://idr.ufhealth.org/research-services/>

- OMOP: ATLAS registration (summary statistics only, fully de-identified)**
- OMOP: Line-level Data Elements based on ATLAS query (fully de-identified)
- OMOP: Prebuilt, Domain-specific Datasets (fully de-identified)
- Consultation

Requestor Name *

ATLAS access to de-identified data in HiPerGator for counts/cohort discovery. **NOTE: Before submitting request, you must login to ATLAS using your Gatorlink account. This step is required to initiate access. <https://omop.rc.ufhealth.org/atlas/#/home>**

First

Last

KEY 1st STEP: Must login to ATLAS using Gatorlink account before access can be provisioned

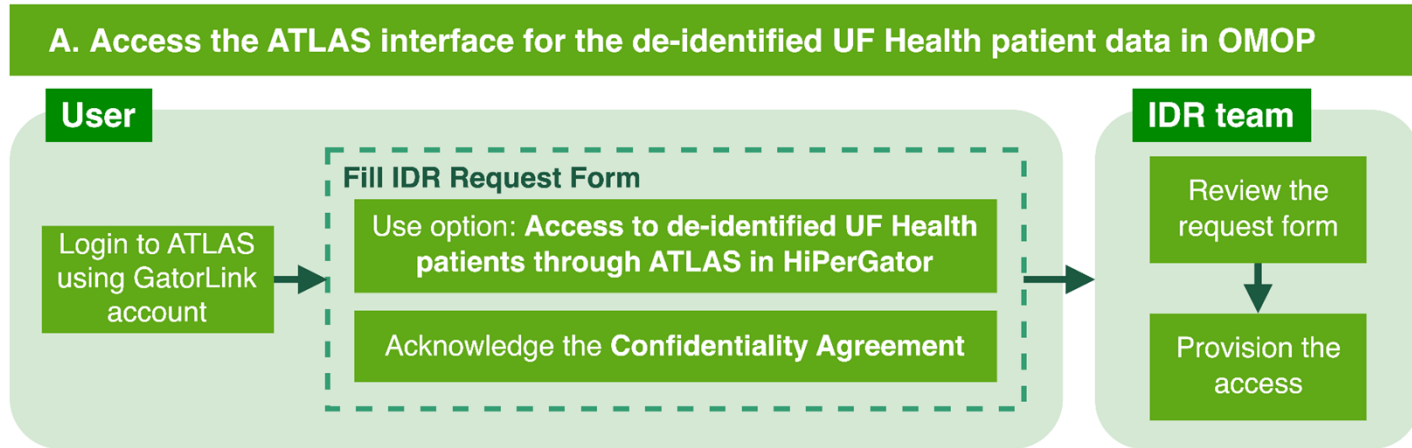
Requestor Email *

This is an internally restricted service, please use username@ufl.edu (GatorLink) or username@shands.ufl.edu (Shands) email addresses only.

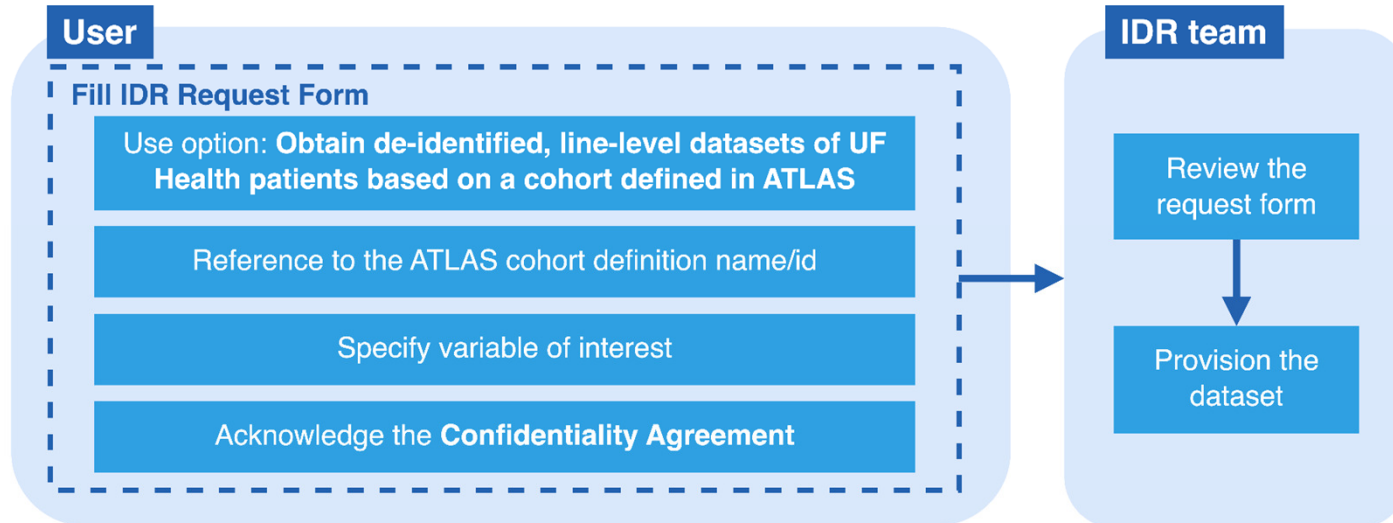
Enter Email

Confirm Email

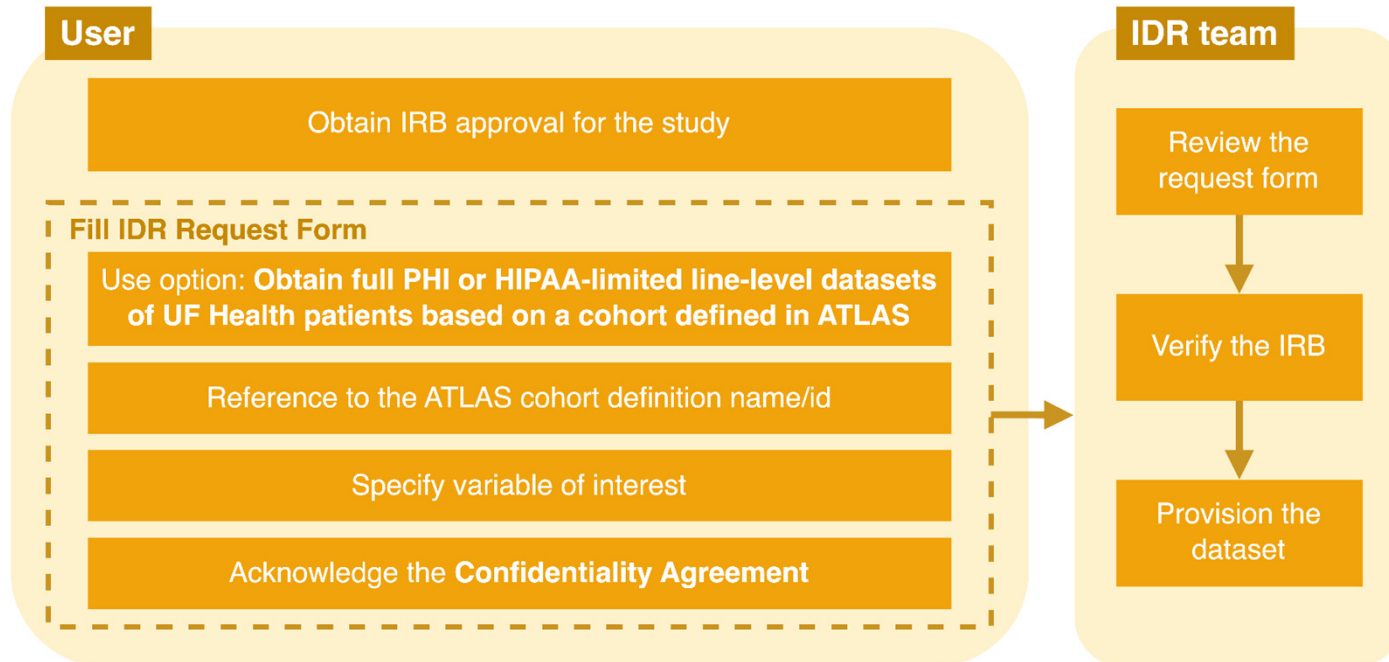
Role *



B. Obtain de-identified line-level OMOP datasets



C. Obtain full PHI or HIPAA Limited Data Set (LDS), line-level OMOP datasets



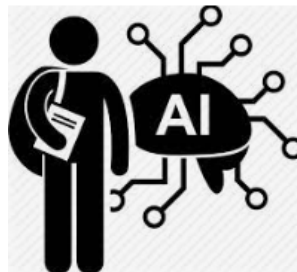
Ongoing Work

BUILD OMOP COMMUNITY WITHIN UF/UF HEALTH

- Collaboration with researchers

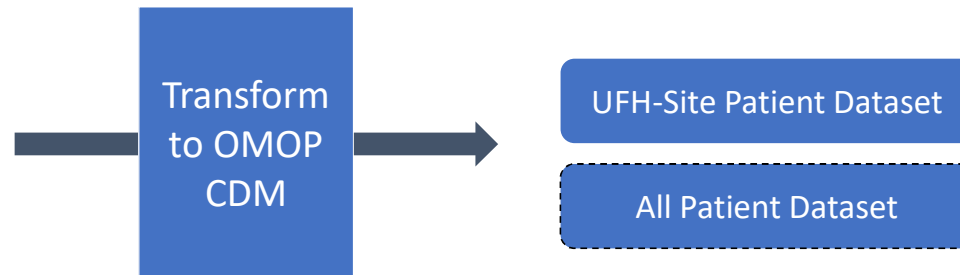


- Training and education



- Combining data with analytics tools





How to get help from the IDR:

- Team email:

IRBDataRequest@ahc.ufl.edu

- IDR Research Data Request online form:

<https://idr.uflhealth.org/research-services/data-request-form/>

IDR Request Form

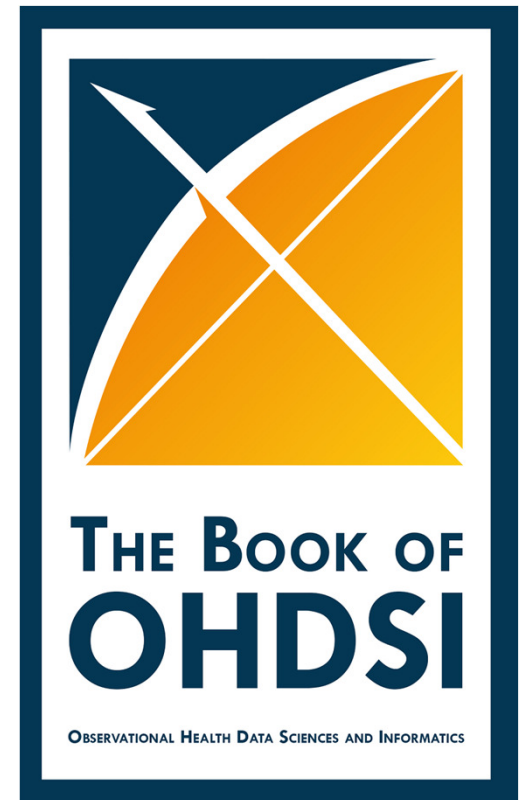
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- OMOP: Line-level Data Elements based on ATLAS query (fully de-identified)
- OMOP: Prebuilt, Domain-specific Datasets (fully de-identified)
- Consultation
- i2b2 Registration
- Preparatory Research/Cohort Discovery
- IRB-Approved Consent2Share
- IRB-Approved MRN ONLY
- IRB-Approved Line-level Data Elements
- IRB-Approved IT Build
- IRB-Approved Images (if you need an image for immediate clinical care decision making, please contact Marcia McGriff (rodrmj@radiology.ufl.edu) and Naomi Oldham (oldham@shands.ufl.edu))
- Nonhuman with confidentiality agreement

Resources

- Hopkins YouTube Video
 - <https://www.youtube.com/watch?v=bGUPje0LAiA&t=597s>
- OHDSI.org
 - <https://ohdsi.org>
- The Book of OHDSI
 - <https://ohdsi.github.io/TheBookOfOhdsi/>
- Atlas Tutorial
 - <https://www.ohdsi.org/resources/tutorials/>
- EHDEN Academy
 - <https://academy.ehden.eu>
- OHDSI YouTube Channel
 - <https://www.youtube.com/c/OHDSI>



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QUESTIONS/DISCUSSION