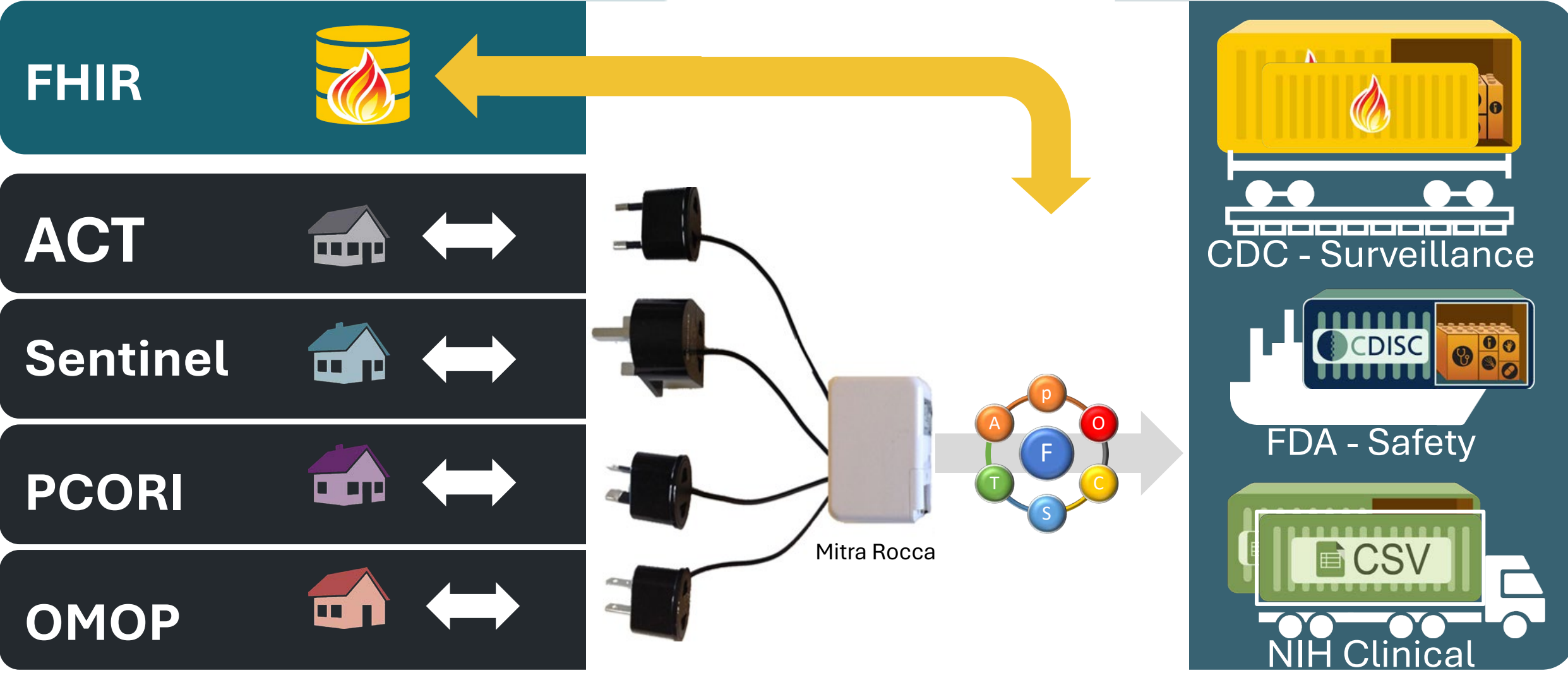


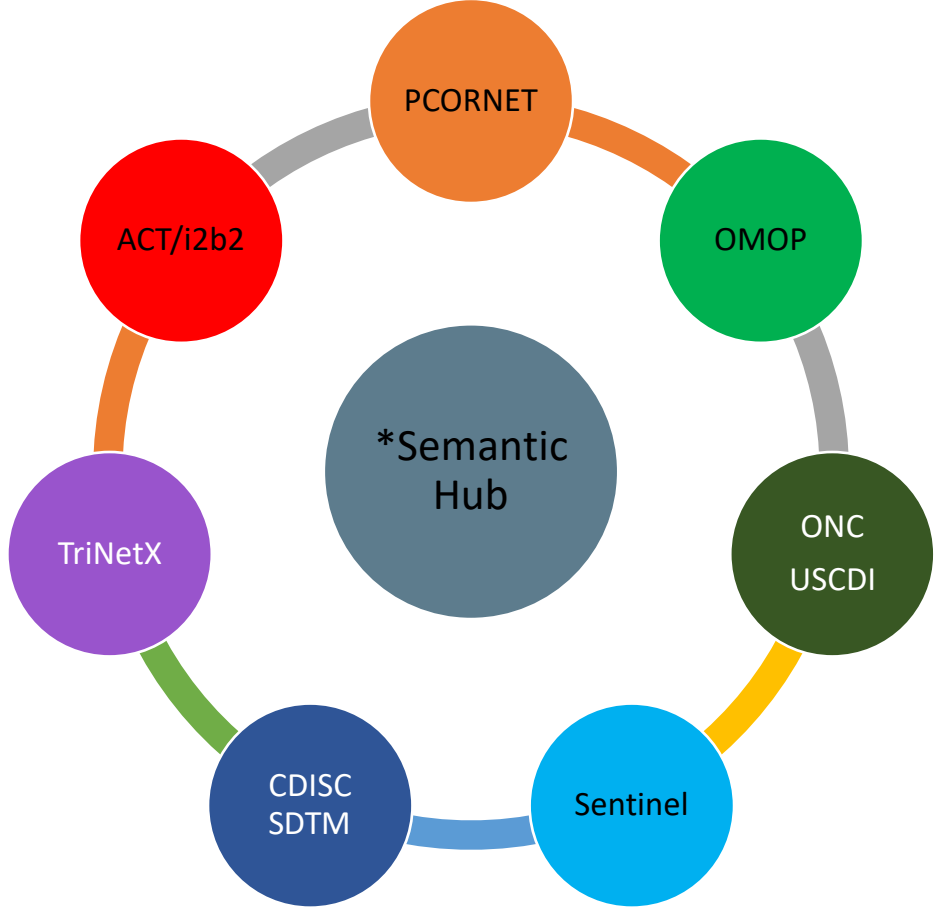
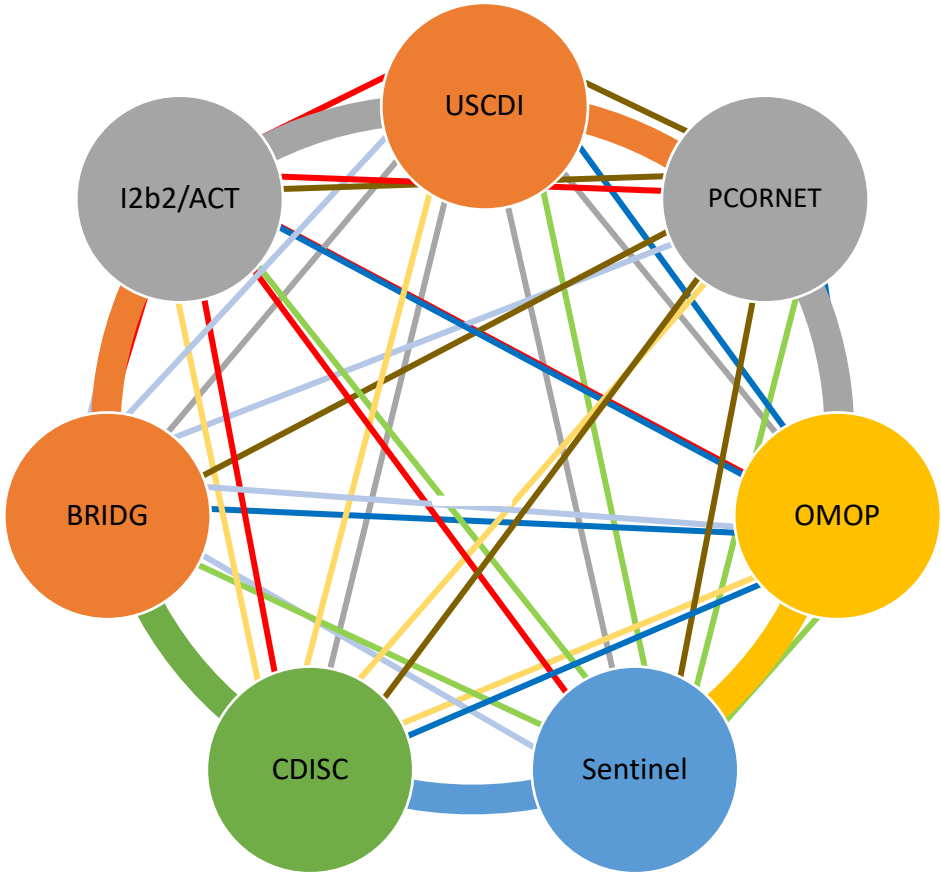
Code Map Services

Real-World Data Interoperability
Common Data Models, CDISC SDTM, and HL7 FHIR/ ONC USCDI

PCORI-TF Common Data Model Harmonization ~2017



PCOR-TF: Code Map Services (CDMH III) : FHIR, CDISC, CDMH, and USCDI

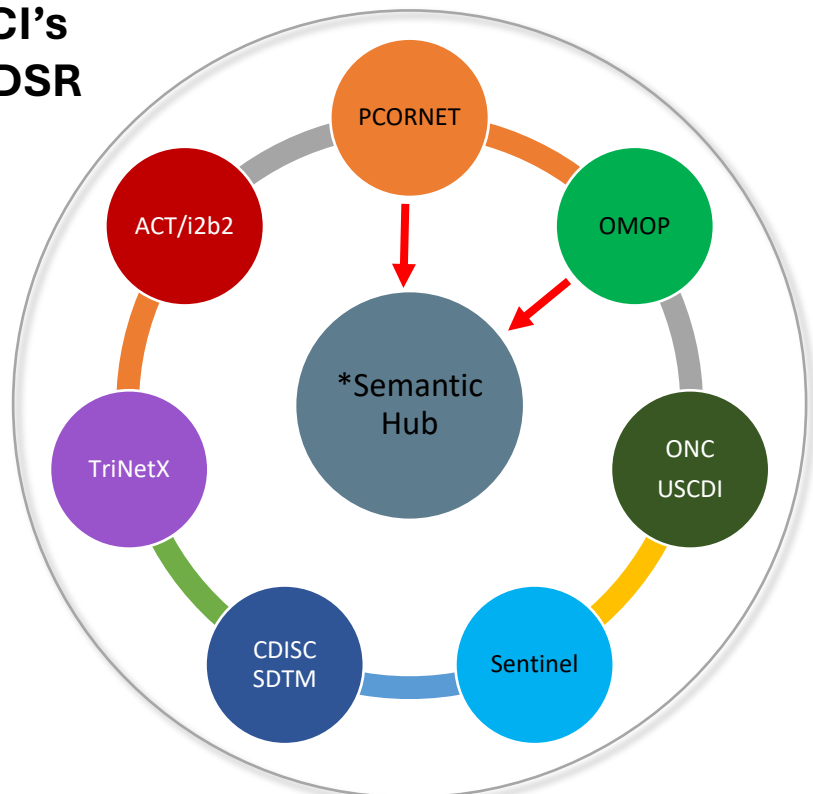


NCATS, FDA, ONC, CDISC, NCI

*Semantic Core based on US Core FHIR Profiles

Code Map Services: NCI's caDSR is a Semantic Hub

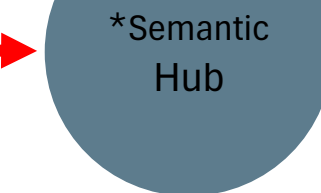
NCI's
caDSR



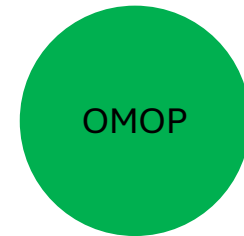
Transformation



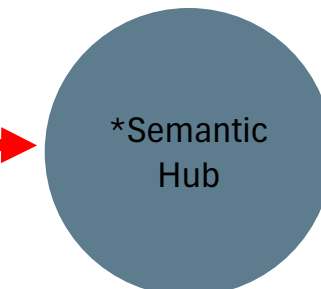
Sex (fd), M (vl)



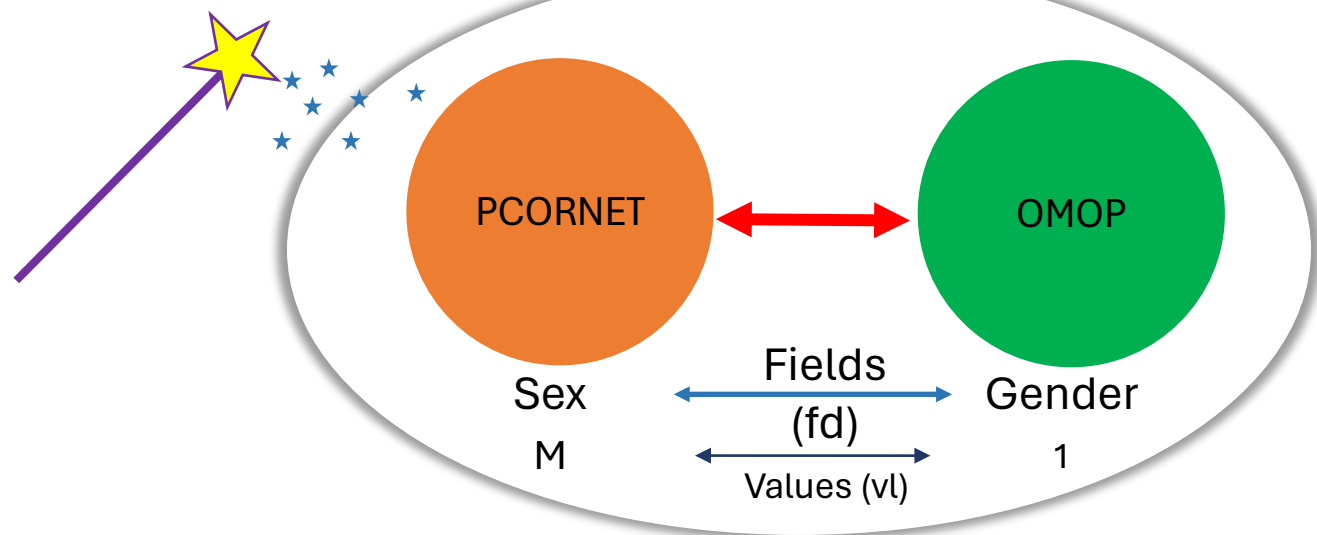
BioSex (fd), Male (vl)



Gender (fd), 1 (vl)



BioSex (fd), Male (vl)



PCORNet ← Semantic → OMOP

Sex ← Field (fd) → Gender

M, F ← Values (vl) → 1, 2

National COVID Cohort Collaborative (N3C) (3/04/24)

<https://covid.cd2h.org/dashboard/>

COVID+
CASES

8.8m

Patients

22.0m

Rows of Data

32.0b

Contributors
Health
Systems

83

Institutions
Using Data

384

Active
Investigators

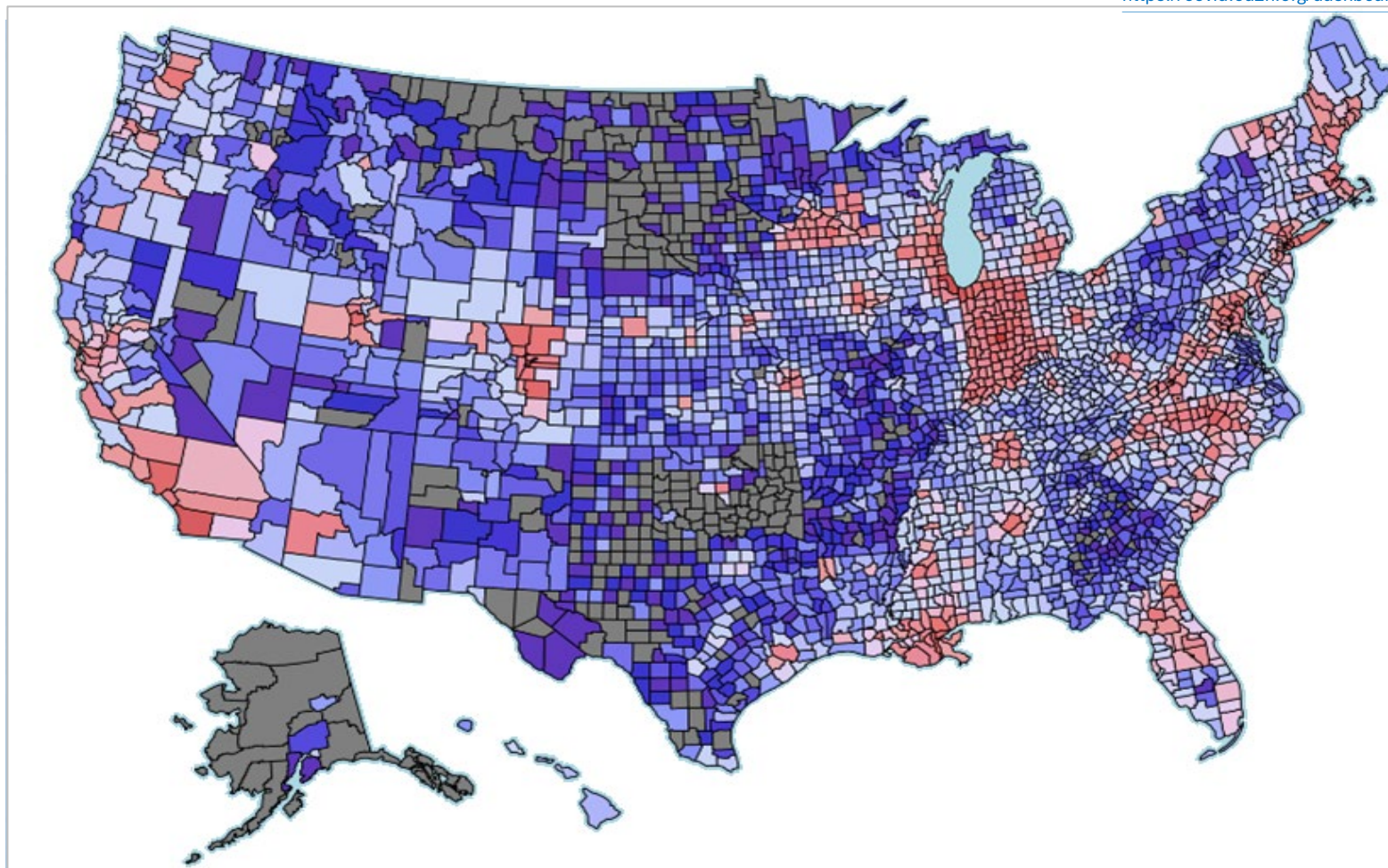
>3800

Research
Studies

540

Citations &
H-Index.

3652/28



Geographics: 50/50 States >92% of all US Counties in USA

Representative of US population

Source: Community, Academic, FQHCs

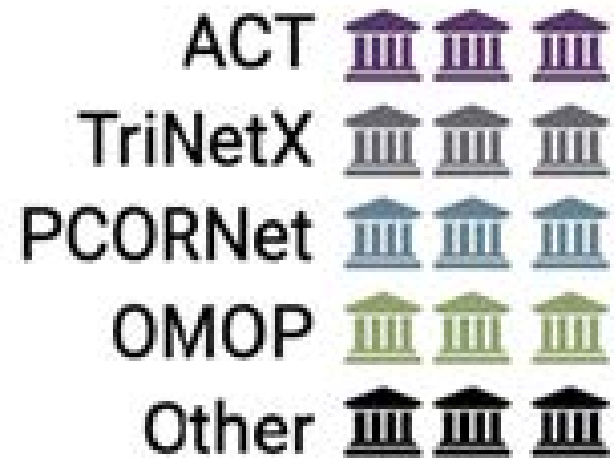
Patient Mix: Inpatient ~20%, Outpatient ED ~80%

Longitudinal Data: 1/1/2018 to Present

N3C Data Lifecycle

Limited Data Set

1. Data Partnership & Governance



2. Phenotype & Data Acquisition



3. Data Ingest & Harmonization

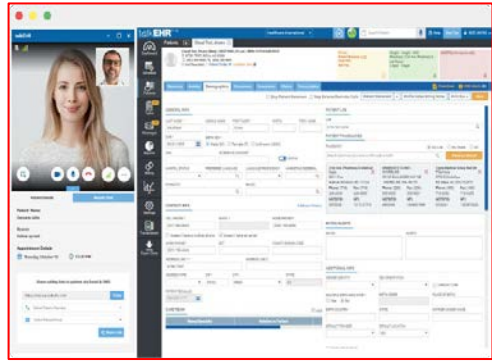


4. Collaborative Analytics & Support



NCATS Cloud

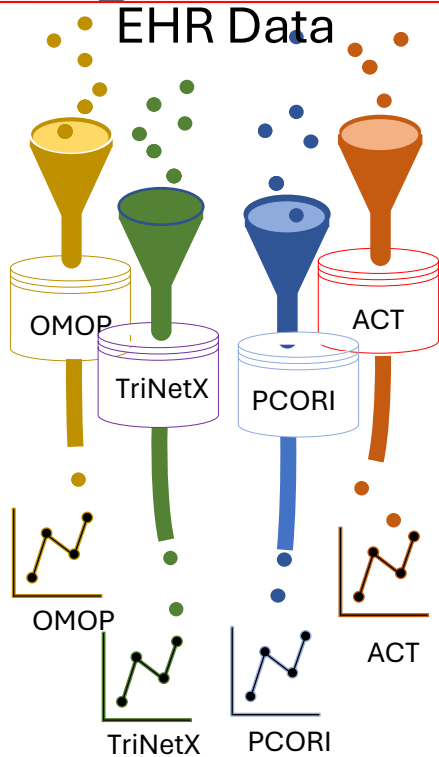
HL7 FHIR / ONC TEFCA USCDI: Separate the RDW from the analytical data model



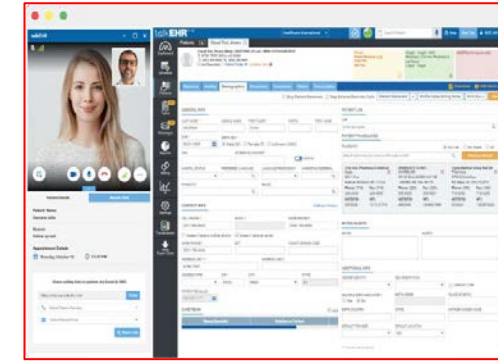
EHR Data

Advantages

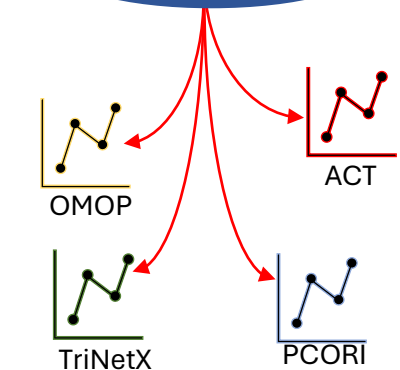
- FHIR US Core accommodates much broader set of data than CDMs this reduces the loss of data and better preserves data integrity and granularity
- Decreases complexity and eliminates the need to build separate queries for each common data model and proprietary databases
- Reduces cost institutions can now maintain common RDW that can be transformed CDM analytics model of choice



Analytic Data Models



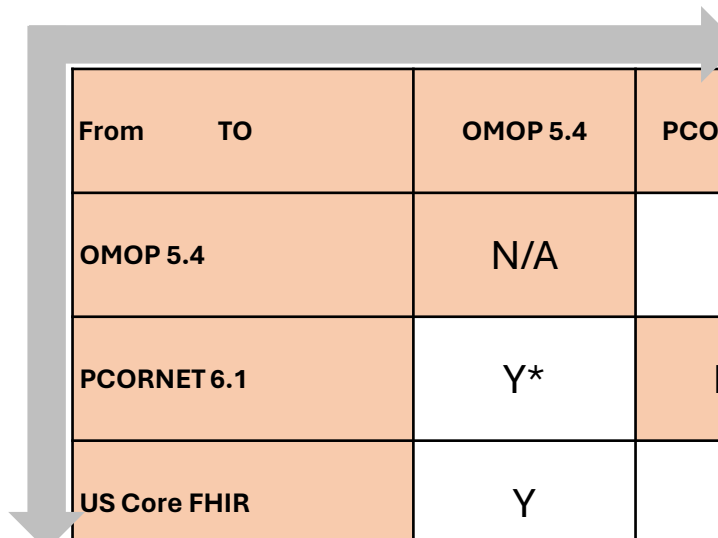
EHR Data



Analytic Data Models

Code Map Services: NCI Semantic Model Update Mapping and ETL:

- Makes the meaning of data publicly available and reusable in **human and machine-readable** format
- Persistent, unique identifier including version number
- **Normalizes the meaning** of the fields and the data values using standard NCI terminology
- Enables interoperability for data that is not born interoperable



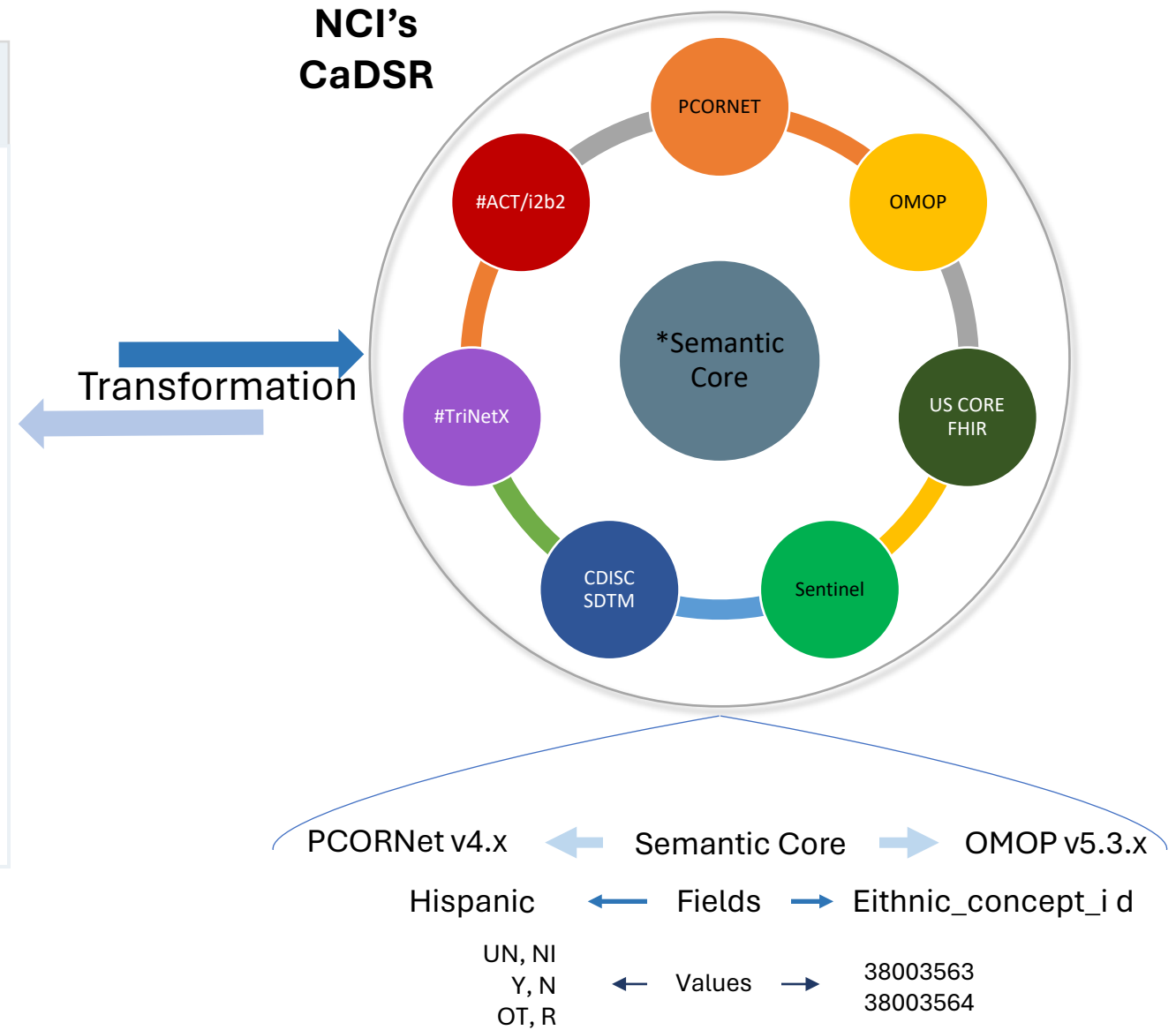
From	TO	OMOP 5.4	PCORNET 6.1	US Core FHIR	TriNetX	i2b2 ACT	Sentinel	CDISC (SDTM)
OMOP 5.4		N/A	Y	N	Y	Y	Y	Y
PCORNET 6.1		Y*	N/A	N	Y	Y	Y	Y
US Core FHIR		Y	Y	N/A	Y	Y	Y	Y
TriNetX		Y*	Y	N	N/A	Y	Y	Y
i2b2 ACT		Y*	Y	N	Y	N/A	Y	Y
Sentinel		Y	Y	N	Y	Y	N/A	Y
CDISC (SDTM)		N	N	N	N	N	N	N/A

Code Map Services: Model to Model Transformation as a Service

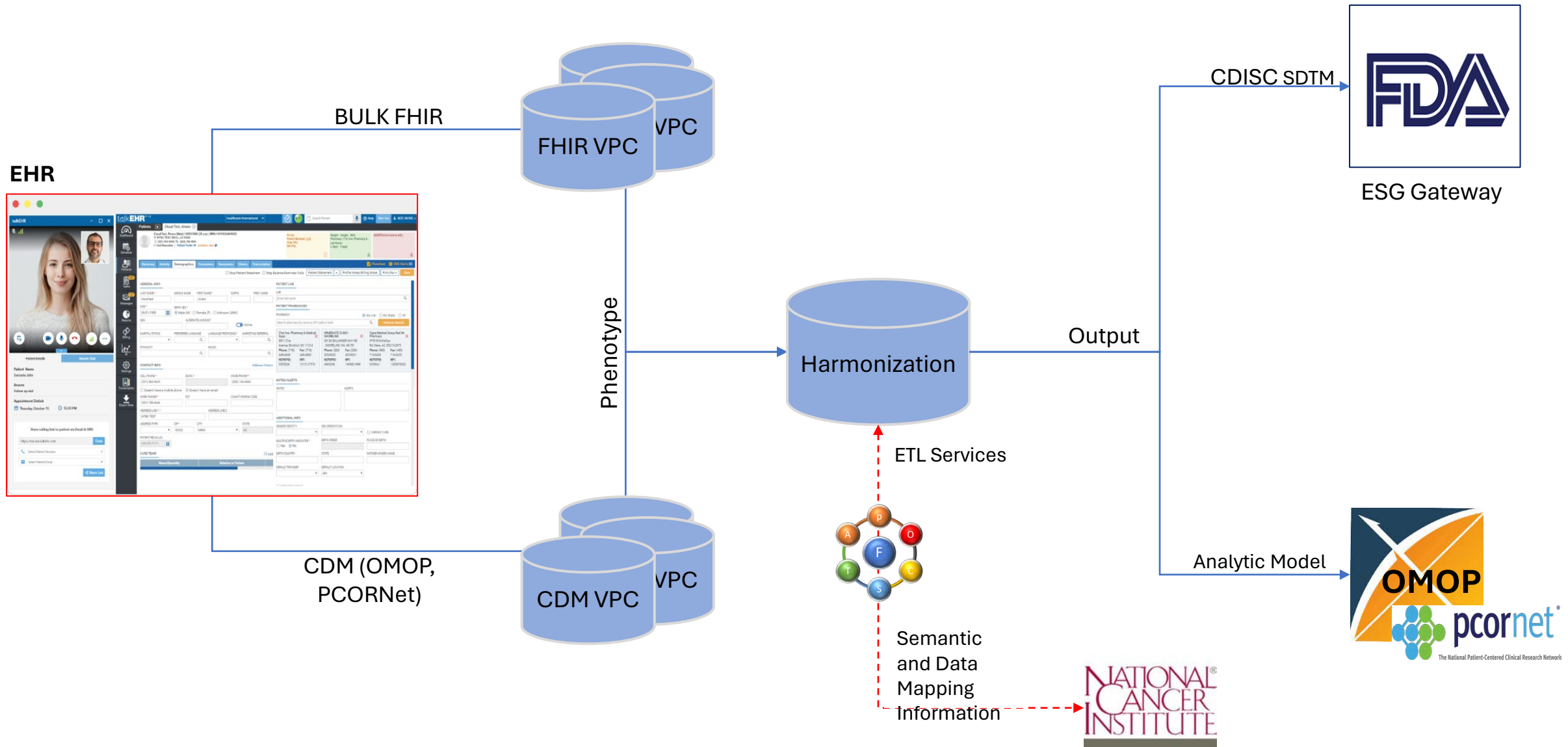
Model Conversion

Collaborators

FHIR OMOP PCORNET Sentinel #TriNetX #ACT/i2b2	▶	CDISC SDTM OMOP PCORNET Sentinel #ACT/i2b2 #TriNetX
PCORNET		OMOP 5.3.1
From (Source dataset)		To (Target)
Chose a file	Choose File	File Name
		Name of file

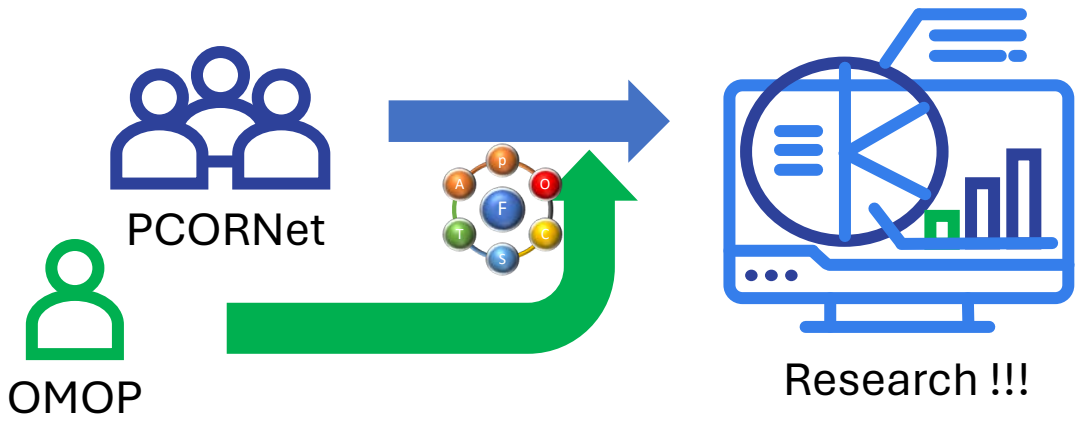


Code Map Services: FDA Task FHIR & OMOP → CDISC SDTM

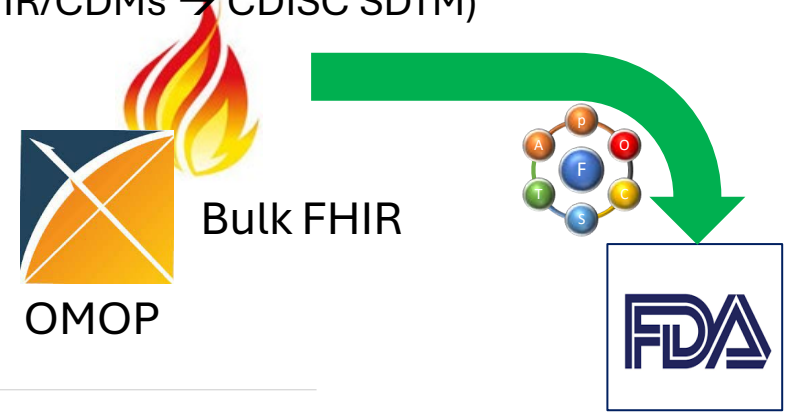


Code Map Services: Use Cases

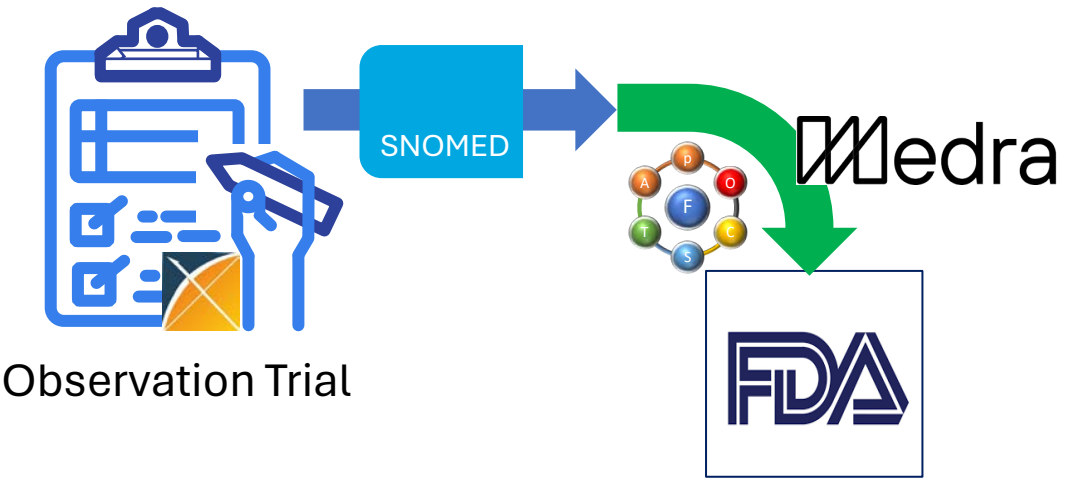
1 CDM Collaboration



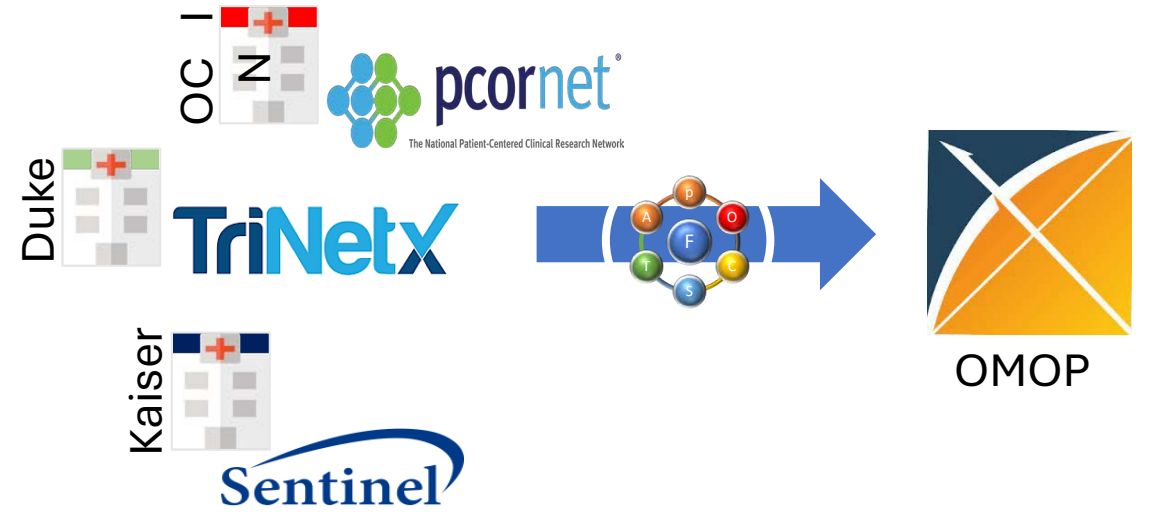
2 FDA Submission Safety, Post Marketing (FHIR/CDMs → CDISC SDTM)



3 Controlled Vocabulary Transformation



4 RWD to primary analytic model



Thank you!

