



IQVIA Federated Data Modernization



Data Modernization using OMOP CDM



Overview

Join us for a discussion around the data standardization and harmonization utilizing the (Observational Medical Outcome Partnership (OMOP) common data model (CDM) and how it is used to generate reproducible, accurate, and well-calibrated evidence-based analytics at scale.

Key areas to be discussed include:

- Real-world data standardization and harmonization efforts
- The impact of RWD during the COVID-19 pandemic
- How OMOP can support regulatory decision making
- Data standardization and harmonization through OHDSI OMOP
- Federated network government adoptions
- Public health policy evidence generation at scale



Presenters



Mui Van Zandt

VP/GM, Real-World Data and Technology



Atif Adam, Ph.D., MD, MPH

Associate Director in Epidemiology

Regulatory adoption of data standardization

Mui Van Zandt

Regulators are increasingly interested in how RWE may support regulatory decision-making



Despite challenges, traditional RCTs are the gold standard for drug evidence development

- Increasingly time and resource intensive to conduct
- Not broadly representative of the patients seen in actual clinical care
- May be unethical or infeasible to perform given small patient population sizes



RWD/RWE can be used to demonstrate medical product safety and effectiveness

- RWE reflects broader patient populations
- RCTs may not be generating evidence on endpoints that are truly useful to patients, providers, or payers
- RWE can fill remaining downstream evidence gaps



RWD/RWE can be used to improve the efficiency of clinical research

- Growing base of RWD from electronic health information infrastructure has enabled routine and increasingly robust collection of digital data at the point of patient care

There is an impressive and growing array of real-world data sources

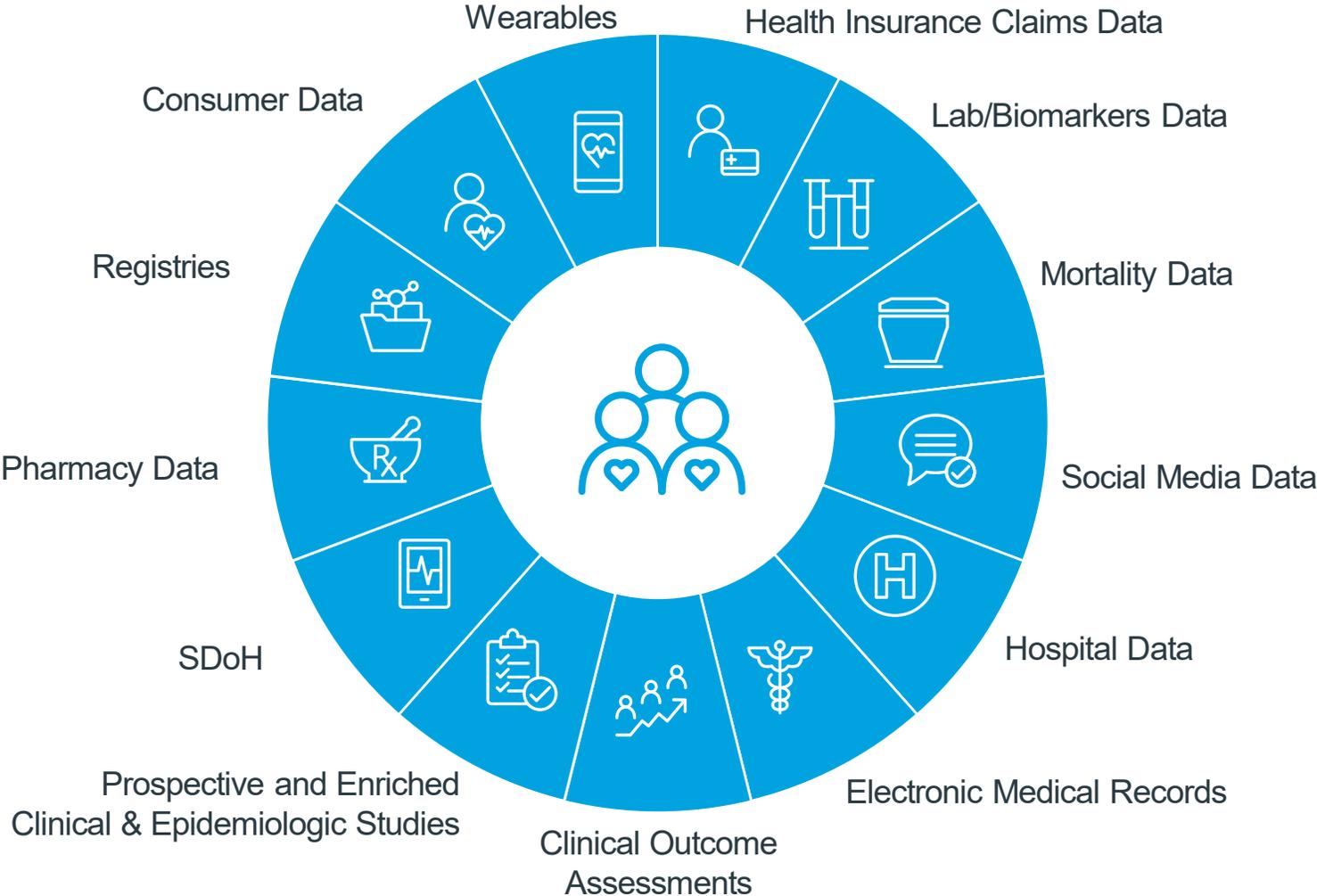


Real World Data (RWD)

Data relating to patient health status and/or the delivery of health care collected from a variety of sources

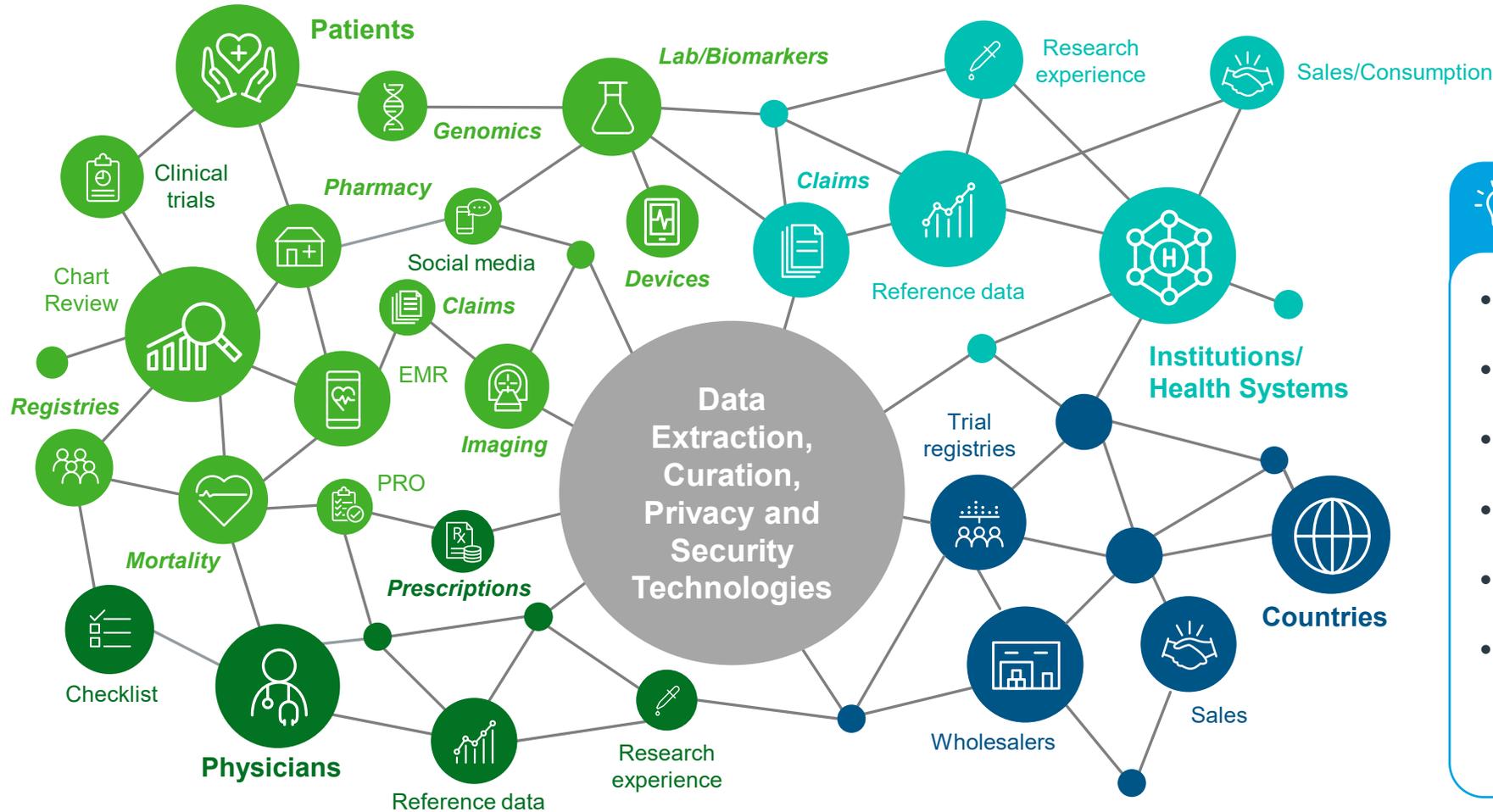
Real World Evidence (RWE)

Clinical evidence about the usage and potential benefits/risks of a medical product derived from the analysis of RWD



Increased demand for data standardization

Real-world is too imperfect and has too many challenges



Key insights

- Cohort Identification
- Clinical Characteristics
- Translational Research
- Prevalence & Incidence
- Drug Safety & Efficacy
- Comparative Effectiveness

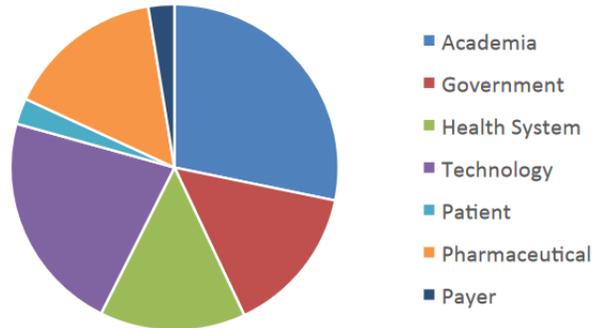
Data standardization and harmonization through OHDSI

What OHDSI is

- Open Source
- Community
- Data



Stakeholder group

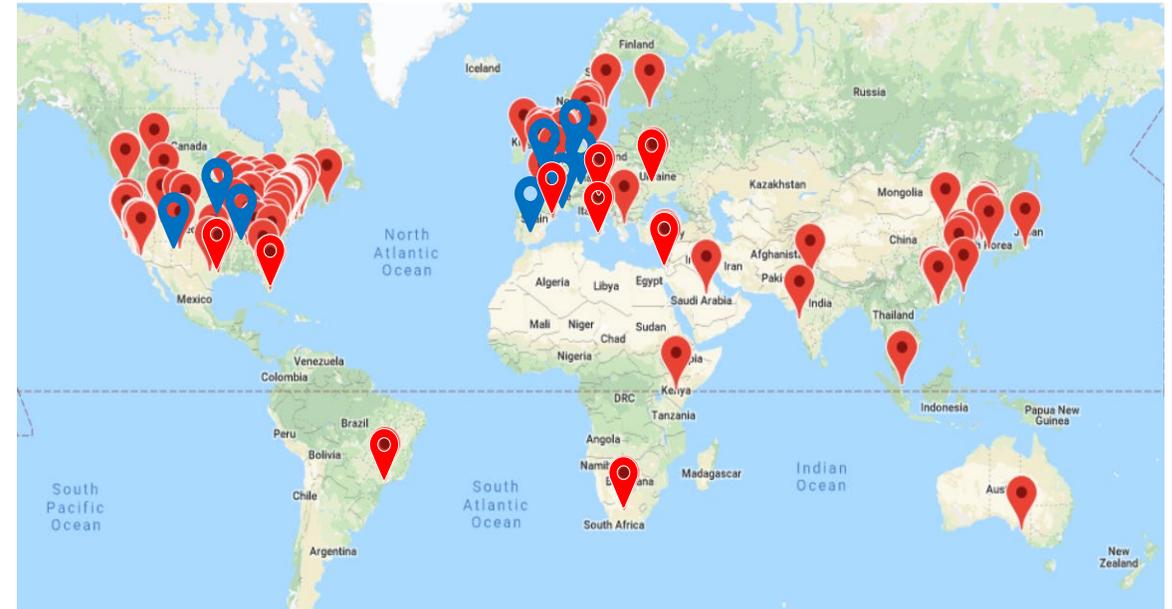


Why Choose OHDSI/OMOP

- **Fast, reliable** studies across a series of datasets and data types
- **Reduced cost of ownership** including understanding coding schemes, writing statistical programs across databases or developing software
- **Expanded data access** via the OHDSI network and remote multi-center database studies

<https://ohdsi.org/>

Ambulatory Hospital



OHDSI Collaborators

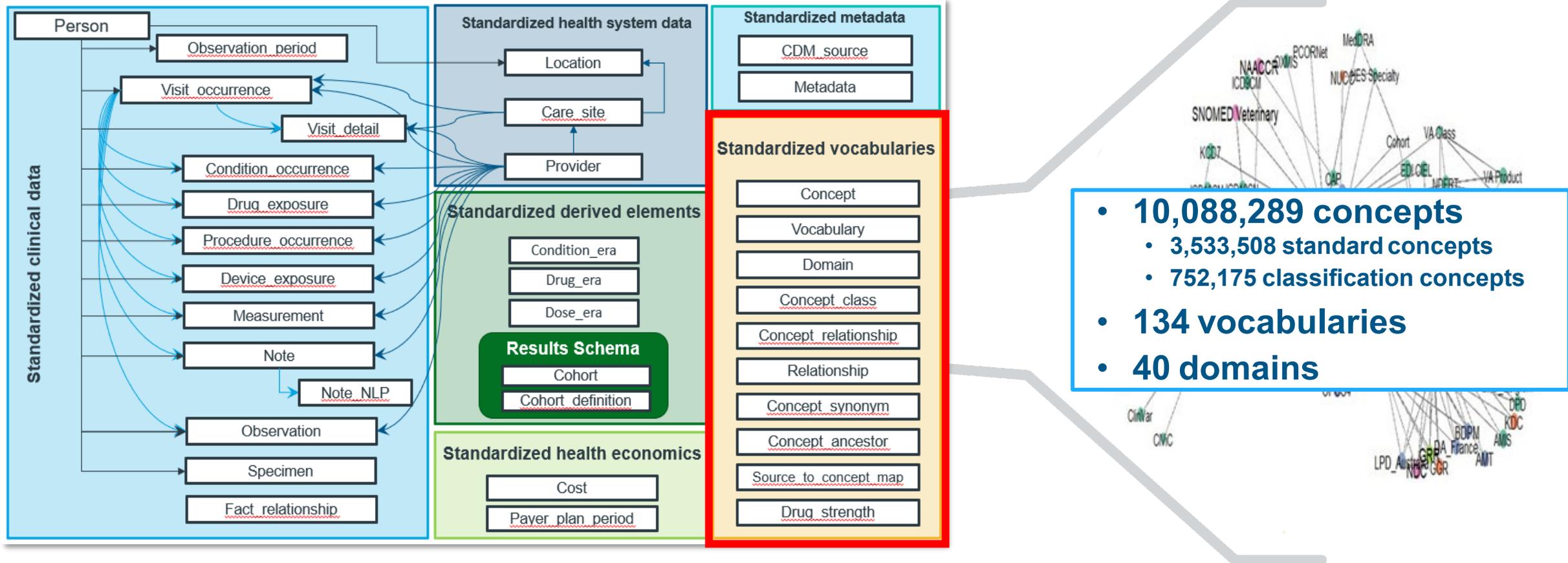
- 2,900 users
- 29 workgroups
- 46,900 posts on 5,700 topics

OHDSI Network

- >320+ databases
- 34 countries
- 2.7B patient records, 369M ex-US

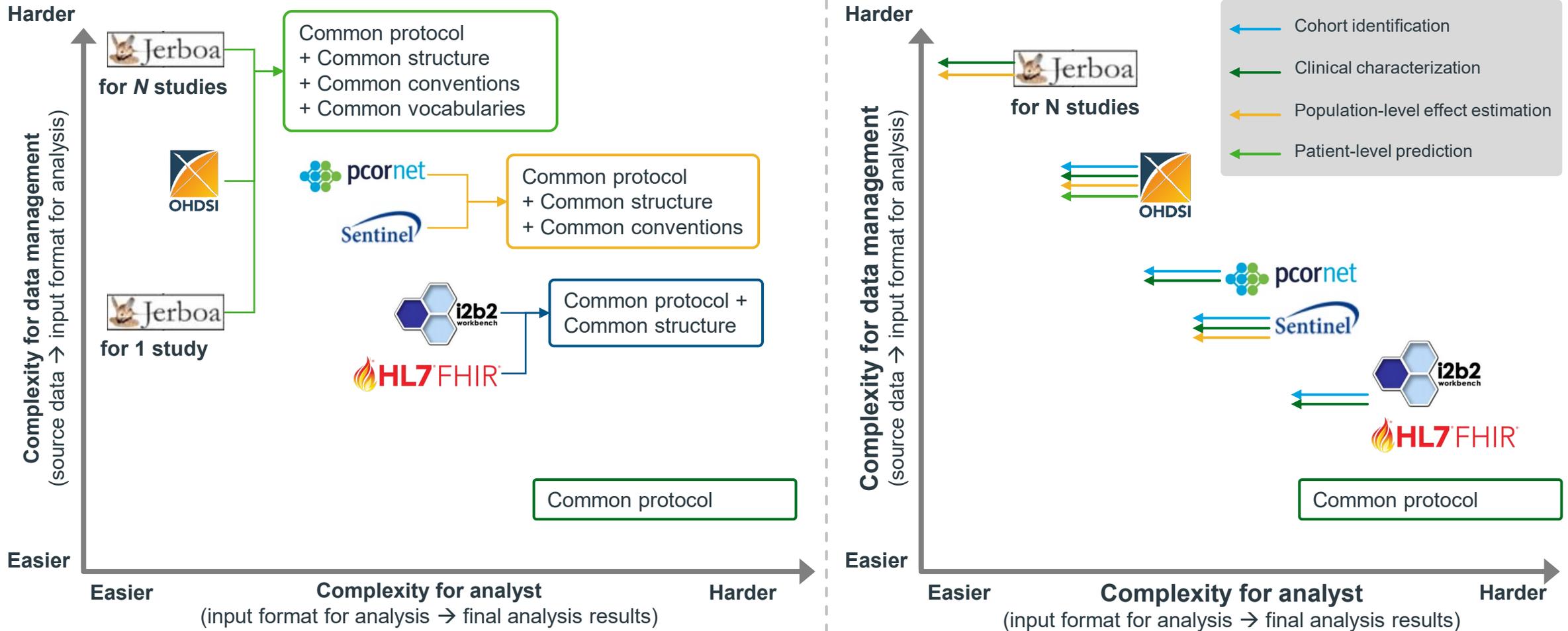
OMOP common data model (CDM)

Ontologies are critical when designing at data models



Comparison of common data models

Balancing trade-offs in data management vs. analysis complexity



Global Government Adoption of OHDSI



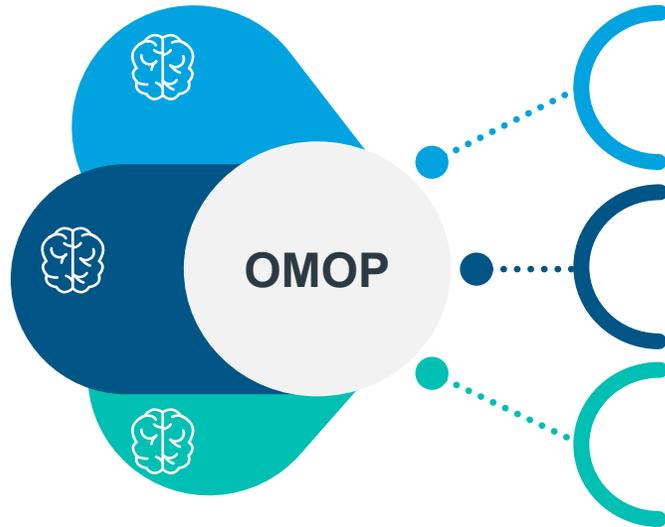
国家药品监督管理局
National Medical Products Administration



보건복지부
Ministry of Health and Welfare

Collaboration across standards

OHDSI/FHIR



OMOP CDM

- Dual source platform that supports both data science and application deployment
- Use of study results as actionable data to drive treatment decisions

Improved Data Quality

Leveraging the OMOP standard data models and data elements defined in FHIR ensures consistent and accurate data capture, which improves the validity and reliability of observational studies.

Real-time Analysis

Real-time analysis of FHIR-compliant data, which can be useful for real-world evidence generation and other applications.

Home > HL7 International and OHDSI Announce Collaboration to Provide Single Common Data Model for Sharing Information in Clinical Care and Observational Research

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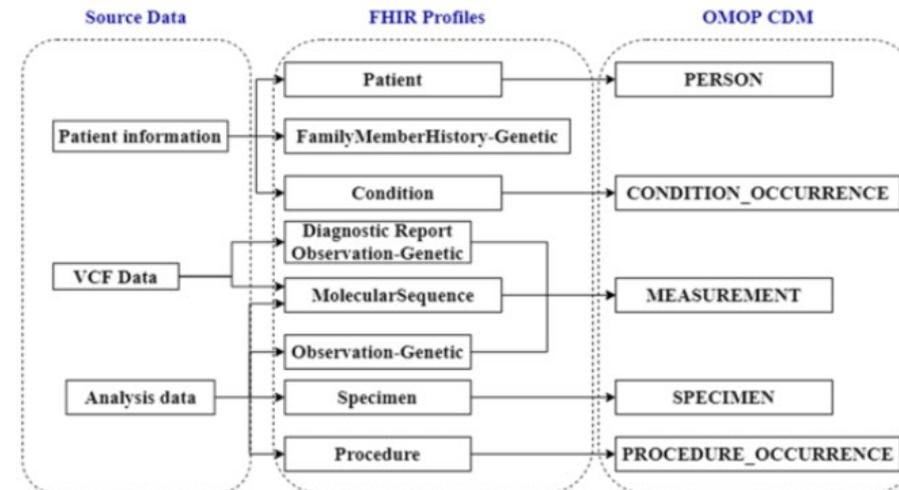
Health Level Seven International (HL7®) and the Observational Health Data Sciences and Informatics (OHDSI) network today announced a collaboration to address the sharing and tracking of data in the healthcare and research industries by creating a single common data model. The organizations will integrate HL7 Fast Healthcare Interoperability Resources (FHIR®) and OHDSI's Observational Medical Outcomes Partnership (OMOP) common data model to achieve this goal.



"We are excited to have the OHDSI community join this partnership with HL7 to evolve community standards around observational research and clinical care. These standards set the foundation for our mission of global, open-science research, and this partnership will accelerate the development of effective and safe treatments for diseases facing today's global population." - George Hirpscak

OHDSI

HL7 International CEO Dr. Charles Jaffe, M.D., Ph.D., underscored the significance of this partnership. "The Covid-19 pandemic has emphasized the need to share global health and research data." He continued, "Collaboration with OHDSI is critical to solving this challenge and will help our mutual vision of a world in which everyone can securely access and use the right data when and where they need it."



IQVIA OMOP CDM Services and Support

Building your own OMOP capabilities, leveraging IQVIA consulting and technical services



Network

Global federated network

- Federated network coordinating center
- Data partnership in US, EU, and Asia



Data Analytics

Use of reproducible, well-calibrated analysis

- Protocol driven multi-database analysis
- Deliver reliable, cost-, time-, and resource effective evidence at scale



Software, ETL, and SME

High quality mapping from source to OMOP

- Software to assist with conversion
- Team of expertise to ensure accurate mapping
- OMOP conversion expertise
- SME consultancy on OMOP conversions



Training

Highly experience trainers

- OMOP CDM/Vocabulary
- Conversion workshop
- Standard analytics training
- Leveraging standardizations to perform multi-center research



Globally scalable studies using the federated network model with data partners of varying data types from around the world.

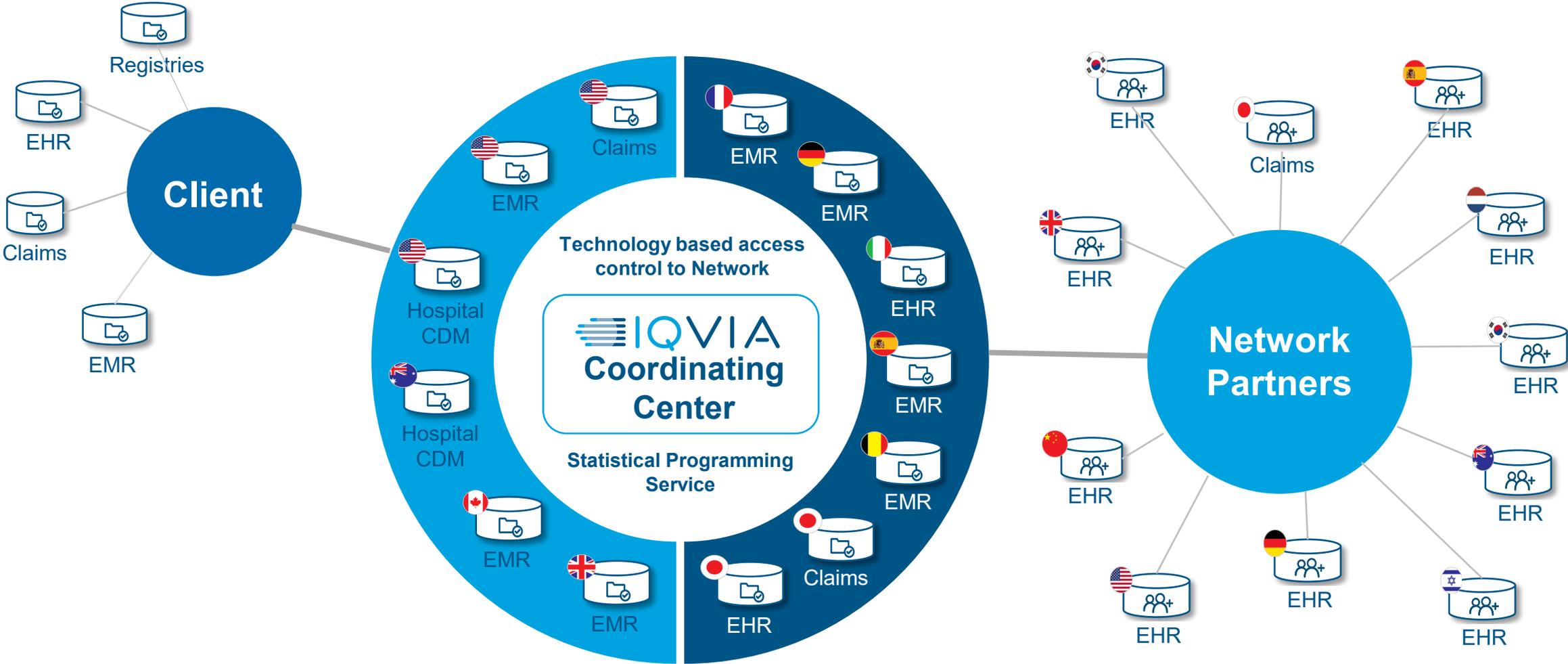
The federated research network helps to reduce administrative barriers by eliminating the need to access patient-level data.

Analyses are reproducible, saving on time and resources to generate reliable evidence at scale.

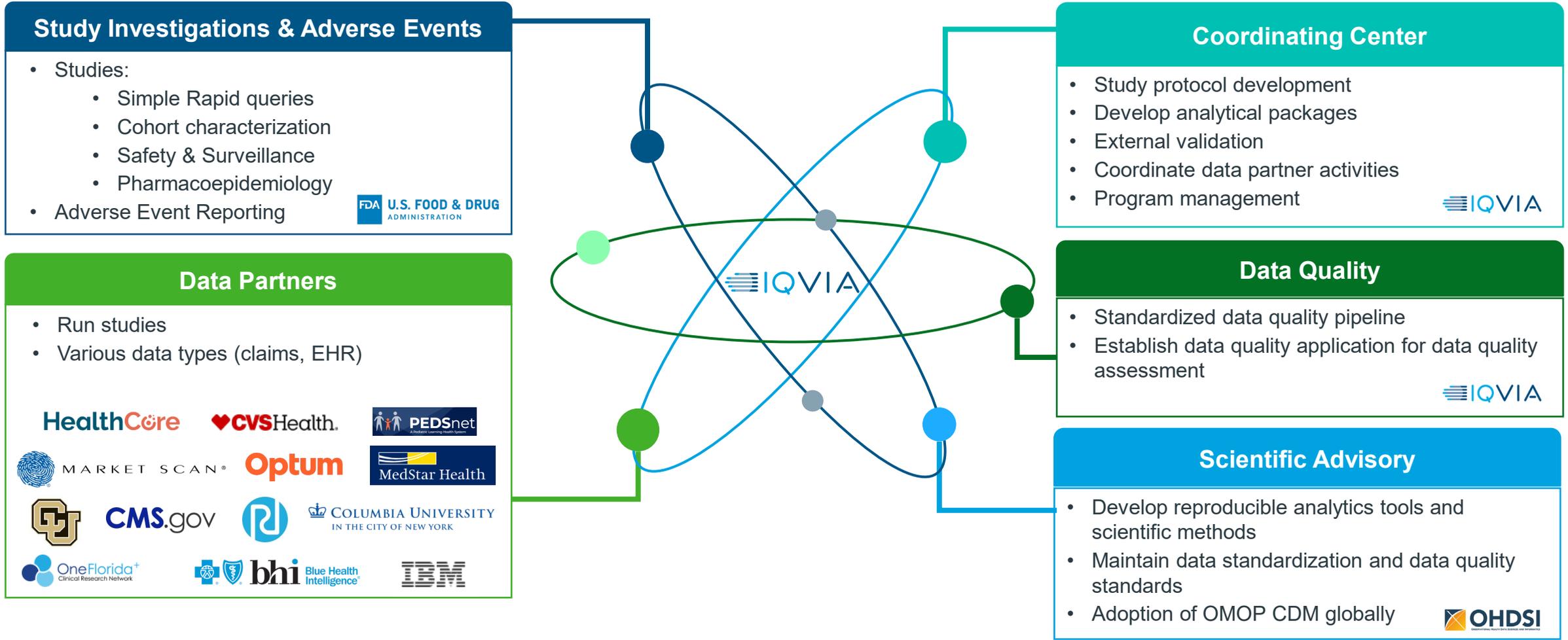
Leverage industry expert to create a high quality standardized OMOP data asset

Top notch training accepted/referred by the OHDSI community

IQVIA OMOP Research Network



FDA Best Federated Data Network Overview



Premier, multi-center research collaborative driving large scale health analytics research



Evidence-based analysis utilizing OMOP CDM and IQVIA Federated Network

Atif Adam

IQVIA OMOP CDM Services and Support

Building your own OMOP capabilities, leveraging IQVIA consulting and technical services



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Standardized means reliable, reproducible, faster and expanded data access



**Standardized
data model**



**Standard
coding system**



**Standardized
tools**



**Systematic
data quality**



**Productized
Analytics**

IQVIA / OMOP

Faster and more reliable studies across a series of datasets and data types

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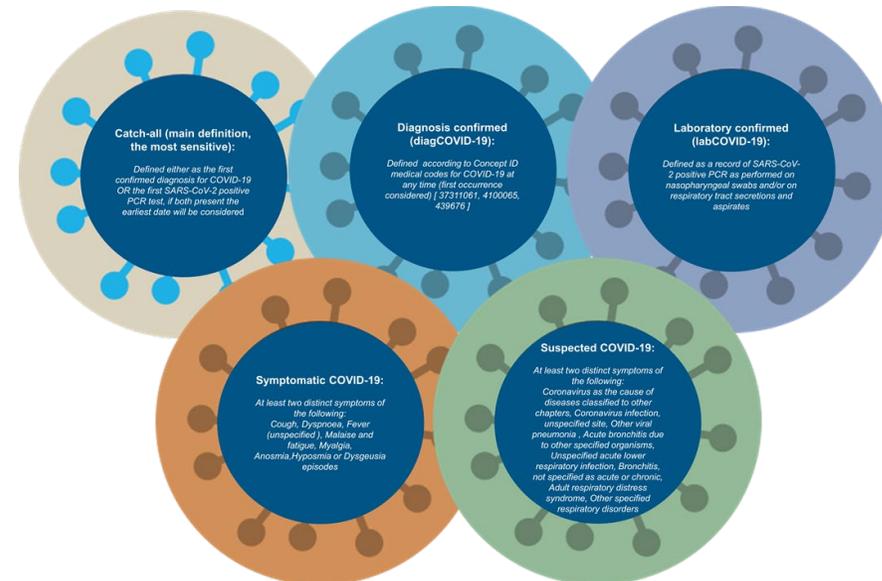
E-CORE (Evidence for COVID-19 Observational Research Europe)

In 2020, the E-CORE network was created in response to an EMA call with the aim to conduct multicentre cohort studies **on the use of medicines to treat patients with COVID-19, thus accelerate the generation of robust real-world evidence of therapies for COVID-19.**

E-CORE is:

- a federated network with data sources mapped to the OMOP common data model (CDM) to enable common analytics.
- a collaboration between multiple institutions: academics, contract research organizations and data partners with expertise in conducting pharmacoepidemiologic studies and access to health databases.
- Consisting of
 1. Administrative Centre
 2. Study Coordinating Centre
 3. Data Partners
 4. Scientific Advisory Board

A proof of concept study was conducted focusing on use of systemic glucocorticoids in the treatment of COVID-19 in the primary and secondary care setting.



EU PAS Registration : EUPAS38759

<https://www.encepp.eu/encepp/viewResource.htm?id=38760>

Twelve databases from nine countries (Germany: IQVIA DA and a University hospital; **France:** IQVIA LDP ; **Belgium:** IQVIA LPD, **Italy:** IQVIA LDP; **UK:** IMRD; **Spain:** SIDIAP, HM Hospitales and Parc Salut Mar Barcelona (IMASIS); **the Netherlands:** IPCI, **Serbia:** Clinerion/Heliant and **US:** Hospital Charge Data Master). Of these, **six encompass the primary/ambulatory care setting** and six encompass the hospital care setting.

Scientific Impact of IQVIA OMOP studies



A collage of overlapping scientific journal article covers and abstracts. The articles include:

- Clinical Epidemiology**: "Unraveling COVID-19: A Large-Scale Characterization Using CHARY..."
- Annals of Internal Medicine**: "Comparative Effectiveness and Safety Between Apixaban, Dabigatran, Edoxaban, and Rivaroxaban"
- JAMA Network Open**: "Analysis of Dual Combination Therapies Used in Treatment of Hypertension in a Multinational Cohort"
- BMJ**: "Meta-Analysis" (Oct 26;379:e071594)
- PEDIATRICS**: "Thirty-Day Outcomes of Children and Adolescents With COVID-19: An International Experience"
- International Journal of Rheumatology**: "PDS Pharmacoeconomics & Drug Safety"
- Front Pharmacology**: "International cohort study indicates susceptibility to COVID-19 in benign..."
- BMJ**: "Characteristics of COVID-19 cases in London and Spain"
- Annals of Internal Medicine**: "Comparative risk of thrombotic events associated with international new European count..."
- International Journal of Obesity**: "Hype..."
- Journal of Clinical Investigation**: "Risk of the COVID-19..."
- Journal of Clinical Investigation**: "Predictors of depression..."

Each article snippet includes the journal name, title, authors, and a DOI link.

IQVIA OMOP Productized Analytics Publications

7 Infectious Disease publications



6 Cardiovascular publications



3 Oncology publications



2 Methods publications



1 Mental Health publications



1 Musculoskeletal publications



40 Publications Since 2017



Academic Partners



Publications by Category

- Disease & Treatment Patterns
- Patient-level Clinical Evidence
- Healthcare Costs
- Policy Levers

Research Areas

- Drug safety
- Drug Efficacy
- Descriptive statistics
- Risk analysis
- Comparative studies
- Method development and validation
- Combination Therapy
- Vaccines

Key takeaways

Thank you for your attendance

01

OMOP allows integration of clinical and public health data structures that facilitates secure and trusted health data exchange between public health and private partners

02

IQVIA has developed standardized tools and methods that support response-ready surveillance systems for automated forecasting and analytics

03

IQVIA is a leading partner with regulatory agencies on implementation, coordination and execution of RWE network studies, both in the US and globally.

04

IQVIA OMOP has led and collaborated with diverse health stakeholders on publications, policy strategies and clinical trainings across multiple disease areas

Contact



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Thank you

