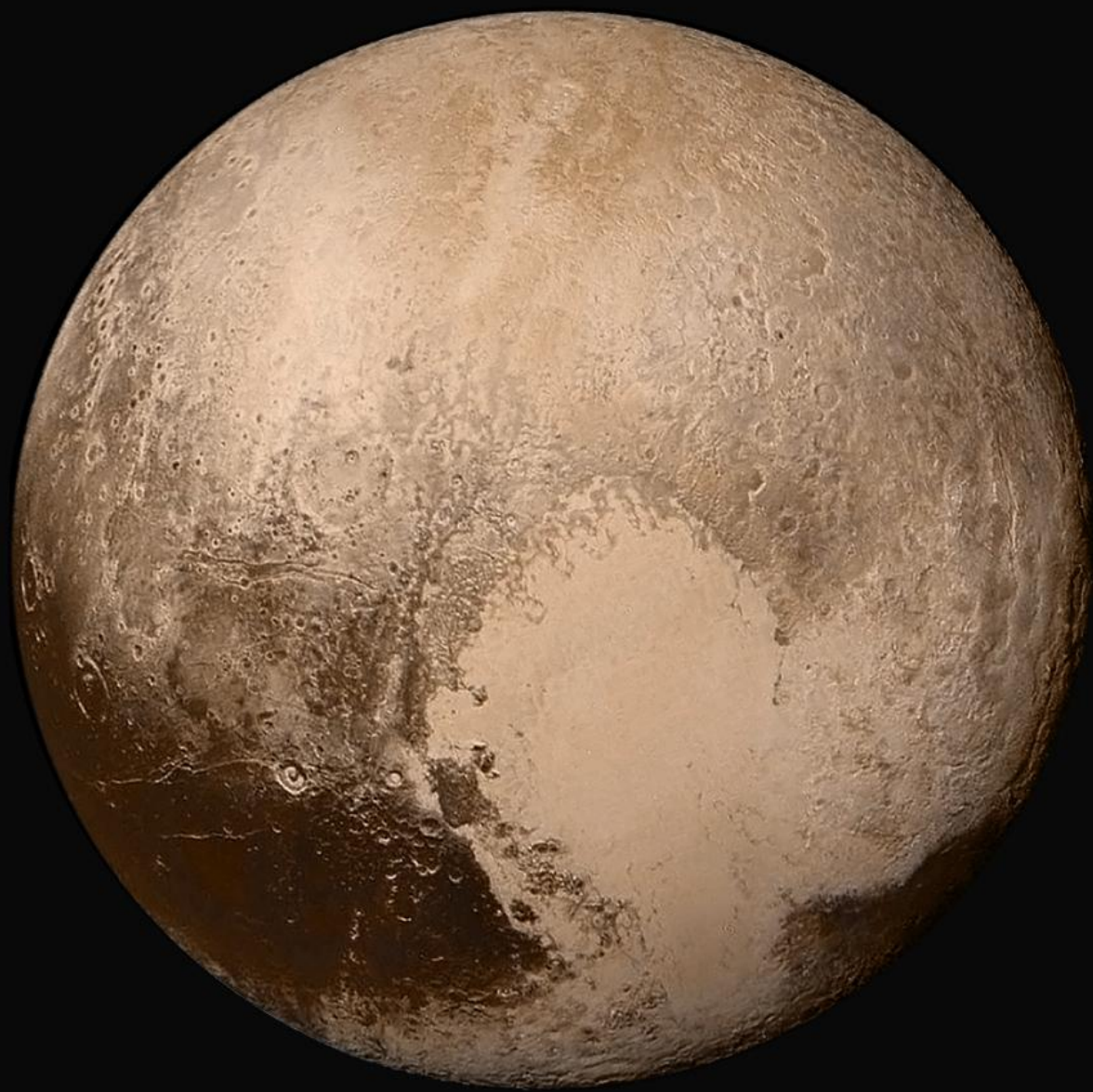




State of the Collaboration 2016

Maura Beaton & Jon Duke
January 12th, 2016





OHDSI



MEDINFO'15

19-23 August 2015, São Paulo, Brazil

eHealth enabled Health









OHDSI SYMPOSIUM

October 20th 2015



The OHDSI Community



[140+ Collaborators](#) from 16 Countries (USA, Canada, Netherlands, UK, France, Sweden, Italy, Israel, Singapore, Hong Kong, Taiwan, Korea, Brazil, Kenya, South Africa, Australia)



OHDSI Collaborators include...

- Clinical researchers
 - Epidemiologists
 - Biostatisticians
 - Computer scientists
 - Health care providers
 - Government regulators
 - Quality officers
 - Entrepreneurs
 - Industry leaders
 - Health system administrators
-



And More are Joining the Journey

Over the past year we've streamlined the process for getting involved

- Join the Journey
- Onboarding call with OHDSI Oracle
- Meet your OHDSI buddy

We're seeing results!

- Over 300 forum users, over 3000 forum posts
- Over 50 newcomers from 11 countries including Brazil, South Africa and Kenya



OHDSI Symposium 2015

October 20th, in
Washington DC

Funded by:

- PCORI
- IMS Health
- Johnson & Johnson

Almost 300 attendees!

OHDSI
OBSERVATIONAL HEALTH DATA SCIENCES AND INFORMATICS

OHDSI SYMPOSIUM

October 20th 2015

ABOUT THE EVENT

As the first OHDSI symposium, this event will provide those interested in observational research an opportunity to learn from OHDSI collaborators who will showcase their work and discuss the impact OHDSI will have on medical decision-making.

The day will also include hands-on demonstrations of the OHDSI tools that will revolutionize how medical evidence is generated.

JOIN THE JOURNEY

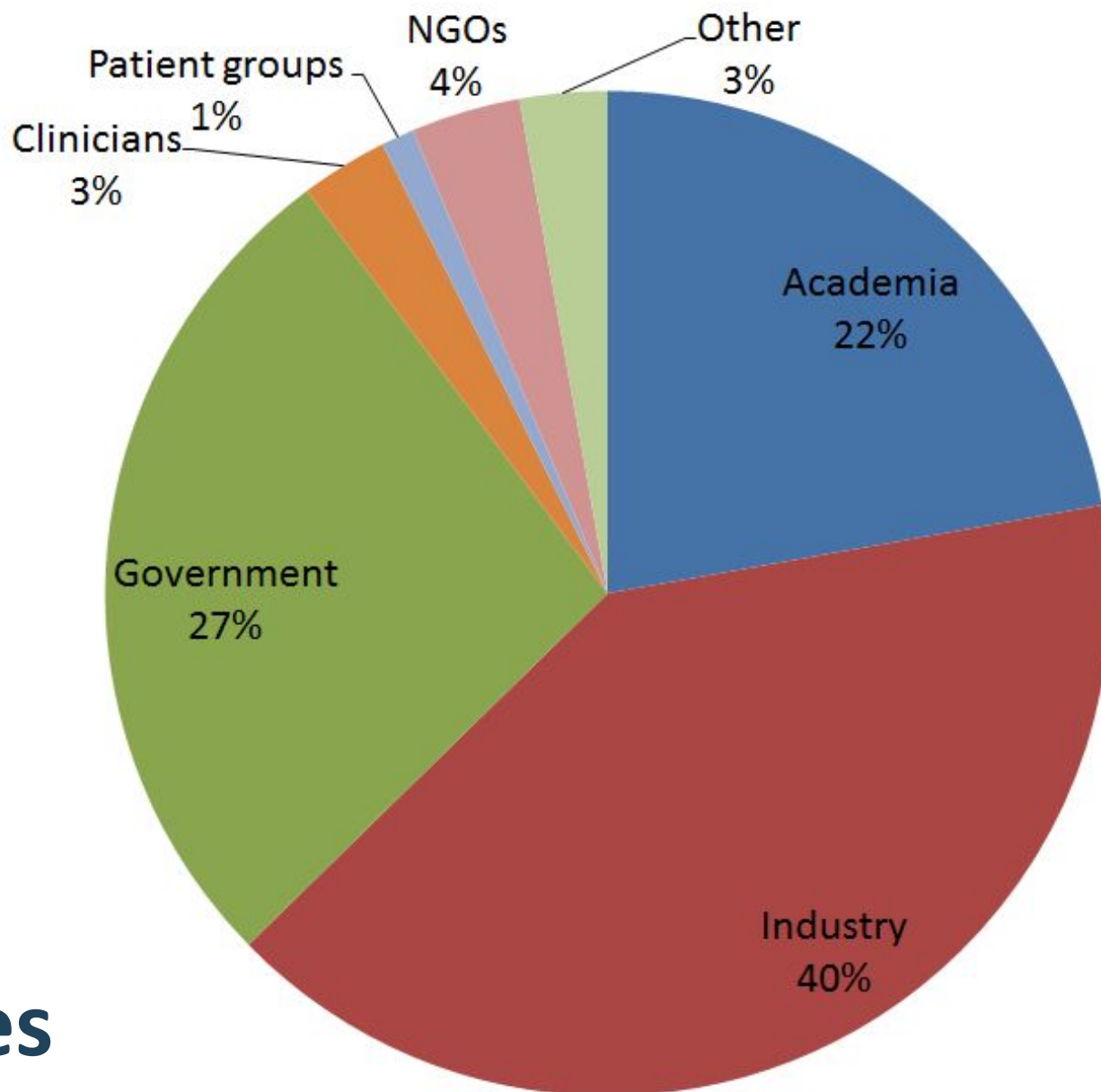
Stakeholders who would benefit from this meeting include:

- Representatives from CMS, FDA, NIH, AHRQ and PCORI
- Representatives from academia, industry and healthcare start-ups
- Healthcare payers & providers

Presenters for the event will include influential leaders from biomedical informatics, epidemiology, computer sciences and statistics.

Washington Hilton, 1919 Connecticut Ave NW
Washington, DC 20009

Attendees by Sector



COLUMBIA
← Rooms 1 - 6
→ Rooms 8 - 12
→ Restrooms

Abstract, Translating Lead-Off



OHDSI15

DETERMINATION OF PREGNANCY EPISODES AND OUTCOMES WITHIN A DISTRIBUTED NETWORK OF OBSERVATIONAL DATABASES
Amy Noller, PhD, R. Paul, PhD, Sarah H. PhD, Craig Gilman, PhD, Chris Kroll, Andrew Friedman, PhD

ABSTRACT

RESULTS



honors-meeting
OHDSI15

A Climate-Wide Journey to Explore Mechanisms Underlying Birth Month-Disease Risk Associations: OHDSI A Call for Collaboration
Mary Regina Boland^{1,2}, MA, George Hripiciak^{1,2}, MD, MS, Patrick Ryan^{1,2,3}, PhD, Nicholas P Tatonetti^{1,2,4}, PhD
¹Observational Health Data Sciences and Informatics, ²Department of Biomedical Informatics, ³Department of Systems Biology, ⁴Department of Medicine, Columbia University, New York, NY, ⁵Janssen Research and Development, Raritan, NJ

Abstract

Vision

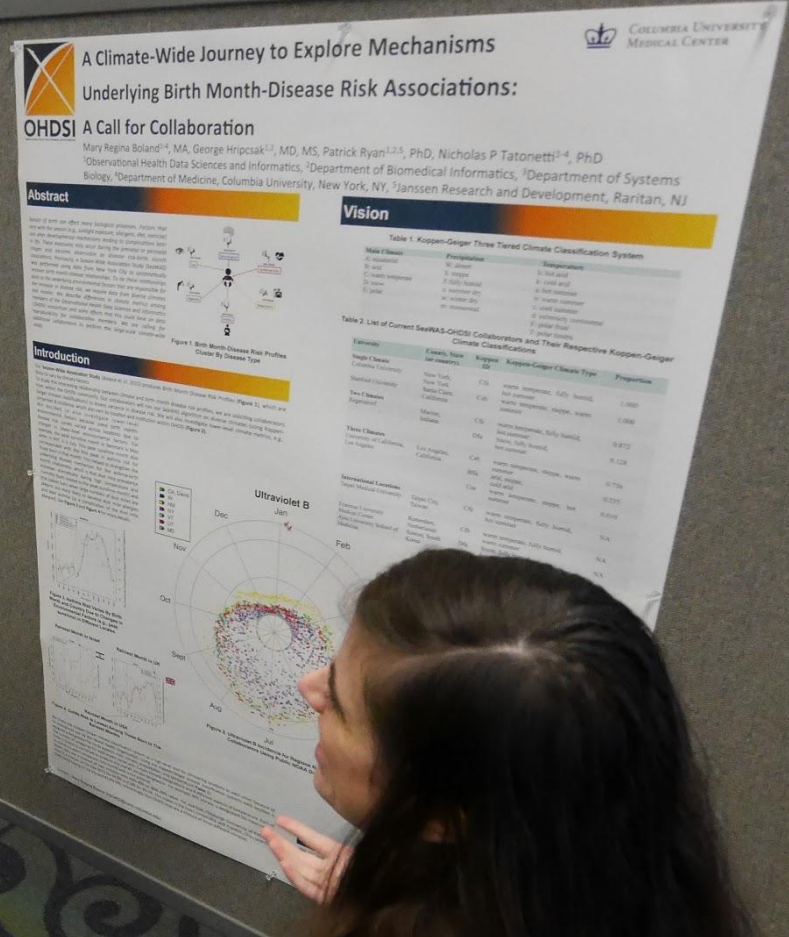
Table 1: Koppen-Geiger Three Tiers Climate Classification System

Climate Class	Temperature	Precipitation
Hot arid	> 10°C	< 250 mm
Hot semi-arid	> 10°C	250 - 500 mm
Hot continental	> 10°C	> 500 mm
Temperate	0 - 10°C	> 500 mm
Continental	< 0°C	> 500 mm
Subarctic	< 0°C	> 500 mm
Polar	< -30°C	> 500 mm

Table 2: List of Current SeemAS-OHDSI Collaborators and Their Respective Koppen-Geiger Climate Classifications

Collaborator	Climate Class	Population
Harvard University	Hot arid	1,000
University of California, Los Angeles	Hot semi-arid	1,000
University of California, San Diego	Hot continental	1,000
University of California, Berkeley	Temperate	1,000
University of California, Davis	Continental	1,000
University of California, Irvine	Subarctic	1,000
University of California, Santa Barbara	Polar	1,000

Figure 1: Birth Month-Disease Risk Profiles



28 Posters Presentations

6 Software Demonstrations



2 Panel Discussions



Lots of audience participation





2015 Software Accomplishments

Software released:

- HERACLES for clinical characterization
- CALYPSO for study feasibility
- LAERTES evidence API
- CHAOS semantic browser
- IRIS for population summary
- PENELOPE for evaluation of product labeling
- SynPUF-powered OHDSI demo site

Projects under active development:

- ATLAS integrated interface for OHDSI tools
 - APHRODITE for phenotype evaluation
 - HOMER for population level estimation
 - PANACEA for treatment pathways analysis
-



2015 Software Accomplishments (Methods)

Releases

- Cyclops
- CohortMethod
- EmpiricalCalibration
- IcTemporalPaternDiscovery
- SelfControlledCohort
- PatientLevelPrediction

Under Development

- SelfControlledCaseSeries



2015 Data Model Accomplishments

OMOP Vocabulary v5

- ATHENA released
- Vocabulary ETL made available on GitHub
- Additional sources vocabularies (eg., CIEL)
- Refactored SPL, ETC, Indications, GPI, OPCS4, MeSH

OMOP CDM v5

- Feedback incorporated from 16 organizations
 - More specification defining model and conventions
 - Scripts for Oracle/SQL Server/PostgreSQL
 - Initiated Working Group
-



2015 Data Network Accomplishments

- 84 CDM databases reported in progress or completed
- Types: Administrative claims, electronic health records, health information exchanges, hospital billing data, clinical registries, national surveys
- 11 countries: US, Canada, UK, Italy, Germany, Netherlands, Spain, Korea, Taiwan, Hong Kong, Japan
- 911 million patients covered across sources (with duplicates, est. 500 mil without)
 - [Full CDM Dataset List](#)
- Process for Proposal, Iteration, and Execution of Data Network Studies



2015 OHDSI Research Accomplishments

Publications by OHDSI collaborators

- JAMIA, Applied Clinical Informatics, British Journal of Clinical Pharmacology, Journal of Medical Internet Research, Drug Safety, Pediatric Blood Cancer, Infection, Studies in Health Technology and Informatics

Conference presentations on OHDSI

- AMIA, AMIA CRI, MedInfo, Drug Safety Research Unit - Signal Detection Conference, AcademyHealth, DIA2015,



2015 OHDSI Research Accomplishments

- Treatment pathways in chronic disease
- Transforming the National Department of Veterans Affairs Data Warehouse to the OMOP Common Data Model
- Converting the data in the U.S. CMS Virtual Research Data Center to the OHDSI Common Data Model version
- Applying the OMOP Common Data Model to Survey Data
- Mapping Korean national insurance billing code to OMOP code for drugs used in a Korean tertiary teaching hospital
- An Algorithm for Mapping Local Measurement Concepts into OMOP Vocabulary Using Logical Observation Identifiers Names and Codes (LOINC®) Terminology
- Establishing Interoperability Standards between OMOP CDM v4, v5, and PCORnet CDM v1
- Using Semantic Queries for Cohort Discovery Across Research Networks
- Lift your Anchors and Begin the OHDSI with APHRODITE
- Discovering the hidden risk factors: An empirical evaluation of incorporating feature-learning methods into a risk model framework using the OMOP CDM
- Accuracy of an Automated Knowledgebase for Identifying Adverse Drug Reactions
- How high can we go? Evaluating massively high-dimensional propensity score and outcome models in large-scale observational studies



2015 OHDSI Research Accomplishments

- Size comparison of 17 CDM datasets using IRIS tool
- Identifying and Understanding Data Quality Issues in a Pediatric Distributed Research Network
- Lessons from CIRCE implementation of eMERGE phenotype definitions into actionable CDM v5 SQL queries
- Storing, Sharing, and Using Algorithms for Implementing Clinical Studies: The Jigsaw Algorithm Repository
- A Climate-Wide Journey to Explore Mechanisms Underlying Birth Month Disease Risk Associations: A Call for Collaboration
- Determination of Pregnancy Episodes and Outcomes within a Distributed Network of Observational Databases
- Trajectories in diabetes mellitus type II treatment intensification with massive observational data
- Exploration of the Epidemiology of Endometriosis



2015 OHDSI Funding

AMGEN®

imshealth™

INTELLIGENCE APPLIED.

Pfizer



pcori

PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE



Regenstrief Institute



Janssen
PHARMACEUTICAL COMPANIES
OF *Johnson & Johnson*



KHIDI Korea Health Industry
Development Institute



In Short, 2015 was a Big Year





“No calls for an hour, Ms. Jones. I’m resting on my laurels.”



OHDSI 2016

Taking Our Journey to the Next Level





OHDSI's Mission 2014

To transform medical decision making by creating reliable scientific evidence about disease natural history, healthcare delivery, and the effects of medical interventions through large-scale analysis of observational health databases for population-level estimation and patient-level predictions



OHDSI Mission 2016

To improve health, by empowering a community to collaboratively generate the evidence that promotes better health decisions and better care.



OHDSI Vision

We envision a world in which observational research produces a comprehensive understanding of health and disease.





OHDSI Values

- Innovation
 - Reproducibility
 - Collaboration
 - Community
 - Openness
 - Beneficence
-

Innovation

Observational research is a field which will benefit greatly from disruptive thinking. We actively seek and encourage fresh methodological approaches in our work.



Reproducibility

We believe that accurate reproducible, and well-calibrated evidence is necessary for health improvement.



Collaboration

We work collectively to prioritize and address the real world needs of our community





Community

Everyone is welcome to actively participate in OHDSI, whether you are a patient, a health professional, a researcher, or someone who simply believes in our cause

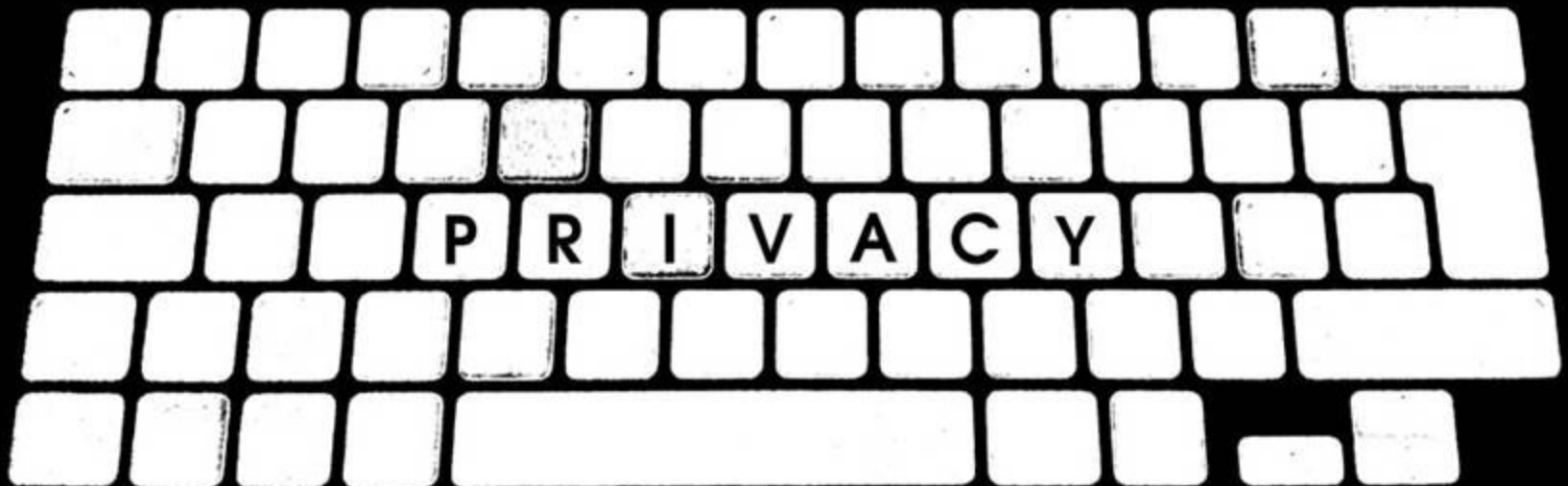
Openness

We strive to make all our community's proceeds open and publicly accessible, including the methods, tools and the evidence that we generate.



Beneficence

We seek to protect the rights of
individuals and organizations
within our community at all times





Setting Our Goals

- Evidence
- Community
- Software Platform
- Methods
- Data Model and Vocabularies



OHDSI Evidence in 2016

Goals

- Expand high quality, reproducible, disseminated evidence that improves care

How we can make it happen

- Conduct more network research studies, on important topics
- Build policy and infrastructure to facilitate network research
- Disseminate our evidence effectively

Example initiatives in 2016

- All by All Initiative (2.5K Drugs by 10K Outcomes)
- OHDSI - eMERGE Collaboration
- Domain Cores (e.g., Oncology, Cardiovascular)
- Collaborative Grant Submissions

What are your ideas?



OHDSI Community in 2016

Goals

- Foster a growing, integrated, global community that generates the strategic objectives and the work that will advance the OHDSI mission

How we can make it happen

- Increase visibility of OHDSI products (evidence, software, CDM)
- Enhance our community tools (website, wiki, forums, github)
- Offer more learning resources and opportunities for newcomers to get active in OHDSI

Current initiatives include

- OHDSI Strategic Roadmap
- OHDSI Tutorial Series

What are your ideas?



OHDSI Software in 2016

Goals

- Streamline implementation of the OHDSI stack
- Support more robust, reproducible research

How we can make it happen

- Advance towards an installable, unified OHDSI interface including Web and R-based tools
- Improve our knowledge management (phenotypes, concept sets, metadata)
- Deliver innovative tools for patient- and population- level research

Current initiatives include ATLAS, Broadsea, Phenotype Library, LAERTES UI, Patient Visualization, HOMER, PLATO, APHRODITE

What are your ideas?



OHDSI Methods in 2016

Goals

- Systematically apply OHDSI methods library to a large set of real world problems
- Generate, disseminate, and drive adoption of new observational research methods

How we can make it happen

- Expand learning resources for OHDSI methods
- Integrate R capabilities into our web stack
- Compare our observational results to randomized trials

Current initiatives include

- PatientLevelPrediction
- Rserve integration with WebAPI

What are your ideas?



OHDSI Data Model in 2016

Goals

- Continue to drive adoption of CDM
- Ensure a consistent, community-driven process for evolving the CDM and vocabulary to meet real-world needs
- Secure financial support for ongoing maintenance

How we can make it happen

- Enhanced tutorials and support for CDM ETLs
- Standardize CDM modification request and evaluation
- Engage government and industry stakeholders

Current initiatives include

- ICD10 integration, CDM WG process, NLM collaboration

What's your idea?



Success of OHDSI 2016 is all about You





Ready to Get Started?

forums.ohdsi.org

github.com/ohdsi/community
