Save Our Sisyphus Challenge
Network Study Ideas

OHDSI Community Call
March 7, 2023 • 11 am ET
# Upcoming OHDSI Community Calls

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March 14: OHDSI Debates

**Debate #1**

An authority has provided me an ICD-10 codelist to use to identify patients with a disease. I should use that source codelist 'as is' for verbatim replication, and not consider it as a starting point for phenotype development/evaluation process to model the authority's intent using standard concepts.

Harold Lehmann  
Professor of Health Sciences Informatics  
Johns Hopkins University

Anna Ostropolets  
Clinical Data Scientist  
Odysseus Data Services, Inc.

**Debate #2**

Source chart review adjudication is a necessary component of phenotype evaluation to ensure reliable evidence.

Evan Minty  
Clinical Assistant Professor, Internal Medicine  
University of Calgary

Jamie Weaver  
Associate Director, Observational Health Data Analytics  
Janssen Research & Development
Three Stages of The Journey

Where Have We Been?
Where Are We Now?
Where Are We Going?
OHDSI Shoutouts!

Congratulations to 2022 Titan Award for Methodological Research honoree Fan Bu, who accepted a position as Assistant Professor in the Department of Biostatistics at the University of Michigan, starting Jan. 1, 2024.
OHDSI Shoutouts!

Congratulations to Peter Rijnbeek, who held his inaugural lecture, entitled ‘Scalable Evidence’, as Professor and Chair of the Department of Medical Informatics at Erasmus University on Friday, March 3.
OHDSI Shoutouts!

Any shoutouts from the community? Please share and help promote and celebrate OHDSI work!

Do you have anything you want to share? Please send to sachson@ohdsi.org so we can highlight during this call and on our social channels. Let’s work together to promote the collaborative work happening in OHDSI!
Three Stages of The Journey

Where Have We Been?
Where Are We Now?
Where Are We Going?
<table>
<thead>
<tr>
<th>Date</th>
<th>Time (ET)</th>
<th>Meeting</th>
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<tbody>
<tr>
<td>Tuesday</td>
<td>12 pm</td>
<td>Common Data Model Vocabulary Subgroup</td>
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<td>Wednesday</td>
<td>9 am</td>
<td>Patient-Level Prediction</td>
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<td>Wednesday</td>
<td>2 pm</td>
<td>Natural Language Processing</td>
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<td>Wednesday</td>
<td>7 pm</td>
<td>Medical Imaging</td>
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<td>Thursday</td>
<td>8 am</td>
<td>India Chapter</td>
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<td>Thursday</td>
<td>9:30 am</td>
<td>Data Network Quality</td>
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<td>Thursday</td>
<td>11 am</td>
<td>OHDSI 2023 Scientific Review Committee</td>
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<td>Thursday</td>
<td>7 pm</td>
<td>Dentistry</td>
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<td>Friday</td>
<td>9 am</td>
<td>Phenotype Development and Evaluation</td>
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<td>Friday</td>
<td>9 am</td>
<td>GIS – Geographic Information System</td>
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<td>Friday</td>
<td>11 am</td>
<td>Clinical Trials</td>
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<tr>
<td>Friday</td>
<td>11 pm</td>
<td>China Chapter</td>
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<tr>
<td>Monday</td>
<td>10 am</td>
<td>Healthcare Systems Interest Group</td>
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<tr>
<td>Monday</td>
<td>11 am</td>
<td>Early-Stage Researchers</td>
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<tr>
<td>Tuesday</td>
<td>9 am</td>
<td>OMOP CDM Oncology Genomic Subgroup</td>
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DataQualityDashboard is part of HADES.

The goal of the Data Quality Dashboard (DQD) project is to design and develop an open-source tool to expose and evaluate observational data quality.

Introduction

This package will run a series of data quality checks against an OMOP CDM instance (currently supports v5.4, v5.3 and v5.2). It systematically runs the checks, evaluates the checks against some pre-specified threshold, and then communicates what was done in a transparent and easily understandable way.

Overview

The quality checks were organized according to the Kahn Framework\(^1\) which uses a system of categories and contexts that represent strategies for assessing data quality. For an introduction to the Kahn framework please click here.

Using this framework, the Data Quality Dashboard takes a systematic-based approach to running data quality checks. Instead of writing thousands of individual checks, we use “data quality check types”. These “check types” are more general, parameterized data quality checks into which OMOP tables, fields, and concepts can be substituted to represent a singular data quality idea. For example, one check type might be written as
March Newsletter

Spotlight: Faazizah Arshad

Research allows me to exercise clinical thinking skills in ways college classes don’t. Research gives you a broader and deeper understanding of any field. Especially in OHDSI, research is interdisciplinary, so you are not only learning the science underlying certain diseases, but also how to code with data, how to standardize and improve quality of data, how to do predictive modeling and estimation, how to characterize populations, how to reproduce evidence.

OHDSI March Update Video

The Journey Newsletter (March 2023)

Our second Phenotype Phebrary gave the community a chance to collaborate on a critical aspect of real-world evidence generation. Our workgroup leads shared their respective goals for 2023, and the community announced the dates and locations for all three symposiums for the coming year. Learn more about these updates and plenty more in our March newsletter.

#JoinTheJourney

Community Updates

Where Have We Been?

- Phenotype Phebrary is complete, and a collaborative effort led by Gowtham Rao and Azza Shoalbi put our community in position to evaluate 11 phenotypes and discuss several important topics around the area. Just as helpful, this work highlighted both the challenges and opportunities surrounding reliable phenotype development and evaluation in observational science.
- The EHDEEN Academy recently announced that its free, virtual academic program that contains 17 courses around aspects of real-world evidence generation has been used in more than 100 countries by nearly 3,500 course enrollees. If you are interested in learning more or getting started, please visit the EHDEEN Academy homepage.

Where Are We Now?

- The Save Our Strepus Challenge, discussed by Patrick Ryan during a January community call, will begin this month. Step one will be identifying a research question to investigate, and we will hear about some of the submissions during our Tuesday, March 7 community call.
- Our OHDSI workgroups have identified their major goals for the upcoming year, and they shared them throughout our February community calls; each brief presentation is now available on our workgroups home page. Our 30+ workgroups continue to seek collaborators, so if you would like to join any of these teams, please fill out this form.

Community-Wide Effort To Develop & Evaluate Phenotypes, Discuss Challenges Highlight Successful Phebrary Activity

Phenotype Phebrary 2023 in numbers

- 11 phenotypes discussed in the forums
- 5 phenotypes finished peer review in library
- 8 phenotypes developed, evaluated and on their way to peer review
- 7 discussions/topics addressed
- 37 apps on data.ohdsi.org
- 32 collaborations interacted in the forums or attended calls
- 9 Publications
  - 8 applied publications planned
  - 1 methods publication

*Phenotype Phebrary* is a community-wide initiative to both develop and evaluate phenotypes for health outcomes that could be investigated by the community.

mailchi.mp/ohdsi/march2023

www.ohdsi.org

#JoinTheJourney

February Publications


Get To Know The OHDSI Workgroups

Workgroups present updates on the weekly OHDSI community calls at least one time per year. The most recent update is posted below, as well as their announced objectives and key results for 2023, and the latest number of workgroup members and leads. Please get to know the exciting research happening around the community and join any workgroups that interest you.

Asia-Pacific (APAC) - Current Participants: 157 - Leads: Mai Van Zandt - 2023 OKRs

ATLAS/WebAPI - Current Participants: 353 - Lead: Anthony Seta - 2023 OKRs

Clinical Trials - Current Participants: 296 - Leads: Mike Harris, Lin Zhen - 2023 OKRs

Common Data Model - Current Participants: 666 - Leads: Clair Backeser - 2023 OKRs

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Common Data Model - Current Participants: 666 - Leads: Clair Backeser - 2023 OKRs

CDM Vocabulary Subgroup - Current Participants: 696 - Lead: Michael Kaufme - 2023 OKRs

Data Network Quality - Current Participants: 296 - Lead: Clair Backeser - 2023 OKRs

Dentistry - Current Participants: 8 - Lead: Robert Kowli - 2023 OKRs

Early-Stage Researchers - Current Participants: 243 - Leads: Faizali Arain, Ross Williams - 2023 OKRs

Medical Devices - Current Participants: 141 - Leads: Volkan Husey, Alyah Un - 2023 OKRs

Medical Imaging - Current Participants: 150 - Leads: Paul Naby, Song-Chun Yu - 2023 OKRs

Methods Research - Current Participants: 379 - Leads: Martin Bohm, Mark Churchard - 2023 OKRs

Natural Language Processing - Current Participants: 444 - Lead: Pia Ric - 2023 OKRs

Oncology - Current Participants: 329 - Lead: Aishah Oktar - 2023 OKRs


Patient-Level Prediction - Current Participants: 99 - Leads: Jenna Reps, Ross Williams - 2023 OKRs

Perinatal and Reproductive Health Group - Current Participants: 30 - Leads: Allen Czarnik, Stephanie Leonard, Louise Smith - 2023 OKRs

Phenotype Development & Evaluation - Current Participants: 140 - Lead: Goynan Rie - 2023 OKRs

Psychiatry - Current Participants: 730 - Leads: Dmitry Dyshly, Andrew Williams - 2023 OKRs

Registry - Current Participants: 175 - Lead: Tina Parnell - 2023 OKRs

Steering Group - Current Participants: 210 - Leads: Patrick Ryan - 2023 OKRs
2023 AMIA Symposium Call For Participation

AMIA 2023 Annual Symposium

November 11 - 15  New Orleans, LA

AMIA 2023 Annual Symposium Call for Participation

We invite you to contribute your best work for presentation at the AMIA 2023 Annual Symposium – the leading symposium for the science and practice of health and biomedical informatics. The AMIA 2023 Annual Symposium showcases submissions from scientists, clinicians, trainees, educators, policy makers, administrators, industry professionals, and technologists from around the world.

The AMIA 2023 Annual Symposium will consider submissions of the following types:

- Paper, Student Paper
- Podium Abstract
- Poster, Panel
- Informatics Debate
- Systems Demonstration
- Workshop

Proposals

Proposals are now being accepted.
Deadline: Mar. 8, 2023

Submit now
Andrey Soares and Asiyah Lin are co-chairs of workshops and tutorials for the 2023 International Conference on Biomedical Ontology, a hybrid event which will be hosted Aug. 28-Sept. 1 by the University of Brasilia. If you would like to submit a workshop or tutorial, the deadline is April 3.
Job Opening

Open Rank- Tenure Track of Internal Medicine in Translational Informatics
Albuquerque, NM, United States  |  req23346

Position Number  |  req23346
Employment Type  |  Faculty
Faculty Type     |  Open Rank
Hiring Department|  IM Translations Informatics (8S2T)
Academic Location|  School of Medicine

Benefits Eligible
The University of New Mexico provides a comprehensive package of benefits including medical, dental, vision, and life insurance. In addition, UNM offers educational benefits through the tuition remission and dependent education programs. See the Benefits home page for more information.

Position Summary
The University of New Mexico, Health Sciences Center, Department of Internal Medicine, seeks a faculty member to join the Division of Translational Informatics. This position is at the Open rank and Tenure track. While the focus of the position is research-oriented, optionally, the position affords the opportunity for the candidate to have a joint clinical appointment for part-time clinical service with the University of New Mexico, and/or the Raymond G. Murphy VA Medical Center.

Salary will be commensurate with experience and education.
Job Opening

Software Dev Analyst II - Res - G&C - CTSI

Job ID: REF9053H
Date posted: 2/20/2023

Employment Type: Full Time
Shift: Days
Location: Boston, MA

PRINCIPAL DUTIES AND ESSENTIAL FUNCTIONS:
Responsible for executing software development initiatives.

Implementation
- Collaborate with various stakeholders to understand requirements and design solutions
- Evaluate options and develop technical design
- Develop solution using appropriate programming language and/or technical tools
- Complete thorough testing of solution
- Provide input to the development of integrated test plan
- Execute integrated test plan
- Provide input to the development of LIVE plan
- Support LIVE activities

Ongoing Enhancements and Support
- Build enhancements to current functionality using appropriate programming language and/or technical tools
- Perform detailed testing of software updates and upgrades
- Communicate in a friendly and professional manner, share the ideas, solutions, the approach, risks, and impacts, set appropriate expectations for the development timeline
- Participate in after-hours on call support rotation for one or more applications which generate incidents outside of business hours.
- Participate in cross-training, as a trainer and a learner, for personal development and to ensure adequate secondary coverage on all applications
Tenure Track Faculty

#105752

**Description**

The Department of Biomedical Informatics (DBMI) of Columbia University seeks exceptional junior-level faculty members in the tenure track.

The positions are open to researchers interested in developing and applying informatics theory and achieving tangible benefits to health care and biology. Three particular foci are (1) machine learning for healthcare and health-related data science, (2) health information technology-based interventions to improve health care and the health of individuals and populations, and (3) translational bioinformatics.
Development of Phenotype Algorithms and Characterizations of Primary Open-Angle Glaucoma Using Real-World Data (Nathan Hall, Rupa Makadia)

Estimate the medical expenses and health resource utilization in patient cohorts from the OMOP CDM using HERMES.

**HERMES**
A Health Resources Econometric Analysis Tool

**PRESENTER**
Kyoungae Choi
Contact: kyoungae.choi@ohdsi.org

**INTRO**
- On the way to compare risks and costs of the medical expenses and health resource utilization between patients with and without the disease.
- Estimating the economic burden through healthcare cost analysis is important to properly distribute the limited healthcare resources.

**METHODS**
- To adjust prices, we considered the cost of economic models and estimated the costs of medical expenses and health resource utilization related to healthcare cost analysis.
- We selected an algorithm using a modified econometric model focused on previously well-established methods (Yamawaki, J. Health Econ. 2005; 2006).
- To verify the algorithm and its functionality, we conducted an empirical study on subjects with various age-related macular degeneration (AMD).

**RESULTS**
- For cost-effectiveness analysis, we applied the previously well-established algorithm to the medical records from the OMOP CDM and the OMOP data from South Korea for a similar period.
- During the validation study and cost-effectiveness analysis, the results were confirmed to be consistent with the health economic experts and ophthalmologists.

**ACKNOWLEDGEMENT**
- This research was supported by OHDSI and grant (2018M3B2B1056985) from Ministry of Food and Drug Safety in 2020.

**CONCLUSIONS**
- The HERMES study provides a framework to construct the medical expenses through a causal algorithm and validated the algorithm.
- The HERMES study is intended to validate the economic burden of health-related expenditures among the OMOP CDM and the OMOP data.
- The HERMES study is expected to contribute to healthcare cost effectiveness analysis through OMOP CDM.
Disambiguation of ICPC codes using free-text and active learning to improve concept mappings

**Presentation Title:**

We classified **ambiguous source codes** into narrower OMOP concepts

**Methodology:**

1. For each code occurrence on observed clinical notes, the matchability is evaluated by a classifier.
2. The classifier is trained on a combination of:
   1. Textual context of the code.
   2. Co-occurrence with other codes.
3. Active learning is used to enhance the model.
4. Training examples include the predicted label and the associated text.

**Results:**

- For each code, the best model is selected.
- Using EMMA and LDA models, we train a classifier that can predict the correct match.
- Active learning is used to improve the model.

**Conclusion:**

The key findings are that:

- Disambiguation codes have a good performance.
- Textual context improves the performance.
- Active learning enhances the performance.

**Future Steps:**

- Fine-tuning of the classifier.
- Further exploration of text features and active learning techniques.

**Authors:**

Tom Seinen, Erik van Mulligen, Jan Kors, Katia Verhamme, Peter Rijnbeek

**Institution:**

Eindhoven University of Technology, Erasmus MC, The Netherlands
Knowledge Graph to aid Cohort Diagnostics in concept sets developing

(Thi Ngoc Mai Nguyen, Christina Raabe, Stephanie von Klot)

**Background**
- In knowledge graph development, it is common to start with more that one code list for each clinical domain.
- Combination of related code lists while maintaining hierarchical relationships is a key task during medical reviews, which is not well supported by the current Cohort Diagnostic tool set.
- We introduced a knowledge graph (KG) to address this purpose and illustrate how we have utilized it in a case study for Acute Kidney Injury (AKI) cohort diagnostic.

**Methods**
- We used 6 concepts (concept sets) from OHTS research community, Charyl, PHM, narrow and PHM, broad.
- Knowledge graph was constructed to visualize their connections.

**Results**
- Charyl is the most sensitive concept set (panel C), while PHM-narrow is most specific concept set (panel B).
- PHM-broad includes all concepts covered by PHM.
- Acute nephritis (arrow in panel D), though not included in A or B, is the ancestor of the major concepts in A and B.

**Conclusions**
- Knowledge Graph is a valuable aid to the phenotype development phase, could be utilized before aligning into the cohort diagnostics tool.
- Future work is needed to expand the capability beyond SNOMED CT so that min-domain code lists could be illustrated.
Criteria2Query: a natural language interface to clinical databases for cohort definition

Chi Yuan, Patrick B Ryan, Casey Ta, Yixuan Guo, Ziran Li, Jill Hardin, Rupa Makadia, Peng Jin, Ning Shang, Tian Kang, Chunhua Weng


Published: 07 February 2019  Article history ▼

Abstract

Objective

Cohort definition is a bottleneck for conducting clinical research and depends on subjective decisions by domain experts. Data-driven cohort definition is appealing but requires...
Prediction of insulin resistance in depression is associated with long-term clinical outcomes

**Prediction of insulin resistance in individuals firstly diagnosed with major depressive disorders may be associated with long-term prognosis**

**RESULTS**
- Best performance in KFold (AUCROC = 0.775)
- External validation of DCCM, HRAE, and KINNAE (AUCROC = 0.840, 0.625, 0.685)
- In survival analysis, diabetes occurred more frequently in patients predicted to have higher risk

**FRIDAY**
Prediction of insulin resistance in depression is associated with long-term clinical outcomes *(Dong Yun Lee, Chungsoo Kim, Jimyung Park, Rae Woong Park)*
Where Are We Going?

Any other announcements of upcoming work, events, deadlines, etc?
Three Stages of The Journey

Where Have We Been?
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March 7 Community Call: SOS Research Questions

Jack Janetzki
University of South Australia

Is fluoroquinolone use really associated with the development of aortic aneurysms?

Zenas Yiu
University of Manchester

Amongst people with psoriasis, does exposure to Risankizumab increase the risk of venous thromboembolism while on treatment relative to other biologic therapies?

Thamir Alshammary
Almaarefa University

Characterization: incidence of progressive multifocal leukoencephalopathy (PML) during Multiple Sclerosis (MS) biologic exposure

Cindy X. Cai
Johns Hopkins University

Intravitreal Anti-VEGF and Kidney Failure