ATLAS/Medical Imaging WG Updates + Phenotype Phebruary Report

OHDSI Community Call
Feb. 22, 2022 • 11 am ET
# Future OHDSI Community Calls

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March 1 OHDSI Community Call

Breakout Discussions: What Is Happening In OHDSI, And What Comes Next?

Characterization
Aniek Markus and Anthony Sena

Estimation
Martijn Schuemie and Marc Suchard

Prediction
Jenna Reps and Ross Williams
SAVE THE DATE
The 2022 OHDSI U.S. Symposium will be held Oct. 14-16. The main symposium day is scheduled to be the 14th, while activities will be held the next two days.
2022 OHDSI U.S. Symposium
The 2022 OHDSI U.S. Symposium will be held Oct. 14-16. The main symposium day is scheduled to be Friday, Oct. 14, while activities will be held the next two days.
2022 OHDSI U.S. Symposium

Do you want to join the scientific review committee?
Three Stages of The Journey

Where Have We Been?
Where Are We Now?
Where Are We Going?
Congratulations to co-authors Cynthia Yang, Jan Kors, Solomon Ioannou, Luis John, Aniek Markus, Alexandros Rekkas, Maria de Ridder, Tom Seinen, Ross Williams, and Peter Rijnbeek on the study “Trends in the conduct and reporting of clinical prediction model development and validation: a systematic review” which was recently published in JAMIA.
Phenotype Phebruary Daily Updates

“Phenotype Phebruary” is a community-wide initiative to both develop and evaluate phenotypes for health outcomes that could be investigated by the community. Patrick Ryan introduced this initiative in both a video presentation and a forum post, and each of the conversations around the “28 phenotypes for 28 days” are being held within the OHDSI forums.

This page will provide direct links to each forum post, which is where conversations around each specific phenotype should be held.

Please be active in these discussions. What ways can you contribute?

1. Join the conversation
   - Discussions will be here on forums.ohdsi.org
   - Each day will be a new thread
     - Ex: Look for: “Phenotype Phebruary Day 1 – Type 2 diabetes mellitus”
   - Explore the definitions and review the results provided
   - Reply with your thoughts, reflections, insights and question

2. Evaluate the cohort definitions in your data
   - Execute cohort definitions and CohortDiagnostics in your CDM
   - Share insights you learn from your data on the forums
   - Share results to compile across the network on data.ohdsi.org

3. Lead a discussion
   - Patrick will be leading the discussion for the first 7 days, but if others would like to similarly lead a phenotype development and evaluation activity, contact ryans@ohdsi.org or chat with him in OHDSI MS Teams, tell me your desired phenotype target and calendar date you want to commit to.

https://www.ohdsi.org/phenotype-phebruary
OHDSI Shoutouts!

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

Have a study published? Please send to sachson@ohdsi.org so we can share 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?
## Upcoming Workgroup Calls

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<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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<tr>
<td>Tuesday</td>
<td>2 pm</td>
<td>Health Equity</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7 am</td>
<td>Medical Imaging</td>
</tr>
<tr>
<td>Wednesday</td>
<td>11:30 am</td>
<td>Latin America</td>
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<tr>
<td>Wednesday</td>
<td>12 pm</td>
<td>FHIR and OMOP Terminologies Subgroup (Zoom)</td>
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<tr>
<td>Thursday</td>
<td>10 am</td>
<td>Medical Devices</td>
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<tr>
<td>Thursday</td>
<td>11 am</td>
<td>Data Quality Dashboard Development</td>
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<tr>
<td>Friday</td>
<td>10 am</td>
<td>Phenotype Development and Evaluation</td>
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<td>Monday</td>
<td>10 am</td>
<td>Healthcare Systems Special Interest Group</td>
</tr>
<tr>
<td>Monday</td>
<td>10 am</td>
<td>GIS-Geographical Information System</td>
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[www.ohdsi.org/upcoming-working-group-calls](http://www.ohdsi.org/upcoming-working-group-calls)
Get Access To Different Teams/WGs/Chapters

Welcome to OHDSI!

The Observational Health Data Sciences and Informatics (OHDSI) program is a multi-stakeholder, interdisciplinary collaborative to bring out the value of health data through large-scale analytics. All our solutions are open-source.

OHDSI has established an international network of researchers and observational health databases with a central coordinating center located at Columbia University.

There were also a pair of full-day activities, including the 2021 OHDSI Symposium.

5. Select the workgroups you want to join (you can refer to the WIKI for work group objectives


- ATLAS
- Clinical Trials
- Common Data Model
- Data Quality Dashboard Development
- Early-stage Researchers
- Education Work Group
- FHIRE and OMOP
- Geographic Information System (GIS)
- HADES Health Analytics Data-to-Evidence Suite
- Healthcare Systems Interest Group (formerly EHR)
- Health Equity
- Latin America
- Medical Devices
- Medical Imaging
- Natural Language Processing
- OHDSI APAC
- OHDSI APAC Steering Committee
- OHDSI Steering Committee
- Oncology
- Open-source Community
- Phenotype Development and Evaluation
- Population-Level Effect Estimation / Patient-Level Prediction

6. Select the chapter(s) you want to join

- Africa
- Australia
- China
- Europe
- Japan
- Korea
- Singapore
- Taiwan

7. Select the studies you want to join

- HEM-A Health Equity Research Assessment
- PIONEER for Prostate Cancer (study-a-thon ended)
- SYCLIA (SARS-Cov-2 Large-scale Longitudinal Analysis)
Get Access To Different Teams/WGs/Chapters

5. Select the workgroups you want to join (you can refer to the WIKI for work group objectives

   - ATLAS
   - Clinical Trials
   - Common Data Model
   - Data Quality Dashboard Development
   - Early-stage Researchers
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   - Geographic Information System (GIS)
   - HADES Health Analytics Data-to-Evidence Suite
   - Healthcare Systems Interest Group (formerly EHR)
   - Health Equity
   - Latin America
   - Medical Devices
   - Medical Imaging
   - Natural Language Processing
   - OHDSI APAC
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6. Select the chapter(s) you want to join

   - Africa
   - Australia
   - China
   - Europe
   - Japan
   - Korea
   - Singapore
   - Taiwan

7. Select the studies you want to join

   - HERA (Health Equity Research Assessment)
   - PIONEER (Prostate Cancer: study-a-than-ended)
   - SCYLLA (SARS-CoV-2 Large-scale Longitudinal Analysis)
Learn More About Workgroup 2022 OKRs

OHDSI Workgroups

OHDSI's central mission is to improve health by empowering a community to collaboratively generate the evidence that promotes better health decisions and better care. We work towards that goal in the areas of data standards, methodological research, open-source analytics development, and clinical applications.

Our workgroups present opportunities for all community members to find a home for their talents and passions, and make meaningful contributions. We are always looking for new collaborators. Learn more about these workgroups by checking out this page. Any workgroup that provided a community call update is highlighted in the top section.

See an area where you want to contribute? Please Join The Journey!

Join Our Workgroup Efforts!
Form To Join Workgroups in MS Teams Weekly Workgroup Meeting Schedule

Get To Know The OHDSI Workgroups

Data Quality Dashboard Development
Current Participants: 174
Lead: Claire Shiue
2022 OKRs

Early-Stage Researchers
Current Participants: 113
Leads: Felicia Arndt, Rina Voorhies
2022 OKRs

Education
Current Participants: 73
Lead: Sigal Hugos
2022 OKRs

FHIR and OMOP
Current Participants: 112
Lead: Denis Stephanidis
2022 OKRs

No Workgroup Update Yet

Geographic Information System (GIS)
Leads: Helen Espeseth, Wiserva
2022 OKRs

HADES (Health Analytics Data-to-Evidence Suite)
Leads: Julie Slaymaker, Wiserva
2022 OKRs

Healthcare Systems (formerly EHR)
Leads: Sandeep Bedja, Wiserva
2022 OKRs

Health Equity
Leads: Peter Saunder,
2022 OKRs

Latin America
Leads: Jose Pena
2022 OKRs

Medical Devices
Leads: Putong Huang, Angpas Le
2022 OKRs

Medical Imaging
Leads: Paul Magi, Song Chan You
2022 OKRs

Natural Language Processing
Leads: Bob H. Teo
2022 OKRs

Oncology
Leads: Srinivas Srinivas, 390
Lead: Alex Tan
2022 OKRs

Open-Source Community
Leads: Lauren Yago, 193
2022 OKRs

Patient-Level Prediction
Leads: David Gruebele, Workgroup Group
2022 OKRs

Phenotype Development & Evaluation
Leads: Carolyn Porzak
2022 OKRs

Population-Level Estimation
Leads: Marylynn Anderson, Wiserva
2022 OKRs

Psychiatry
Leads: Kyle Strom, Anne Miller
2022 OKRs

Registry (formerly UK Biobank)
Leads: John McSharry, Le
2022 OKRs

Surgery and Perioperative Medicine
Current Participants: 28
Lead: Eva Isay
2022 OKRs

Vaccine Vocabulary
Current Participants: 79
Lead: Adam Stasa
2022 OKRs

No Workgroup Update Yet

ohdsi.org/ohdsi-workgroups

@OHDSI
www.ohdsi.org
#JoinTheJourney
Learn More About Workgroup 2022 OKRs

Workgroup name: HADES
Workgroup lead: Martijn Schuemie

1. Objective 1: Enable the OHDSI community to perform observational research following OHDSI best practices for characterization, population-level estimation, and patient-level prediction by providing a cohesive set of open-source analytic software.

2022 Key Results:
1. Quarterly releases of Hydra
2. Develop R packages for characterization, incidence rates, treatment pathways & drug utilization (KR not finalized, subject to change)
3. Make all skeletons modular: ability to combine different study types into a single package (with single Shiny app) (KR not finalized, subject to change)

WG Name: OHDSI Steering Workgroup
WG Lead: Patrick Ryan

1. Objective 1: enable the community to collaboratively generate evidence and the scientific work products necessary to generate evidence

1Q2022 Key results:
1. 100% of active workgroups have defined OKRs to transparently communicate activities and encourage contributions
2. Convene one OHDSI Workgroup Leader Summit to ensure appropriate communicate across collaborative activities
3. Release a OHDSI community dashboard to allow for regular monitoring the health and progress of our community
4. Produce a document to communicate connections between OHDSI workgroups and partnerships with other organizations and initiatives

ohdsi.org/ohdsi-workgroups
Next CBER Best Seminar

Speaker: Dr. Nicole Pratt
Professor, University of South Australia

Description: As recently approved COVID-19 vaccines are rolled out globally, safety signals will be identified from spontaneous reports and other data sources. Although some work has been done to assess the validity of methods for vaccine safety surveillance, discussion remains on the best way to perform analyses in real-world data to ensure rigorous and rapid identification of safety signals. In this talk, we will discuss the “Evaluating Use of Methods for Adverse Event Under Surveillance (for vaccines) (EUMEAUS)” task force and its findings on the comparative performance of different analytical methods for the assessment of comparative vaccine safety. We will discuss our findings to-date describing our evaluation of different surveillance methods (historic rate, cohort, self-controlled, etc).

Feb 23, 2022 11:00 AM in Eastern Time (US and Canada)

Speakers

Dr. Nicole Pratt

Deputy Director of the Quality Use of Medicines and Pharmacy Research Centre @University of South Australia

Dr. Nicole Pratt is the Deputy Director of the Quality Use of Medicines and Pharmacy Research Centre, University of South Australia. She is a member of the Drug Utilisation Subcommittee (DUSC) of the Australian Department of Health Pharmaceutical Benefits Advisory Committee (PBAC). She has a particular interest in new statistical methodologies to study the effectiveness and safety of medicine use and in the development of tools for post-marketing surveillance of medicines. Nicole leads the evaluation of the Department of Veterans Affairs, Veterans’ Medicines Advice and Therapeutics Education Service (Veterans’ MATES) program which uses administrative claims data to develop and evaluate interventions to improve use of medicines in the veteran population in Australia. She was a chief investigator of an NHMRC Centre of Research Excellence in post-market surveillance of medicines and medical devices.
Next APAC Community Call

Next community call on Feb 24
- CDM workshop Part II by Clair Blacketer

Clair Blacketer is an Associate Director in the Observation Health Data Analytics group at Janssen Research & Development, a Johnson & Johnson company. She received her Bachelor of Science in Biology from James Madison University and her Master in Public Health from Eastern Virginia Medical School.

Clair Blacketer is a subject matter expert on licensed observational databases and leads for managing the overall process used to update all CDM databases across J&J. And she has been a leader in the OHDSI CDM and Vocabularies Working Group from 2017. She redesigned the organizational structure and issue tracking of the CDM to allow for better communication between the community and working group around needs the OMOP Common Data Model was not addressing.

ohdsi.org/apac/
Job Opening

Manager, Observational Health Data Analytics

Location: Titusville, New Jersey; Horsham, Pennsylvania; Raritan, New Jersey
Category: R&D
Req ID: 2206005052W

Job Description

Janssen Research & Development, L.L.C., a division of Johnson & Johnson's Family of Companies is recruiting for a Manager, Observational Health Data Analytics. The preferred position location includes Horsham, PA; Titusville, NJ; or Raritan, NJ. Remote work options in the United States may be considered on a case-by-case basis and if approved by the Company.

At the Janssen Pharmaceutical Companies of Johnson & Johnson, we are working to create a world without disease. Transforming lives by finding new and better ways to prevent, intercept, treat and cure disease inspires us. We bring together the best minds and pursue the most promising science. We are Janssen. We collaborate with the world for the health of everyone in it. Learn more at www.janssen.com and follow us @JanssenGlobal. Janssen Research & Development, LLC is part of the Janssen Pharmaceutical Companies.
#OHDSISocialShowcase This Week

**Title:** Attention based deep neural networks in patient level prediction

**Presenter:** Egill Fridgeirsson

**Methods:**
- Recently there have been rapid advances using attention-based models in deep learning.
- We hypothesized that the model would improve when attention mechanisms are added to current baseline models.

**RESULTS:**
- Overall the performance is similar (< 1%) with regards to the AUC
  - Except LASSO is worse in mortality prediction
- The deep learning models are competitive to the baselines and SARD is either equal or slightly better than the baselines in terms of AUC.
- Reverse distillation improves the model over training from scratch.
- With regards to the AUPRC which better reflects performance for the outcome (minority) class SARD is better than others in mortality prediction.
- Overall the baselines are competitive but they seems to be slight improvements in precision recall with SARD

**Data Information**
- **Target:** 100,000 adult 18-64 years old
- **Outcome:** 100,000 adult 18-64 years old
- **Index event:** 100,000 adult 18-64 years old
- **Follow-up:** 30 days
- **Year:** 2015

**Authors:**
- Egill Fridgeirsson
- David Sontag
- Peter Rijnbeek

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**MONDAY**

Attention based deep neural networks in patient level prediction

Authors: Egill Fridgeirsson, David Sontag, Peter Rijnbeek
REDCap2OMOP: A platform for ETLing REDCap projects into the OMOP CDM

**Authors:** Michael J. Gurley, Jeremy Warner, Yulia Bushmanova, Firas Wehbe

**TUESDAY**

**REDCap2OMOP**

A platform for ETLing REDCap projects into the OMOP CDM

**PRESENTER:** Michael Gurley

**ABSTRACT**

- REPOP aims to extend data from REDCap projects into the OMOP CDM while maintaining the quality and integrity of the data.

**METHODS**

- The REDCap2OMOP platform consists of two primary components:
  1. A RESTful API (Redcap2OMOP server) that receives REDCap (data model) and maps it to the OMOP CDM.
  2. A user interface (Redcap2OMOP tool) that allows users to define and manage mappings.

**RESULTS**

- The REDCap2OMOP platform provides a robust solution for ETLing REDCap projects into the OMOP CDM, ensuring data accuracy and consistency.

**FOOTNOTES**

1. Redcap2OMOP: https://github.com/Redcap2OMOP/redcap2omop
2. OMOP CDM: https://www.pharmgkb.org
3. REDCap: https://www.redcap.org

**ETL Logic**

- People, Providers, and Services are handled separately.
- Clinical Domain entities built from REDCap Variable or REDCap variable choices mapped to standard concepts.
- Some columns handled by child maps.
- ETL2OMOP project does not support dates. Derived date logic was added.
- REDCapVariableMap types:
  - OMOP concept
  - OMOP concept choice
  - REDCap Variable Choice map types:
    - OMOP concept

**Take away**

- The REDCap2OMOP platform provides a robust solution for ETLing REDCap projects into the OMOP CDM.
Trends in the development and validation of patient-level prediction models using electronic health record data: a systematic review

Authors: Cynthia Yang, Jan A. Kors, Solomon Ioannou, Luis H. John, Aniek Markus, Alexandros Rekkas, Maria de Ridder, Tom Seinen, Ross Williams, Peter Rijnbeek

We found limited improvement in the methodological conduct and reporting of prognostic model development and validation using EHR data in the period 2009-2019.

Main Findings:
1. The percentage of models for which code was provided to define the target population, the outcome, and the predictors varied and was lower than 25% in both periods. The proportion of models for which the time since first AIS was recorded was reported in 42% of models in the period 2009-2011 and 48% in the period 2015-2019.

2. External validation increased from 9% in 2009, to 15% in 2015, to 20% in 2019. Internal validation decreased from 70% in 2009, to 65% in 2015, to 58% in 2019.

3. The percentage of external validation models that were validated using data from a different source increased from 7% in 2009, to 12% in 2015, to 18% in 2019.
Short-term mortality in patients undergoing colorectal cancer surgery: A prediction study

Authors: Karoline Bendix Bräuner, Mikail Gögenur, Viviane Annabelle Lin, Andreas Weinberger Rosen, Johan Clausen, Eldar Allakhverdiiev, Rasmus Peuliche Vogelsang, Ismail Gögenur
Proof-of-concept model targeting patient-level prediction of 90-day mortality after colorectal cancer surgery kickstarts OHDSI journey.

Authors: Rasmus Peuliche Vogelsang, Andreas Weinberger Rosen, Eldar Allakhverdiiev, Ismail Gögenur
Where Are We Going?

Any other announcements of upcoming work, events, deadlines, etc?
Welcome To OHDSI Newcomers

Are there any new people to the OHDSI community call who would like to introduce themselves?

Please raise your hand and share why you are interested in joining the OHDSI community.
Three Stages of The Journey

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February 22 OHDSI Community Call

ATLAS/Web API Workgroup Update
Anthony Sena

Medical Imaging Workgroup Update
Paul Nagy

Phenotype Phebruary Update #3
Patrick Ryan