Update on OHDSI Standardized Vocabularies

OHDSI Community Call
Aug. 29, 2023 • 11 am ET
## Upcoming Community Calls

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Sept. 5</td>
<td>DARWIN EU® Progress and Roadmap</td>
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<tr>
<td>Sept. 12</td>
<td>OHDSI 2023 Global Symposium Conference &amp; Activities Preview</td>
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<tr>
<td>Sept. 19</td>
<td>Journal Club: 11th Revision of the ENCePP Guide on Methodological Standards in Pharmacoepidemiology</td>
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<tr>
<td>Sept. 26</td>
<td>Publications Presentation</td>
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<tr>
<td>Oct. 3</td>
<td>Workgroup Reports, pt 1</td>
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<tr>
<td>Oct. 10</td>
<td>Workgroup Reports, pt 2</td>
</tr>
<tr>
<td>Oct. 17</td>
<td>Symposium Week! Final Logistics</td>
</tr>
<tr>
<td>Oct. 24</td>
<td>Welcome to OHDSI</td>
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</tbody>
</table>
Three Stages of The Journey

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

Congratulations to the team of Qiong Wu, Martijn J. Schuemie, Marc A. Suchard, Patrick Ryan, George M. Hripcsak, Charles A. Rohde, and Yong Chen on the publication of Padé approximant meets federated learning: A nearly lossless, one-shot algorithm for evidence synthesis in distributed research networks with rare outcomes in the Journal of Biomedical Informatics.
OHDSI Shoutouts!

Congratulations to the team of Elisa Henke, Yuan Peng, Ines Reinecke, Michéle Zoch, Martin Sedlmayr, and Franziska Bathelt on the publication of An Extract-Transform-Load Process Design for the Incremental Loading of German Real-World Data Based on FHIR and OMOP CDM: Algorithm Development and Validation in *JMIR Dermatology*.
Congratulations to the team of Jasmin Carus, Leona Trübe, Philip Szczepanski, Sylvia Nürnberg, Hanna Hees, Stefan Bartels, Alice Nennecke, Frank Ückert, and Christopher Gundler on the publication of Mapping the Oncological Basis Dataset to the Standardized Vocabularies of a Common Data Model: A Feasibility Study in Cancers.
MONDAY

Automatic Data Import from OMOP to REDCap

(Matteo Gabetta, Francesco Pozzoni, Mauro Bucalo, Cristiana Larizza, Nicola Barbarini)
European Health Data & Evidence Network – Learnings from Building out a Standardized International Health Data Network

(ERIC A. VOSS, CLAIR BLACKETER, SEBASTIAAN VAN SANDIJK, MAXIM MOINAT, MICHAEL KALLFELZ, MICHEL VAN SPEYBROECK, DANI PRIETO-ALHAMBRA, MARTIJN J. SCHUEMIE, PETER R RIJNBEEK)

Success factors to an OMOP CDM ETL: having the right people, planning that vocabulary mapping can have complexity, and proactively preparing to deal with data governance issues.

Background: An ETL converts health data to the OMOP CDM. During EHREN COVID-19 data call, 25 data partners (DPs) transformed health data to the OMOP CDM. This data call provided an opportunity to evaluate ETL development success factors based on timely development and network research involvement. This study investigates OMOP CDM conversion success.

Results

- 25 DPs participated in this EHREN data call, representing 11 different countries, collectively covering more than 67 million patient records.
- 21 of these DPs: the median time it took to complete the ETL process was 356 days, with the shortest time being 172 days and the longest being 662 days.
- Of the 21 DPs, 52% had built their CDM in under 365 days, 43% participated in the COVID-19 AESI study [1], and 33% had both a timely study and participated in the COVID AESI study.

Methods

- Each DP was expected to follow the current OMOP CDM ETL development process (Figure 1A).
- The process was tracked in 3 ways: (1) through surveys of DP, (2) tracking data associated to ETL process, and (3) DataQualityDashboard results.
- Success was measured as total days to transform source data into the OMOP CDM (success = 365 days) and if a DP participated successfully in network research (COVID-19 AESI study [1]).

Figure 1 – OHDSI Extract, Transform, & Load (ETL) Development Process with IA ETL process map. 18 box plots showing the length in days for each step.
Extending OMOP-CDM for registering tomography imaging metadata and subsequent annotation and curation processes

(Varvara Kalokyri, Haridimos Kondylakis, Stelios Sfakianakis, Katerina Nikiforaki, Simone Mazzetti, Nikolaos Tachos, Konstantinos Marias, Manolis Tsiknakis)
THURSDAY

Short-, medium-, and long-term psychiatric and neuropsychiatric consequences of COVID-19: A multinational pilot study

(Yi Chai, Ivan C. H. Lam, Eric Y. F. Wan, Celine S. L. Chui, Xue Li, Kenneth K. C. Man, Wallis C. Y. Lau, Xiaoyu Lin, Can Yin, Fan Min, Jing Li, Sarah Seager, Mui Van Zandt, Hao Luo, Ian C. K. Wong)
PlasmodeSim: A package to simulate data with a known outcome generating process

**Background:** In order to compare new or existing methods we aimed at developing a package that simulates data with a known outcome generating process while staying close to the real life data. To this extent, we develop the R package PlasmodeSim.

**Result 1:** Code for simulating new outcomes from an existing and a modified prediction model.

```r
# Predict rates
yPrediction <- predict(newModel, newdata)
ppNew <- predict(newModel, newdata)\n
# Predict baseline
yBaseline <- predict(baseModel, newdata)
ppBaseline <- predict(baseModel, newdata)

# Predict rates
yPrediction <- predict(newModel, newdata)
ppNew <- predict(newModel, newdata)
```

**Result 2:** Distribution of baseline risk for a binary outcome in the original (binomial and simulated datasets.

**Methods**

- The most important features implemented are:
  - Functions to simulate datasets by sampling the original data with replacement.
  - Functions that simulate binary or survival outcomes.
  - Functions for visual diagnostics.

**(Gidius van de Kamp, Alexandros Rekkas)**
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?
# Upcoming Workgroup Calls

<table>
<thead>
<tr>
<th>Date</th>
<th>Time (ET)</th>
<th>Meeting</th>
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<tbody>
<tr>
<td>Wednesday</td>
<td>10 am</td>
<td>Surgery &amp; Perioperative Medicine</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>GIS – Geographic Information Systems Development</td>
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<td>Friday</td>
<td>1 pm</td>
<td>Clinical Trials</td>
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<tr>
<td>Monday</td>
<td>9 am</td>
<td>Vaccine Vocabulary</td>
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<td>Monday</td>
<td>10 am</td>
<td>Africa Chapter</td>
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<tr>
<td>Monday</td>
<td>6 pm</td>
<td>OMOP &amp; FHIR</td>
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<tr>
<td>Tuesday</td>
<td>9 am</td>
<td>ATLAS</td>
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<tr>
<td>Tuesday</td>
<td>10 am</td>
<td>Common Data Model</td>
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OMOP CDM Survey 2023

Please fill in the responses below for each database at your institution that has been converted to the OMOP Common Data Model. This information will be used to build our list of databases currently using the OMOP CDM and Standard Vocabularies. Our most recent list can be found on pages 46-47 of the 2022 Our Journey publication. If you would like to be included in the 2023 edition of Our Journey be sure to fill out the survey by September 8th!

OHDSI will not use your contact information for any purpose other than to inquire about your responses or if you select “yes” as the answer to the final question about your interest in your database becoming a network study candidate. To be compliant with GDPR, your name and email will not be shared.
Sept. 8: OMOP CDM Survey

OHDSI Data Partners

What does it take to be an OHDSI data partner? Anyone with access to observational data can standardize their database in the OMOP Common Data Model, apply OHDSI’s open-source tools, and participate in collaborative research.

Who has already joined the journey and adopted the OMOP CDM? There are currently 450 databases, including 274 electronic health records, 34 registries and 96 administrative claims sources, that come from 41 different countries. Together, these databases represent more than 296 million unique patient records, approximately 12% of the world’s population.
OMOP CDM Survey 2023

Please fill in the responses below for each database at your institution that has been converted to the OMOP Common Data Model. This information will be used to build our list of databases currently using the OMOP CDM and Standard Vocabularies. Our most recent list can be found on pages 46-47 of the 2022 Our Journey publication. If you would like to be included in the 2023 edition of Our Journey be sure to fill out the survey by September 8th!

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Sept. 15: HowOften Phenotype Library Contribution Deadline

HowOften: Community contributions wanted

Patrick Ryan

Friends:

As we discussed on the 20June2023 and 15August2023 community calls, @hrpcs and I would like to encourage our community to think big and collaborate together in an effort toward large-scale incidence characterization. HowOften is be a community-wide study to define a broad set of target cohorts T that'll serve as denominators, and another broad set of outcome cohorts O that'll serve as numerators. And for a defined list of time-at-risk windows (e.g. 30d, 1yr, all-time), stratified by age/sex/index year, we will compute the incidence of O in T for all T-O combinations within each database in our participating network, and then meta-analyze the results to produce composite summaries.

As with all OHDSI network studies, we will use GitHub to share study materials, including protocol and source code, which should be based where possible off of existing HADES packages. And we intend to make the full resultset publicly available through an interactive website, likely initially taking advantage of the RShiny modules built by the HADES team as part of the Strategus workflow. As we've seen with prior OHDSI work, background incidence rates can be used for a wide range of clinical applications, including providing disease natural history, providing context for pharmacovigilance by quantifying the magnitude of risk for known effects, and reporting digital quality measures (see @bnhamlin’s talk here).
Europe Symposium Presentations Are Posted!

Presentations

**Journey of OHDSI: Where have we been and where we can go together?**

**European Initiatives Using the OMOP CDM**

- **Speaker:** Patrick Ryan, PhD, Janssen Research and Development, Department of Biomedical Informatics, Columbia University Medical Center

**Collaborator Showcase: Rapid-Fire Presentations**

- **Moderator:** Katja Verhamme, MD, Associate Professor of Use and Analysis of Observational Data, Department of Medical Informatics, Erasmus MC, Rotterdam
  - 6:44 – Tools for the collaborative maintenance of national vocabularies and mappings (Speaker: Javier Gracia-Tabancan)
  - 6:50 – Implementation of the ARES application to monitor network-wide data quality and mapping coverage for 16 unique OMOP sources across Friesland (Speaker: Jared Houghtaling)
  - 12:11 – Multi-site Cost-effectiveness and Markov Chain analysis of heart failure (Speaker: Markus Haug)

- **Real-World Evidence use in Medicines Regulation**
  - 1:20 – Development (Speaker: Ed Burn)
  - 12:03 – Study Operations (Speaker: Katja Verhamme)
  - 20:17 – The SIDAP experience as Data Partner in DARWIN EUfL (Speaker: Tatiana Duarte-Salles)
  - 30:34 – Drug utilisation of drug-restrictive-containing medicinal products in women of childbearing age: a network study part of DARWIN EUfL (Speaker: Albert Puts-Urbin)

- **Closing Remarks (Peter Rijnbeek, OHDSI)**

Peter Rijnbeek — with a little bit of help — provides the closing remarks for the 2023 OHDSI Europe Symposium.
APAC Symposium Presentations Are Posted!

Symposium Presentations

Welcome, Keynote

Speakers: Nicole Pratt (President, OHDSI Australia Chapter, University of South Australia) and Patrick Ryan (Vice President, Observational Health Data Analytics, Janssen Research and Development)

Transforming health: What do regulators, clinicians, and consumers really want to know about healthcare and how can OHDSI help?

Speaker: Asieh Golozar (Vice President, Global Head of Data Science at Odyssey Data Services Inc, Professor of the Practice & Director of Clinical Research at the OHDSI Center, Northeastern University)

Research Study presentation: Fluoroquinolones antibiotics and the risk of aortic aneurysm and dissection – A study of 12 million patients

Speaker: Jack Janetzki (University of South Australia)

Panel discussion: Regulators, Clinicians and Consumers

Panelists: Grant Pegg (Regulator), Seng Chan You (Policymaker/Clinician), Anne McKenzie (Consumer), Yong Chen (Researcher)

OMOP/FHIR: challenges of each model and how the collaboration can resolve those challenges

Speaker: Graham Graves (Principal at Health Intersections Pty Ltd)

OMOP Oncology: Paving the Way for Patient-Centric Cancer Care

Speakers: Kim Curran (Data Science Manager, Medisensa Foundation) & Georgina Kennedy (Ingham Institute for Applied Medical Research)

Lightning Talks

Panel: We have the ingredients, now let’s generate evidence!

Panelists: APAC Regional Chapter leads (seated left to right): Nicole Pratt (Australia), Jason Hsu (Taiwan), Tatsuo Hiramata (Japan), Seng Chan You (Korea), Lei Liu, China, Menglin ‘Momin’ Peng, Singapore

Regional Chapter Panel + Closing Talk

0:10 – Quest Data Vault: Laying the foundations for an Open Science System with OMOP Data Catalogue. Speaker: Cindy Hs (Singapore)


11:08 – Internationalization Efforts for Real-World Evidence Creation at Core Hospitals for Clinical Research in Japan. Speaker: Yoshito Ayogyo (Japan)

17:21 – Successes and Challenges of a Multi-State Electronic Medical Record (EMR) to OMOP Conversion Project. Speaker: Roger Ward (Australia)

20:54 – The association of short-, medium- and long-term cardiovascular sequelae with COVID-19 infection: a multinational pilot study. Speaker: Ivan Lam (Hong Kong)

28:56 – Comparative Risk for Neurocognitive Events in Leukotriene Receptor antagonists versus Inhaled Corticosteroids in Children with Asthma. Speaker: Subin Kim (Korea)

34:20 – Prediction of Dementia Incidence among patients with Type 2 Diabetes. Speaker: Thanh-Phu Tran (Taiwan)
Titan Award Nominations Are Open!

To recognize OHDSI collaborators (or collaborating institutions) for their contributions towards OHDSI’s mission, the OHDSI Titan Awards were introduced at the 2018 Symposium and have been handed out at the Global Symposium each year since.

bit.ly/2023TitanNominations
OHDSI Got Talent!

Please join us for the first OHDSI Got Talent! competition at our 2023 Global Symposium.

We are looking for anybody with a special talent – singing, dancing, playing an instrument, comedy, magic, etc. – to join us for this fun event in October. Please use the link below to share your interest in participation!

Global Symposium

Oct. 20-22 • East Brunswick, NJ, USA
Hilton East Brunswick Hotel & Executive Meeting Center

ohdsi.org/OHDSI2023
# Global Symposium Weekend Agenda

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<tr>
<th>Time</th>
<th>Friday, Oct. 20</th>
<th>Saturday, Oct. 21</th>
<th>Sunday, Oct. 22</th>
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<tbody>
<tr>
<td>7:00 am</td>
<td>Registration/Lite Breakfast</td>
<td>Lite Breakfast</td>
<td>Lite Breakfast</td>
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<tr>
<td>8:00 am</td>
<td>Welcome to OHDSI2023!</td>
<td>Intro to OHDSI Tutorial &amp;</td>
<td>OHDSI collaborative workshop: HowOften (part 2)</td>
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<tr>
<td>9:00 am</td>
<td>State of the Community</td>
<td>OHDSI Workgroup Activities</td>
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<tr>
<td>10:00 am</td>
<td>Community Networking</td>
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<td>11:00 am</td>
<td>Plenary Session</td>
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<td>12:00 pm</td>
<td>Buffet Lunch</td>
<td>Buffet Lunch + Collaborator</td>
<td>Buffet Lunch +</td>
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<td>Showcase: Posters &amp; Demos</td>
<td>Collaborator</td>
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<tr>
<td>1:00 pm</td>
<td>Panel: Network Studies</td>
<td>OHDSI collaborative workshop:</td>
<td>OHDSI workgroup</td>
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<td>HowOften (part 1)</td>
<td>activities</td>
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<td>2:00 pm</td>
<td>Collaborator Showcase: Lightning</td>
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<td>Talks</td>
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<tr>
<td>2:45 pm</td>
<td>Collaborator Showcase: Posters &amp;</td>
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<td>Demos</td>
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<tr>
<td>3:30 pm</td>
<td>Collaborator Showcase: Lightning</td>
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<td>Talks</td>
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<tr>
<td>4:15 pm</td>
<td>Collaborator Showcase: Posters &amp;</td>
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<td>Demos</td>
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<tr>
<td>5:00 pm</td>
<td>Closing Talk &amp; Titan Awards</td>
<td>Free time</td>
<td>We’ll see you</td>
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<td>again in 2024!</td>
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<tr>
<td>6:00 pm</td>
<td>Networking Reception</td>
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<tr>
<td>7:00 pm</td>
<td>OHDSI Got Talent!</td>
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*This agenda is tentative and subject to change.*
Where Are We Going?

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

Where Have We Been?

Where Are We Now?

Where Are We Going?
Aug. 29: Update on OHDSI Standardized Vocabularies

Alexander Davydov
Lead of the Vocabulary Team, Odysseus Data Services, Inc.

Anna Ostropolets
Director, Head of the Innovation Lab, Odysseus Data Services, Inc.

Oleg Zhuk
Vocabulary Tech Lead, Odysseus Data Services, Inc.

Christian Reich
Professor of Practice, Northeastern University