April Olympians #1 / Perseus ETL Tool

OHDSI Community Call
April 2, 2024 • 11 am ET
## Upcoming Community Calls

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2</td>
<td>April Olympians Preview</td>
</tr>
<tr>
<td>April 9</td>
<td>April Olympians Update</td>
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<tr>
<td>April 16</td>
<td>April Olympians Update</td>
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<tr>
<td>April 23</td>
<td>April Olympians Update</td>
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<tr>
<td>April 30</td>
<td>April Olympians Update</td>
</tr>
</tbody>
</table>
Three Stages of The Journey

Where Have We Been?

Where Are We Now?

Where Are We Going?
Congratulations to the team of Kipyo Kim, Ji-Eun Kim, Jae Ho Kim, Seong Hee Ahn, Chai Young Jung, Seun Deuk Hwang, Seoung Woo Lee and Joon Ho Song on the publication of Real-world evidence of constipation and laxative use in the Korean population with chronic kidney disease from a common data model in Scientific Reports.
OHDSI Shoutouts!

Congratulations to the team of Cindy Cai, Akihiko Nishimura, Mary Bowring, Erik Westlund, Diep Tran, Jia Ng, Paul Nagy, Michael Cook, Jody-Ann McLeggon, Scott DuVall, Michael Matheny, Asieh Golozar, Anna Ostropolets, Evan Minty, Priya Desai, Fan Bu, Brian Toy, Michelle Hribar, Thomas Falconer, Lining Zhang, Laurence Lawrence-Archer, Michael Boland, Kerry Goetz, Nathan Hall, Azza Shoaibi, Jenna Reps, Anthony Sena, Clair Blacketer, Joel Swerdel, Kenar Jhaveri, Edward Lee, Zachary Gilbert, Scott Zeger, Deidra Crews, Marc Suchard, George Hripcsak, and Patrick Ryan on the publication of Similar risk of kidney failure among patients with blinding diseases who receive ranibizumab, aflibercept, and bevacizumab: an OHDSI Network Study in *Ophthalmology Retina*.

**Objective or Purpose**

A) To characterize the incidence of kidney failure associated with intravitreal anti-vascular endothelial growth factor (VEGF) exposure, and B) compare the risk of kidney failure in patients treated with ranibizumab, aflibercept, or bevacizumab.
Congratulations to the team of Joshua Ide, Azza Shoaibi, Kerstin Wagner, Rachel Weinstein, Kathleen E. Boyle and Andrew Myers on the publication of Patterns of Comorbidities and Prescribing and Dispensing of Non-steroidal Anti-inflammatory Drugs (NSAIDs) Among Patients with Osteoarthritis in the USA: Real-World Study in Drugs & Aging.

Patterns of Comorbidities and Prescribing and Dispensing of Non-steroidal Anti-inflammatory Drugs (NSAIDs) Among Patients with Osteoarthritis in the USA: Real-World Study

Joshua Ide1, Azza Shoaibi2, Kerstin Wagner3, Rachel Weinstein3, Kathleen E. Boyle3, Andrew Myers3

Accepted: 7 February 2024
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Abstract
Background Osteoarthritis (OA) is a major cause of chronic pain. Non-steroidal anti-inflammatory drugs (NSAIDs) are analgesics commonly used for musculoskeletal pain; however, NSAIDs can increase the risk of certain adverse events, such as gastrointestinal bleeding, edema, heart failure, and hypertension.

Objective The objective of this study was to characterize existing comorbidities among patients with OA. For patients with OA with and without a coexisting medical condition of interest (CMCOI), we estimated the prevalence of prescribing and dispensing NSAIDs pre-OA and post-OA diagnosis.

Methods Data from three large administrative claims databases were used to construct an OA retrospective cohort. Databases leveraged were IBM MarketScan Medicare Supplemental Database (MDCR), IBM MarketScan Commercial Database (CCAR), and Optum de-identified Clinicalmatics® Data Muni Database (Optum CDM). The OA study population was defined to be those patients who had an OA diagnosis from an inpatient or outpatient visit with at least 365 days of prior observation time in the database during January 2000 through May 2021. Asthma, cardiovascular disorders, renal impairment, and gastrointestinal bleeding risks were the CMCOI of interest. Patients with OA were then classified as having or not having evidence of a CMCOI. For both groups, NSAID dispensing patterns pre-OA and post-OA diagnosis were identified. Descriptive analysis was performed within the Observational Health Data Sciences and Informatics Framework.

Results In each database, the proportion of the OA population with at least one CMCOI was nearly 50% or more (44.0% CCAE, 74.4% MDCR, 64.6% Optum CDM). Cardiovascular disease was the most commonly observed CMCOI in each database, and in two databases, nearly one in four patients with OA had two or more CMCOI (23.2% MDCR, 22.6% Optum CDM). Among the OA population with CMCOI, NSAID utilization post-OA diagnosis ranged from 33.0% to 46.2%. Following diagnosis of OA, an increase in the prescribing and dispensing of NSAIDs was observed in all databases, regardless of patient CMCOI presence.

Conclusions This study provides real-world evidence of the pattern of prescribing and dispensing of NSAIDs among patients with OA, with and without CMCOI, which indicates that at least half of patients with OA in the USA have a coexisting condition. These conditions may increase the risk of side effects commonly associated with NSAIDs. Yet, at least 32% of these patients were prescribed and dispensed NSAIDs. These data support the importance of shared decision making between healthcare professionals and patients when considering NSAIDs for the treatment of OA in patients with NSAID-relevant coexisting medical conditions.
Congratulations to the team of Jens Weidner, Ingmar Glauche, Ulf Manuwald, Ivana Kern, Ines Reinecke, Franziska Bathelt, Makan Amin, Fan Dong, Ulrike Rothe, and Joachim Kugler on the publication of Correlation of Socioeconomic and Environmental Factors With Incidence of Crohn Disease in Children and Adolescents: Systematic Review and Meta-Regression in *JMR Public Health and Surveillance*. 

**JMR PUBLIC HEALTH AND SURVEILLANCE**

**Weidner et al**

**Correlation of Socioeconomic and Environmental Factors With Incidence of Crohn Disease in Children and Adolescents: Systematic Review and Meta-Regression**

Jens Weidner1, MPH; Ingmar Glauche2, PD, Dr rer med; Ulf Manuwald3, Prof Dr; Ivana Kern3, Dr rer medic; Ines Reinecke3, Dr rer medic; Franziska Bathelt3, Dr rer nat; Makan Amin3, Fan Dong2, MPH; Ulrike Rothe1,2, Prof Dr Med; Joachim Kugler1, Prof Dr Med

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2Faculty of Applied Social Sciences, University of Applied Sciences FH Hagen, Hagen, Germany
3Institute and Policlinic for Occupational and Social Medicine, Department of Health Sciences/Public Health, Medical Faculty Carl Gustav Carus, TU Dresden, Dresden, Germany
4Osram Research GmbH, Coburg, Germany
5Department for Trauma Surgery and Orthopaedics, Park-Klinik Weisensel, Berlin, Germany
6CWT of TUD, Dresden, Germany
7these authors contributed equally

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**Abstract**

**Background:** The worldwide incidence of Crohn disease (CD) in childhood and adolescence has an increasing trend, with significant differences between different geographic regions and individual countries. This includes an increase in the incidence of CD in countries and geographic regions where CD was not previously prevalent. In response to the increasing incidence, the pediatric care landscape is facing growing challenges.

**Objective:** This systematic review and meta-analysis were undertaken to comprehensively delineate the incidence rates of CD in pediatric populations across different countries and to explore potential influencing factors.
Congratulations to the team of Valerie van Baalen, Eva-Maria Didden, Daniel Rosenberg, Kristina Bardenheuer, Michel van Speybroeck, and Monika Brand on the publication of Increase transparency and reproducibility of real-world evidence in rare diseases through disease-specific Federated Data Networks in Pharmacoepidemiology & Drug Safety.
Congratulations to Dr. Cynthia Yang on successfully defended her PhD dissertation last week at Erasmus MC: **Best Practices for the Development of Clinical Prediction Models using Observational Health Data.**
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>Tuesday</td>
<td>12 pm</td>
<td>CDM Vocabulary Subgroup</td>
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<tr>
<td>Wednesday</td>
<td>8 am</td>
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<td>Thursday</td>
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<td>Thursday</td>
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<td>OMOP CDM Oncology WG- Vocabulary/Development Subgroup</td>
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<td>Monday</td>
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<td>Eyecare &amp; Vision Research</td>
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<tr>
<td>Tuesday</td>
<td>9 am</td>
<td>OMOP CDM Oncology WG- Genomic Subgroup</td>
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Next CBER BEST Seminar: Apr. 17

2021 Titan Award honoree Yong Chen will lead the next CBER BEST Seminar on Wednesday, April 17 (11 am-12 pm).

**Topic:** Real-World Effectiveness of BNT162b2 Against Infection and Severe Diseases in Children and Adolescents: causal inference under misclassification in treatment status.
April Newsletter is Available

On The Journey (April 2024)

The Winter 2024 Standardized Vocabularies release has several exciting new updates, which were detailed in a recent community call. The CDM and Thematic teams are leading an April collaborative event focused on CDM and THEMIS conventions and documentation. Registration for the 2024 Global Symposium is scheduled to open later this month. We review all of that and more in the latest OHDISI newsletter: AJoinTheJourney

Videocast: Vocabularies, CDM, April Olympians

ODES: a public, open-source, collaborative ecosystem for social science research.

Community Updates

Where Have We Been?

- OHDISI standardized vocabularies allow organization & standardization of medical terms to be used across various clinical domains of the OMOP CDM for observational research. Beginning in 2023, the OHDISI vocabulary team makes two major releases annually, including domain changes, newly added concepts, standard concept changes, changes of concept mapping, and more. The most recent release was shared in late February, and it included updates in 12 groupings, which you can read about here.

- OHDISI collaborators have published more than 600 studies related to the OMOP CDM and/or OHDISI tools or methods, including nine last month. During our March 28 community call, five lead authors presented their studies. You can find both the March publications and the five presentations later in this newsletter.

Where Are We Now?

- Claire Blacketer and Melanie Philpotky are leading a collabora-tion on this month called “April Olympians,” which will focus on CDM and THEMIS conventions and documentation. More details, including five specific goals, are included later in this newsletter. If you are interested, please join the CDM workshop or fill out this sign-up sheet.

- The OHDISI DevCon is scheduled for April 17 (11 am - 2 pm ET) as a virtual event. Some OHDISI members are presenting their work at the 2023 Annual Meeting of the American Public Health Association. You can find more information about the meeting here.

- OHDISI standardized vocabularies allow organization & standardization of medical terms to be used across various clinical domains of the OMOP CDM for observational research. Beginning in 2023, the OHDISI vocabulary team makes two major releases annually, including domain changes, newly added concepts, standard concept changes, changes of concept mapping, and more. The most recent release was shared in late February, and it included updates in 12 groupings, which you can read about here.

The team behind us

- Darren McFarlin, Maria Morelli, John Wilson, and Irina Kostov.

Winter 2024 OHDISI Standardized Vocabularies Release Announced

Why should you download this vocabulary release?

- More concepts:
  - Releases of SNOMED CT, MeDRA, ICD10PCS, ICD10CM, CVC, RxNorm and more.
- Better hierarchies:
  - Improved LOINC/NOEDD hierarchy,
  - disease-constructed MeDRA – SNOMED CT hierarchy.
- More good mappings:
  - JCD family enrichments,
  - community contributions
  - ogging.
- What you specifically asked for:
  - We closed 41 GitHub issues and addressed many forum posts.

March Publications


DevCon 2024: April 26, 9 am-3 pm ET

The third annual OHDSI DevCon will be held virtually on Friday, April 26, from 9 am-3 pm ET.

Join leaders from our Open-Source Community for a day to both welcome and inform both new and veteran developers within the OHDSI Community.
The 2024 OHDSI Global Symposium will be held Oct. 22-24 at the Hyatt Regency Hotel in New Brunswick, NJ.

Tentative symposium format:
- **Oct. 22** – tutorials
- **Oct. 23** – plenaries, collaborator showcase
- **Oct. 24** – workgroup activities
Registration is now OPEN for the **2024 OHDSI Europe Symposium**, which will be held June 1-3 in Rotterdam, Netherlands.

- **June 1** – tutorial/workshop
- **June 2** – tutorial/workshop
- **June 3** – main conference

[ohdsi-europe.org](http://ohdsi-europe.org)
# OHDSI Social Showcase This Week

**MONDAY**

Integrating clinical and laboratory research data using the OMOP CDM

(Edward A. Frankenberger, Chun Yang, Vamsidhar Reddy Meda Venkata, Alyssa Goodson)

Integrating clinical and laboratory research data using the OMOP CDM

**PRESENTER:** Edward Frankenberger

**INTRO**
- Biomedical researchers need information about samples, and the patients from whom their samples are sourced, to generate results
- Clinical data about patients, information about their samples, and research data are collected by different groups and reside in a variety of locations and formats
- The OMOP CDM can be used to integrate these disparate sources of data

**METHODS**
**INGESTION**
- Clinical data is separated from biospecimen data, imported into a database, and ETL’d to OMOP
- Specimen metadata (i.e., collection tube bar, etc.) research results are documented in lab information management software (LIMS)
- A subset of LIMS is copied to a consistent staging database, against which a secondary ETL is executed to add data to an existing OMOP instance

**DATA MODEL**
- Study data collection events modeled in visit, occurrence
- Biological samples modeled as specimen records
- Foreign key reference to visit, occurrence added to specimen
- Bi-directional hierarchical relationships between specimens modeled in fact, relationship
- Specimen metadata and results stored in measurement table and linked via measurement_event_id

**DATA CONTENT**
- Custom concepts required for study-specific clinical data, biospecimen metadata and relationships
- Patient-reported medical history not mapped to Observation domain
- key_concept_id used to preserve data provenance
- Single day observation periods required for some patients based on study design

**RESULTS**
- Established single repository of information with minimal data integration and transformation

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<th>Specimen entities</th>
<th>371,108</th>
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<td>Specimen relationships</td>
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<td>Specimen metadata</td>
<td>1,052,453</td>
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<tr>
<td>Clinical facts</td>
<td>86,531</td>
</tr>
</tbody>
</table>

- Edward Frankenberger, Chun Yang, Vamsidhar Reddy Meda Venkata, Alyssa Goodson

#JoinTheJourney
A new route of administration hierarchy derived from dose forms supporting standardised drug dose calculations

(Theresa Burkard, Artem Gorbachev, Kim Lopez-Güell, Daniel Prieto-Alhambra, Martí Català, Christian Reich)
Bayesian Evidence Synthesis with Bias Correction

**PRESENTER:** Louisa Smith

Are there more adverse events than we expect post-vaccination?

An example using the historical comparator design

Let's use data from a meta-analysis of historical data to compare the risk of adverse events

Let's say that we have observed a total of 36 adverse events. The historical data suggests that adverse events are rare, occurring once in 2000 events.

We can calculate the posterior probability of the adverse event rate using Bayes' theorem.

$$ P(A|E) = \frac{P(E|A)P(A)}{P(E)} $$

In this case, $P(A)$ is the prior probability of the adverse event rate, $P(E|A)$ is the likelihood of observing the event given the adverse event rate, and $P(E)$ is the marginal likelihood of the observed event.

Finally, we can use this posterior distribution to make predictions about the future risk of adverse events.

**A recipe for evidence:** Start with a Bayesian hierarchical model. Add data from a network study. Remove bias using negative control outcomes.

**(Louisa H. Smith, Fan Bu, Akihiko Nishimura, Kristin Kostka, Jody-Ann McLeggon, Patrick B. Ryan, George Hripcsak, David Madigan, Marc A. Suchard)**
**THURSDAY**

Save Our Sisyphus Challenge: Lessons learned from Strategus execution on the OHDSI Network

*(Anthony G. Sena, Jenna Reps, Chungsoo Kim, Jack Brewster, Adam Black, Linying Zhang, Michael Cook, Phan Thanh Phuc, Scott L. DuVall, Marc A. Suchard)*

**INTRODUCTION:**
- The OHDSI SOS challenge provided tutorials to the community on the process of leading or participating in an OHDSI network study.
- These tutorials used two network studies to illustrate the network study process: 1) Intracranial anti-VEGF and kidney failure risk (Anti-VEGF) and 2) fluorouracil and aortic aneurysm risk (FU).

**METHODS:**
- The SOS challenge made use of the Strategus R package which aims to provide the software infrastructure for running the OHDSI HADES analytical package.
- Two tutorials on network execution of the SOS studies were presented to the OHDSI Community on May 2nd, 2023. These tutorials guided OHDSI community members through the steps of locating the study analyst specification and how to run the code to execute the study, including the Strategus package.

**RESULTS:**
- Eleven (11) sites executed the two (2) studies across twenty-nine (29) databases.
- Each site had different technical challenges that were shared during "office hours" calls and provided many lessons learned for using Strategus for running network studies in the OHDSI network.

The **Strategus R package** was used to execute **2 SOS OHDSI Network Studies at 11 sites across 29 databases.**

**OHDSI Data Partner**

<table>
<thead>
<tr>
<th>OHDSI Data Partner</th>
<th>Study (Number of Databases)</th>
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<td>Anti-VEGF (12)</td>
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<tr>
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<td>Columbia University Medical Center</td>
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<td>IQVIA</td>
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<td>Department of Veterans Affairs</td>
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<tr>
<td>Yonsei University College of Medicine</td>
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</table>
Incorporating Real-World Data Research in Training First-Year Medical Students Using OHDSI OMOP and Atlas tools

(Pavel Goriacko, Parsa Mirhaji, Jimmy John, Pavan Parimi, Erin M. Henninger, Daniel Beiter, Rakin Islam, Daniel Chernovolenko, Selvin Soby)
Opening: Biomedical Informatics Data Scientist at Stanford

1.0 FTE Full time  Day - 08 Hour  R2335119  Hybrid  84866 IT RESEARCH  Technology & Digital Solutions  455 Broadway, REDWOOD CITY, California

If you’re ready to be part of our legacy of hope and innovation, we encourage you to take the first step and explore our current job openings. Your best is waiting to be discovered.

Day - 08 Hour (United States of America)

This is a Stanford Health Care job.

A Brief Overview

The Biomedical Informatics Data Scientist will partner with researchers and clinicians to enable effective and efficient use of data and resources available via Stanford’s research clinical data repository (STARR) including the Electronic Health Records in the OMOP Common Data Model, radiology and cardiology imaging data and associated metadata, and new data types as they get integrated along with their databases and respective cohort query tools and interfaces e.g., OHDSI ATLAS. This individual will enable researchers to maximize their understanding, interpretation and use of these clinical and research tools for more informed and productive research, clinical trials, patient care and quality outcome projects.

Clean, extract, transform and analyze various kinds of clinical data to create analysis-ready datasets that follow the FAIR (Findable, Accessible, Interoperable and Re-usable) principles. Partner with researchers and clinicians to enable effective and efficient use of Stanford Clinical data and resources for the advancement of research and the educational mission.
The Zhang Lab at Washington University School of Medicine in St. Louis has one postdoc/senior data analyst position to work on causal machine learning and responsible AI for reliable real-world evidence generation.

- More details at https://linyingzhang.com
  - Postdoc: https://linyingzhang.com/files/Postdoc.pdf
  - Data analyst: https://linyingzhang.com/files/Analyst.pdf
- If interested, please send CV and cover letter to linyingz@wustl.edu
Opening: Epidemiology UX/Web Design Intern at J&J

Epidemiology UX/Web Design Intern

**JOB TITLE**
Epidemiology UX/Web Design Intern

**FUNCTION**
Career Programs

**SUB FUNCTION**
Non-LDP Intern/Co-Op

**LOCATION**
Raritan, New Jersey, United States

**DATE POSTED**
Jan 19 2024

**REQUISITION NUMBER**
2406163977W

**DESCRIPTION**
Janssen Research & Development, LLC., a division of Johnson & Johnson's Family of Companies is recruiting for Epidemiology UX/Web Design Intern. This position is a member of the Observational Health Data Analytics (OHDA) team. OHDA's mission is to improve the lives of individuals and quality of healthcare by efficiently generating real-world evidence from the world's observational health data, transparently disseminating evidence-based insights to real-world decision-makers, and objectively advancing the science and technology behind reliable evidence generation.
Director, RWE at Gilead

Director, RWE - Data Science - OHDSI

Apply

Responsibilities:
Collaborate with researchers and data scientists to understand project requirements and translate them into OHDSI-compatible solutions. Work with databases, ensuring data integrity and optimization for OHDSI-related queries and analyses. Perform data analyses in OHDSI-related tools like ATLAS. Customize and extend OHDSI tools and applications to meet specific project needs. Collaborate with cross-functional teams to troubleshoot and resolve technical issues related to OHDSI implementations. Stay informed about OHDSI community updates, best practices, and emerging trends in observational health data research. Contribute to the development and documentation of data standards and conventions within the OHDSI community.
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?
The weekly OHDSI community call is held every Tuesday at 11 am ET.

Everybody is invited!

Links are sent out weekly and available at: ohdssi.org/community-calls