Workgroup Updates

OHDSI Community Call
July 19, 2022 • 11 am ET

Upcoming OHDSI Community Calls

Date	Topic
July 26	CDM Update Process
Aug. 2	Building A Community Within Your Organization
Aug. 9	Around The Asia-Pacific (APAC) Community
Aug. 16	OHDSI “Speed Dating”
Aug. 23	Workgroup Updates
Aug. 30	EHDEN Academy/EHDEN Portal

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Aug. 30	EHDEN Academy/EHDEN Portal

Three Stages of The Journey

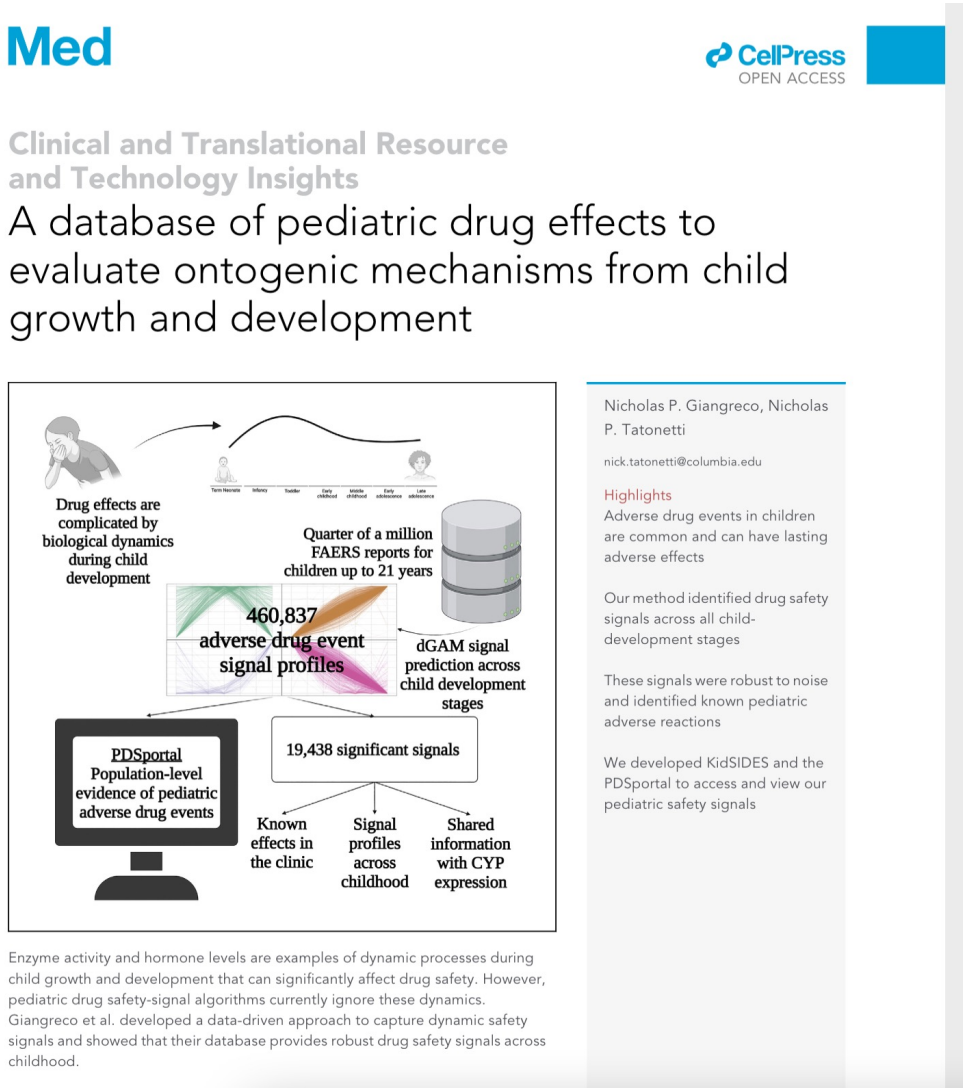
Where Have We Been?

Where Are We Now?

Where Are We Going?

OHDSI Shoutouts!

Congratulations to the team of **Nicholas Tatonetti and Nick Giangreco** on the publication of **A database of pediatric drug effects to evaluate ontogenic mechanisms from child growth and development** in Med.



Med

CellPress
OPEN ACCESS

Clinical and Translational Resource and Technology Insights

A database of pediatric drug effects to evaluate ontogenic mechanisms from child growth and development

Enzyme activity and hormone levels are examples of dynamic processes during child growth and development that can significantly affect drug safety. However, pediatric drug safety-signal algorithms currently ignore these dynamics. Giangreco et al. developed a data-driven approach to capture dynamic safety signals and showed that their database provides robust drug safety signals across childhood.

Nicholas P. Giangreco, Nicholas P. Tatonetti

nick.tatonetti@columbia.edu

Highlights

Adverse drug events in children are common and can have lasting adverse effects

Our method identified drug safety signals across all child-development stages

These signals were robust to noise and identified known pediatric adverse reactions

We developed KidSIDES and the PDSportal to access and view our pediatric safety signals

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?

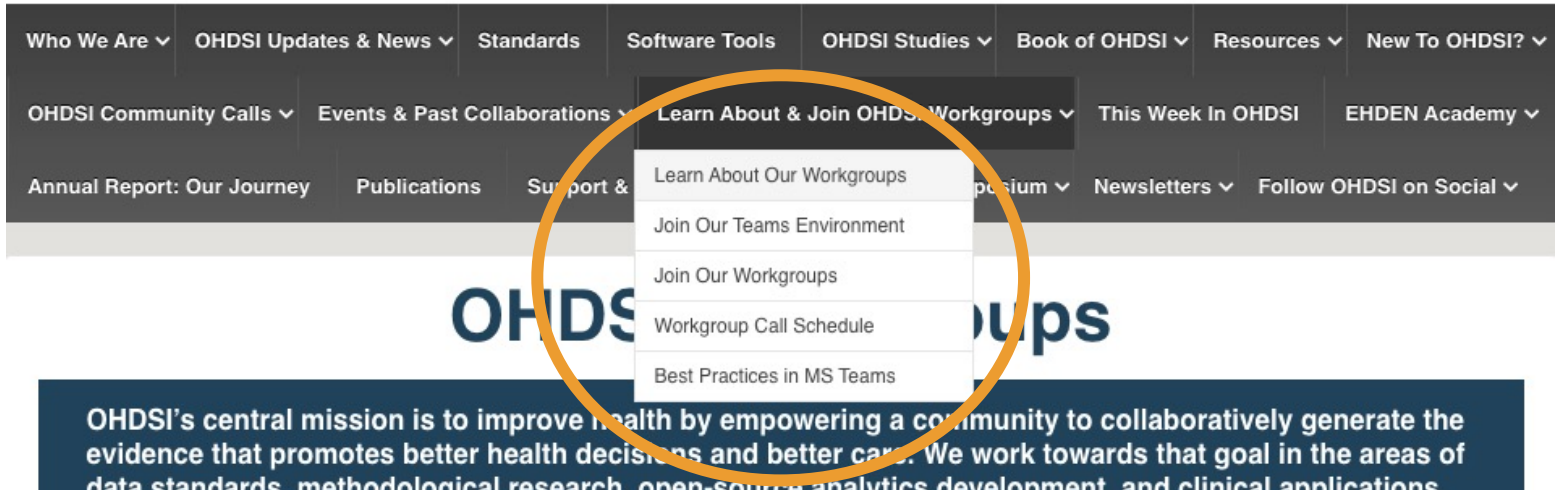
Where Are We Going?

Upcoming Workgroup Calls

Date	Time (ET)	Meeting
Wednesday	9 am	FHIR and OMOP Data Model Harmonization Subgroup (ZOOM)
Wednesday	9 am	Africa Chapter
Wednesday	10 am	FHIR and OMOP Digital Quality Measurements Subgroup (ZOOM)
Wednesday	12 pm	Health Equity Journal Club
Thursday	12 pm	HADES
Thursday	12 pm	FHIR and OMOP Oncology Subgroup
Thursday	6 pm	FHIR and OMOP Terminologies Subgroup (ZOOM)
Friday	9 am	GIS – Geographic Information Systems Development
Friday	9 am	Phenotype Development and Evaluation
Friday	10:30 am	Clinical Trials
Tuesday	9 am	OMOP CDM Oncology Genomic Subgroup

www.ohdsi.org/upcoming-working-group-calls

Join 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 MSTeams | Weekly Workgroup Meeting Schedule

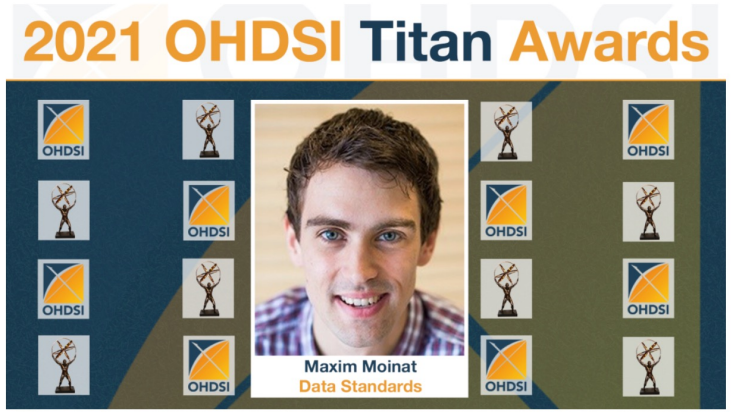
www.ohdsi.org/ohdsi-workgroups/

Titan Awards Nominations Are Open

Nominations for the 2022 Titan Awards are now OPEN!
Please use the form below to nominate an individual or institution for a top contribution to the OHDSI community this past year!

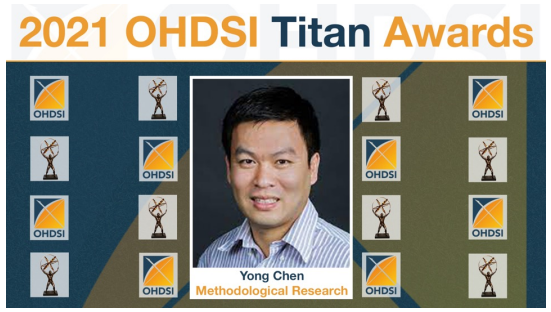
2022 Nomination Form

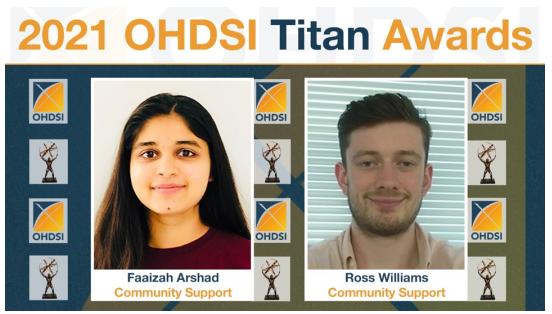
To recognize OHDSI collaborators (or collaborating institutions) for their contributions towards OHDSI's mission, the OHDSI Titan Awards were introduced at the 2018 Symposium and have been handed out at the U.S./Global Symposium each year since. Annually, community members are invited to nominate individuals or institutions they feel have made significant contributions towards advancing OHDSI's mission, vision and values. Once nominations are submitted, the OHDSI Titan Award Committee will select the award winners. Award winners will be announced before the networking reception at the annual symposium. The award categories, as well as all previous recipients, can be found below.



Titan Award for Data Standards – to recognize extraordinary contributions by an individual, organization, or team in development or evaluation in community data standards, including OMOP common data model and standardized vocabularies

- **2021 –** Maxim Moinat, The Hyve/Erasmus University Medical Center
- **2020 –** Clair Blacketer, Janssen Research and Development
- **2019 –** Oncology Workgroup (Michael Gurley, Northwestern Univ.; Rimma Belenkaya, Memorial Sloan Kettering Cancer Center; Robert Miller, Tufts CTSI)
- **2018 –** Vocabulary team (Christian Reich, IQVIA; Anna Ostropolets, Columbia Univ.; Dmitry Dymshyts, Odysseus Data Services)



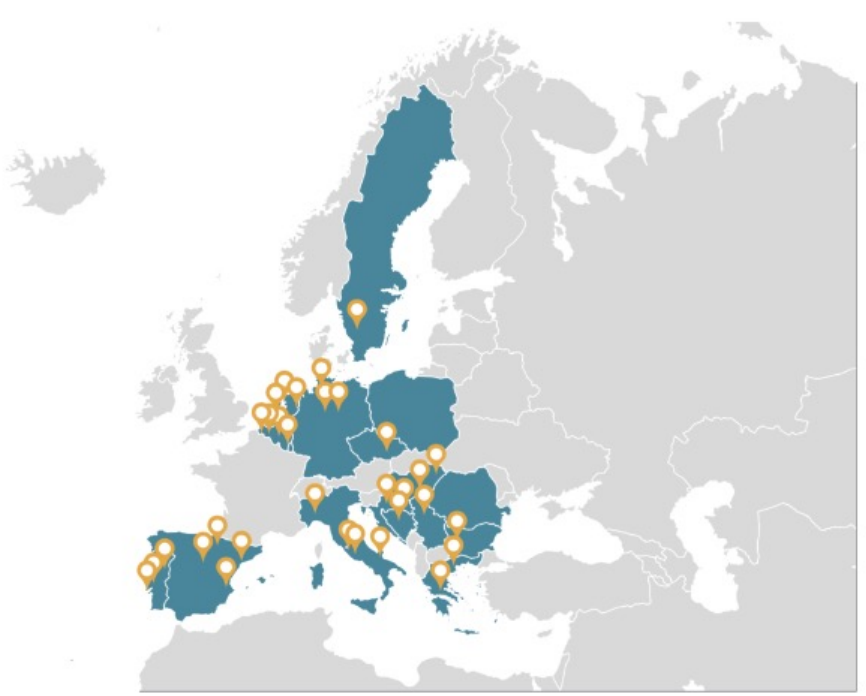


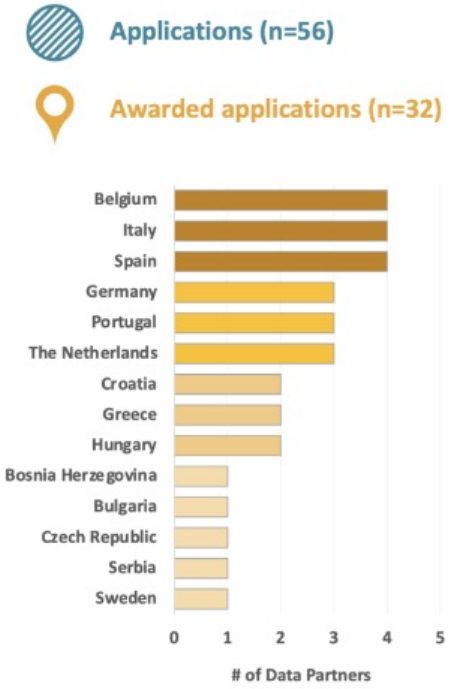
ohdsi.org/titan-awards

EHDEN Adds 32 Data Partners

The **EHDEN Consortium** recently announced that 32 data partners from 14 countries have been selected from the latest open call.

Following the process of linking with an SME and data harmonization, these partners will join a data network that already includes 134 partners from 26 nations.





Ehden.eu

OHDSI European Symposium Videos

The Main Conference

Session 1

INTRODUCTION

3:08 – Welcome to the European OHDSI Journey (Peter Rijnbeek, Chair, Department of Medical Informatics Erasmus MC)

13:00 – Journey of OHDSI: Where Have We Been? (George Hripcsak, Vivian Beaumont Allen Professor and Chair, Biomedical Informatics, Columbia University Medical Center)

34:45 – A CRUISE AROUND THE OHDSI EUROPE COMMUNITY (moderated by Nigel Hughes, Janssen Research and Development)

37:00 – Estonia: Conversion of Estonian health data into the OMOP CDM (Marek Oja, Institute of Computer Science, University of Tartu)

42:59 – Finland: The Finnish OMOP data network (FinOMOP) (Javier Gracia-Tabuenca, Tampere University of Technology)

49:33 – Denmark: Transforming Danish Registries to the OMOP Common Data Model: use case on the Danish Colorectal Cancer Group (DCCG) Database (Adamantia Tsouchnika, Center for Surgical Science, Zealand University Hospital)

57:04 – Norway: Norwegian registries onto OMOP Common Data Model: mapping challenges and opportunities for pregnancy studies (Eimir Hurley, University of Oslo)

1:04:25 – Germany: OHDSI Germany: A recap after one year (Michele Zoch, Technische Universität Dresden)

1:12:43 – Italy: The Italian national node of OHDSI Europe (Lucia Sacchi, University of Pavia)

1:17:45 – Greece: An update from the Greek National Node (Pantelis Natsiavas, Centre for Research & Technology Hellas)

1:23:07 – Ukraine: Integration prospects of the Ukrainian healthcare system with OMOP CDM (Mariia Kolesnyk, SciForce)

1:29:40 – Israel: The journey from isolated EHR's to unified CDM network (Guy Livne, Israel Ministry of Health)

1:34:30 – France: Semantic harmonization of the French National healthcare database (SNDS) (Lorien Benda, Health Data Hub)

1:40:40 – Panel discussion including all European collaborators listed above.

Session 2

COLLABORATOR SHOWCASE

1:33 – Collaborator Showcase Intro (Katia Verhamme, MD, Associate Prof Observational Data Analysis, Department of Medical Informatics, Erasmus MC, Rotterdam)

2:48 – FeederNet (Federated E-Health Big Data for Evidence Renovation Network) platform in Korea (Chungsoo Kim, Ajou University)

8:04 – OMOP Genomic mapping capacities in conversion of comprehensive genomic profiling results (Maria Rogozhkina, Odysseus)

12:59 – OMOP Mapping of Real-World Data From Brazil & Pakistan Towards Management of COVID-19 In the Global South (Sara Khalid, University of Oxford)

19:23 – Impact of random oversampling and random undersampling on the development and validation of prediction models using observational health data (Cynthia Yang, Erasmus MC)

24:23 – Real-world evidence is in demand: a summary of 'live' requests for RWE studies published by a European health technology assessment (HTA) agency (Jamie Elvidge, National Institute for Health and Care Excellence (NICE))

31:48 – Why predicting risk can't identify 'risk factors': empirical assessment of model stability in machine learning across observational health databases (Aniek Markus, Erasmus MC)

38:15 – TrajectoryViz: Interactive visualization of treatment trajectories (Maarja Pajusalu, Institute of Computer Science, University of Tartu)

44:47 – Assessing treatment effect heterogeneity using the RiskStratifiedEstimation R-package (Alexandros Rekkas, Erasmus MC)

49:45 – Defining the valid analytic space for quantitative bias analysis in pharmacoepidemiology (James Weaver, Janssen R&D)

58:03 – A pilot study to evaluate the feasibility of using Observational Health Data Sciences and Informatics analytics tools for supporting the validation of safety signals (Ceyda Pekmez Kristiansen, Novo Nordisk)

1:03:32 – Findable, standardized data at scale through the EHDEN Database Catalogue (Julia Kurps, The Hyve)

Session 3

0:52 – Characterizing Adverse Events in COVID-19 infected patients across the OHDSI network (Erica A. Voss, MPH, Janssen Research and Development, Erasmus MC)

28:10 – Data Analysis and Real World Interrogation Network (DARWIN EU®) (Peter R. Rijnbeek, PhD, Chair, Department of Medical Informatics, Erasmus MC)

42:45 – Reaction panel with key stakeholders

Moderator

Dani Prieto-Alhambra, MD, PhD Professor of Pharmaco- and Device Epidemiology University of Oxford, Professor of Real World Evidence and Methods Research, Erasmus MC

Panelists

Catherine Cohet, European Medicines Agency
Filip Maljković, Heliant, Serbia
Daniel Morales, Dundee University, UK
Dalia Dawoud, NICE, UK
Patrick Ryan, Janssen Research and Development, USA)

1:29:45 – Closure: Peter Rijnbeek

ohdsi.org/2022-european-symposium/

OHDSI Asia-Pacific Symposium

2022 OHDSI APAC Symposium Overview

November 12-13, 2022

Hosted in Taiwan by Taipei Medical University

OHDSI Asia-Pacific Symposium

- Day 1 (November 12) – Tutorials
  - Call for participation: additional tutors and TAs needed!

Time	Schedule		Speaker
08:30 – 09:00	Registration		
09:00 – 12:00	OHDSI Intro – CDM & Vocab		Christian + APAC
12:00 – 13:00	Lunch & Poster Session		
13:00 – 17:00	ETL & DQ	Phenotype Development	ETL – Mui + APAC
			Phenotype – Patrick & Marc

OHDSI Asia-Pacific Symposium

- Day 2 (November 13) – Conference

Time	Schedule	Speaker
08:00 – 08:30	Registration & Light Breakfast	
08:30 – 09:00	Taiwan and TMU Opening Remarks	
09:00 – 09:20	OHDSI Opening Remarks	George Hripsack
09:20 – 09:40	Group Photo	
09:40 – 10:00	Keynote – OHDSI Global Presentation	Patrick Ryan
10:00 – 10:20	OHDSI APAC Intro	Mui Van Zandt
10:20 – 10:30	Break	
10:30 – 11:30	Researches in OHDSI APAC	Study Leaders
11:30 – 11:45	Researches using Taiwan National Data	
11:45 – 12:00	Researches using TMUCRD Data	
12:00 – 13:00	Lunch & Poster Session	
13:00 – 14:00	Panel – Standardization & Common Data Models	Christian Reich & others from APAC
14:00 – 15:00	APAC Regional Adaption to Standardization	Chapter Leaders including potentially Thailand & India
15:00 – 16:15	Poster and Networking Session	
16:15 – 17:00	Closing Remarks	

Latest OHDSI Newsletter Is Available

Community Updates

Where Have We Been?

• The 2022 OHDSI European Symposium brought together more than 350 collaborators on the Steam Ship Rotterdam for our first in-person event since the start of the COVID pandemic. Learn more about the symposium and some of its outputs later in this newsletter.

• The OHDSI community and SNOMED International formalized their long-time relationship with a five-year collaborative agreement that will benefit both of their user communities. The collaboration provides OHDSI and its user community with comprehensive ontologies on specific healthcare domains and content such as devices, social determinants of health, disease severity scores and modifiers of cancers, as well as better concept definitions and resolutions of composite concepts in large-scale observational research.

Where Are We Now?

• A new tool to track OHDSI publications, citations, new authors and more has been developed by Paul Nagy and his team. This tool is available on the front page of the OHDSI web site.

• OHDSI had a record total of 139 submissions for the upcoming OHDSI 2022 Collaborator Showcase. The scientific review committee will go over each submission in July and notify accepted authors by August 3. Submissions came in the form of posters, software demos, and oral presentations. Thank you to everybody who submitted brief reports for our October global symposium.

• The #OHDSISocialShowcase has returned to highlight the Collaborator Showcase research presented at the European Symposium. Please follow our Twitter and LinkedIn feeds to learn more about the exciting work happening within our community.

June Publications

Shoaibi, A., Rao, G.A., Voss, E.A. *et al.* Phenotype Algorithms for the Identification and Characterization of Vaccine-Induced Thrombotic Thrombocytopenia in Real World Data: A Multinational Network Cohort Study. *Drug Saf* 45, 685–698 (2022). doi: 10.1007/s40264-022-01187-y

Khera R, Schuemie MJ, Lu Y, et al. Large-scale evidence generation and evaluation across a network of databases for type 2 diabetes mellitus (LEGEND-T2DM): a protocol for a series of multinational, real-world comparative cardiovascular effectiveness and safety studies. *BMJ Open* 2022;12:e057977. doi: 10.1136/bmjopen-2021-057977

OHDSI

The Journey Newsletter (July 2022)

Our community gathered together for the first time since the COVID pandemic for the 2022 European Symposium, while leaders in our open-source community provided tutorials on four tools that can aid global research. OHDSI and SNOMED formalized an important agreement that will aid collaboration opportunities around the world, and our community publications and presentations from June are linked below. All that, as well as community updates and plenty more, are available in our latest newsletter.

#JoinTheJourney

European Symposium Recap

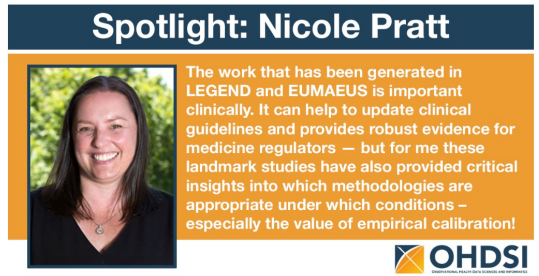
The 2022 OHDSI European Symposium was held June 24-26 on the SS Rotterdam in the Netherlands. More than 350 collaborators gathered together for the community's first in-person symposium since the COVID pandemic to connect, share research, and learn from each other.

Among the topics during the symposium was the use of the OMOP-CDM, tool development, and future research. The first day included a collaborator showcase which featured both posters and podium presentations to highlight OHDSI's research achievements, and interactive demonstrations of OHDSI's open-source software tools.

OHDSI, SNOMED International Formalize 5-Year Agreement To Open New Research Opportunities For Research Communities

The OHDSI community and SNOMED International have formalized their long-time relationship with a five-year collaborative agreement that will benefit both of their user communities.

Collaborator Spotlight: Nicole Pratt



Nicole Pratt, a longtime collaborator with the OHDSI community who was recently named one of eight new ISPE Fellows for 2022, is the Deputy Director of the Quality Use of Medicines and Pharmacy Research Centre at the 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).

Latest OHDSI Newsletter Is Available

Job Openings

Assistant professor **Brianne Oliveri-Mui** announced an opening for an Postdoctoral Fellow to work at the Roux Institute at Northeastern University.

If you are interested, please reach out to Dr. Mui at b.mui@northeastern.edu.

The link and more information will be available on the community calls page.

Observational Health Data Sciences and Informatics Postdoctoral Fellow

Apply

Portland, ME

Full time

Posted 30+ Days Ago

R105484

About the Opportunity

The Roux Institute at Northeastern University has one opening for a Postdoctoral Research Fellow beginning on or about September 1, 2022. The fellow will have an opportunity to conduct observational and administrative database research (e.g., analysis of existing datasets) on health outcomes for older adults with HIV or LGBT older adults, under the supervision of the PI. The fellow
will devote most of their time to independent research aligned with the PI's interests and across federated and local research models.
Position offers exceptional opportunity for collaboration at the OHDSI center on major projects in the U.S. and overseas. This research will directly improve our ability to use real world data to characterize under-represented and marginalized patient populations, construct population level estimates relating exposures to health outcomes, and to enhance clinical decision making through improved patient-level predictions. The term of fellowship appointment will be for two years, contingent on
continued funding. Stipend will be commensurate with experience, based on levels mandated by NIH.

The main research areas specific to older people with HIV or in the LGBTQ+ communities are as follows:

- Measurement of comorbidities, care quality, health outcomes and healthcare utilization patterns
- Risk assessment of multimorbidity, healthcare and prescription access

Job Openings

Professor **Dani Prieto-Alhambra** and his team at the University of Oxford will be hiring two Research Assistants in Health Data Sciences.

The application deadline is August 8, 2022.

The link and more information will be available on the community calls page.

UNIVERSITY OF OXFORD

UK date and time: 11-July-2022 16:46

Applicant Options

- New Search
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corehr

Job Details

Research Assistant in Health Data Sciences (2 posts)

Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, Botnar Research Centre, Windmill Road, Oxford

We have an exciting opportunity for an enthusiastic and dedicated Research Assistants in Health Data Sciences to join the Pharmaco- and Device epidemiology research group lead by Professor Daniel Prieto-Alhambra at the Botnar Research Centre, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS), Oxford.

As a Research Assistant in Health Data Sciences you will support the programming of analytical pipelines for the analysis of routinely collected data mapped to the OMOP Common Data Model. You will prepare analytical packages to run a number of pre-specified analyses, contribute to wider project planning, including ideas for new research projects and manage own research and administrative activities, within guidelines provided by senior colleagues.

You will hold a relevant post-graduate degree in Mathematics, Engineering, Health Data Sciences or Biostatistics. You will have an experience in biostatistics as well as experience in analysis of OMOP-mapped data. Knowledge of medical statistics and expertise in handling large patient level datasets, good knowledge of programming in R packages for statistical analyses and ability to communicate results effectively with colleagues in any discipline are essential. Expertise in pharmaco and/or vaccine epidemiology, experience working with electronic medical records/routinely collected data and experience of working within an academic environment are desirable.

This is a full-time fixed-term appointment for 2 years.

The closing date for this position is 12 noon on Monday 08/08/2022. You will be required to upload a CV and supporting statement as part of your online application.

Contact Person :	HR Team, NDORMS	**Vacancy ID :**	159236
Contact Phone :		**Closing Date & Time :**	08-Aug-2022 12:00
Pay Scale :	STANDARD GRADE 6	**Contact Email :**	hr@ndorms.ox.ac.uk
Salary (£) :	£29,614 to £36,326 p. a.		

Click on the link(s) below to view documents	Filesize
159236_JD	472

Return to Search Results | Apply Now

2022 OHDSI Symposium

Registration is OPEN for #OHDSI2022!





The 2022 OHDSI Symposium will be held Oct. 14-16 at the Bethesda North Marriott Hotel & Conference Center.

www.ohdsi.org/ohdsi2022symposium

An Introductory Journey From Data To Evidence

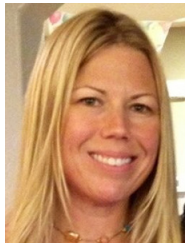
OHDSI2022 Tutorial • Saturday, Oct. 15 • Bethesda, Md.

The OHDSI Journey: Where Are We Going?

Patrick Ryan

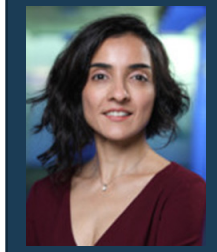
OMOP Common Data Model and Vocabulary

Clair Blacketer



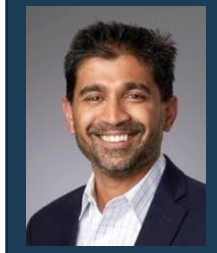
ETL – A Source Database Into OMOP CDM

Melanie Philofsky



Creating Cohort Definitions

Asieh Golozar



Phenotype Evaluations

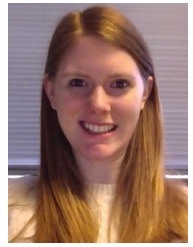
Gowtham Rao

Characterization

Kristin Kostka

Estimation

Martijn Schuemie



Prediction

Jenna Reps

The OHDSI Journey: Where Do We Go From Here?

George Hripcsak

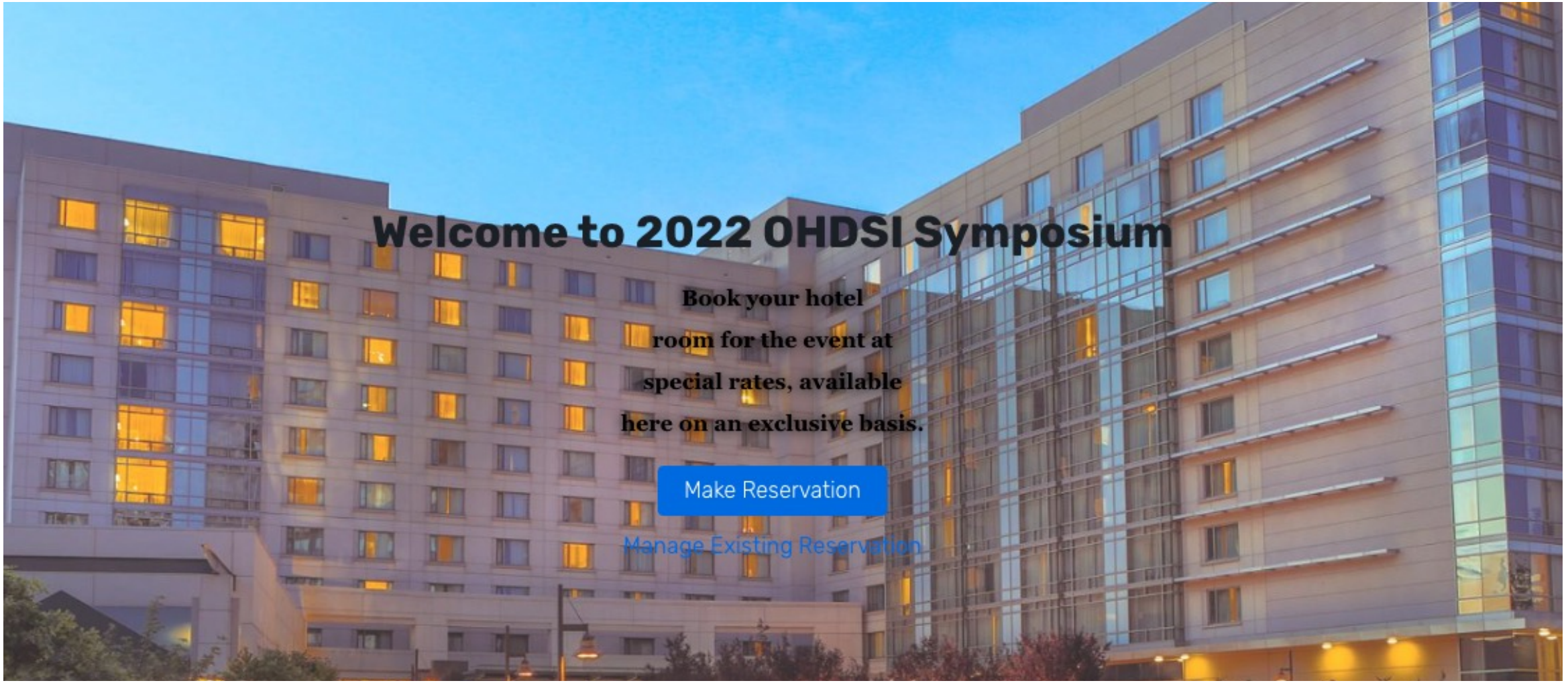
Workgroup Activities

Saturday, Oct. 15, and Sunday, Oct. 16

Saturday, Oct 15					
Start Time (ET)	End Time (ET)				
800	900	Tutorial	HADES Hack-a-thon: Part 1	Oncology WG	FHIR-OMOP: Terminologies Subgroup, Part 1
900	1000				FHIR-OMOP: Increasing the Value of Data Through a Rich Set of Attributes
1000	1100				
1100	1200				
1200	1300		Lunch	Lunch	Lunch
1300	1400		Methods Research (PLE/PLP)	Oncology WG (continued)	FHIR-OMOP: Data Model Harmonization Subgroup
1400	1500				
1500	1600			Natural Language Processing	FHIR-OMOP: Oncology Subgroup
1600	1700				
1700	1800				FHIR-OMOP: Terminologies Subgroup, Part 2
1800	1900				
Sunday, Oct 16					
800	900	All-Hands Workgroup Meeting			
900	1000				
1000	1100				
1100	1200				
1200	1300	Lunch		Lunch	Lunch
1300	1400	Phenotype Evaluation	HADES Hack-a-thon: Part 2	Education	CDM and Data Quality
1400	1500				
1500	1600			Health Equity	
1600	1700				

Hotel Block Rooms Available

Rooms Available for Oct. 13 and Oct. 14



#OHDSISocialShowcase This Week

Miniaturizing Data Harmonization
Methods to Facilitate Training in the OMOP Data Ecosystem

PRESENTER: **Gesquiere** Emma

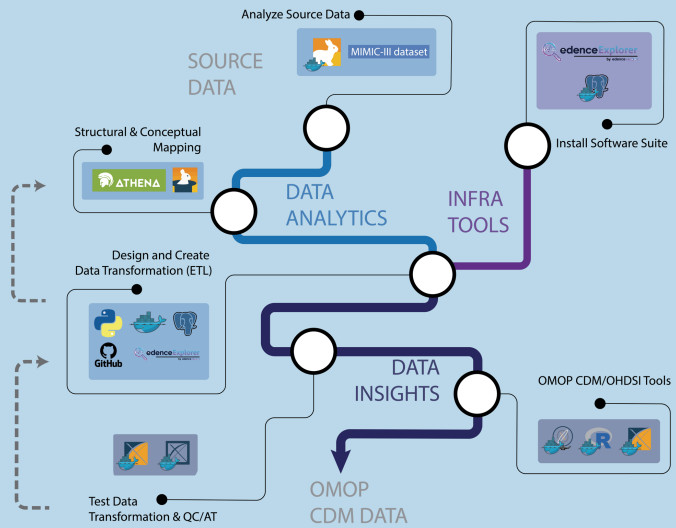
INTRO:

- **Who cares?**
  Currently available resources like EHDEN Academy and The Book of OHDSI provide a wealth of information on data harmonization and its caveats; these resources, however, often present different aspects of the process as independent and do not always convey practical interdependencies that are ultimately critical for successful harmonization.

METHODS

1. Trainee harmonizes a small set of synthetically generated medical data (MIMIC) into OMOP CDM format.
2. Utilizes repackaged open source OHDSI and EHDEN software/tools as Docker images to support the harmonization process.
3. Develops several transformations of an Extract-Transform-Load (ETL) process, which are Dockerized, orchestrated in Python 3, and are executed either as (1) Pandas dataframes, (2) database operations via direct SQL queries, or (3) embedded datatable objects within SQLalchemy.

We created a **miniature harmonization training** method with **dockerized software packages** to support the adoption of the OMOP CDM.



Scan the QR or go to edence.health/publications/ to learn more about the mini-harmonization project as well as other projects from edenceHealth

RESULTS

- We hope to achieve:
  - increased knowledge of containerization as a useful and efficient deployment modality for harmonization projects
  - increased accessibility and understanding of the OMOP CDM with regard to extracting insight from real-world evidence
  - increased number of proficient users of OHDSI and EHDEN software packages
- All components of this project are available free of charge and can be executed directly on the trainee's machine following a free installation of the Docker engine.
- We plan to extend this tool to the broader OHDSI community by sharing the pre-built Docker images and associated project documentation.

Currently repackaged tools include
White Rabbit, Achilles, Data Quality Dashboard, Atlas and WebAPI, as well as network-independent Docker-images of R Studio and the Synthea medical data generation libraries.

Emma Gesquiere, Jared Houghtaling, Ivo Mbi Kubam, Frederic Jung, Ben Burke, Freija Descamps, Lars Halvorsen

edence Health OHDSI

MONDAY

Miniaturizing Data Harmonization; Methods to Facilitate Training in the OMOP Data Ecosystem

Lead: Emma Gesquiere

#OHDSISocialShowcase This Week

TrajectoryViz: Interactive visualization of treatment trajectories

PRESENTER: Maarja Pajusalu

METHODS

TrajectoryViz can visualize trajectories based on **discrete treatment periods** with following data structure:
SUBJECT_ID, STATE, STATE_START_DATE and STATE_END_DATE.

Based on this it produces an interactive R Shiny application that displays **interactive sunburst plot** of the sequential ordering of the states and **patient level visualizations of the state sequences selected from the sunburst plot.**

The patient level sequences can be filtered, shown **with the gaps in treatment and without,** and **aligned** by different events. All these visualizations are interactive allowing both quantifying the interesting aspects or zooming into particular patterns.

To make the visualization compatible with any **OMOP formatted database** TrajectoryViz relies on Cohort2Trajectory package in R github.com/HealthInformaticsUT/Cohort2Trajectory . This package summarizes multiple cohorts **defined in ATLAS** into linear event sequences, **required by TrajectoryViz.**

RESULTS

To illustrate the capabilities of the TrajectoryViz package we consider two applications:

1. **Treatment of asthma patients** (based on cohorts from Markus et al) and
2. **Diagnostic procedures on cervical cancer patients** before and after the diagnosis.

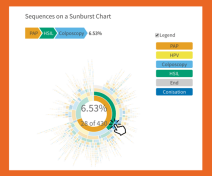
In both cases we utilize the data from **Estonian Health Insurance Fund** and **Estonian Health Information System.**

github.com/HealthInformaticsUT/TrajectoryViz

Explore the **temporal patterns** of the sequences, **understand the data** better, **spot problems** with analysis setup and **generate novel hypotheses** with the help of **TrajectoryViz** R package.

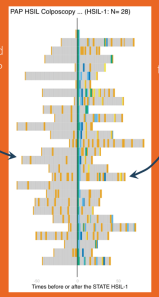
Use Case 1:
Cervical Cancer patients

Zoom in from the Sunburst: the patients with procedure/result sequence starting with **PAP-HSIL-Colposcopy**



In this particular set of patients, we can see clustering of the sequences - **keeping the gaps** between prescriptions enables looking at the **length of periods between procedures and results**

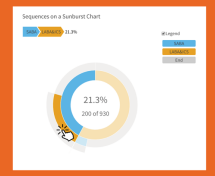
Did the patient follow suggested **pattern** for PAP tests **before**?



Did the patient follow suggested **pattern** for PAP tests **after selected** diagnosis?

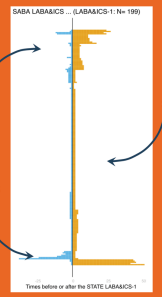
Use Case 2:
Asthma patients

Zoom in from the Sunburst: the patients from SABA and LABA&ICS cohorts with treatment sequence **SABA-LABA&ICS**



In this particular set of patients, we can see clustering of the sequences - **removing the gaps** between prescriptions enables looking at the **treatment as a continuous period**

There was a subset of the **patients who spent much more** time taking the drugs



Most of the patients spent **only 1-2 months** (prescriptions) on either of the drugs

Create cohorts in **ATLAS**

Create discrete sequences withR package **Cohort2Trajectory**

Create interactive visualisations with R package **TrajectoryViz**

Explore and find **answers** to Your **questions**

Maarja Pajusalu, Marek Oja, Sirli Tamm, Markus Haug, Raivo Kolde. Institute of Computer Science, University of Tartu, Estonia

maarja.pajusalu@ut.ee

Aniek F. Markus, Peter R. Rijnbeek, Jan A. Kors, Katia Verhamme. TreatmentPatterns: An R package to analyze treatment patterns of a study population of interest. OHDSI 2020 Global Symposium. ohdsi.org/2020-global-symposium-showcase-92

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OHDSI

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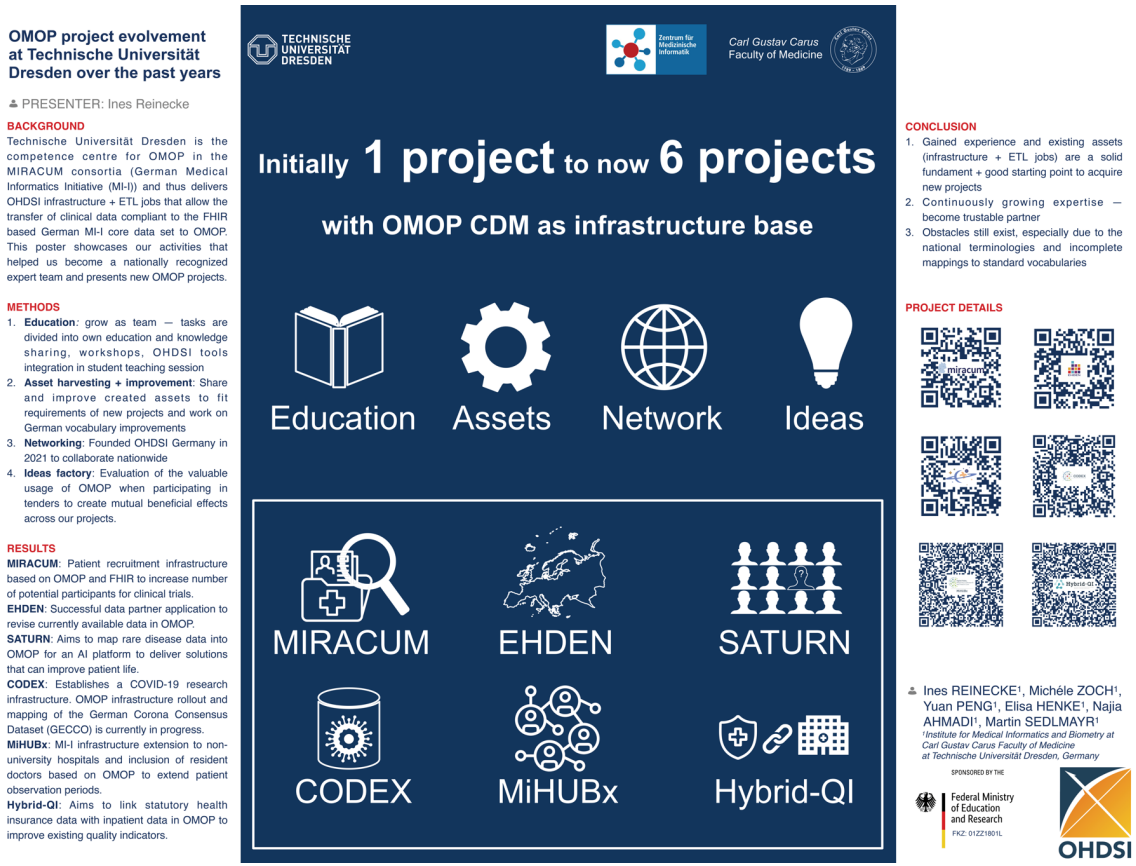
TUESDAY

TrajectoryViz: Interactive visualization of treatment trajectories

Lead: Maarja Pajusalu

#OHDSISocialShowcase This Week



OMOP project evolvement at Technische Universität Dresden over the past years

PRESENTER: Ines Reinecke

BACKGROUND

Technische Universität Dresden is the competence centre for OMOP in the MIRACUM consortia (German Medical Informatics Initiative (MI-I)) and thus delivers OHDSI infrastructure + ETL jobs that allow the transfer of clinical data compliant to the FHIR based German MI-I core data set to OMOP. This poster showcases our activities that helped us become a nationally recognized expert team and presents new OMOP projects.

METHODS

1. **Education**: grow as team — tasks are divided into own education and knowledge sharing, workshops, OHDSI tools integration in student teaching session
2. **Asset harvesting + improvement**: Share and improve created assets to fit requirements of new projects and work on German vocabulary improvements
3. **Networking**: Founded OHDSI Germany in 2021 to collaborate nationwide
4. **Ideas factory**: Evaluation of the valuable usage of OMOP when participating in tenders to create mutual beneficial effects across our projects.

RESULTS

MIRACUM: Patient recruitment infrastructure based on OMOP and FHIR to increase number of potential participants for clinical trials.
EHDEN: Successful data partner application to revise currently available data in OMOP.
SATURN: Aims to map rare disease data into OMOP for an AI platform to deliver solutions that can improve patient life.
CODEX: Establishes a COVID-19 research infrastructure. OMOP infrastructure rollout and mapping of the German Corona Consensus Dataset (GECCO) is currently in progress.
MiHUBx: MI-I infrastructure extension to non-university hospitals and inclusion of resident doctors based on OMOP to extend patient observation periods.
Hybrid-QI: Aims to link statutory health insurance data with inpatient data in OMOP to improve existing quality indicators.

TECHNISCHE UNIVERSITÄT DRESDEN

Zentrum für Medizinische Informatik

Carl Gustav Carus Faculty of Medicine

Initially 1 project to now 6 projects

with OMOP CDM as infrastructure base

Education Assets Network Ideas

MIRACUM EHDEN SATURN

CODEX MiHUBx Hybrid-QI

CONCLUSION

1. Gained experience and existing assets (infrastructure + ETL jobs) are a solid fundament + good starting point to acquire new projects
2. Continuously growing expertise — become trustable partner
3. Obstacles still exist, especially due to the national terminologies and incomplete mappings to standard vocabularies

PROJECT DETAILS

Ines REINECKE[1], Michéle ZOCH[1], Yuan PENG[1], Elisa HENKE[1], Najia AHMADI[1], Martin SEDLMAYR[1]
[1]Institute for Medical Informatics and Biometry at Carl Gustav Carus Faculty of Medicine at Technische Universität Dresden, Germany

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OHDSI

WEDNESDAY

OMOP project evolvement at Technische Universität Dresden over the past years

Lead: Ines Reinecke

#OHDSISocialShowcase This Week

Pharmacological treatment pathways of chronic cough in adults in primary care in the Netherlands

PRESENTERS: **Johnmary** T. Arinze (j.arinze@erasmusmc.nl) & **Solomon** Ioannou (s.Ioannou@erasmusmc.nl)

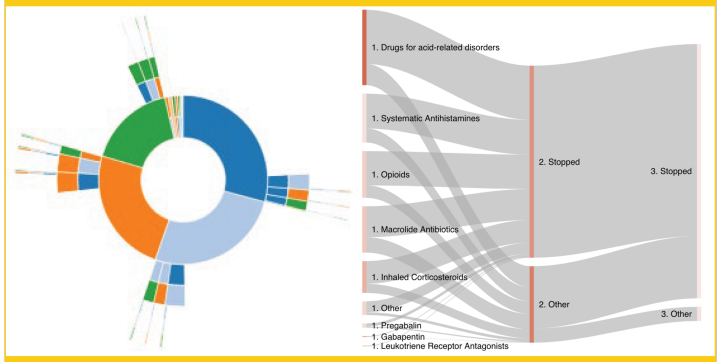
INTRODUCTION:

- There are presently no approved targeted pharmacological treatments for chronic cough.
- Guidelines recommend treating underlying conditions and initiating therapeutic trials for unexplained cases; however, about 50% of chronic cough cases are refractory to treatment. Therefore, insights into the real-world treatment patterns of chronic cough are needed to guide future clinical interventions.

METHODS:

1. This retrospective cohort study described the drug utilization pathways of chronic cough patients in the Dutch primary care database (IPCI), from 2010 to 2020. The IPCI database is mapped to the OMOP-CDM, but the source vocabulary lacks a specific disease concept; therefore, we created a custom definition based on literature.
2. Two consecutive reports of cough within an 8-week interval were considered chronic cough.
3. Eligibility: ≥18 years, ≥1year of observation before baseline, and ≥3 years of database follow-up.
4. Drug utilization records were extracted based on the OMOP-CDM drug exposure table standardized to RxNorm concepts.
5. Analyses were performed using the R package, TreatmentPathways, that generates drug eras and duration of exposure.
6. Incident drug use was presented for each drug class, and defined as new drug exposure in an index year without previous exposure in the preceding 365 days.

In primary care, 2 in 5 adults with chronic cough receive drug treatment, and nearly 30% of them require further treatment after initial therapy.



Sunburst plot and Sankey diagram depicting the treatment pathways of chronic cough in the Dutch primary care (N = 100,230, Treated = 41.7%)

RESULTS:

- Study participants: 100,230 adults, 56.6% females, mean age – 52.9 years, and Charlson comorbidity index score – 0.8.
- Treaments during the entire study period are described in the Figures.
- First-line treatment (41.7%): monotherapy (94.3%) with drugs for acid-related disorders (27.7%), systemic antihistamines (18.0%), opioids (17.2%), macrolide antibiotics (17.2%), inhaled corticosteroids (11.8%). Leukotriene receptor antagonists (0.4%) was less commonly prescribed as first-line treatment, as were neuromodulators (2%) namely pregabalin (1.6%) and gabapentin (0.4%).
- Second-line treatment (12.7%): included drugs for acid-related disorders (25.0%), macrolide antibiotics (18.2%), systemic antihistamines (16.6%), opioids (14.8%), and inhaled corticosteroids (10.8%) .
- Third-line treatment – 3.1% .
- Fourth-line treatment – 0.7%

CONCLUSION:

- In primary care, drugs for acid-related disorders, systemic antihistamines, opioids, macrolide antibiotics, and inhaled corticosteroids are commonly used as first-line treatment for chronic cough.
- The use of opioids among patients with chronic cough is notably high.

ABBREVIATIONS:

- IPCI – Integrated Primary Care Information
- OMOP – Observational Medical Outcomes Partnership
- CDM – Common Data Model

CO-AUTHORS: Aniek F. Markus, Guy G. Brusselle, Peter R. Rijnbeek, Katia M. C. Verhamme

Erasmus MC Universitair Medisch Centrum Rotterdam

GHENT UNIVERSITY

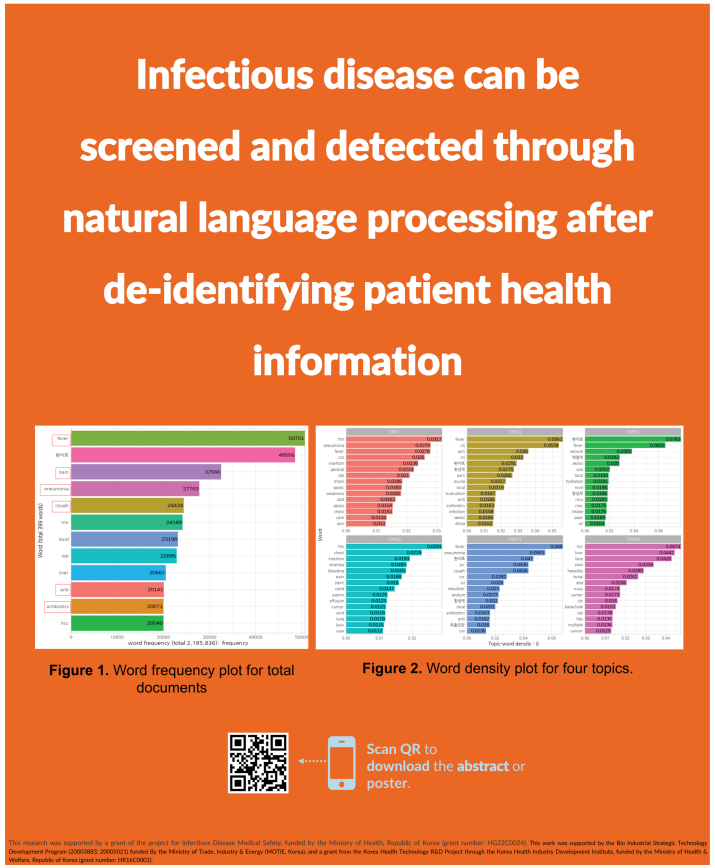
OHDSI

THURSDAY

Pharmacological treatment pathways of chronic cough in adults in primary care in the Netherlands: A population-based study

Leads: Johnmary Arinze, Solomon Ioannou

#OHDSISocialShowcase This Week



De-identification of Clinical Notes for Patients with Infectious Diseases and Topic Modeling using Latent Dirichlet Allocation

PRESENTER: **Junhyuk** Chang

INTRO

- Infectious disease-related information is usually recorded in the form of free-text, which needs natural language processing (NLP) to apply.
- However, most of free-text is containing protected health information (PHI) that should be de-identified.
- In this study, we applied the NLP to confirm the distribution of infection-related information after de-identifying PHI in admission notes.

METHODS

1. Data preparation

- Ajou University Medical Centre database
- Inclusion criteria

1) Admitted from Jan 2012 - Dec 2021.
2) Diagnosed with infectious disease within ±2 days from the admission date.
   - Infectious disease diagnosis
     : SNOMED code '40733004 (Disorder due to infectious disease)' and its sub-hierarchy codes

2. PHI identification and de-identification

- We compared 1,000 admission notes that were randomly selected with the HIPAA PHI list to identify the potential PHI entity.
- Two approaches to de-identify PHI entities

1) Dictionary-based approach	2) Rule-based approach
• For name, country, and hospital entities	• For other PHI patterns

3. Feature identification using topic modeling

- Tokenization
  - By unigram
  - Descriptive analyses for frequency
- Latent Dirichlet allocation (LDA)
  - Describing documents by clustering words based on the frequency
  - Perplexity score to decide an optimal n of topics

RESULTS

Extract admission notes and PHI de-identification

- We extracted patients and their admission notes.
- We identified PHI entities and their patterns.

44,415 patients → 61,379 Admission notes → 9 PHI 21 Pattern

- Constructed dictionaries (dictionary : cases)
  - Name : 47,696, Country : 241, Hospital : 45,932 (regular expression rules to de-identify showed in the abstract).

Infectious disease can be screened and detected through natural language processing after de-identifying patient health information

Figure 1. Word frequency plot for total documents

Figure 2. Word density plot for four topics.

Scan QR to **download** the **abstract** or **poster**.

This research was supported by a grant of the project for Infectious Disease Medical Safety, funded by the Ministry of Health, Republic of Korea (grant number: HG22C0024). This work was supported by the Bio Industrial Strategic Technology Development Program (20003883, 20005021) funded By the Ministry of Trade, Industry & Energy (MOTIE, Korea), and a grant from the Korea Health Technology R&D Project through the Korea Health Industry Development Institute, funded by the Ministry of Health & Welfare, Republic of Korea (grant number: HR16C0003).

Descriptive summary

- "**fever**" has the highest frequency (50,701/2,185,836 ; 2.3%) (Figure 3).
- **Infectious disease related words** (red box) also showed high frequency.

LDA topic modeling

- Decided optimal topic number
  - 5~9 topics were the optimal topic number according to the perplexity score
  - **6 topics** for a clear explanation of semantic meanings

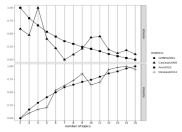


Figure 3. Perplexity scores plot

- Figure 2 shows the most frequently identified words per each topic.
- Clustered word per each topic related below.

Topic 1 Sepsis	**Topic 2** Urinary tract infection	**Topic 3** Pediatric infection
Topic 4 Surgical infection	**Topic 5** Respiratory infection	**Topic 6** Viral infection

- Relevance of clustered words per each topic (Figure 4).

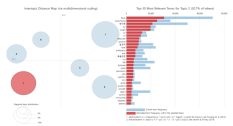


Figure 4. Topic distance map and relevant terms for the topic 2

CONCLUSION

- In this study, we extracted sign and symptoms related to infectious disease from deidentified clinical records using natural language processing technique.
- This framework can be used for future research such as data standardization of infectious disease and cohort phenotyping.

Junhyuk Chang[1], Jimyung Park[1], Chungsoo Kim[1], Rae Woong Park[1,2]

[1]Department of Biomedical Sciences, Ajou University Graduate School of Medicine
[2]Department of Biomedical Informatics, Ajou University School of Medicine

FRIDAY

De-identification of Clinical Notes for Patients with Infectious Disease and Topic Modeling using Latent Dirichlet Allocation

Lead: Junhyuk Chang

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?

July 19 Community Call: Workgroup Updates

Early-Stage Researchers

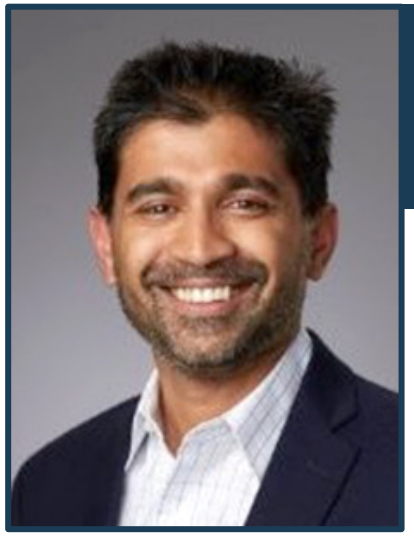
Faaizah Arshad

Undergraduate Student • UCLA

NLP

Hua Xu

Associate Dean for Innovation, Professor • Univ. of Texas Health Science Center



Phenotype Develop-ment & Evaluation

Gowtham Rao

Senior Director • Johnson and Johnson

HADES

Martijn Schuemie

Research Fellow, Epidemiology Analytics • Janssen R&D