



Save Our Sisyphus Challenge Network Study Ideas

OHDSI Community Call
March 7, 2023 • 11 am ET



Upcoming OHDSI Community Calls

Date	Topic
Mar. 14	OHDSI Debates
Mar. 21	Recent Publications
Mar. 28	SOS Week 1 Tutorial: Initiating A Network Study
Apr. 4	SOS Week 2 Tutorial: Data Diagnostics
Apr. 11	SOS Week 3 Tutorial: Phenotype Development
Apr. 18	SOS Week 4 Tutorial: Phenotype Evaluation
Apr. 25	SOS Week 5 Tutorial: Creating Analysis Specifications



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March 14: OHDSI Debates

Debate #1

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

Harold Lehmann

Professor of Health Sciences Informatics
Johns Hopkins University

Anna Ostropolets

Clinical Data Scientist
Odysseus Data Services, Inc.



Debate #2

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

Evan Minty

Clinical Assistant Professor, Internal Medicine
University of Calgary

Jamie Weaver

Associate Director, Observational Health Data Analytics
Janssen Research & Development





Three Stages of The Journey

Where Have We Been?

Where Are We Now?

Where Are We Going?





OHDSI Shoutouts!



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

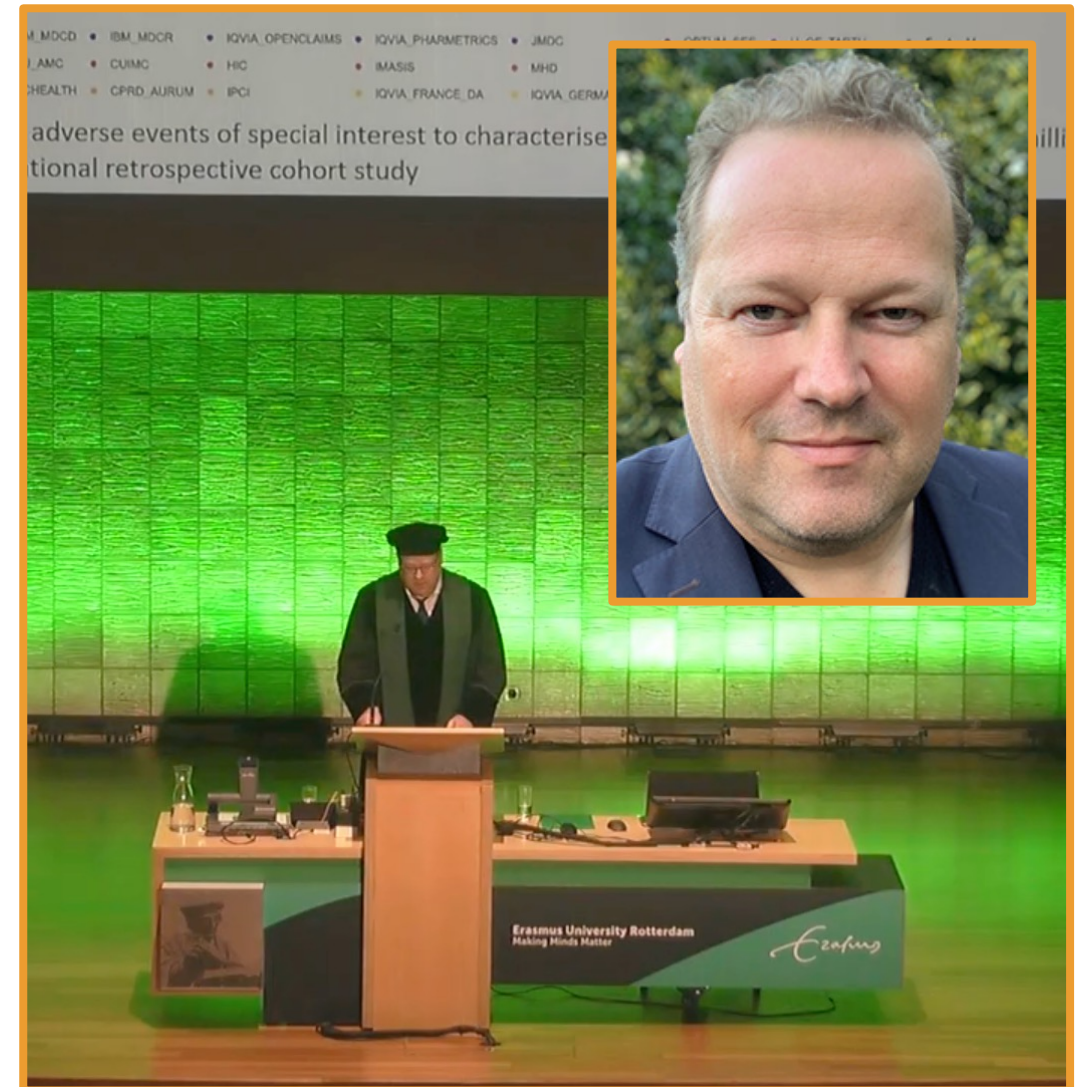




OHDSI Shoutouts!



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





OHDSI Shoutouts!



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

Do you have anything you want to share? Please send to sachson@ohdsi.org so we can highlight during this call and on our social channels.

Let's work together to promote the collaborative work happening in OHDSI!





Three Stages of The Journey

Where Have We Been?

Where Are We Now?

Where Are We Going?





Upcoming Workgroup Calls



Date	Time (ET)	Meeting
Tuesday	12 pm	Common Data Model Vocabulary Subgroup
Wednesday	9 am	Patient-Level Prediction
Wednesday	2 pm	Natural Language Processing
Wednesday	7 pm	Medical Imaging
Thursday	8 am	India Chapter
Thursday	9:30 am	Data Network Quality
Thursday	11 am	OHDSI 2023 Scientific Review Committee
Thursday	7 pm	Dentistry
Friday	9 am	Phenotype Development and Evaluation
Friday	9 am	GIS – Geographic Information System
Friday	11 am	Clinical Trials
Friday	11 pm	China Chapter
Monday	10 am	Healthcare Systems Interest Group
Monday	11 am	Early-Stage Researchers
Tuesday	9 am	OMOP CDM Oncology Genomic Subgroup

ohdsi.org/workgroups



OHDSI HADES releases: DataQualityDashboard 2.1.1

DataQualityDashboard

DataQualityDashboard is part of [HADES](#).

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

Introduction

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

Overview

The quality checks were organized according to the Kahn Framework¹ which uses a system of categories and contexts that represent strategies for assessing data quality. For an introduction to the kahn framework please click [here](#).

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

Links

[Browse source code](#)

[Report a bug](#)

[Ask a question](#)

[DQD Example Output](#)

License

Apache License (>= 2)

Citation

[Citing DataQualityDas](#)

Developers

Katy Sadowski

Author, maintainer

Clair Blacketer

Author

Ajit Londhe

Author

Anthony Sena

Author



March Newsletter

March Update Video



In the latest On The Journey video, Patrick Ryan and Craig Sachson discuss what took place in Phenotype Phebruary and the importance of phenotype development and evaluation to the reliable generation of real-world evidence. They reflected on the recent announcements of 2023 goals for OHDSI workgroups and how the collaboration between respective groups is strengthening OHDSI, and they look at several collaboration opportunities, including all three OHDSI symposiums in 2023.

Spotlight: Faaizah Arshad



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



The Journey Newsletter (March 2023)

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

[#JoinTheJourney](#)

Community Updates

Where Have We Been?

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

Where Are We Now?

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

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



Phenotype Phebruary 2023 in numbers

- **11** phenotypes discussed in the forums
 - 5 phenotypes finished peer review -> library
 - 5 phenotypes developed, evaluated and on their way to peer review
- **4** debates/discussions addressed
- **7** shiny apps on [data.ohdsi.org](#)
- **32** collaborators interacted in the forums or attended calls
- **9 Publications**
 - 8 applied publications planned
 - 1 methods publication



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

February Publications

Swedel JN, Ramcharran D, Hardin J. [Using a data-driven approach for the development and evaluation of phenotype algorithms for systemic lupus erythematosus](#). *PLoS One*. 2023 Feb 16;18(2):e0281929. doi: 10.1371/journal.pone.0281929. PMID: 36795690; PMCID: PMC9934349.

Kim C, Lee DY, Park J, Yang SJ, Tan EH, Alhambra DP, Lee YH, Lee S, Kim SJ, Lee J, Park RW, Shin Y. [Safety outcomes of selective serotonin reuptake inhibitors in adolescent attention-deficit/hyperactivity disorder with comorbid depression: the ASSURE study](#). *Psychol Med*. 2023 Feb 20:1-9. doi: 10.1017/S0033291723000120. Epub ahead of print. PMID: 36803587.

Ostropolets A, Albogami Y, Conover M, Banda JM, Baumgartner WA, Blacketer C, Desai P, DuVall SL, Fortin S, Gilbert JP, Golozar A, Ide J, Kanter AS, Kern DM, Kim C, Lai LYH, Li C, Liu F, Lynch KE, Minty E, Neves MI, Ng DQ, Obene T, Pera V, Pratt N, Rao G, Rappoport N, Reinecke I, Saroufim P, Shoaibi A, Simon K, Suchard MA, Swedel JN, Voss EA, Weaver J, Zhang L, Hripscak G, Ryan PB. [Reproducible variability: assessing investigator discordance across 9 research teams attempting to reproduce the same observational study](#). *J Am Med Inform Assoc*. 2023 Feb 24:ocad009. doi: 10.1093/jamia/ocad009. Epub ahead of print. PMID: 36826399.

mailchi.mp/ohdsi/march2023



Workgroups Homepage Updates

Get To Know The OHDSI Workgroups

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

Asia-Pacific (APAC)

Current Participants: 297
Lead: Mui Van Zandt

[2023 OKRs](#)



ATLAS/WebAPI

Current Participants: 253
Lead: Anthony Sena

[2023 OKRs](#)



Clinical Trials

Current Participants: 295
Leads: Mike Hamidi, Lin Zhen

[2023 OKRs](#)



Common Data Model

Current Participants: 686
Lead: Clair Blacketer

[2023 OKRs](#)



CDM Vocabulary Subgroup

Current Participants: 686
Lead: Michael Kalfelz

[2023 OKRs](#)



Data Network Quality

Current Participants: 298
Lead: Clair Blacketer

[2023 OKRs](#)



Dentistry

Current Participants: 8
Lead: Robert Koski

[2023 OKRs](#)



Early-Stage Researchers

Current Participants: 243
Leads: Faaizah Arshad, Ross Williams

[2023 OKRs](#)



Medical Devices

Current Participants: 141
Leads: Vojtech Huser, Asiyah Lin

[2023 OKRs](#)



Medical Imaging

Current Participants: 155
Leads: Paul Nagy, Seng Chan You

[2023 OKRs](#)



Methods Research

Current Participants: 379
Leads: Martijn Schuemie, Marc Suchard

[2023 OKRs](#)



Natural Language Processing

Current Participants: 444
Lead: Hua Xu

[2023 OKRs](#)



Oncology

Current Participants: 328
Lead: Asieh Golozar

[2023 OKRs](#)



Open-Source Community

Current Participants: 145
Leads: Adam Black, Paul Nagy

[2023 OKRs](#)



Patient-Level Prediction

Current Participants: 89
Leads: Jenna Repe, Ross Williams

[2023 OKRs](#)



Perinatal and Reproductive Health Group

Current Participants: 30
Leads: Alison Callahan, Stephanie Leonard, Louisa Smith

[2023 OKRs](#)



Phenotype Development & Evaluation

Current Participants: 310
Lead: Gotham Rao

[2023 OKRs](#)



Psychiatry

Current Participants: 132
Leads: Dmitry Dymshyts, Andrew Williams

[2023 OKRs](#)



Registry

Current Participants: 175
Lead: Tina Parciak

[2023 OKRs](#)



Steering Group

Current Participants: 82
Lead: Patrick Ryan

[2023 OKRs](#)



www.ohdsi.org/workgroups



2023 AMIA Symposium Call For Participation

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AMIA 2023 Annual Symposium

November 11 - 15  New Orleans, LA

AMIA 2023 Annual Symposium Call for Participation

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

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

- [Paper, Student Paper](#)
- [Podium Abstract](#)
- [Poster, Panel](#)
- [Informatics Debate](#)
- [Systems Demonstration](#)
- [Workshop](#)

Proposals

Proposals are now being accepted.

Deadline: Mar. 8, 2023

[Submit now](#)



International Conference on Biomedical Ontology

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



14th International Conference on Biomedical Ontology

Theme of ICBO 2023: "The role of Ontologies in Artificial Intelligence and Machine Learning".

- ICBO 2023 will be held with the 16th Seminar on Ontology Research in Brazil - [ONTOBRAS 2023](#)



ONTOBRAS

Conference Dates

- August 28th to September 1st (Monday-Friday)
- Workshops and tutorials: August 28-30, 2023 (until noon of day 30)
- Main conference: August 30 (afternoon) - September 01, 2023



Job Opening

Open Rank- Tenure Track of Internal Medicine in Translational Informatics

Albuquerque, NM, United States | req23346

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Open Rank- Tenure Track of Internal Medicine in Translational Informatics

Posting Number	req23346
Employment Type	Faculty
Faculty Type	Open Rank
Hiring Department	IM Translations Informatics (852T)
Academic Location	School of Medicine
Benefits Eligible	The University of New Mexico provides a comprehensive package of benefits including medical, dental, vision, and life insurance. In addition, UNM offers educational benefits through the tuition remission and dependent education programs. See the Benefits home page for more information.
Position Summary	<p>The University of New Mexico, Health Sciences Center, Department of Internal Medicine, seeks a faculty member to join the Division of Translational Informatics. This position is at the Open rank and Tenure track. While the focus of the position is research-oriented, optionally, the position affords the opportunity for the candidate to have a joint clinical appointment for part-time clinical service with the University of New Mexico, and/or the Raymond G. Murphy VA Medical Center.</p> <p>Salary will be commensurate with experience and education.</p>



Job Opening

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

Job ID: REF9053H

Date posted: 2/20/2023

Employment Type: Full Time

Shift: Days

Location: Boston, MA

PRINCIPAL DUTIES AND ESSENTIAL FUNCTIONS:

Responsible for executing software development initiatives.

Implementation

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

Ongoing Enhancements and Support

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



Job Opening



COLUMBIA UNIVERSITY
DEPARTMENT OF
BIOMEDICAL INFORMATICS



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Tenure Track Faculty

#105752

Description

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

The positions are open to researchers interested in developing and applying informatics theory and achieving tangible benefits to health care and biology. Three particular foci are (1) machine learning for healthcare and health-related data science, (2) health information technology-based interventions to improve health care and the health of individuals and populations, and (3) translational bioinformatics.



Janssen R&D Summer Internships

General Administration

Epidemiology Graduate Intern

General Administration

OHDA Graduate Intern

General Administration

OHDA Undergraduate Intern

General Administration

Data Science RWE for R&D Summer Intern

General Administration

Data Science RWE DevCon Summer Intern



#OHDSISocialShowcase This Week

HERMES:
A Health Resources
Econometric Analysis
Tool

PRESENTER: **Kyungseon Choi**
Contact: kyungseon.choi@khu.ac.kr

- INTRO:**
- Do you want to compare which cohort had more medical expenses or health resource utilization with OMOP-CDM?
 - You can estimate and compare the medical expenses and health resource utilization for disease or patients using HERMES on your cohorts.
 - Estimating the economic burden through healthcare cost analysis is important to properly distribute the limited healthcare resources.
 - However, there are hurdles in estimation the unbiased precise healthcare costs using OMOP-CDM due to "Zero-cost" and "Skewed Data".

- METHODS:**
- To adjust positive skewness and zero cost by econometric model and estimate precise healthcare costs, we reviewed literature related to healthcare cost analysis.
 - We structured an algorithm using an econometric model based on a previously well-established method (Manning, et al (2001), J Health Econ. 20(4):461-94).
 - To verify the algorithm and R functions, we conducted an empirical study on patients with exudative age-related macular degeneration (AMD).
 - For cross-validation, we compared the cost analysis method and the estimate of the reimbursement cost with the previous study conducted from claims data in South Korea for a similar period.
 - During the empirical study and cross-validation, the results were confirmed by health economics experts and ophthalmologists.

- ACKNOWLEDGMENT:**
- This research was supported by KHIDI and a grant (21153MFD5601) from Ministry of Food and Drug Safety in 2022.

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

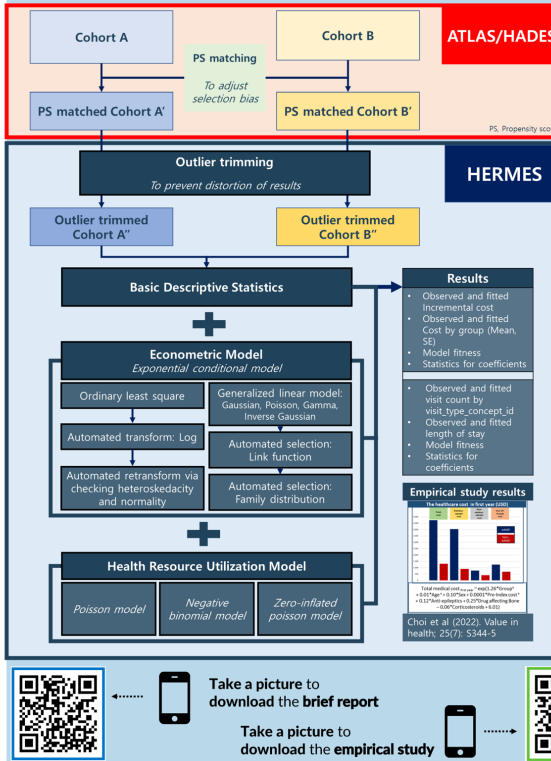


Figure 1. Framework of HERMES and empirical results.

The HERMES mainly provides R functions to analyze the medical expenses through econometric model based on the algorithm.

- R functions include eight domains for analyzing healthcare resource utilization and cost.
1. Outlier
 2. Multicollinearity
 3. Unadjusted observed cost
 4. Transformed ordinary least square
 5. Generalized linear model
 6. Time-series
 7. Difference in difference
 8. Health resource utilization

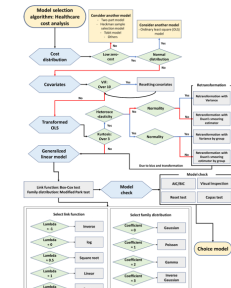


Figure 2. Full algorithm for HERMES for a healthcare cost analysis in OMOP-CDM

- CONCLUSIONS:**
- The HERMES can estimate the costs categorized by reimbursement, non-reimbursement, payers', and patients' costs. The results provide economic, clinical, and policy implications and help stakeholders to understand the economic impact of certain diseases or interventions.
 - We conducted an empirical study to validate the usability of HERMES with OMOP CDM cost data. As a result, it was possible to derive similar results in the reimbursement cost compared to the results of previous studies using a population based national claims data (Kim et al. (2019). BMC Health Serv. Res. 19: 828).
 - HERMES not only helps to select an appropriate econometric model according to the algorithm by identifying the characteristics of cost data, but also provides various tools related to estimating economic burden such as time series, difference in difference, and health resources utilization model.
 - With the expectation that disease burden research through CDM will be further progressed in the future, the HERMES will contribute to healthcare cost research using OMOP-CDM.

Kyungseon Choi, Sang Jun Park, Sola Han, Siin Kim, Hae Sun Suh
KYUNGHEE UNIVERSITY, SEOUL NATIONAL UNIVERSITY

Take a picture to download the brief report

Take a picture to download the empirical study

MONDAY

Development of Phenotype Algorithms and Characterizations of Primary Open-Angle Glaucoma Using Real-World Data (Nathan Hall, Rupa Makadia)

#OHDSISocialShowcase This Week

Disambiguation of ICPC codes using free-text and active learning to improve concept mappings

PRESENTER: Tom Seinen

INTRO:

- Dutch general practitioners document their patients' conditions using the codes from the International Classification of Primary Care (ICPC)
- ICPC is not part of the Standardized OMOP Vocabularies. So, the codes must be mapped to OMOP concepts (SNOMED).
- Most codes can be mapped directly, but there are many codes that are more difficult to map.
- We focused on ICPC codes that are ambiguous in meaning, indicating different possible locations or subgroups of conditions (A).
- Manually mapping individual code observations is too much work.
- Thus, would it be possible to automatically classify single code observations into more detailed sub codes?

METHODS

- For each code occurrence we extracted all clinical notes and structured data in a window of 14 days around it.
- Four modeling methods were evaluated (B):
 - Using very simple rules
 - Training models on the prediction of the simple rules
 - Annotating N observations and training a model
 - Training a model on the prediction of the first trained model using annotations.
- For every sub code a binary model is trained:
 - Using TFIDF features and a LASSO model
 - Annotation is aided by a R-shiny annotation tool that can use active learning to sort observations
- All methods were validated on a manually annotated test set.

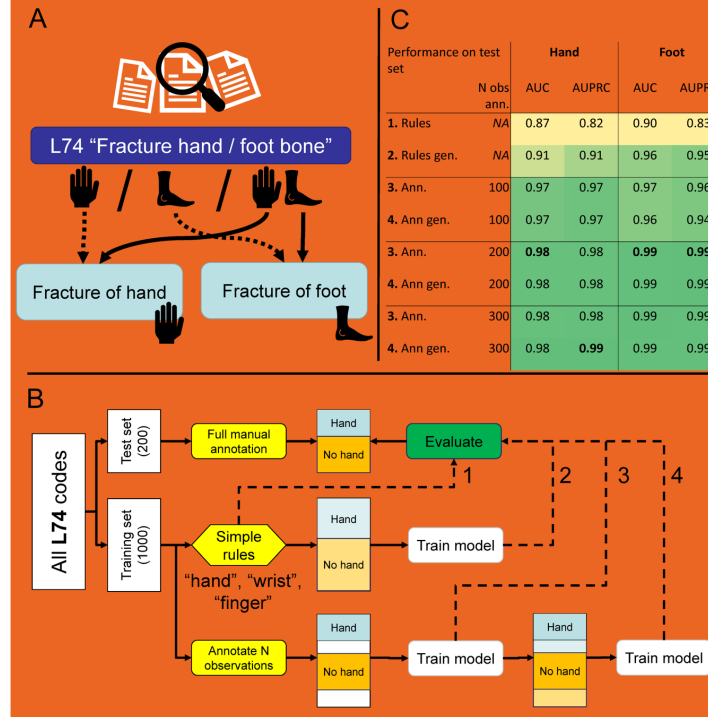
RESULTS & CONCLUSION

The results (C) show that:

- Simple rules already have a good performance
- Generalization can improve model performance
- Annotating only a small number of observations often has a better performance than simple rules
- Number of annotations needed for good performance differs per ICPC code.

It is possible to automatically classify individual ICPC codes into narrower OMOP concepts which can be used to improve concept mappings.

We classified ambiguous source codes into narrower OMOP concepts



D75 Malignant neoplasm colon/rectum

Eval. on test set	N	Colon		Rectum	
		AUC	AUPRC	AUC	AUPRC
1. Rules	NA	0.76	0.71	0.81	0.62
2. Rules gen.	NA	0.70	0.74	0.84	0.74
3. Ann.	100	0.72	0.70	0.83	0.68
4. Ann gen.	100	0.75	0.73	0.82	0.65
3. Ann.	200	0.81	0.84	0.85	0.77
4. Ann gen.	200	0.83	0.85	0.87	0.80
3. Ann.	300	0.85	0.87	0.90	0.84
4. Ann gen.	300	0.85	0.87	0.89	0.83

L72 Fracture radius/ulna

Eval. on test set	N	Radius		Ulna	
		AUC	AUPRC	AUC	AUPRC
1. Rules	NA	0.84	0.89	0.81	0.58
2. Rules gen.	NA	0.84	0.91	0.77	0.57
3. Ann.	100	0.94	0.95	0.77	0.57
4. Ann gen.	100	0.93	0.94	0.71	0.50
3. Ann.	200	0.94	0.96	0.88	0.72
4. Ann gen.	200	0.95	0.96	0.88	0.73
3. Ann.	300	0.96	0.97	0.82	0.63
4. Ann gen.	300	0.95	0.97	0.87	0.78

FUTURE STEPS

- Study the effect of:
 - Different preprocessing methods and text representations
 - Different classification models, such as gradient boosting or neural networks
 - Different sorting strategies for active learning, based on model (uncertainty)
- Train models using existing ICPC subcodes.
- Try out more different ICPC codes
- Study the effect of changes in characterization or prediction studies

Tom Seinen, Erik van Mulligen, Jan Kors, Katia Verhamme, Peter Rijnbeek
Department of Medical Informatics, Erasmus MC, The Netherlands



Disambiguation of ICPC codes using free-text and active learning to improve concept mappings (presenter: Tom Seinen, Erik van Mulligen, Jan Kors, Katia Verhamme, Peter Rijnbeek)

#OHDSISocialShowcase This Week

43

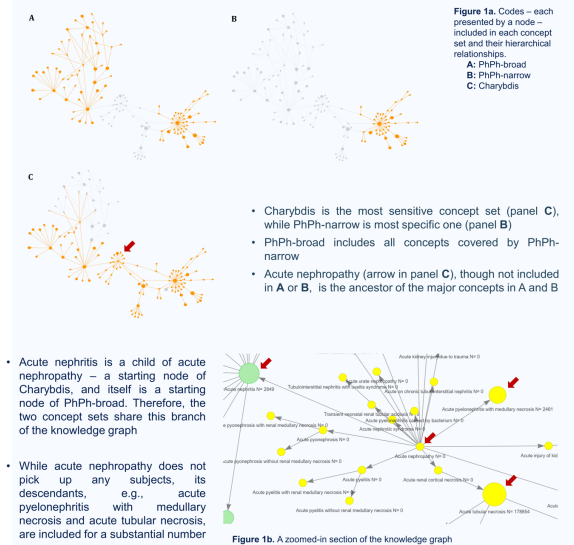
Knowledge Graph to aid Cohort Diagnostics in concept sets developing

Mai Nguyen¹, Christina Raabe¹, Stephanie von Klot¹
 1-Boehringer Ingelheim International GmbH, Ingelheim, Germany

Background

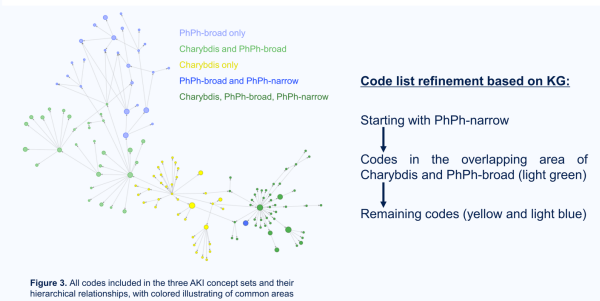
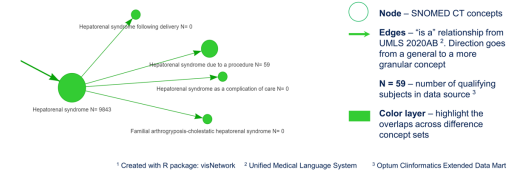
- For phenotype development, it is common to start with more than one code list for each clinical idea
- Comparison of related code lists **while maintaining hierarchical relationships** is a key task during medical review, which is not well supported by the current Cohort Diagnostic tool version
- We introduced a knowledge graph (KG) to assist with this purpose and illustrate how we had utilized it in a use case for Acute Kidney Injury (AKI) alongside Cohort Diagnostics

Results



Methods

- Three AKI concept sets were adopted from OHDSI research community: Charybdis, PhPh_narrow and PhPh_broad
- Knowledge graph were constructed to visualize their connections¹



Conclusions

- Knowledge Graph is a valuable aid to the phenotype development phase, could be utilised before along side the cohort diagnostics tool
- Future work is needed to expand the capability beyond SNOMED CT so that mix-domain code lists could be illustrated



Scan to download the interactive graph

Contact Information: Mai Nguyen, Boehringer Ingelheim International GmbH
 Email: thi_ngoc_mai.nguyen@boehringer-ingelheim.com



WEDNESDAY

Knowledge Graph to aid Cohort Diagnostics in concept sets developing
 (Thi Ngoc Mai Nguyen, Christina Raabe, Stephanie von Klot)



#OHDSISocialShowcase This Week

Criteria2Query: a natural language interface to clinical databases for cohort definition

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

Journal of the American Medical Informatics Association, ocy178, <https://doi.org/10.1093/jamia/ocy178>

Published: 07 February 2019 **Article history** ▾

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Abstract

Objective

Cohort definition is a bottleneck for conducting clinical research and depends on subjective decisions by domain experts. Data-driven cohort definition is appealing but requires

THURSDAY

Criteria2Query 2.0: Combining Human and Machine Intelligence for Cohort Identification (Yilu Fang, Betina Idnay, Yingcheng Sun, Hao Liu, Zhehuan Chen, Karen Marder, Hua Xu, Rebecca Schnall, Chunhua Weng)



#OHDSISocialShowcase This Week

Prediction of insulin resistance in depression is associated with long-term clinical outcome

PRESENTER: **Dong Yun** Lee

INTRO:

- 1. Background
 - Insulin resistance frequently co-occurs with depression
 - Insulin resistance may facilitate neuro-progression in depression
 - Identifying insulin resistance in patients with depression may be important for clinical outcomes
- 2. Objectives
 - We developed models to predict patients with insulin resistance and assess long-term outcomes in patients with depression

METHODS

- The study population
 - Individuals firstly diagnosed with depression
- The outcome for prediction
 - Insulin resistance (IR) within one year after diagnosis of depression
- The outcome for survival analysis
 - Relapse of depression within one or five years (emergency department visits or hospitalization)
- Model
 - PLP framework (XGBoost, random forest, LASSO)
- Data
 - Development: Aju University Medical Center CDM data
 - External validation: CDM data of three other Korean hospitals

RESULTS

- Best performance in XGBoost (AUROC = 0.722)
- External validation of DCMC WKUH, and KHNMC (AUROC = 0.694, 0.603, 0.590)
- In survival analysis, relapse occurred more frequently for patients predicted to have IR

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

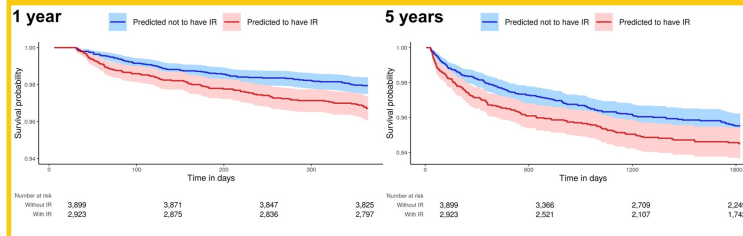


Figure 3. Kaplan-Meier survival analysis of long-term outcome in patients predicted by the machine learning models to have insulin resistance.



Take a picture to download the full paper

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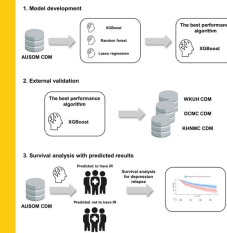


Figure 1. The schematic view of the study

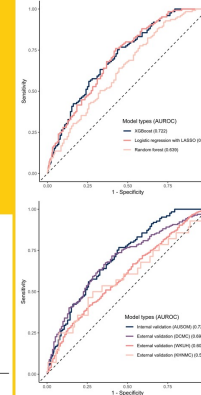


Figure 2. Performance of machine learning models for insulin resistance using internal and external validation dataset

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FRIDAY

Prediction of insulin resistance in depression is associated with long-term clinical outcomes (Dong Yun Lee, Chungsoo Kim, Jimyung Park, Rae Woong Park)



Where Are We Going?

**Any other announcements
of upcoming work, events,
deadlines, etc?**





Three Stages of The Journey

Where Have We Been?

Where Are We Now?

Where Are We Going?





March 7 Community Call: SOS Research Questions



Jack Janetzki

University of South Australia

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



Thamir Alshammary

Almaarefa University

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



Zenas Yiu

University of Manchester

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



Cindy X. Cai

Johns Hopkins University

Intravitreal Anti-VEGF and Kidney Failure