CDM Workshop, Part 2

OHDSI Community Call
March 15, 2022 • 11 am ET

Future OHDSI Community Calls

Date	Topic
March 22	OHDSI Vocabulary Journey
March 29	Reproducibility
April 5	Name That Result
April 12	OHDSI Coordinating Center
April 19	DARWIN EU
April 26	Open-Source Community

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March 22: The OHDSI Vocabulary Journey

Patrick Ryan

Vice President, Observational Health Data Analytics • Janssen Research & Development

Adjunct Assistant Professor • Columbia University

Christian Reich

Vice President, RWE Systems • IQVIA

Michael Kallfelz

Physician Executive • Odysseus Data Services

Three Stages of The Journey

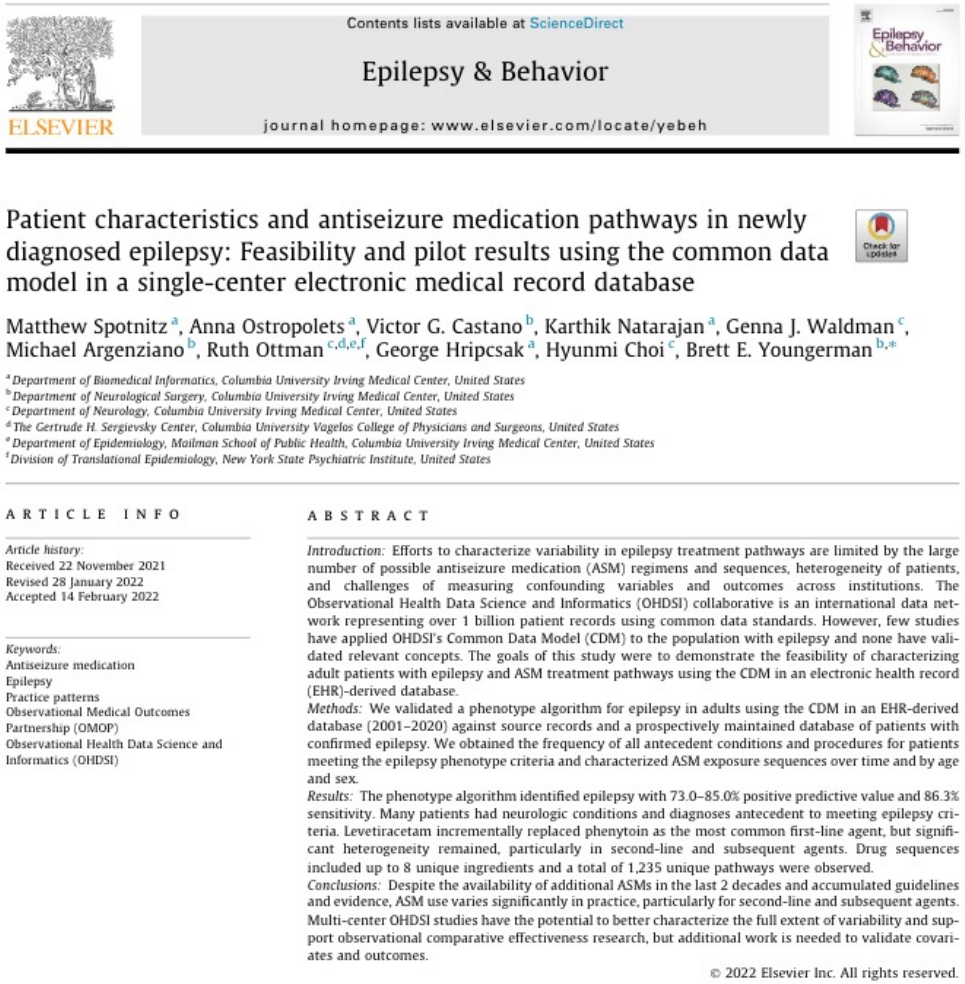
Where Have We Been?

Where Are We Now?

Where Are We Going?

OHDSI Shoutouts!

Congratulations to the team of **Matthew Spotnitz, Anna Ostropolets, Victor G. Castanob, Karthik Natarajan, Genna Waldman, Michael Argenziano, Ruth Ottman, George Hripcsak, Hyunmi Choi, and Brett Youngerman** on the publication of "**Patient characteristics and antiseizure medication pathways in newly diagnosed epilepsy: Feasibility and pilot results using the common data model in a single-center electronic medical record database** " recently in Epilepsy & Behavior.



Contents lists available at ScienceDirect

Epilepsy & Behavior

journal homepage: www.elsevier.com/locate/yebeh

Patient characteristics and antiseizure medication pathways in newly diagnosed epilepsy: Feasibility and pilot results using the common data model in a single-center electronic medical record database

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Observational Medical Outcomes Partnership (OMOP)
Observational Health Data Science and Informatics (OHDSI)

ABSTRACT

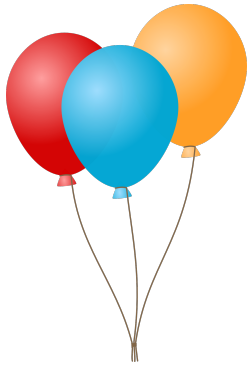
Introduction: Efforts to characterize variability in epilepsy treatment pathways are limited by the large number of possible antiseizure medication (ASM) regimens and sequences, heterogeneity of patients, and challenges of measuring confounding variables and outcomes across institutions. The Observational Health Data Science and Informatics (OHDSI) collaborative is an international data network representing over 1 billion patient records using common data standards. However, few studies have applied OHDSI's Common Data Model (CDM) to the population with epilepsy and none have validated relevant concepts. The goals of this study were to demonstrate the feasibility of characterizing adult patients with epilepsy and ASM treatment pathways using the CDM in an electronic health record (EHR)-derived database.

Methods: We validated a phenotype algorithm for epilepsy in adults using the CDM in an EHR-derived database (2001–2020) against source records and a prospectively maintained database of patients with confirmed epilepsy. We obtained the frequency of all antecedent conditions and procedures for patients meeting the epilepsy phenotype criteria and characterized ASM exposure sequences over time and by age and sex.

Results: The phenotype algorithm identified epilepsy with 73.0–85.0% positive predictive value and 86.3% sensitivity. Many patients had neurologic conditions and diagnoses antecedent to meeting epilepsy criteria. Levetiracetam incrementally replaced phenytoin as the most common first-line agent, but significant heterogeneity remained, particularly in second-line and subsequent agents. Drug sequences included up to 8 unique ingredients and a total of 1,235 unique pathways were observed.

Conclusions: Despite the availability of additional ASMs in the last 2 decades and accumulated guidelines and evidence, ASM use varies significantly in practice, particularly for second-line and subsequent agents. Multi-center OHDSI studies have the potential to better characterize the full extent of variability and support observational comparative effectiveness research, but additional work is needed to validate covariates and outcomes.

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?

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Where Are We Going?

Upcoming Workgroup Calls

Date	Time (ET)	Meeting
Tuesday	1 pm	Common Data Model
Wednesday	9 am	Africa Chapter
Wednesday	9 am	FHIR and OMOP Data Model Harmonization Subgroup (ZOOM)
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 Digital Quality Measurements Subgroup (ZOOM)
Friday	10:30 am	Clinical Trials
Tuesday	9 am	OMOP CDM Oncology – Genomic Subroup

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

Get Access To Different Teams/WGs/Chapters

5. Select the workgroups you want to join (you can refer to the WIKI for work group objectives www.ohdsi.org/web/wiki/doku.php?id=projects:overview)

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

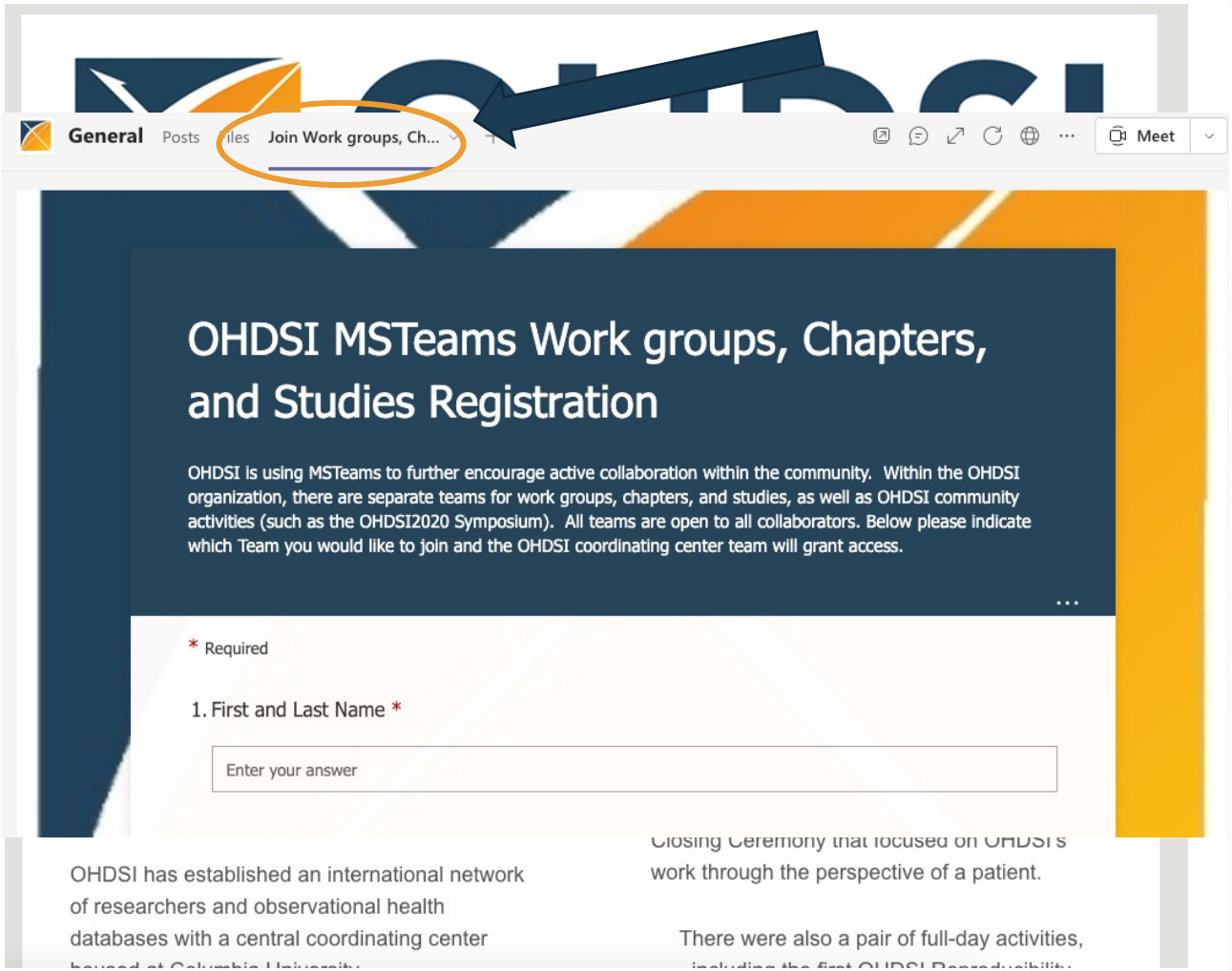
6. Select the chapter(s) you want to join

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

7. Select the studies you want to join

- [ ] HERA-Health Equity Research Assessment
- [ ] PIONEER for Prostate Cancer (study-a-thon ended)
- [ ] SCYLLA (SARS-Cov-2 Large-scale Longitudinal Analyses)

Get Access To Different Teams/WGs/Chapters



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2022 OHDSI U.S. Symposium

The 2022 OHDSI U.S. Symposium will be held Oct. 14-16 at the Bethesda North Marriott Hotel & Conference Center in Bethesda, Md. The main symposium day is scheduled to be Friday the 14th, while activities will be held the next two days.





OHDSI Dev Con

April 22, 2022 (8 am – 12 pm)

The Open-Source Community is hosting the first **Dev Con** as a way of accepting and mentoring new contibutors to our environment. We are planning multiple workshops, talks and a panel discussion to both welcome and engage both current and future developers within OHDSI.

Don't miss this opportunity! Use the link at the bottom to register!

Time	Topic
8 am	Open-Source Workshops
10 am	State of the OHDSI Community (Paul Nagy, Adam Black)
10:20 am	Keynote – Grand Vision for OHDSI Software Ecosystem (Martijn Schuemie)
11 am	Industry Panel Discussion (How Do/Should We Connect It All Together?)

bit.ly/OHDSIDev22

Are You Interested In …

- participating with an OHDSI project team?
- seeing 'under the hood' of the OHDSI engine?
- being mentored by professional developers?

Use This Link To Register Today!

Phenotype Phebruary “Phun Phacts”

Phenotype Phebruary Day 10 - Systemic Lupus Erythematosus

General

jswerdel Joel N. Swerdel — 6 edits — Feb 10

In this edition to Phenotype Phebruary, I'd like to discuss the work @Jill_Hardin and I did for developing phenotype algorithms in the immunology space for systemic lupus erythematosus.

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease of unknown origin. Clinical manifestations include fatigue, arthropathy, and involvement of nearly all organ systems, particularly cardiac and renal.(Jump et al, Greco et al 1, Miner et al 1, Danila et al 1) A review by Stojan and Petri 1 of research on multi-country incidence rate estimates found the incidence rate of SLE to be between 1-9 cases per 100,000 person-years (PY).

As @Patrick_Ryan has provided an excellent review of the details of the phenotype algorithm development process, I'll build on that to demonstrate how we used the process for our cohort definitions. We first conducted a literature search for phenotype algorithms for SLE. From those resources we determined the codes used in prior studies. We used those as a starting point and entered those into the wonderful PHOEBE tool developed by @aostropolets . The final concept set was:

We then began building our cohort definitions. We were concerned about possible index date misclassification as prior research 4 had indicated that there may be a long period between first symptoms and first diagnosis. We used the spectacular Cohort Diagnostics tool (thank you @Gowtham_Rao !) to examine the conditions and drugs in the time prior to an initial diagnosis of SLE and found in the IBM Commercial Claims and Encounters dataset:

Phenotype Phebruary Day 25 – Depression

General cohort

callahantiff — 18d

Team Members: @Juan_Banda , @bill.baumgartner

The goal of our Phenotype Phebruary post was to construct, characterize, and compare depression cohorts built using rule-based and probabilistic/heuristic-based methods. It is our hope that by the end of this post we will have *phe*-igued your curiosity and demonstrated how these methods can be combined to create more robust phenotype definitions than when used independently.

Depression

Depression is the most common psychiatric disorder that affects the general population with over 264 million people worldwide currently living with depression (ADAA, 2022 1). Symptoms of depression vary widely based on sex and age. While primary care providers are familiar with the symptoms of depression, over 60% of primary care patients with a previous depression diagnosis also present with somatic symptoms like head and backache, and chronic pain, which makes detection of depression more difficult (PMID:16163400; PMID:10536124). Without screening, only 50% of patients with major depression will be identified (PMID:19640579). This is most often due to fear; patients often withhold information about their depressive symptoms out of fear of being stigmatized (PMID:21911763).

Phenotype Phebruary Objectives

Traditionally, computational phenotypes have largely been expert-defined and have leveraged structured EHR data. More recently, development has shifted towards automated machine learning-based approaches. Each of these approaches has its advantages and disadvantages and we have designed our `Phenotype Phebruary` exercise to compare two such methods. Our primary objective was to construct, characterize, and compare depression cohorts built using rule-based (`Atlas` – i.e., gold standard) and probabilistic/heuristic methods (`APHRODITE` – i.e., silver standard). Our secondary objective was to showcase how to use an OHDSI tool that has not yet been used in the prior **Phenotype Phebruary** posts.

Phenotype Phebruary Day 14 - Hypertension (emphasis on clinical description)

General

Gowtham_Rao — 2 edits — 29d

On Valentines week - lets start he cardiovascular phenotypes. This week - we will work on

14	15	16	17
Hypertension *Gowtham Rao*	***Acute myocardial infarction*** *Gowtham Rao*	***Heart failure*** *Gowtham Rao*	***Cardiomyopathy*** *Gowtham Rao*

Happy Valentines day @AzzaShoaibi

I decided to change the pattern of how we have been posting on the forums based on the feedback @ the OHDSI Phenotype Development and Evaluation workgroup (please join here 3). The feedback was - this is intimidating, too long and i dont know I (a new contributor) can do this.

So - instead of one long one per day post, i am going to break it down into multiple posts per day - hopefully this will make it easier to read.

I am going to try to use this cardiovascular week related posts to assert/express some of the best practice opinions that we have developed at the OHDSI Phenotype Development and Evaluation workgroup with focus on all the steps that needs to be done PRIOR to touching Atlas or creating code sets + the importance of such pre work.

Reply

Feb 13
1 / 58
Feb 13
Back
1d ago

Phenotype Phebruary Day 24 - Anaphylaxis

General

ericaVoss — 18d

Clinical Definition
One can find a nice, updated definition for anaphylaxis developed by the Anaphylaxis Committee of the World Allergy Organization (WAO) here:
Turner PJ, Worm M, Ansotegui IJ, et al. Time to revisit the definition and clinical criteria for anaphylaxis?. World Allergy Organ J. 2019;12(10):100066. Published 2019 Oct 31. doi:10.1016/j.waojou.2019.100066

They have revised the definition for anaphylaxis as:

> Anaphylaxis is a serious systemic hypersensitivity reaction that is usually rapid in onset and may cause death. Severe anaphylaxis is characterized by potentially life-threatening compromise in breathing and/or the circulation, and may occur without typical skin features or circulatory shock being present. [1]

The paper also provides amended criteria for the diagnosis of anaphylaxis:

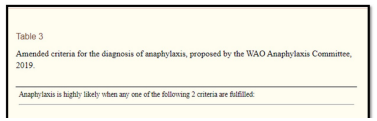
Table 3
Amended criteria for the diagnosis of anaphylaxis, proposed by the WAO Anaphylaxis Committee, 2019.
Anaphylaxis is highly likely when any one of the following 2 criteria are fulfilled:

Phenotype Phebruary

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Type 2 Diabetes Mellitus (Patrick Ryan)	2 Type 1 Diabetes Mellitus (Ryan)	3 Atrial Fibrillation (Ryan)	4 Multiple Myeloma (Ryan)	5 Alzheimer's Disease (Ryan)
6 Hemorrhagic Events (Ryan)	7 Neutropenia (Ryan)	8 Kidney Stones (Ryan)	9 Delirium (Azza Shoaibi)	10 Systemic Lupus Erythematosus (Joel Swerdel)	11 Suicidal Thoughts (Shoaibi)	12 Parkinson's Disease (Allan Wu)
13 Attention Deficit Hyperactivity Disorder (Ryan)	14 Hypertension (Gowtham Rao)	15 Acute Myocardial Infarction (Rao)	16 Heart Failure (Rao)	17 Cardiomyopathy (Rao)	18 Multiple Sclerosis (Shoaibi)	19 Triple Negative Breast Cancer (Adam Black)
20 Pulmonary Hypertension (Evan Minty)	21 Prostate Cancer (Asieh Golozar)	22 HIV (Rupa Makadia)	23 Hidradenitis Suppurativa (Jill Hardin)	24 Anaphylaxis (Erica Voss)	25 Depression (Tiffany Callahan, Juan Banda)	26 Non-Small Cell Lung Cancer (Golozar)
27 Drug-Induced Liver Injury (Anna Ostropolets)	28 Severe Visual Impairment & Blindness (Claudia Pulgarin)	Bonus Acute Kidney Injury (Marcela Rivera, David Vizcaya)				

ohdsi.org/phenotype-phebruary

EHDEN Hosts 4th (and final) Open SME Call

Ehden.eu

Next CBER Best Seminar

Topic CBER BEST Seminar Series - Addressing Selection and Confounding Bias in Test-Negative Study Designs for Flu and COVID-19 Monitoring

Description: The test-negative design (TND) has become a standard approach to evaluate vaccine effectiveness against the risk of acquiring infectious diseases such as Influenza, Rotavirus, Dengue fever and more recently COVID-19 in real world settings. Despite the TND's potential to reduce unobserved differences in healthcare seeking behavior (HSB) between vaccinated and unvaccinated subjects, substantial variability in unobserved HSB may remain among study participants. As latent HSB is likely also a strong predictor of selection into the TND sample, confounding bias of the vaccine's causal effect by latent HSB may be induced by collider stratification bias resulting from the TND.

Speakers

Dr. Eric Tchetgen Tchetgen

Luddy Family President's Distinguished Professor @Wharton School of the University of Pennsylvania

Eric J. Tchetgen Tchetgen is the Luddy Family President's Distinguished Professor at the Wharton School of the University of Pennsylvania. Professor Tchetgen Tchetgen comes to the University of Pennsylvania from Harvard University, where he has served since 2008 as Professor of Biostatistics and Epidemiologic Methods with joint appointments in the departments of Biostatistics and Epidemiology at the T.H. Chan School of Public Health. He researches infectious diseases, including HIV/AIDS, and the role of genetic and social factors in the patterns, causes, and effects of public health. Professor Tchetgen Tchetgen has received grants from the National Institutes of Health and the Centers for Disease Control. He completed his Ph.D. in Biostatistics at Harvard University in 2006 under the supervision of Professor James M. Robins. He received his B.S. in Electrical Engineering from Yale University in 1999.

Wed., April 27, 11 am ET

Opening at Oxford

Job Details

IT System Manager and Database Administrator

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

We are seeking to appoint a highly qualified and dedicated IT System Manager and Database Administrator to join the research groups led by Professor Daniel Prieto-Alhambra at the Botnar Research Centre, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS), Oxford. The Big Health Data Research group and the Pharmaco- and Device Epidemiology Research group are involved in a number of national and international studies. The former studies prevalent and rare conditions while the latter investigates the use and the risk-benefit of a number of licensed drugs, devices, and vaccines for the prevention and treatment of human disease in 'real world' conditions.

As an IT System Manager and Database Administrator, reporting to an experienced computer scientist you will identify and lead highly technical IT projects from conception to completion defining the standards and making decisions that improve quality and efficiency of data harmonisation, curation, and processing within the Department. You will have responsibility for strategic planning, design, implementation, optimisation and oversight of the Group's IT infrastructure, server facilities and IT support services to meet evolving research requirements. You will contribute to data analyses and Group's publications, establish and maintain effective communication and collaborative working relationships within the Group and wider research and IT community.

You will have a degree in electronic engineering, computer science, health informatics, software engineering or an equivalent combination of training and relevant work experience in a computing environment. Experience in server setup and server administration, including virtualisation (e.g. Hyper-V), encryption, authentication (e.g. Active Directory), firewalls and backups technologies as well as experience as relational DBMS administrator (e.g. PostgreSQL, MySQL) combined with excellent skills in at least one high level programming language (e.g. C#, C++, Python) are essential. Working experience in a Microsoft server/client environment and experience in database programming and/or performance optimisation in PostgreSQL are desirable.

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

Where Are We Going?

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

Welcome To OHDSI Newcomers

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

Please raise your hand and share why you are interested in joining the OHDSI community.

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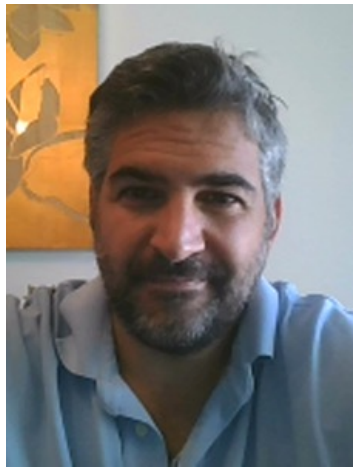
March 15: CDM Workshop, Part 2

Clair Blacketer

Associate Director
Janssen Research & Development



Anthony Molinaro

Manager, Epidemiology Analytics
Janssen Research & Development

Melanie Philofsky

Senior Business Analyst
and Project Manager
Odysseus Data Services, Inc.

Frank DeFalco

Director, Observational Health Data Analytics
Janssen Research & Development