



# OMOP on CQL on FHIR: The Intersection of Interoperability Standards and Digital Quality

OHDSI Community Call  
Aug. 1, 2023 • 11 am ET



# August Community Calls

Date	Topic
Aug. 8	New Community Member Introductions
Aug. 15	Next Steps for HowOften
Aug. 22	OMOP Supporting Clinical Registries
Aug. 29	Vocabulary Release Update



## Aug. 8: New Member Introductions

Next week's community call will be our annual "**Newcomer Introductions**" session. If you are new to the community, please join this call to introduce yourself, tell us why you have joined the community, and how OHDSI can help your research interests.

[bit.ly/OHDSI-Intros2023](https://bit.ly/OHDSI-Intros2023)



# Three Stages of The Journey

**Where Have We Been?**

**Where Are We Now?**

**Where Are We Going?**





# OHDSI Shoutouts!



Congratulations to the team of **Yu Jeong Lee, Jinmi Kim, Youngmi Han, Kyuhyun Hwang, Byungkwan Choi, Tae Ryom Oh, Il Young Kim, and Harin Rhee** on the publication of **Risk of Hyponatremia after Tramadol/Acetaminophen Single-Pill Combination Therapy: A Real-World Study Based on the OMOP-CDM Database** in *Drugs in R&D*.

Drugs in R&D  
<https://doi.org/10.1007/s40268-023-00436-4>

ORIGINAL RESEARCH ARTICLE



## Risk of Hyponatremia after Tramadol/Acetaminophen Single-Pill Combination Therapy: A Real-World Study Based on the OMOP-CDM Database

Yu Jeong Lee<sup>1</sup> · Jinmi Kim<sup>2</sup> · Youngmi Han<sup>3</sup> · Kyuhyun Hwang<sup>4</sup> · Byungkwan Choi<sup>5</sup> · Tae Ryom Oh<sup>6</sup> · Il Young Kim<sup>7</sup> · Harin Rhee<sup>7,8</sup> 

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### Abstract

**Background and Objective** Tramadol has been reported to cause hyponatremia but the evidence is conflicting. The risk of hyponatremia resulting from combination oral tramadol/acetaminophen (TA) therapy is thus unknown. This study examined whether, compared with acetaminophen (AA), TA use is associated with an increased risk of hyponatremia.

**Methods** Hospital data compatible with the Observational Medical Outcomes Partnership–Common Data Model (OMOP-CDM; version 5.3) for 30,999 patients taking TA or AA from 2011 through 2020 were analyzed. New-onset hyponatremia was defined as a serum sodium level < 135 mEq/L within 10 days after drug initiation. The incidence rate ratio was calculated based on crude and 1:1 propensity-score-matched models. Subgroup analyses compared patients taking TA extended-release (TA-ER) and TA immediate-release (TA-IR) formulations.

**Results** Among the 30,999 patients, 12,122 (39.1%) were aged > 65 years and 16,654 (53.7%) were male. Hyponatremia within 10 days developed in 1613 (8.4%) of the 19,149 patients in the TA group; the incidence rate was higher than in the AA group (4.2%; 493 out of 11,850 cases). In the propensity-score-matched model, the incidence rate of hyponatremia in the TA group was 6.8 per 1000 person-days (PD), which was 1.57-fold (1.31, 1.89) higher than that in the AA group (4.3 per 1000 PD). In both the crude and propensity-score-matched models, the incidence rate of hyponatremia was significantly higher in the TA-ER than TA-IR subgroup.

**Conclusion** In this real-world study, hyponatremia was more frequently observed in the TA than AA group, and in the TA-ER than TA-IR subgroup. Therefore, it is imperative to prescribe tramadol cautiously and closely monitor electrolyte levels.



# #OHDSISocialShowcase



[ohdsi.org/europe2023-showcase](https://ohdsi.org/europe2023-showcase)



# #OHDSISocialShowcase

## 2023 Europe Symposium Collaborator Showcase

1	<a href="#">The EHDEN Portal – Simplifying the access to OMOP CDM databases</a>	João Rafael Almeida, Nigel Hughes, Peter Rijnbeek, José Luís Oliveira
2	<a href="#">Privacy-preserving using k-anonymity and l-diversity in OMOP CDM databases</a>	João Rafael Almeida, José Luís Oliveira
3	<a href="#">The Dutch ICU Data Warehouse: towards a standardized multicenter electronic health record database</a>	Ameet Jagesar, Martijn Otten, Tariq Dam, Laurens Biesheuvel, Patrick Thorat, Armand Girbes, Harm-Jan de Grooth, Paul Elbers
4	<a href="#">Community Contribution to the OHDSI Vocabularies, User-Level QA and a New Entity Mapping System SSSOM</a>	Oleg Zhuk, Anna Ostroplets, Nicolas Matentzoglou, Melissa Haendel, Alexander Davydov, Christian Reich
5	Extract, Transform, and Load of the Infectious Disease CDM for Harmonizing and Accessing Data in Real-time Infectious Disease Surveillance	Byungjin Choi, Junhyuk Chang, Soobeen Seol, Seongwon Lee, Rae Woong Park
6	<a href="#">Roadmap and improvement of OHDSI Vocabularies</a>	Christian Reich, Alexander Davydov, Anna Ostroplets
7	<a href="#">Integrating the OMOP CDM into the AI Sandbox of the German Health Data Lab</a>	Eiham Taghizadeh, Maxim Moinat

18	<a href="#">Hierarchical clustering of microbial resistance profiles and ventilation protocols using the oncology extension</a>	Jared Houghtaling, Frederic Jung, Ankur Krishnan, Marc Padros Goossens, Frank Leus, Lauren Maxwell, Tom Feusels, Frejja Descamps
19	<a href="#">Capture and consolidation of renal specific concepts into a cohesive OMOP dataset</a>	Jared Houghtaling, Jose Antonio Ramirez Garcia, Clémence Le Correc, Lore Vermeylen, Nir Assaraf, Lars Halvorsen
20	<a href="#">Creation of a reusable OMOP transformation workflow for Belgian electronic health record systems</a>	Jared Houghtaling, Lore Vermeylen, Louise Vandenbroucke, Korneel Bernaert, Brecht Dekeyser, Frejja Descamps
21	<a href="#">Construction of a central ontology platform for semantic mapping coordination and vocabulary augmentation across a multi-partner oncology consortium</a>	Jared Houghtaling, Peter Prinsen, Maaik van Swieten, Chiara Attanasio, Lars Halvorsen
22	<a href="#">Application of the R-CDM extension to capture metadata and features extracted from quantitative brain MRI and CT data</a>	Jelle Praet, Jared Houghtaling, Frederic Jung, Steve De Backer, Jeroen Pinxten and Dirk Smeets
23	<a href="#">NNRD-AI: a national neonatal research database for rapid insights with machine learning and artificial intelligence</a>	Julia Lanoue, Kayleigh Ougham, Neena Modi, Sam Greenbury
24	<a href="#">OMOP-CDM Data conversion for the Papageorgiou General Hospital in Greece</a>	Achilleas Chytas, Maria Bigaki, Pantelis Natsiavas
25	<a href="#">Development of a GA4GH Beacon for structured Clinical Data Discovery using the OMOP-CDM</a>	Alberto Labarga, Sergi Aguiló
26	<a href="#">Quality Management System of the OHDSI Standardized Vocabularies</a>	Vlad Korsik, Anna Ostroplets, Christian Reich, Alexander Davydov

### Open-source analytics development

46	<a href="#">CDMConnector: Cross platform OMOP CDM database queries using dplyr</a>	Adam Black, Edward Burn, Artem Gorbachev, Martí Català
47	<a href="#">Development of an OMOP Ontology Application – PROSA – for creation and maintenance of highly granular source concepts within the OMOP vocabulary structure</a>	Jared Houghtaling, Emma Gesquiere, and Lars Halvorsen
48	<a href="#">A method to facilitate rapid stand up of OMOP research tools from validated libraries for RWE research</a>	Jack Brewster
49	<a href="#">Generating Synthetic Data from OMOP-CDM databases for Health Applications</a>	Alberto Labarga, Sergi Aguiló
50	<a href="#">Performance Improvement of Post-ETL in OMOP CDM</a>	Antonella Delmestri

### Clinical applications

51	<a href="#">Drug utilisation of valproate-containing medicinal products in women of childbearing age: a network study part of DARWIN EU®</a>	Albert Prats-Urbe, Martí Català, Katia M Verhamme, Maria de Ridder, Carlen Reyes, Talita Duarte-Salles, Peter Rijnbeek, Edward Burn, Daniel Prieto-Alhambra, Annika M. Jödicke
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# #OHDSISocialShowcase

## TUESDAY

# Creation of a reusable OMOP transformation workflow for Belgian electronic health record systems

(Jared Houghtaling, Lore Vermeylen, Louise Vandenbroucke, Korneel Bernaert, Brecht Dekeyser, Freija Descamps)

Creating a general harmonization process flow using a multi-stage transformation and tooling that is technology agnostic could promote further adoption of OMOP across Belgium and lead to opportunities for Belgian data owners to participate in cutting-edge, observational health data studies both within Europe and beyond

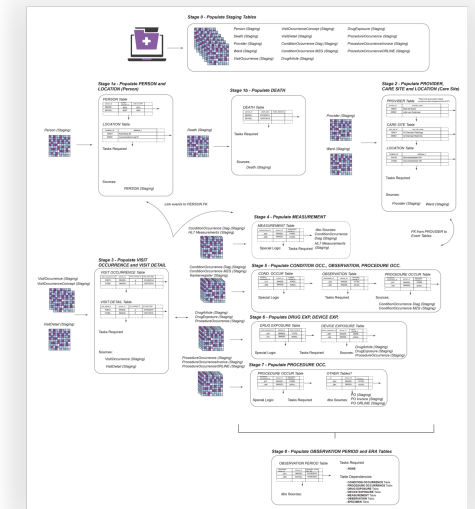
*Title: Creation of a reusable OMOP transformation workflow for Belgian electronic health record systems*

**BACKGROUND:** AZ Damiaan is a mid-size regional hospital located in Oostende in Belgium with 513 hospital beds [1]. The hospital joined the European Health Data and Evidence Network (EHDEN) in early 2022, and has been working together with edenceHealth to transform electronic health record (EHR), registry, and laboratory information system (LIS) data to the Observational Medical Outcomes Partnership (OMOP) common data model (CDM). The structure of the transformations that have been implemented thus far lend themselves toward generalizable tooling for hospitals with comparable medical record structures. More specifically, the team has opted for creating pre-OMOP staging tables that link source tables captured in different vendor systems and serving various purposes within the local data warehouse. In this work, we aim to present the approach taken to transform this rich datasource into OMOP CDM by (1) describing the processes in detail, (2) detailing the inherent challenges and advantages when working with this sort of data, and (3) outlining the next steps in generalizing this approach to apply at other hospitals around Belgium with comparable EHR systems.

**METHODOLOGY:** We performed the majority of the semantic mapping for this harmonization effort using edenceReviewer, a web-application alternative to Usagi that enables collaborative review of mapping suggestions. We first deployed an automated mapping – suggestions generated by a set of algorithms curated by edenceHealth – and uploaded it to the web portal, after which members of the team at AZ Damiaan manually approved or modified a total of 2140 source-to-standard mappings. In instances where community mappings were available – for ICD10CM, ICD10PCS, ATC, GGR and LOINC codes – we created lookup tables using the OMOP standard vocabulary relationships. We did not need to create custom concepts to map the observational data in this project. Note that the semantic mapping is still ongoing; we are prioritizing drugs initially because that domain has the lowest mapping coverage in our dataset, and the 20 most frequent un-mapped drugs represent nearly 1M additional records. The cancer registry also requires additional manual mapping – coverage using automated ICD03 lookups was rather poor, and we have begun looking toward regional and national cancer registries for collaborations in this effort. We intend to share the semantic mappings we have produced thus far to expedite other Belgian harmonization processes and to help validate the mappings themselves. The main structure of the Extract-Transform-Load (ETL) process is written in python; transformations are written in embedded SQL using an f-string method and the tables are constrained using SQLAlchemy models. The ETL connects to the AZ Damiaan data warehouse, specifically referencing a set of views generated for the purposes of this EHDEN project. The ETL captures those views then loads them into a temporary source schema in the target OMOP database where they are joined with lookup files and transformed into their associated OMOP tables before being removed.

**LIMITATIONS AND DISCUSSION:** In total, we transformed approximately 27M unique records (incl. derived OMOP tables) for 182'000 individuals affiliated with AZ Damiaan hospital encounters. We faced several challenges in this harmonization effort: there were multiple formats of patient identifiers across different source systems that we needed to consolidate and subsequently validate, data access within particular source vendor systems was restricted and required workarounds for indirect access, and source concept descriptions for the procedural (via invoicing) records in particular were highly granular. Building on these experiences, we are in the process of compiling an EHR OMOP module that could be deployed at other hospitals around Belgium with similar health record profiles and source vendors. We will construct a set of SQL-Server-based procedures and associated mapping tables that can execute at regular intervals within a hospital data warehouse. We expect this module and its various components to improve the harmonization efficiency and conformance for hospitals among various Belgian-specific consortia in which we are participating.

Figure 1: Overview of process for transforming staging tables, created by linking tables created by different vendors and source electronic health record (EHR) systems, to their OMOP equivalents



Jared Houghtaling\*, Lore Vermeylen\*, Louise Vandenbroucke\*, Korneel Bernaert\*, Brecht Dekeyser\* and Freija Descamps\*

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REFERENCES  
[1] Observational Evidence. AZ Damiaan. (2022, April 27). Retrieved April 27, 2023, from <https://naccdamiaan.be>





# #OHDSISocialShowcase

## WEDNESDAY

# NNRD-AI: a national neonatal research database for rapid insights with machine learning and artificial intelligence

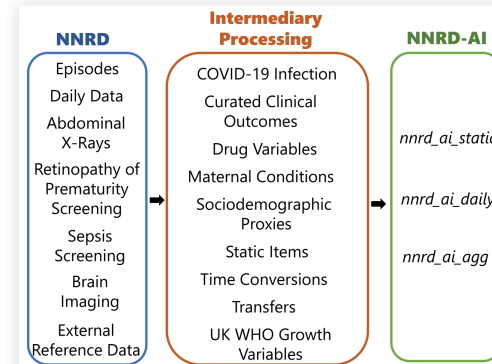
(Julia Lanoue, Kayleigh Ougham, Neena Modi, Sam Greenbury)

The **NNRD-AI** provides enhanced **flexibility** and **accessibility** for **neonatal critical care admissions data**

*NNRD-AI: a national neonatal research database for rapid insights with machine learning and artificial intelligence*

**Background:** The National Neonatal Research Database (NNRD) is a relational database that holds patient-level clinical admissions data drawn from Electronic Patient Records from all 181 NHS neonatal units in England, Wales, Scotland, and Isle of Man. Using the NNRD requires domain knowledge to correctly manipulate and interpret items. The NNRD-AI addresses these complexities by providing a curated dataset that is easy to use without prior domain knowledge and will advance the range of applications.

### Pipeline Structure



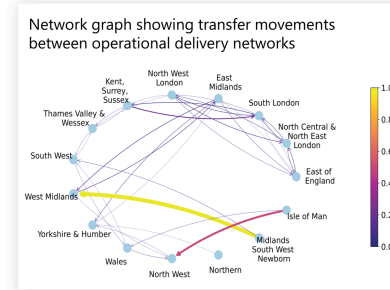
### Methods:

- The NNRD data is fed into the Python pipeline
- Curation includes:
  - Removal of improbable values
  - Outlier management
  - Type conversion
  - Growth standard deviation score calculation
  - Simplification of categorical variables
  - Conversion of nominal data to binary

### Results:

- There are over 1.3 million babies from 181 units included in the NNRD-AI
- The three main outputs are:
  - nnrd\_ai\_static**, baby-level table with static and clinical outcomes
  - nnrd\_ai\_daily**, curated daily summary table
  - nnrd\_ai\_agg**, baby-level table with daily summary items aggregated at different points across stay

### Example Application



One of the NNRD-AI intermediaries is a curated transfers table. This table includes information on admission and discharge times, discharge and receiving unit designation, and columns to indicate if the transfer occurred within the first 24-, 48- or 72- hours following delivery.

All clinical definitions and variables are validated against existing standard operating procedures used for the NNRD.



Julia Lanoue<sup>1</sup>, Kayleigh Ougham<sup>1</sup>, Neena Modi<sup>1</sup>, Sam Greenbury<sup>2</sup>  
 Link to Health Data Research UK Gateway for full data specification and request form



<sup>1</sup> Neonatal Data Analysis Unit, Imperial College London  
<sup>2</sup> Institute for Translational Medicine and Therapeutics Data Science Group, Imperial College London



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## THURSDAY

# OMOP-CDM Data conversion for the Papageorgiou General Hospital in Greece

(Pantelis Natsiavas, Grigoris Papapostolou)

## OMOP CDM Challenges ETL Automation

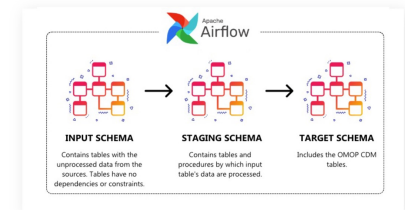
Title: The transformation process of PGH's data to OMOP CDM

**Background:** Papageorgiou General Hospital (PGH), is a pioneer in the Greek Public Health sector and its information system consists of many modernized databases and software tools. We state the steps and the challenges of the transformation process to the OMOP CDM.

### Result 1: Challenges

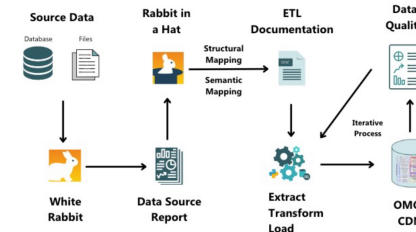


### Result 2: ETL Automation

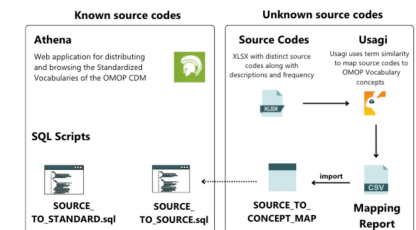


### Methods

#### 1 Transformation procedure



#### 2 Semantic mapping



Pantelis Natsiavas  
Grigoris Papapostolou





# #OHDSISocialShowcase

## FRIDAY

# Application of the R-CDM extension to capture metadata and features extracted from quantitative brain MRI and CT data

(**Jelle Praet**, Jared Houghtaling, Frederic Jung, Steve De Backer, Jeroen Pinxten and Dirk Smeets)

Combining the quantitative output of the deep-learning based **icobrain** software with this newly built OMOP ETL **enables us to bring quantitative brain imaging to OMOP at scale**; it offers tremendous value to future RWE studies focusing on neurodegenerative diseases

*Title: Application of the R-CDM extension to capture metadata and features extracted from quantitative brain MRI and CT data*

**BACKGROUND:** The use of quantitative radiology data has long been a challenge within the Observational Health and Data Science Institute (OHDSI) community as the Observational Medical Outcomes Partnership (OMOP) common data model (CDM) is unable to capture all facets of radiological data. The research group of Rae Woong Park has recently addressed this limitation by proposing to extend the OMOP CDM with the R-CDM radiology tables for OMOP [1]. **icometrix** and **edenceHealth** have joined forces, as part of the European Health Data and Evidence Network (EHDEN) project, to implement this R-CDM extension at **icometrix**. **icometrix'** proprietary software, **icobrain**, is a fully automated, deep-learning-based pipeline that provides standardised analytical measurements of brain magnetic resonance imaging (MRI) and computed tomography (CT) images for patients with multiple sclerosis (MS), dementia, traumatic brain injury, stroke and epilepsy. To make this standardised approach for quantitative radiological data available within OMOP, we built an ETL and combined it with a custom ontology and maintenance application, named **PROSA**, developed by **edenceHealth** [2]. AI-driven pipelines, like **icobrain**, generate massive amounts of quantitative data, which until recently was not available as radiologists had to manually and subjectively evaluate images. The adoption of the R-CDM extension meant we added 2 additional tables to the core OMOP CDM, in particular the 'Radiology Occurrence' and 'Radiology Image' tables. These tables enable us to keep track of both hierarchical connections between, and the metadata about, radiological studies and their associated images for a given patient.

Table 1: Source to target mappings for the Occurrence Table

Source Field	Target Field	Req.	Type	Note
autogenerate	radiology_occ_id (PK)	Yes	Int	UID for each image session
PatientID	person_id (FK)	Yes	Int	FK to PERSON table, person who was imaged
SeriesDate	radiology_occ_date	No	Date	Date when the study was taken
SeriesDate + Time	radiology_occ_datetime	No	Datetime	Date and time when the study was taken
Modality	modality	No	VC(10)	DICOM file type
Manufacturer	manufacturer	No	VC(50)	Manufacturing company of imaging equipment
Custom Id	protocol_concept_id	No	Int	Custom concepts generated using unique protocols in dataset
Custom Name	protocol_source_value	No	VC(255)	Custom concept name
SeriesNumber	count_of_series	No	Int	Total series generated per study
ImagesAcquisition	count_of_images	No	Int	Total images generated per study
ALL UNMAPPED	radiology_note	No	VC(MAX)	Concatenate unmapped info into note

\* Table inspired by content presented in [1]

Table 2: Source to target mappings for the Radiology Image Table

Source Field	Target Field	Req.	Type	Note
autogenerate	radiology_image_id (PK)	Yes	Int	UID for each image
ROI radiology_occ_id	radiology_occ_id (FK)	Yes	Int	UID for each image session
SeriesInstanceUID	radiology_series_id	Yes	Int	UID of each series
File_path	file_path	Yes	VC(255)	File path with image files
BodyPartExamined	body_part_source_value	No	VC(20)	Value indicating the photographed body part
Lookup concept using laterality	laterality_concept_id	No	VC(20)	Image shooting direction (anatomical plane)
Lookup concept using series	series_type_concept_id	No	VC(20)	Value indicating the type of the series
SeriesDescription	series_type_source_value	No	VC(20)	Additional source values describing the series
Lookup concept using SeriesDescription	series_total_number	No	Int	Number of images constituting each series
ImagesAcquisition	series_serial_number	No	Int	Order of images within each series
Rows	image_resolution_rows	No	Int	Image resolution (# horiz. pixels)
Columns	image_resolution_columns	No	Int	Image resolution (# vert. pixels)
SliceThickness	CT_slice_thickness	No	Numeric	Thickness of CT image slice

\* Table inspired by content presented in [1]

**METHODOLOGY:** We have created a structural mapping to link the DICOM metadata from **icobrain** to the R-CDM extension, with specific mappings shown below in Tables 1 and 2. Briefly, a python script first parses a repository of DICOM images and creates a data frame with one row per image and all associated metadata fields as columns. We integrated this script within our existing Extract, Transform, Load (ETL) processes, such that all OMOP CDM tables (both standard and extension) are properly filled per ETL execution. We are in the process of defining additional quality check queries to investigate the metadata contained in those tables, and to cross reference data in the standard OMOP tables with the supplemental extension tables. Note that we needed to define custom concepts to adequately describe imaging protocols used to generate DICOM files, and we mapped those concepts and associated protocols to the protocol\_concept\_id field in the Radiology Occurrence table. Moreover, we concatenated the metadata not captured by the extension tables into the radiology\_note field to ensure complete data coverage within the OMOP data set.

**LIMITATIONS AND DISCUSSION:** The DICOM parser we implemented was able to transform more than 100'000 DICOM files with both visual and meta information. Importantly, by using the radiology extension criteria, we are now able to generate custom cohorts for patients with multiple sclerosis (MS), dementia, traumatic brain injury, stroke and epilepsy, that account for the technical specifications of the imaging tools. This capability is critical, as it will lend insight into the effects of imaging protocol and manufacture bias, and it will also enable us to investigate and further train the algorithms supporting **icobrain** in its feature extraction and image quantification in the context of OMOP data. Taken together, combining the quantitative output of the deep-learning based **icobrain** software with this newly built ETL enables us to bring quantitative brain imaging to OMOP at scale. This capability offers tremendous value to studies focusing on neurodegenerative diseases that, from a clinical point of view, rely heavily on brain imaging data for diagnosis and prognosis.



Jelle Praet<sup>a</sup>, Jared Houghtaling<sup>b</sup>, Frederic Jung<sup>b</sup>, Steve De Backer<sup>a</sup>, Jeroen Pinxten<sup>a</sup>, and Dirk Smeets<sup>a</sup>

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1. Park, W. et al. (2022). <https://doi.org/10.24645/2022.01.014>  
2. Houghtaling, J. et al. (2021). <https://doi.org/10.1002/ehd2.2021.10001>  
3. Smeets, D. et al. (2021). <https://doi.org/10.1002/ehd2.2021.10002>  
4. Smeets, D. et al. (2019). <https://doi.org/10.1002/ehd2.2019.10001>





# 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](mailto: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
Wednesday	2 am	Methods Research
Wednesday	8 am	Psychiatry
Wednesday	12 pm	Health Equity
Thursday	9:30 am	Themis
Thursday	12 pm	Methods Research
Thursday	1 pm	OMOP CDM Oncology Vocabulary/Development Subgroup
Thursday	7 pm	Dentistry
Friday	9 am	GIS – Geographic Information Systems Development
Friday	1 pm	Clinical Trials
Monday	9 am	Vaccine Vocabulary
Monday	10 am	Africa Chapter
Monday	6 pm	OMOP & FHIR
Tuesday	9 am	OMOP CDM Oncology Genomic Subgroup



# Collaborator Spotlight: Davera Gabriel

## Collaborator Spotlight: Davera Gabriel

*Davera Gabriel, the Director for Terminology Management at the Johns Hopkins University School of Medicine, has had a distinguished career as a nurse informatician supporting local, regional, and national multi-site implementations of information technology, terminologies, and data standards in human and population health research. She has worked with numerous teams with various clinical and/or technical backgrounds and helped them achieve new heights in informatics.*

*As an inaugural chair of the HL7 Terminology Services Management Group, co-lead the OMOP + FHIR Working Group, and early participant in the National COVID Cohort Collaborative (N3C), Davera is focused on ways to strengthen the partnership between OHDSI and HL7/FHIR, including through a full-day event at the 2023 Global Symposium.*

*In the latest edition of the Collaborator Spotlight, Davera talks about her career journey, why OMOP is an ideal partner for the FHIR community, lessons learned as part of the N3C community, the HL7 FHIR-OMOP Connectathon, and plenty more.*



### **Can you discuss your career path around informatics and technology, and what your role is at Johns Hopkins University?**

Looking back, I did not imagine how far my career path would go. I started as a Registered Nurse in critical care before making a transition into Health IT. My first position in information systems was working on a large-scale Department of Defense deployment that sought clinical professionals to support end-users. I discovered an affinity for the work, so I quickly moved to a development team where I learned a little MUMPS. A short time after, I was recruited to work as a Product Manager for the Cerner Corporation, where I was the company's second Nurse hire.

Over the course of my career, I've had the great fortune to participate in many firsts in informatics: the first conversion of VT terminal functionality over to a GUI for DoD physicians, the first implementation of the first commercial integrated data repository, the first deployment of SNOMED CT by a major EMR vendor, and I developed the first terminology model for patient assessment scales using SNOMED CT. I lead the first data standards group supporting the first CTSAs, participated in the first federated implementation of i2b2, and helped build the first system linking all 5 University of California health systems' EMR data for translational research. More recently, I helped develop the first data transformation pipeline harmonizing observational data from 4+ common data models onto OMOP. Notable other contributions include foundations for much derivative work: co-author of the first HL7 Continuity of Care Document specification; co-author of the first Common Terminology Services 2 FSM; contributor to chapters in Rethinking Clinical Trials: A Living Textbook of Pragmatic Clinical Trials; and participant in the Data Ingestion and Harmonization team for the largest HIPAA-compliant research repository in history: The National COVID Cohort Collaborative (N3C). I've consistently been able to find teams that were achieving cutting-edge advances in informatics. I've also been fortunate in that these talented people brought our timely visions to fruition.





# Latest OHDSI Newsletter is Available



## Collaborator Spotlight: Davera Gabriel

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## Community Updates

### Where Have We Been?

- The **2023 Europe Symposium** was held July 1-3 in Rotterdam, Neth., and included a main conference and two days of workshops and tutorials. The event welcomed 350 attendees, featured 5 plenary sessions, 10 rapid-fire presentations, highlighted seven national nodes and included 90+ collaborator showcase presentations.
- The **2023 APAC Symposium** was held July 13-14 in Sydney, Aust., and included a main conference and a tutorial day. There were four main talks during the conference, and a full day of teaching around running a network study. Talks from both the Europe and APAC Symposium were recorded and will be posted to the symposium homepages when available.
- Research from the 2023 Europe Symposium is now available on OHDSI.org. Posters from the recent Collaborator Showcase in Rotterdam can now be viewed on [the Europe Symposium Showcase homepage](#). Research is also being shared daily on OHDSI's [LinkedIn](#) and [Twitter](#) feeds as part of the #OHDSISocialShowcase.

### Where Are We Now?

- Registration** is open for the **OHDSI Global Symposium**, which will be held Oct. 20-22 at the NEW location of the Hilton East Brunswick Hotel & Executive Meeting Center in East Brunswick, N.J. This **three-day event** will include a main conference and two days of workshops, tutorials and meetings, including the HowOften workshop discussed in the video above.
- Titan Award nominations are now open. To recognize OHDSI collaborators (or collaborating institutions) for their contributions towards OHDSI's mission, the OHDSI Titan Awards were introduced at the 2018 Symposium and have been handed out at the U.S./Global Symposium each year since. [You can nominate a community member for a 2023 Titan Award now](#); the deadline is Sept. 15, 2023.

## OHDSI Videocast: Symposiums, HowOften



## The Journey Newsletter (August 2023)

The Europe and APAC Symposiums took place in July, while the Global Symposium countdown is on. Research from the European Symposium Collaborator Showcase is available, as are the publications and presentations shared in July. There will be August sessions on the DARWIN EU<sup>©</sup> program and the new vocabulary release, while more information on the Global Symposium (Oct. 20-22) is shared below. [#JoinTheJourney](#)

## Europe Symposium Highlights Community Growth with 90+ Research Posters/Demos, Reports On Darwin/European Initiatives Progress



The 2023 Europe Symposium, held July 1-3 in Rotterdam, featured the widest breadth of research ever shared at the European event, and it also hosted several plenary talks and national updates to show how strong the community continues to grow.

The main conference included several talks, including sessions focused on *European Initiatives Using the OMOP CDM and Data Analysis and Real World Interrogation Network (DARWIN EU<sup>©</sup>)*, as well as 10 lightning talks focused on OHDSI Community Evidence. Videos of all talks will be posted on the [Europe Symposium homepage](#) when available.

[mailchi.mp/ohdsi/august2023](https://mailchi.mp/ohdsi/august2023)

In the latest On The Journey video, Patrick Ryan and Craig Sachson reflect on both

### July Presentations

Hardin J, Makadia R, Black S, Lara-Corrales I, Diaz LZ, Kirby JS, DeKlotz CMC. [Characteristics and treatment pathways in pediatric and adult hidradenitis suppurativa: An examination using real world data](#). JAAD Int. 2023 May 30;12:124-132. doi: 10.1016/j.jdin.2023.05.011. PMID: 37409312; PMCID: PMC10319301.

Gandaglia G, Pellegrino F, Golozar A, De Meulder B, Abbott T, Achtman A, Imran Omar M, Alshammari T, Areia C, Asimwe A, Beyer K, Bjartell A, Campi R, Cornford P, Falconer T, Feng Q, Gong M, Herrera R, Hughes N, Hulsen T, Kinnaird A, Lai LYH, Maresca G, Mottet N, Oja M, Prinsen P, Reich C, Remmers S, Roobol MJ, Sakalis V, Seager S, Smith EJ, Snijder R, Steinbeisser C, Thurin NH, Hijazy A, van Bochove K, Van den Bergh RCN, Van Hemelrijck M, Willemsse PP, Williams AE, Zounemat Kermani N, Evans-Axelsson S, Briganti A, N'Dow J; [PIONEER Consortium. Clinical Characterization of Patients Diagnosed with Prostate Cancer and Undergoing Conservative Management: A PIONEER Analysis Based on Big Data](#). Eur Urol. 2023 Jul 4;S0302-2838(23)02944-5. doi: 10.1016/j.eururo.2023.06.012. Epub ahead of print. PMID: 37414703.

Mayer CS, Huser V. [Learning important common data elements from shared study data: The All of Us program analysis](#). PLoS One. 2023 Jul 7;18(7):e0283601. doi: 10.1371/journal.pone.0283601. PMID: 37418391; PMCID: PMC10328251.

Kohler S, Boscá D, Kärcher F, Haarbrandt B, Prinz M, Marschollek M, Ellis R. [Eos and OMOCL: Towards a seamless integration of openEHR records into the OMOP Common Data Model](#). J Biomed Inform. 2023 Jul 12;144:104437. doi: 10.1016/j.jbi.2023.104437. Epub ahead of print. PMID: 37442314.

Im YG, Han MY, Baek HS. [Association of Serum Vitamin D Level with Temporomandibular Disorder Incidence: A Retrospective, Multi-Center Cohort Study Using Six Hospital Databases](#). Nutrients. 2023 Jun 24;15(13):2860. doi: 10.3390/nu15132860. PMID: 37447187; PMCID: PMC10343618.



# OHDSI Got Talent!

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

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



[bit.ly/OHDSIGotTalent2023](https://bit.ly/OHDSIGotTalent2023)



# Titan Award Nominations Are Open!

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



[bit.ly/2023TitanNominations](https://bit.ly/2023TitanNominations)



# Global Symposium



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

[ohdsi.org/OHDSI2023](https://ohdsi.org/OHDSI2023)



# Global Symposium Weekend Agenda

	Friday, Oct. 20	Saturday, Oct. 21	Sunday, Oct. 22
7:00 am	Registration/Lite Breakfast	Lite Breakfast	Lite Breakfast
8:00 am	Welcome to OHDSI2023!	Intro to OHDSI Tutorial & OHDSI Workgroup Activities	OHDSI collaborative workshop: HowOften (part 2)
9:00 am	State of the Community		
10:00 am	Community Networking		
11:00	Plenary Session		
12:00 pm	Buffet Lunch	Buffet Lunch + Collaborator Showcase: Posters & Demos	Buffet Lunch + Collaborator Showcase: Posters & Demos
1:00 pm	Panel: Network Studies	OHDSI collaborative workshop: HowOften (part 1)	OHDSI workgroup activities
2:00 pm	Collaborator Showcase: Posters & Demos		
3:00 pm	Collaborator Showcase: Lightning Talks		
4:00 pm	Collaborator Showcase: Posters & Demos		
5:00 pm	Closing Talk & Titan Awards	Free time	We'll see you again in 2024!
6:00 pm	Networking Reception		
7:00 pm	OHDSI Got Talent!		

\* this agenda is tentative and subject to change



# Global Symposium

		2023 OHDSI Global Symposium										
		Friday, October 20- Sunday, October 22 Hilton East Brunswick Hotel and Meeting Center										
<b>Friday, October 20</b>												
Start	End Time	Grand Ballroom										
7:00	8:00	Registration/ Light Breakfast										
8:00	9:00	Welcome to OHDSI2023										
9:00	10:00	State of the Community										
10:00	11:00	Community Networking/ Meet the Mentors										
11:00	12:00	Plenary Session										
12:00	13:00	Buffet Lunch										
13:00	14:00	Panel: Network Studies										
14:00	15:00	Collaborator Showcase - Posters and Software Demonstrations	Exhibits									
15:00	16:00	Collaborator Showcase - Lightning Talks										
16:00	17:00	Collaborator Showcase - Posters and Software Demonstrations										
17:00	18:00	Closing Talk										
18:00	19:00	Networking Reception										
19:00	20:00	OHDSI Got Talent!										
<b>Saturday, October 21</b>		Grand Ballroom										
8:00	9:00											
9:00	10:00	Introduction to OHDSI Tutorial	Exhibits	Industry Special Interest	Perinatal & Reproductive	Oncology	HADES	CDM/Network Data Quality	Health Equity	Phenotype Evaluation	Medical Imaging	Natural Lang. Processing
10:00	11:00	Collaborator Showcase (and buffet lunch)										
11:00	12:00											
12:00	13:00											
13:00	14:00											
14:00	15:00	HowOften Large-scale Characterization Workshop										
15:00	16:00											
16:00	17:00											
<b>Sunday, October 22</b>		Grand Ballroom										
8:00	9:00											
9:00	10:00	HowOften Large-scale Characterization Workshop										
10:00	11:00											
11:00	12:00											
12:00	13:00	Collaborator Showcase (and buffet lunch)										
13:00	14:00											
14:00	15:00											
15:00	16:00											
16:00	17:00											



# OHDSI HADES releases: DataQualityDashboard 2.4.0

## 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 Framework<sup>1</sup> 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

*The number and percent of records with a value in the **cdmFieldName** field of the **cdmTableName** table less than **plausibleValueLow**.*

### Links

- [Browse source code](#)
- [Report a bug](#)
- [Ask a question](#)
- [DQD Example Output](#)

### License

Apache License (>= 2)

### Citation

[Citing DataQualityDashboard](#)

### Developers

Katy Sadowski  
Author, maintainer

Clair Blacketer  
Author

Ajit Londhe  
Author

Anthony Sena  
Author

Anthony Molinaro  
Author





# OHDSI HADES releases: PheValuator 2.2.9

## PheValuator

PheValuator is part of [HADES](#).

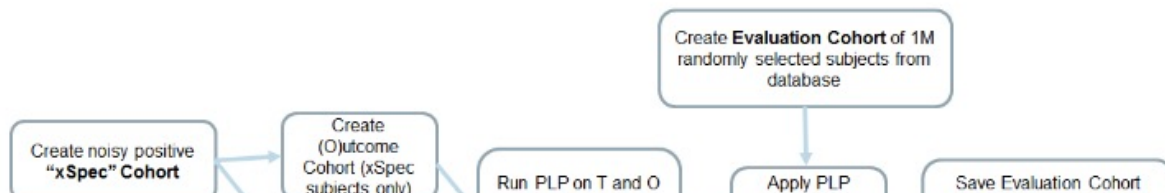
## Introduction

The goal of PheValuator is to produce a large cohort of subjects each with a predicted probability for a specified health outcome of interest (HOI). This is achieved by developing a diagnostic predictive model for the HOI using the PatientLevelPrediction (PLP) R package and applying the model to a large, randomly selected population. These subjects can be used to test one or more phenotype algorithms.

## Process Steps

The first step in the process, developing the evaluation cohort, is shown below:

### Step 1: Develop Evaluation Cohort from Diagnostic Predictive Model



### Links

[Browse source code](#)

[Report a bug](#)

[Ask a question](#)

### License

Apache License 2.0

### Citation


[Citing PheValuator](#)

### Developers

Joel N. Swerdel

Maintainer

### Dev status

 R-CMD-check passing

 codecov 72%







# New Opening: Tufts Medicine

**Tufts**Medicine

## Project Manager - Informatics

Apply

### II. PRINCIPAL DUTIES AND ESSENTIAL FUNCTIONS

- Demonstrates thorough knowledge of the project aims, scope, budget, and timeline. Creates and executes project plans with guidance from leadership, and revises as appropriate to meet changing needs and requirements. Ensures timely review and finalization of documents prepared by the team before submission.
- Contributes to new proposal development and writes/edits substantive sections.
- Manages day-to-day interaction with internal and external stakeholders, including managing expectations. Communicates effectively to identify needs and evaluate alternative business solutions.
- Facilitates internal and external meetings effectively. Holds regular status meetings with project team(s). Effectively communicates relevant project information to leadership, including task status and progress to milestones. Resolves and/or escalates issues in a timely fashion.
- Understands how to communicate difficult/sensitive information to varied stakeholders.
- Develops clear, actionable plans, coordinating completion of action items, setting deadlines, and tracking milestones.
- Convenes and aids committees or working groups to develop and sustain new and existing initiatives, including providing excellent written and verbal communications such as reports, proposals, and presentations to keep all stakeholders informed.
- Collects and analyzes data to track program/project progress and to inform continuous improvement, strategic decisions, and resource allocation.
- Manages events, meetings, including scheduling and logistical arrangements, serving as liaison to presenters/invitees, agenda preparation, materials distribution, minutes, follow-up, media, and audio-visual needs.
- Maintains collaborative team relationships with peers and colleagues to help foster a positive work environment.
- Performs other similar and related duties as required or directed.

# Job Openings – This Week In OHDSI page



**OMOP Data Analyst**

[Apply](#)

Wayne, PA, United States of America

Full time

Posted 5 Days Ago

R1363929

**OMOP Data Analyst**  
Job Overview

Under broad guidance, performs data analytics activities related to complex business problems and issues to provide insight to decision makers. May provide analytic support for internal project teams and for external client consulting or services engagements.

**Essential Functions**

- Under broad guidance, performs quantitative or qualitative analyses to support the development of solutions for internal or external client project teams.
- Identifies and interprets trends and patterns in datasets to support the development of recommendations.
- Constructs impact assessment based on business data and market knowledge. Creates specifications for reports and analysis based on business needs and required or available data elements.
- May directly produce datasets and reports for analysis using system reporting tools.
- Verifies data for accuracy and completeness.
- May manipulate and transform data to optimize analyses.
- Performs audits of own work or that of others to ensure conformance with established procedures or to resolve routine issues.
- May work with stand alone data systems or enterprise wide tools supporting activities such as inquiry resolution, data validation, and trend analysis.
- SQL programming is a must.
- OMOP data model work experience is required.
- Experience with clinical data, EHR or pharmaceutical data is required.

About Us

IQVIA is a world leader in using data, technology, advanced analytics, and expertise to help customers drive healthcare – and human health – forward. Together with the companies we serve, we are enabling a more

[Read More](#)

**COLUMBIA** UNIVERSITY  
DEPARTMENT OF BIOMEDICAL INFORMATICS

DBMI Home News & Events Research People Prospective Students Academics Resources

## 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.

**Open Rank- Tenure Track of Internal Medicine in Translational Informatics**

Albuquerque, NM, United States | req23346

[Apply Now](#) [Share](#) [Save Job](#)

**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 (B52T)
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 <a href="#">Benefits</a> home page for more information.
Position Summary	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. Salary will be commensurate with experience and education.

Boehringer Ingelheim is an equal opportunity global employer who takes pride in maintaining a diverse and inclusive culture. We embrace diversity of perspectives and strive for an inclusive environment which benefits our employees, patients and communities.

## Senior Associate Director, Real World Data & Analytics (Remote)-232633

**Description:**

The purpose of this job is to:

- Generate real world evidence (RWE) to support in-line and pipeline products.
- Provide statistical advice on the analysis of real world data (RWD) to various internal and external stakeholders.
- Contribute to the RWD acquisition strategy and tool evaluation.
- Participate in the development and presentation of RWE trainings.

As an employee of Boehringer Ingelheim, you will actively contribute to the discovery, development and delivery of our products to our patients and customers. Our global presence provides opportunity for all employees to collaborate internationally, offering visibility and opportunity to directly contribute to the company's success. We realize that our strength and competitive advantage lie with our people. We support our employees in a number of ways to foster a healthy working environment, meaningful work, diversity and inclusion, mobility, networking and work-life balance. Our competitive compensation and benefit programs reflect Boehringer Ingelheim's high regard for our employees.

**Duties & Responsibilities:**

- Provide expert advice in the analysis of real world data (such as medical claims, electronic health records, registries) for stakeholders in epidemiology, market access / HEOR, medical affairs, and other functional areas. These analyses may include:

R&D

## Associate Director, Observational Health Data Analytics – Global Epidemiology

<b>JOB TITLE</b>	Associate Director, Observational Health Data Analytics – Global Epidemiology
<b>FUNCTION</b>	R&D
<b>SUB FUNCTION</b>	Epidemiology
<b>LOCATION</b>	Raritan, New Jersey, United States; Horsham, Pennsylvania, United States; United States; Titusville, New Jersey, United States
<b>DATE POSTED</b>	May 23 2023
<b>REQUISITION NUMBER</b>	2306123161W

[Apply Now](#) [☆](#) [↔](#)

## 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

**Research Programmer Analyst (RPA) Remote/Hybrid**

IT EDW Operations  
Full Time  
72973BR

**Job Summary**

Work as a Research Programmer Analyst (RPA) on a small team to develop, operate, and maintain ETL processes, clinical data warehouses, and associated data products for health research.

The RPA's role is multi-faceted, involving domain knowledge (clinical data, research informatics), technical expertise, and communication skills. The RPA will operate, monitor, and enhance existing ETL processes and infrastructure, develop data profiles, perform quality assessments, investigate data anomalies, and create/maintain related documentation and annotated data dictionaries. The RPA will routinely communicate with researchers, clinicians, data scientists, and other stakeholders to stay aligned with needs and understand data requirements and translate them into efficient, well-documented ETL solutions.

The RPA will support multiple projects and data assets, including the PCORnet CDM (and related research projects), the UC Health Data Warehouse (UC HDW Operational OMP), and the 'All of Us' Research Program.

Responsibilities include, but are not limited to the following:

- Work closely with researchers, data scientists, and other stakeholders to understand their data requirements and translate them into efficient ETL solutions.
- Develop, implement, and maintain ETL processes using SSIS and T-SQL stored procedures to extract, transform, and load data from Epic EHR and other sources into common data models like PCORnet CDM and OHDSI's OMOP.
- Ensure data quality and integrity throughout the ETL process by performing data mapping, transformation, and validation.
- Optimize ETL processes for performance, scalability, and reliability, identifying and resolving bottlenecks as needed.
- Collaborate with team members to integrate data from disparate sources and ensure seamless data flow for research purposes.
- Maintain up-to-date knowledge of the healthcare domain, including clinical terminologies, workflows, data standards, and regulations.
- Adhere to data security best practices and ensure compliance with privacy regulations like HIPAA.
- Provide (and request) technical support and guidance to (and from) other team members as needed.
- Contribute to project management, setting priorities, and meeting deadlines.

To see the salary range for this position (we recommend that you make a note of the job code and use that to look up): [UCS Non-Academic Titles Search \(ucsc.edu\)](#)

Please note: The compensation ranges listed online for roles not covered by a bargaining unit agreement are very wide, however a job offer will typically fall in the range of 80% - 120% of the established mid-point. An offer will take into consideration the experience of the final candidate AND the current salary level of individuals working at UCSF in a similar role.

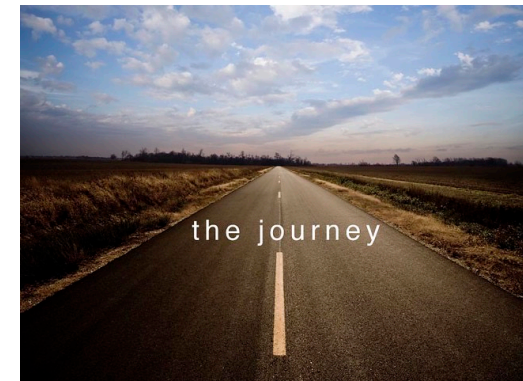
For roles covered by a bargaining unit agreement, there will be specific rules about where a new hire would be placed on the range.

To learn more about the benefits of working at UCSF, including total compensation, please visit: <https://ucsfnet.universityofcalifornia.edu/compensation-and-benefits/index.html>



# Where Are We Going?

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





# Three Stages of The Journey

**Where Have We Been?**

**Where Are We Now?**

**Where Are We Going?**



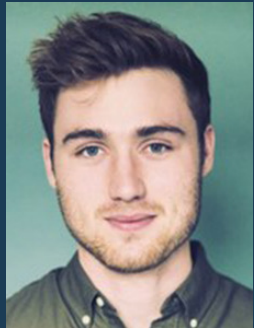


# Aug. 1 - OMOP on CQL on FHIR: The Intersection of Interoperability Standards and Digital Quality



## Ben Hamlin

Senior Research Informaticist, Quality Measurement and Research Group  
National Committee for Quality Assurance



## Jared Houghtaling

Software Development Analyst  
Tufts Clinical and Translational Science Institute



## Clark Evans

Tufts Clinical and Translational Science Institute