



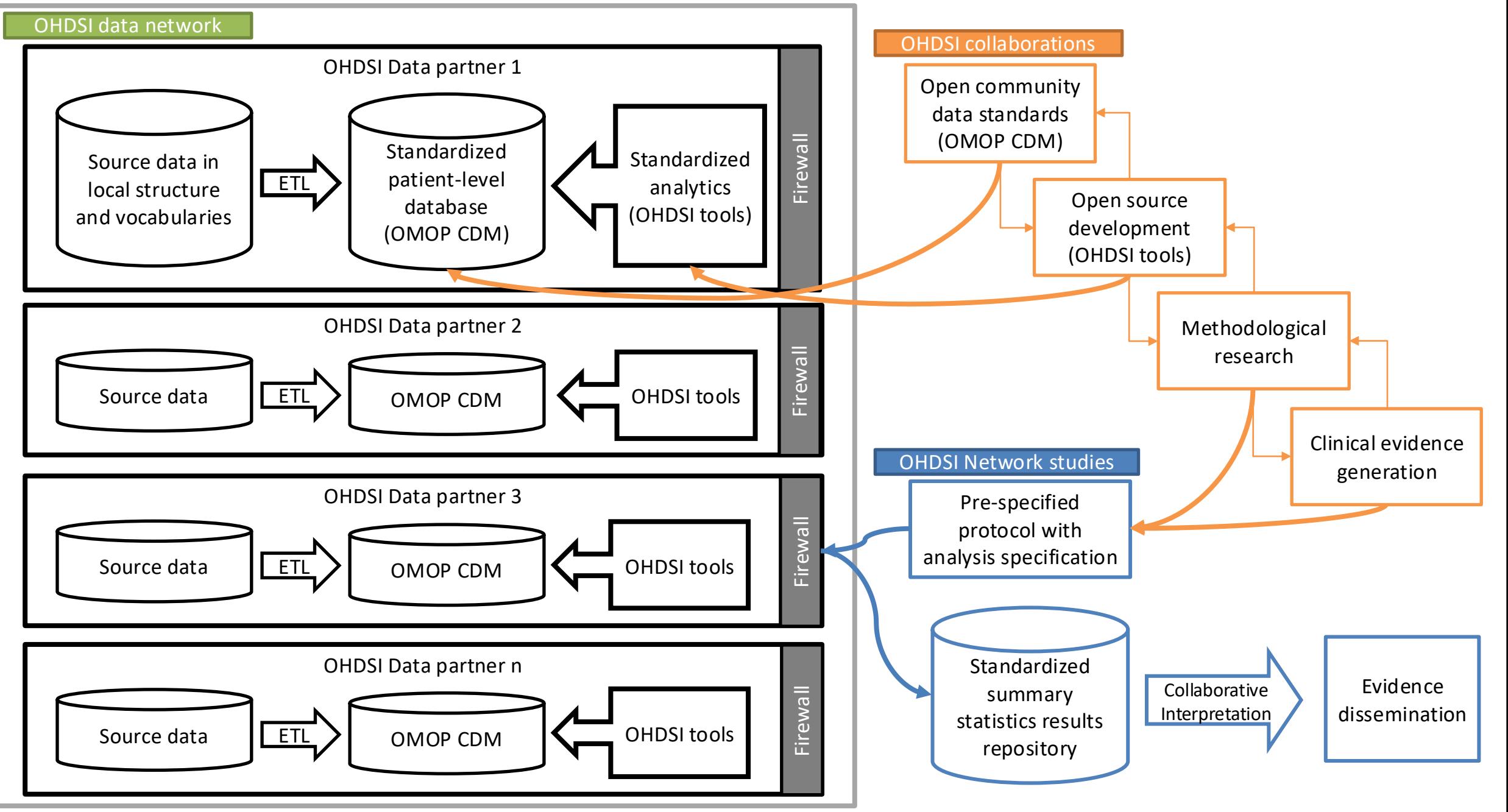
OHDSI in 2026:  
Where can we go together?



# OHDSI's mission

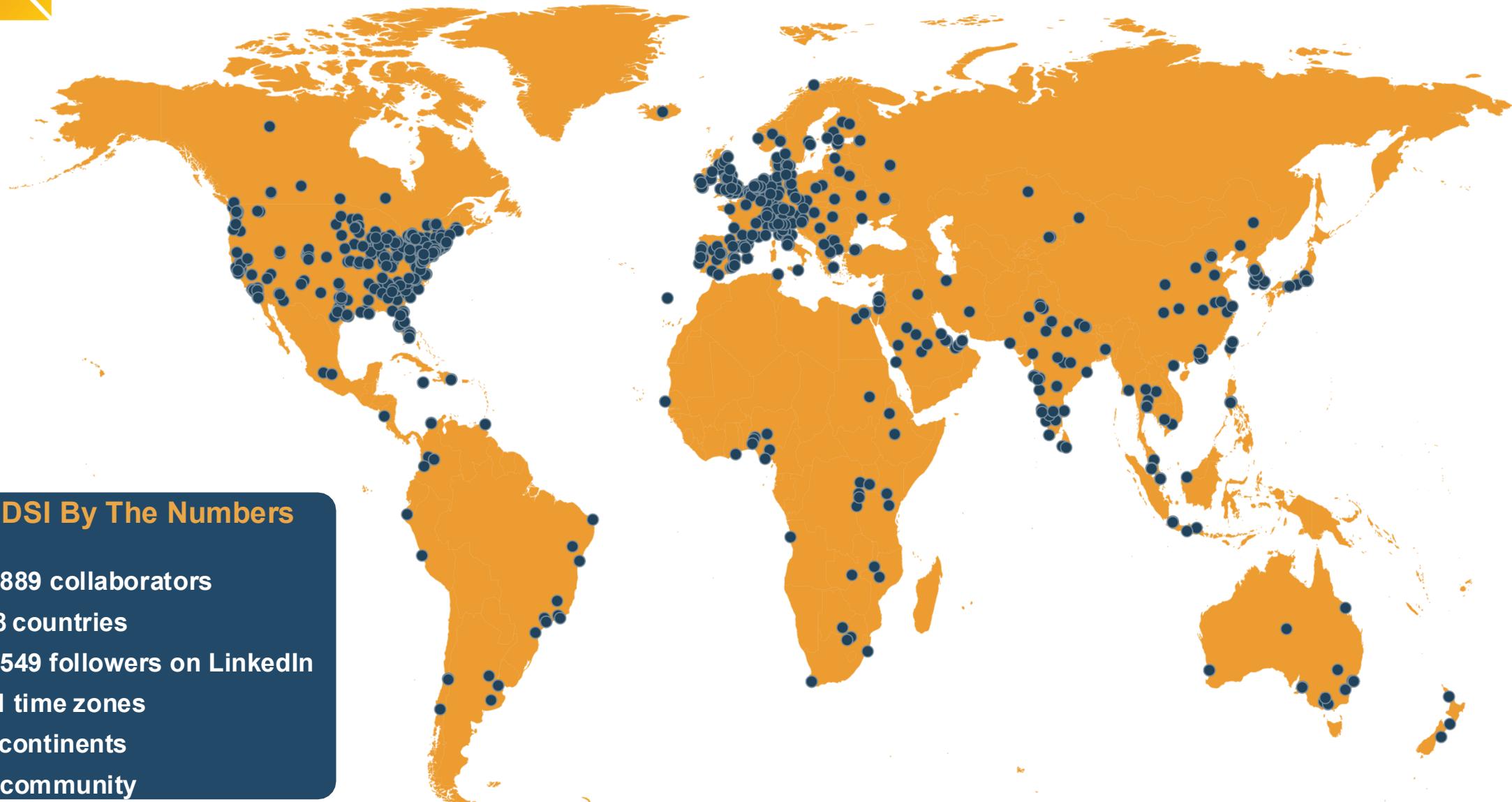
To improve health by empowering a community to collaboratively generate the evidence that promotes better health decisions and better care

# OHDSI Community





# OHDSI collaborators



## OHDSI By The Numbers

- 4,889 collaborators
- 88 countries
- 9,549 followers on LinkedIn
- 21 time zones
- 6 continents
- 1 community

Join the Journey at <https://ohdsi.org/>



# Regional chapters and national nodes

Africa



Agnes Kiragga



Cynthia Sung

Asia-Pacific (APAC)



Mui Van Zandt

Australia



Nicole Pratt

China



Hua Xu

Europe



Peter Rijnbeek



Swetha Kiranmayi Jakkuv

India



Vikram Patil



Parthiban Sulur

Japan



Tatsuo Hiramatsu

Latin America



Julio Oliveira

Republic of Korea



Rae Woong Park

Singapore



Seng Chan You

Taiwan

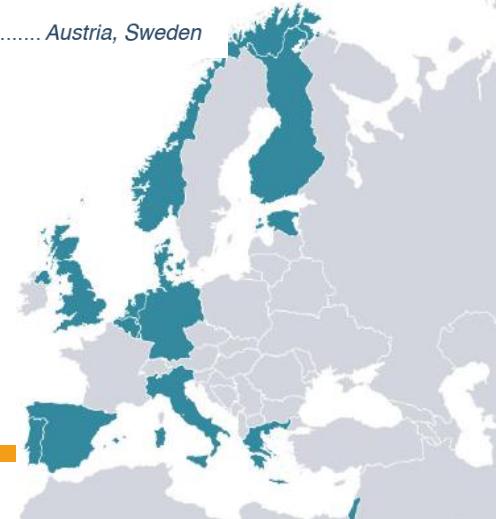


Mengling 'Mornin' Feng

Node.....

Lead(s)

|                          |                                                              |
|--------------------------|--------------------------------------------------------------|
| Belgium .....            | Liesbet Peeters, Annelies Verbiest, Ilse Vermeulen           |
| Denmark .....            | Ismail Gögenur, Martin Hoyer Rose, Andreas Weinberger Rosen  |
| Estonia.....             | Raivo Kolde, Sulev Reisberg                                  |
| Finland.....             | Eric Fey, Gustav Klingstedt                                  |
| Germany.....             | Ines Reinecke, Michele Zoch                                  |
| Greece .....             | Anastasia Farmaki, Pantelis Natsiavas, Grigoris Papapostolou |
| Hungary.....             | Zsolt Bagyura, Ágota Mészáros                                |
| Ireland.....             | Aedin Culhane, Mark Lawler, Catherine Mahoney                |
| Israel.....              | Chen Yanover                                                 |
| Italy .....              | Lucia Sacchi, Matteo Gabbetta                                |
| Luxembourg.....          | Claudine Backes, Andreas Kremer, Maria Quaranta              |
| Netherlands.....         | Renske Los, Aniek Markus                                     |
| Norway.....              | Espen Enerly, Siri Larønningen                               |
| Portugal.....            | Patricia Couceiro, Carmen Nogueira                           |
| Spain.....               | Miguel Angel Mayer, Talita Duarte Salles                     |
| Switzerland.....         | Olga Endrich, Karen Triep                                    |
| United Kingdom.....      | Dani Prieto-Alhambra                                         |
| <i>coming soon</i> ..... | <i>Austria, Sweden</i>                                       |





# Workgroups led by community

|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|-----------------------------------|------------------------------------|-----------------------|------------------------------------|-----------------------------------|----------------------|--|--|--|
| ATLAS/WebAPI                                                                                                                                                                                                                                                                        | Clinical Trials                         | Common Data Model                    | CDM Survey                        | CDM Vocabulary                     | Medical Imaging       | Methods Research                   | Natural Language Processing       | Network Data Quality |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Christopher Knoll                                                                                                                                                                                                                                                                   | Alexey Manoylenko                       | Mike Hamidi                          | Zhen Lin                          | Clair Blacketer                    | Nicole Gerlanc        | Anna Ostropolski                   | Paul Nagy                         | Song Chan You        |  |  |  |
| Databricks Users                                                                                                                                                                                                                                                                    | Dentistry                               | Early-Stage Researchers              | Electronic Animal Health Records  | Oncology                           | Open-Source Community | Patient-Level Prediction (PLP)     | Perinatal and Reproductive Health |                      |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| John Grosh                                                                                                                                                                                                                                                                          | Robert Koski                            | Shounak Chaitanya                    | Bon Martin                        | Harry Reyes Nieva                  | Manlik Kwong          | Wayde Shipman                      | Asieh Golozar                     |                      |  |  |  |
| Evidence Network Partners                                                                                                                                                                                                                                                           | Eye Care and Vision Research            | FHIR and OMOP                        | Perinatal and Reproductive Health | Phenotype Development & Evaluation | Psychiatry            | Rare Diseases                      |                                   |                      |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Clair Blacketer                                                                                                                                                                                                                                                                     | Paul Nagy                               | Sally Baxter                         | Cindy Cai                         | Kerry Goetz                        | Michelle Hribar       | Davera Gabriel                     | Louisa Smith                      |                      |  |  |  |
| FHIR and OMOP                                                                                                                                                                                                                                                                       | Generative AI & Analytics in Healthcare | GIS - Geographic Information Systems | HADES                             | Rehabilitation                     | Steering              | Surgery and Perioperative Medicine | Themis                            |                      |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Ben Hamlin                                                                                                                                                                                                                                                                          | Guy Tsafnat                             | Martijn Schuemie                     | Robert Miller                     | Kyle Zollo-Venecek                 | Anthony Sena          | Martijn Schuemie                   | Esther Janssen                    |                      |  |  |  |
| Health Economics and Value Assessment                                                                                                                                                                                                                                               | Health Equity                           | Healthcare Systems                   | Industry                          | Medical Devices                    | Transplant            | Vaccine Vocabulary                 | Women of OHDSI                    |                      |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Gaurav Dravida                                                                                                                                                                                                                                                                      | Gowtham Rao                             | Atif Amin                            | Melanie Philofsky                 | Paul Dougall                       | Sarah Seager          | Asiyah Lin                         | Sarah Seager                      |                      |  |  |  |
| <b>Workgroups Homepage</b><br>In OHDSI, there is a home for you. Please visit our workgroups homepage to learn more about each group, find the meeting schedule and sign up to one or several workgroups!<br><a href="http://www.ohdsi.org/workgroups">www.ohdsi.org/workgroups</a> |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
|                                                                                                                                                                                                                                                                                     |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |

When poll is active respond at [PollEv.com/patrickryan800](https://PollEv.com/patrickryan800)



**What do you want to accomplish together in 2026?**

Nobody has responded yet.

Hang tight! Responses are coming in.



# 2025 OHDSI Global Symposium post-it exercise

WHAT YOU  
ARE DOING  
IN OHDSI

WHAT YOU  
WANT TO  
BE DOING  
IN OHDSI

WHAT YOU  
NEED HELP  
TO DO IN  
OHDSI





# Themes from 2025 OHDSI Global Symposium post-its

## **What people are *currently doing***

- OMOP conversions + early network studies
- Methods development
- Domain-specific analyses
- Teaching or learning OHDSI foundational skills

## **What people *WANT to be doing***

- Advanced analytics (AI/ML, causal inference, trajectories)
- Larger network studies
- Contributing phenotypes and methods
- Engaging in international collaboration
- Establishing local OHDSI hubs

## **Where people *NEED HELP***

- Vocabularies + concept sets
- ETL and data quality
- Study execution (ATLAS/HADES)
- Methods mentoring
- Concrete examples and reproducible code



# 2025 Workgroup leader year-in-review summary: What's Needed

## A. Strategic Direction & Prioritization

- Clearer global OHDSI priorities
- A shared roadmap that aligns workgroups
- Guidance on where to focus limited resources

Groups **want top-down direction—not to constrain them, but to empower them.**

## B. Help with Participation, Recruitment, and Visibility

- Publicizing workgroup activities
- Helping attract contributors with needed skills
- Coordinated onboarding pathways for new members

The community needs **better talent matching and pipeline building.**

## C. Support for Cross-Group Coordination

- Mechanisms to align with related groups
- Shared communication channels for dependencies
- Avoiding duplicated or conflicting work

There is a strong desire for OHDSI to function more as an **integrated ecosystem.**

## D. More Dedicated Technical / Engineering Support

- Developer time
- Data engineering support
- Hands-on help for code review, pipeline building, vocab work, etc.

This echoes the earlier theme of **technical workforce constraints.**



# OHDSI Central Coordinating Center responsibilities

Steward open  
community  
data standards

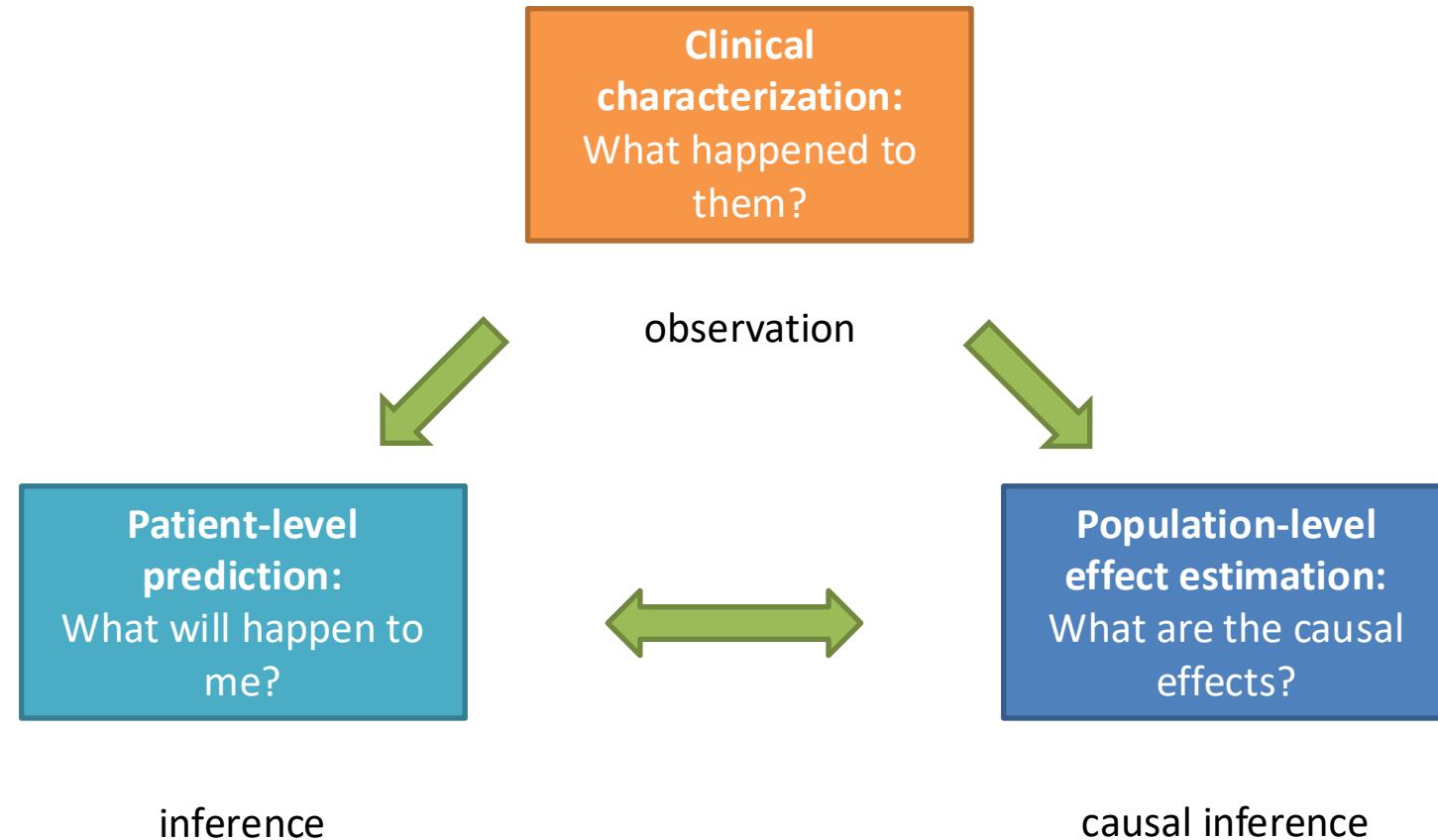
Enable open  
source  
development

Facilitate  
methods  
research and  
clinical  
applications

Encourage  
open sharing  
and evidence  
dissemination

Foster collaborations and empower community

# Complementary evidence to inform the patient journey



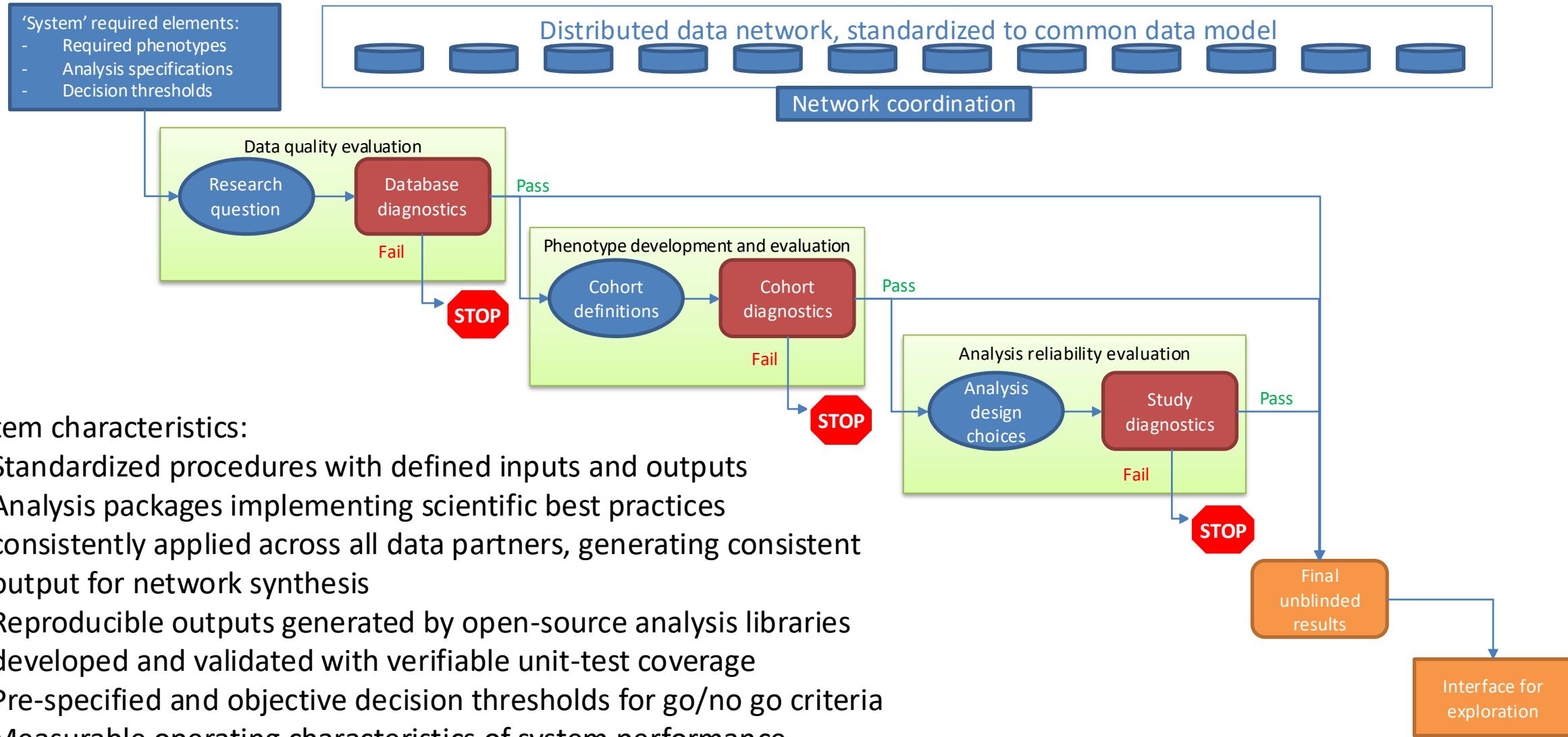


# Standardizing the question makes it possible to standardize the analysis and standardize the evidence

| Analytic use case                  | Type                          | Structure                                                                                                                                                                                                                                                                        |
|------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Clinical characterization          | Disease Natural History       | Amongst patients who are diagnosed with <insert disease of interest>, what are the patient's characteristics from their medical history?                                                                                                                                         |
|                                    | Treatment utilization         | Amongst patients who have <insert disease of interest>, which treatments were patients exposed to amongst <list of treatments for disease> and in which sequence?                                                                                                                |
|                                    | Outcome incidence             | Amongst patients who are new users of <insert drug of interest> among the population with <insert indication of interest>, how many patients experienced <insert outcome of interest> within <time horizon following exposure start>?                                            |
| Population-level effect estimation | Safety surveillance           | Does exposure to <insert drug of interest> increase the risk of experiencing <insert an adverse event> within <time horizon following exposure start>, among the population with <insert indication of interest>?                                                                |
|                                    | Comparative effectiveness     | Does exposure to <insert drug of interest> have a different risk of experiencing <insert any outcome (safety or benefit) > within <time horizon following exposure start>, relative to <insert comparator treatment>, among the population with <insert indication of interest>? |
| Patient level prediction           | Disease onset and progression | For a given patient who is diagnosed with <insert your favorite disease>, what is the probability that they will go on to have <another disease or related complication> within <time horizon from diagnosis>?                                                                   |
|                                    | Treatment response            | For a given patient who is a new user of <insert drug of interest> for <insert indication of interest>, what is the probability that they will <insert desired effect> in <time window>?                                                                                         |
|                                    | Treatment safety              | For a given patient who is a new user of <insert drug of interest> for <insert indication of interest>, what is the probability that they will experience <insert adverse event> within <time horizon following exposure>?                                                       |



# Engineering open science systems that build trust into the real-world evidence generation and dissemination process



## Top 1000 Drugs

SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein

## Drug Outcome Incidence in a large US claims database

vancomycin

diphenoxylate

primidone

travoprost

pertuzumab

ciclesonide



Top 1000 Outcomes

Studying an exposure:  
1 T

Top 1000 Drugs

vancomycin

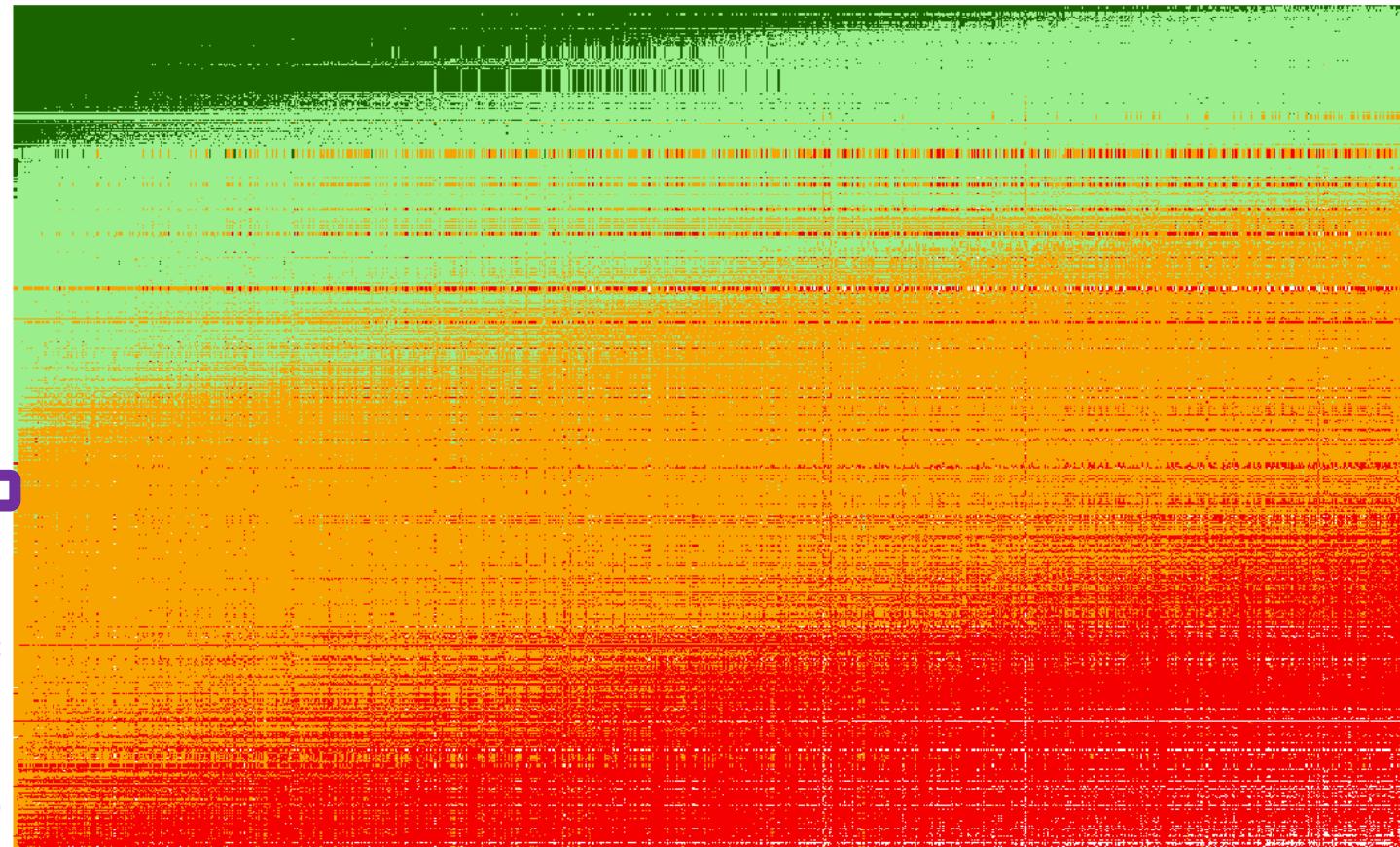
diphenoxylate

primidone

travoprost

pertuzumab

Drug Outcome Incidence in a large US claims database



Drug-outcome Incidence

< 0.000001  
0.000001 - 0.00001  
0.00001 - 0.0001  
0.0001 - 0.001  
> 0.001

- Phenotype development/evaluation
- Characterization:
  - Incidence
  - Feature prevalence
  - Treatment patterns
  - [Strength, Duration, Adherence/Persistence]

Visual disturbance  
Disorder of prostate  
Lumbosacral spondylosis without myelopathy  
Mass of right breast

Top 1000 Outcomes

- “O” = any health state:
  - Indication (e.g. Psoriasis)
  - Population of interest (e.g. pregnant women)
  - Outcome (e.g. AMI, hospitalization)
    - Benefit: reduced risk of bad outcome
    - Safety: increased risk of bad outcome
- Phenotype development/evaluation
- Characterization:
  - Incidence
  - Feature prevalence
  - Treatment patterns
  - [Recurrence, health utilization]

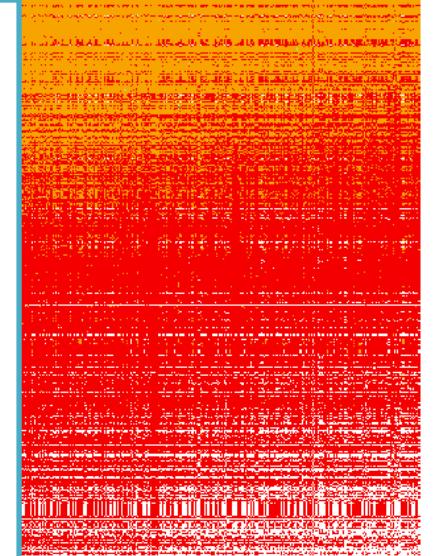
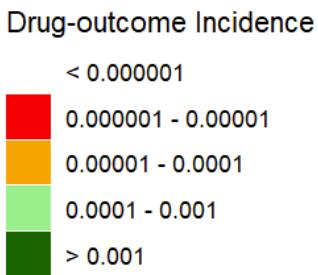
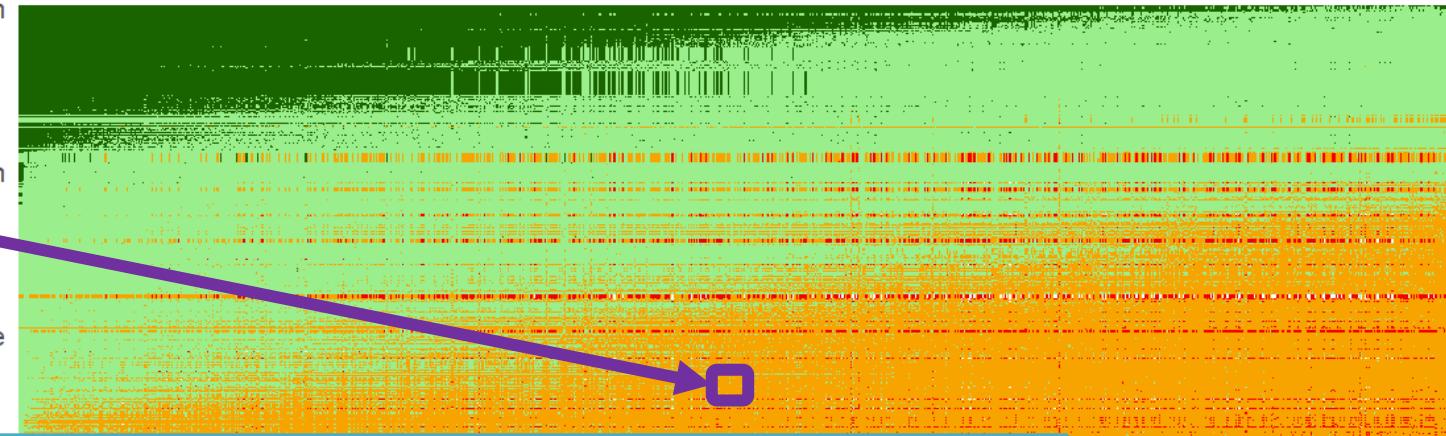


OHDSI network  
studies:  
 $1 T * 1 O$

vancomycin  
diphenoxylate

Everything you need for 1 T and everything you need for 1 O, plus:

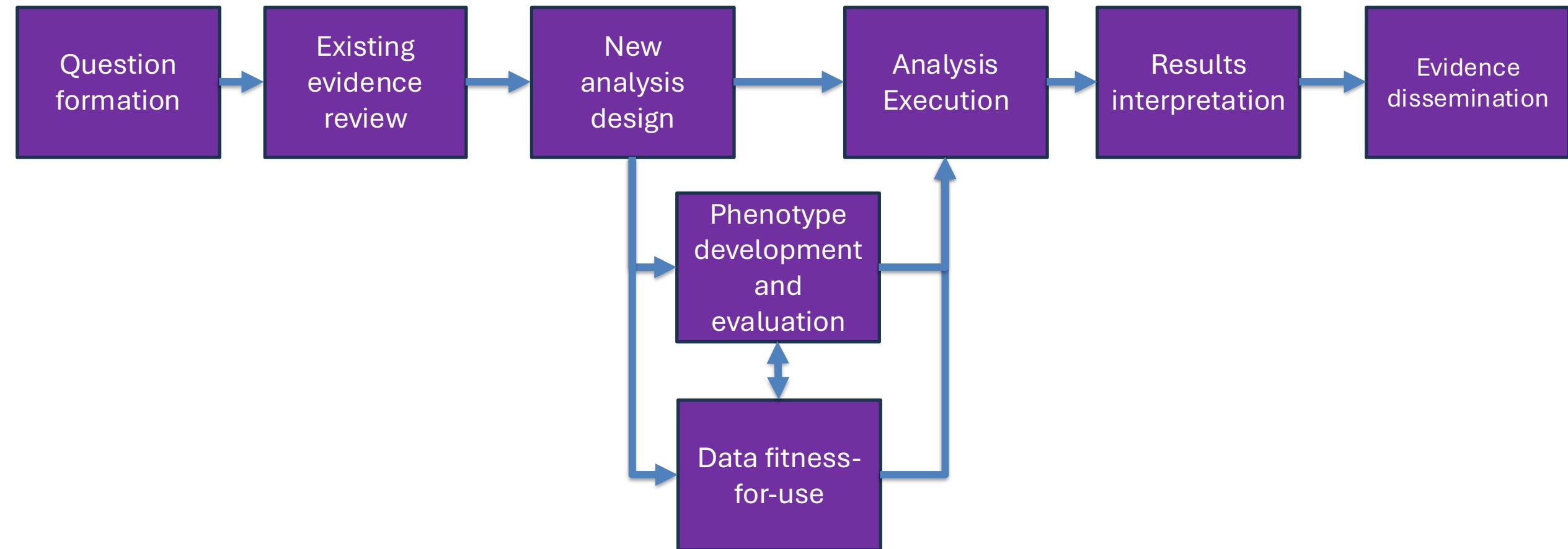
- Characterization:
  - Incidence of O in T
  - Time-to-event:  $T \rightarrow O$
  - Exposed case feature prevalence
  - Risk factors: T w O vs. T wo O
  - Dechallenge/rechallenge
  - [individual case profiles]
- Estimation:
  - Comparative cohort: T vs C for risk of O in TAR
  - SCCS / SCC : T for risk of O in TAR
  - [heterogeneity of treatment effects]
- Prediction:
  - $P(O \text{ in TAR} | T)$



sis without myopathy  
Mass of right breast



# Where along the evidence generation process can we improve reliability and increase efficiency?



## Drug Outcome Incidence in a large US claims database

Top 1000 Drugs



vancomycin

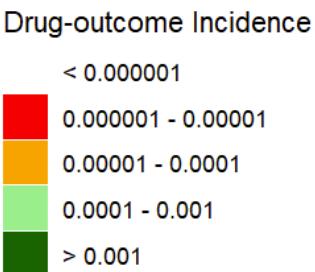
diphenoxylate

primidone

travoprost

nertuzumab

ciclesonide



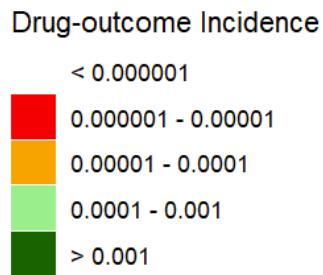
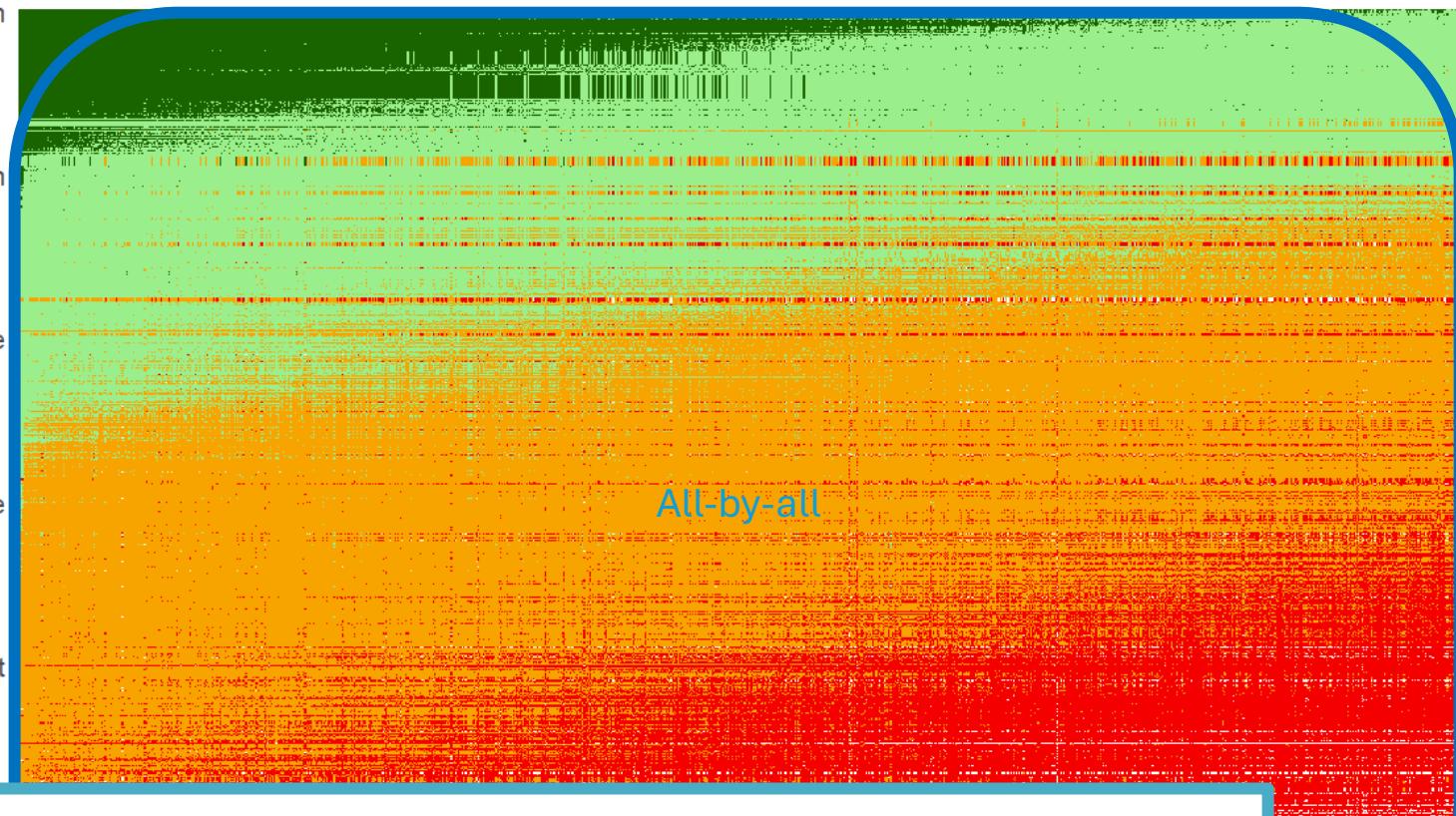
Top 1000 Outcomes

vancomycin

diphenoxylate

primidone

travoprost



Future opportunity: “All-by-all”: All Ts \* All Os

Given where we are and where we want to go, what are the critical solves:

- Define the universe of exposures and outcomes
- Develop scalable methods and computational infrastructure to generate results
- Create process and system for sharing findings

Mass of right breast

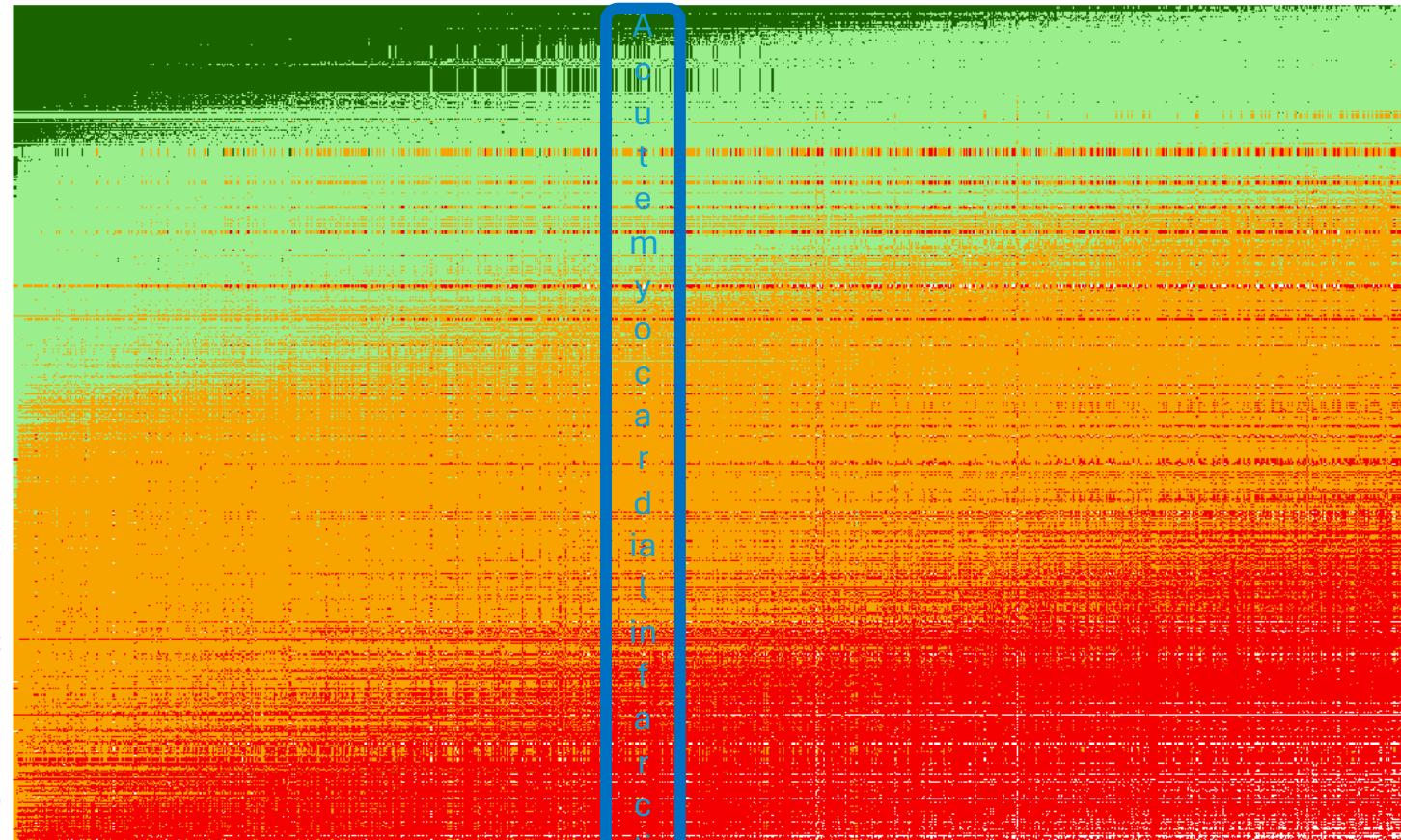
vancomycin

diphenoxylate

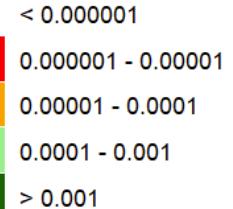
primidone

travoprost

pertuzumab



Drug-outcome Incidence



Potential 2026 opportunity: “All by one”: All drugs \* 1 outcome - Explore an outcome of interest

What do we need to solve?

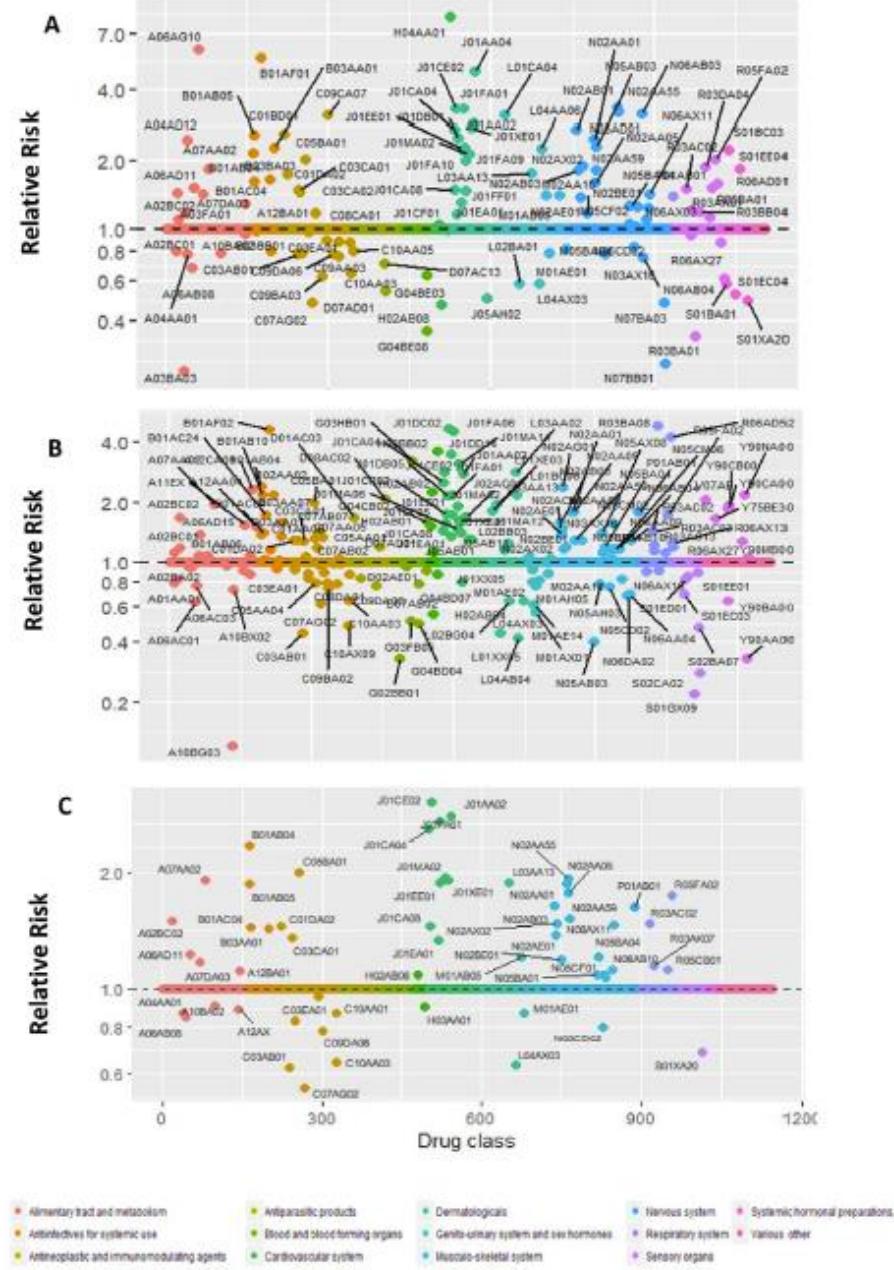
- Comprehensive understanding of outcome phenotype in all databases
- Scalable approach to identify indication and comparator for each target drug



OPEN Dispensed prescription medications and short-term risk of pulmonary embolism in Norway and Sweden

Dagfinn Aune<sup>1,2,3</sup>✉, Ioannis Vardaxis<sup>4</sup>, Bo Henry Lindqvist<sup>4</sup>, Ben Michael Brumpton<sup>5,6,7</sup>, Linn Beate Strand<sup>8</sup>, Jens Wilhelm Horn<sup>8,9</sup>, Inger Johanne Bakken<sup>10</sup>, Pål Richard Romundstad<sup>8</sup>, Kenneth J. Mukamal<sup>11</sup>, Rickard Ljung<sup>12</sup>, Imre Janszky<sup>8,13</sup> & Abhijit Sen<sup>8,14</sup>

Scandinavian electronic health-care registers provide a unique setting to investigate potential unidentified side effects of drugs. We analysed the association between prescription drugs dispensed in Norway and Sweden and the short-term risk of developing pulmonary embolism. A total of 12,104 pulmonary embolism cases were identified from patient- and cause-of-death registries in Norway (2004–2014) and 36,088 in Sweden (2005–2014). A case-crossover design was used to compare individual drugs dispensed 1–30 days before the date of pulmonary embolism diagnosis with dispensation in a 61–90 day time-window, while controlling for the receipt of other drugs. A BOLASSO approach was used to select drugs that were associated with short-term risk of pulmonary embolism. Thirty-eight drugs were associated with pulmonary embolism in the combined analysis of the Norwegian and Swedish data. Drugs associated with increased risk of pulmonary embolism included certain proton-pump inhibitors, antibiotics, antithrombotics, vasodilators, furosemide, anti-varicose medications, corticosteroids, immunostimulants (pegfilgrastim), opioids, analgesics, anxiolytics, antidepressants, antiprotozoals, and drugs for cough and colds. Mineral supplements, hydrochlorothiazide and potassium-sparing agents, beta-blockers, angiotensin 2 receptor blockers, statins, and methotrexate were associated with lower risk. Most associations persisted, and several additional drugs were associated, with pulmonary embolism when using a longer time window of 90 days instead of 30 days. These results provide exploratory, pharmacopeia-wide evidence of medications that may increase or decrease the risk of pulmonary embolism. Some of these findings were expected based on the drugs' indications, while others are novel and require further study as potentially modifiable precipitants of pulmonary embolism.



**Figure 1.** Case-crossover analysis of dispensed prescription medication use and risk of pulmonary embolism. The above plot illustrates (A) unique drug types which were selected in Norway, (B) unique drug types which were selected in Sweden, and (C) 59 drugs which were common hits from both the countries. Y-axis displays relative risk on the log scale, X-axis displays all the prescribed drugs studied grouped by the anatomical therapeutic chemical (ATC) classification.

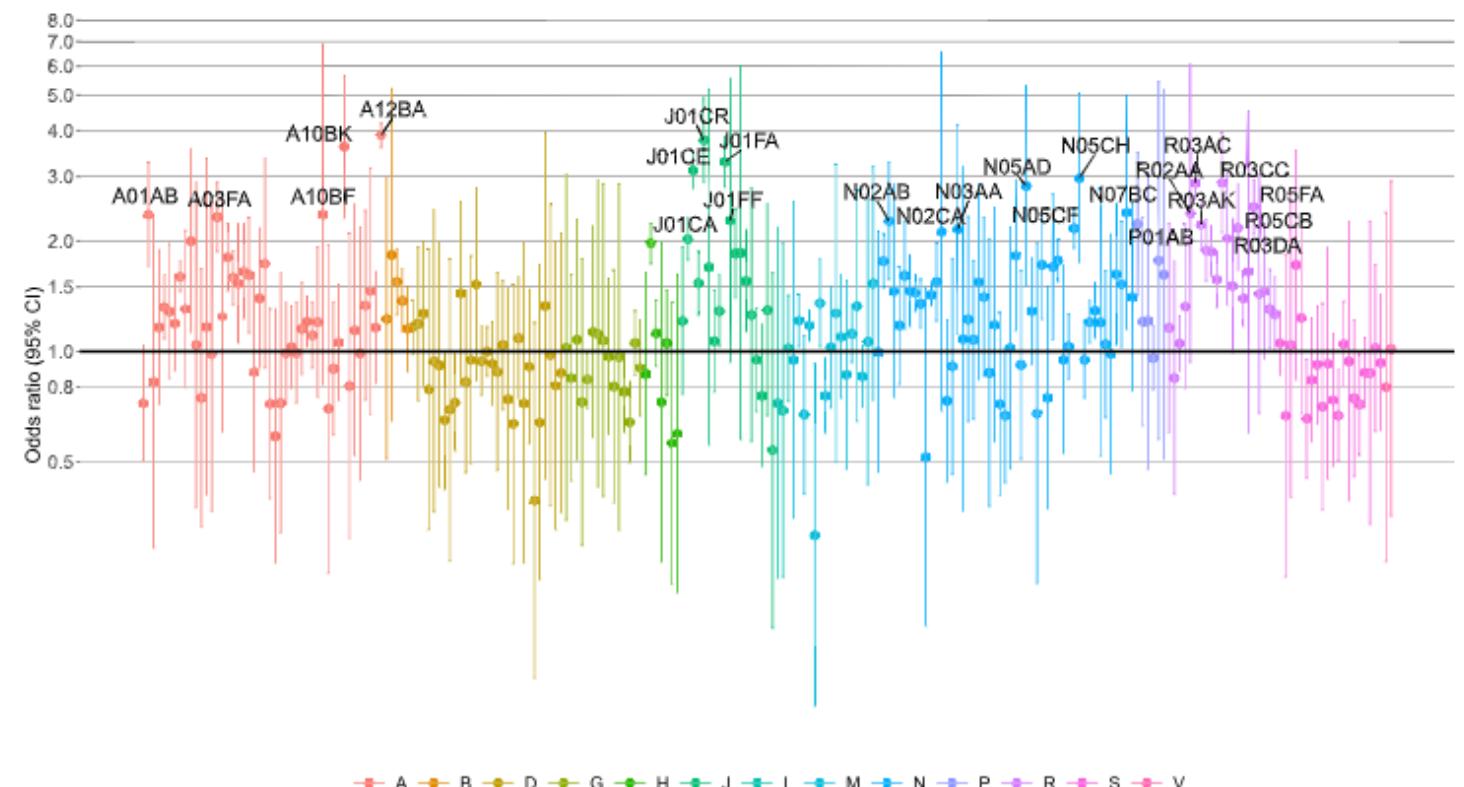


Received: 16 December 2024

Revised: 15 January 2025

Accepted: 19 Ja

DOI: 10.1002/bcp.16406



# Acute cardiovascular effects associated with prescription medications: A Database Review

Saad Hanif Abbasi  | Lars Christian Lund 

Martin Thomsen Ernst<sup>1</sup> | Anton Pottegård<sup>1</sup>

20 Feb 2025 *Br J Clin Pharmacol.* 2025;91:1947–

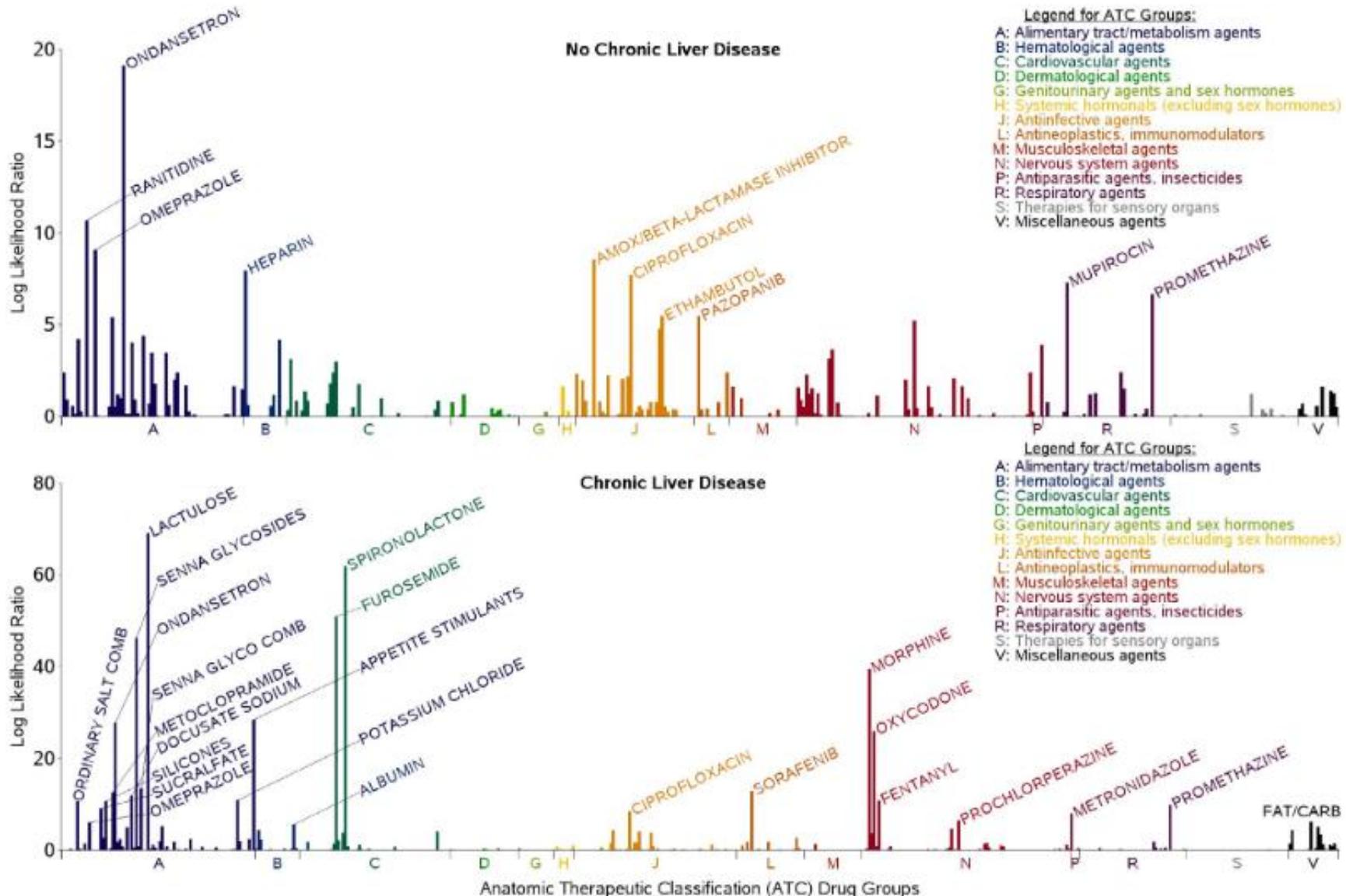
**FIGURE 3** Associations of major drug classes (ATC level 4) with heart failure given as odds ratios (OR) with 95% confidence intervals (CI). Only drug classes with an OR of above 2 are labelled. The letters (A, B, D, G, H, J, L, M, N, P, R, S and V) correspond to drug classes based on the Anatomical Therapeutic Chemical (ATC) classification system, where each letter represents a specific anatomical or therapeutic group. A: Alimentary tract and metabolism; B: Blood and blood-forming organs; D: Dermatologicals; G: Genitourinary system and sex hormones; H: Systemic hormonal preparations, excluding sex hormones and insulins; J: Anti-infectives for systemic use; L: Antineoplastic and immunomodulating agents; M: Musculo-skeletal system; N: Nervous system; P: Antiparasitic products, insecticides, and repellents; R: Respiratory system; S: Sensory organs; V: Various. A01AB: Anti-infectives and antiseptics for local oral treatment; A03FA: Propulsives; A01AB: Alpha glucosidase inhibitors; A10BK: Sodium-glucose co-transporter 2 (SGLT2) inhibitors; A12BA: Potassium; J01CA: Penicillins with extended spectrum; J01CE: Beta-lactamase sensitive penicillins; J01CR: Combinations of penicillins, incl. beta-lactamase inhibitors; J01FA: Macrolides; J01FF: Lincosamides; N02AB: Phenylpiperidine derivatives; N02CA: Ergot alkaloids; N03AA: Barbiturates and derivatives; N05AD: Butyrophenone derivatives; N05CF: Benzodiazepine related drugs; N05CH: Melatonin receptor agonists; N07BC: Drugs used in opioid dependence; P01AB: Nitroimidazole derivatives; R02AA: Antiseptics; R03AC: Selective beta-2-adrenoreceptor agonists; R03AK: Adrenergics in combination with corticosteroids or other drugs, excluding anticholinergics; R03CC: Selective beta-2-adrenoreceptor agonists; R03DA: Xanthines; R05CB: Mucolytics; R05FA: Opium derivatives and expectorants.



# High-Throughput Screening Tree-Based Scan Statistic to Identify Drugs Associated With Hospitalization for Liver Injury

Vincent Lo Re III<sup>1,2</sup> | Craig W. Newcomb<sup>2</sup> | Dean M. C. Smith<sup>3</sup> | Judith C. Maro<sup>7</sup>

4 Dec 2025



**FIGURE 2** | Log likelihood ratio for drugs in the Anatomic Therapeutic Classification drug groups by chronic liver disease status. Peaks with labels qualify as alerts. ATC, Anatomic Therapeutic Classification; carb, carbohydrates; CLD, chronic liver disease; comb, combination; glyco, glycoside.



## Open methodological questions raised by these 'all-by-one' studies

- What are the operating characteristics of the case-crossover design?
- For any drug alert, how do we know there isn't residual bias?
- How confident are we that these results could be replicated in other databases?



# Potential opportunity for our community

- What could we learn if we:
  - Run a network study across the OHDSI Evidence Network for one outcome of shared interest
  - Apply best practices that are implemented using OHDSI HADES packages, including comparative cohort and SCCS designs
  - Share all results that pass objective diagnostics
- What do we need to do before we can learn:
  - Develop and evaluate the outcome phenotype across the Network
  - Identify indication(s) and comparator(s) for each target exposure

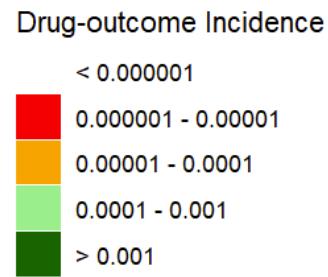
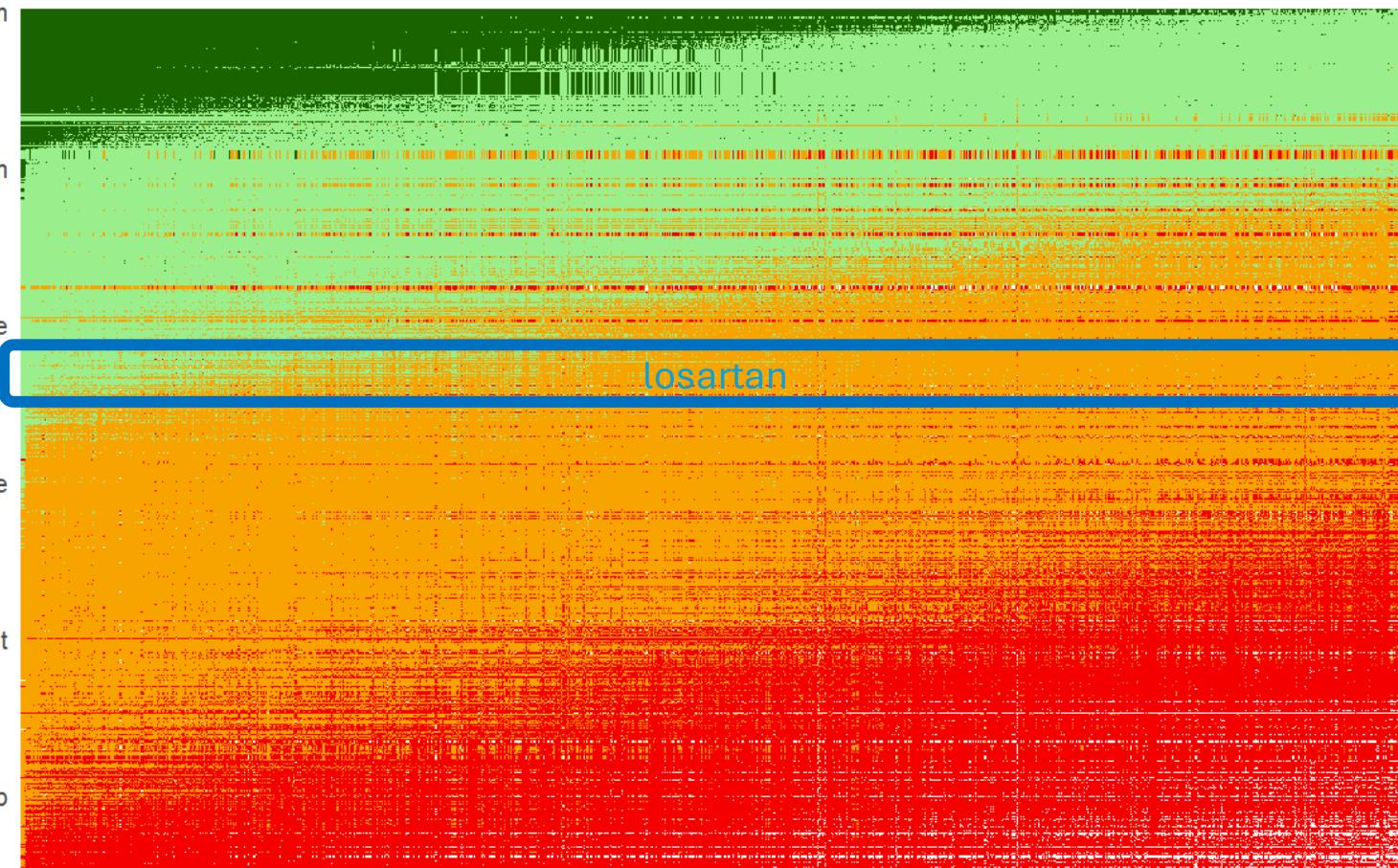
vancomycin

diphenoxylate

primidone

travoprost

pertuzumab



Potential 2026 opportunity: “One by all” : 1 Drug \* All Outcomes - Explore one product

What do we need to solve?

- Comprehensive understanding of drug in all databases
  - Indications, subpopulations of interest
  - Treatment patterns to identify relevant comparators
- Scalable approach to phenotype all outcomes



## Comprehensive comparative effectiveness first-line antihypertensive drug classes: a systematic multinational, large-scale analysis

Marc A Suchard, Martijn J Schuemie, Harlan M Krumholz, Seng Chan You, Ruijun Chen, Nicole Pratt, George Hripcak, Patrick B Ryan

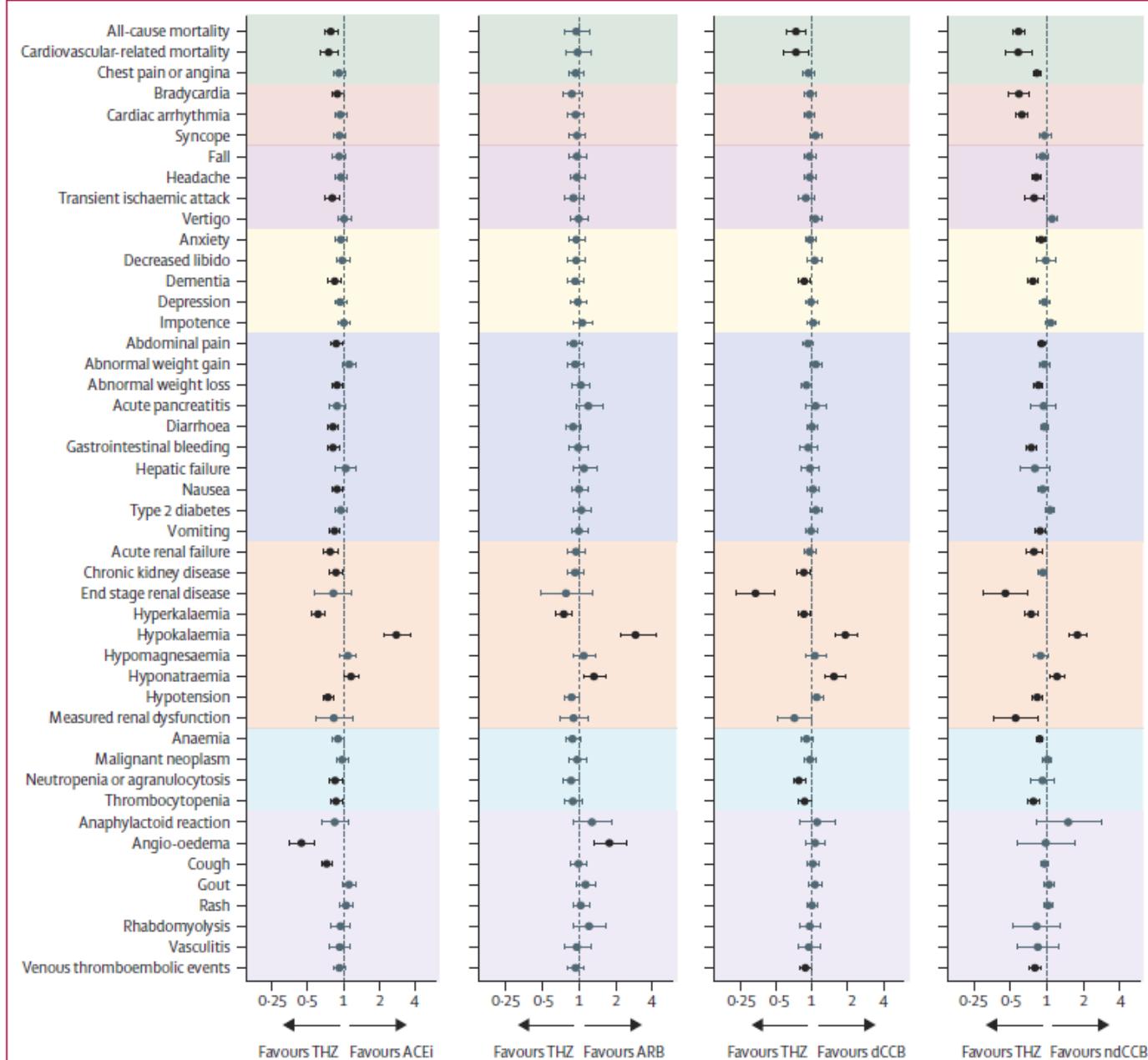
### Summary

**Background** Uncertainty remains about the optimal monotherapy for hypertension. It is not clear whether one drug class is superior to another. We aimed to compare the effectiveness and safety of five first-line antihypertensive drug classes: thiazide or thiazide-like diuretics, angiotensin receptor blockers, dihydropyridine calcium channel blockers, non-dihydropyridine calcium channel blockers, and angiotensin-converting enzyme inhibitors, in the absence of comorbid indications. Randomised controlled trials (RCTs) are not able to answer this question.

**Methods** We developed a comprehensive framework for real-world evidence to compare the effectiveness and safety of five first-line antihypertensive drug classes. We used a systematic cohort design to estimate the relative risks of three primary (acute myocardial infarction, stroke, and all-cause mortality) and six secondary effectiveness and 46 safety outcomes across a global network of six administrative claims and three electronic health record databases. We accounted for residual confounding, publication bias, and p-hacking using large-scale propensity score matching, and full disclosure of hypotheses tested.

**Findings** Using 4.9 million patients, we generated 22 000 calibrated, propensity-matched estimates comparing all classes and outcomes across databases. Most estimates revealed no significant differences between drug classes; however, thiazide or thiazide-like diuretics showed better primary effectiveness than angiotensin-converting enzyme inhibitors: acute myocardial infarction (HR 0.84, 95% CI 0.75–0.95), stroke (HR 0.83, 95% CI 0.74–0.95), and all-cause mortality (HR 0.83, 95% CI 0.74–0.95) risk while on initial treatment. Safety profiles were similar between thiazide or thiazide-like diuretics and angiotensin-converting enzyme inhibitors. The non-dihydropyridine calcium channel blockers were significantly inferior to the other four classes.

**Interpretation** This comprehensive framework introduces a new way of doing comparative effectiveness research. The approach supports equivalence between drug classes for initiating hypertension treatment, keeping with current guidelines, with the exception of thiazide or thiazide-like diuretics, which are superior to angiotensin-converting enzyme inhibitors and the inferiority of non-dihydropyridine calcium channel blockers.



**Figure 2: Meta-analytic safety profiles comparing THZ to ACEi, ARB, dCCB, and ndCCB new users across 46 outcomes listed on product labels.**  
Points and lines identify HR estimates with their 95% CIs, respectively. Outcomes in grey signify that the CI covers HR of 1 (null hypothesis of no differential risk). THZ=thiazide or thiazide-like diuretics. ACEi=angiotensin converting-enzyme inhibitors. ARB=angiotensin receptor blockers. dCCB=dihydropyridine calcium channel blockers. ndCCB=non-dihydropyridine calcium channel blockers. HR=hazard ratio.



**Table 3. Secondary and Safety Outcomes for ACE Inhibitors vs ARBs (on-Treatment, PS Stratification)**

**Table 2. Primary Effectiveness Outcomes for ACE Inhibitors Compared With ARBs (on-Treatment, PS Stratification, Excluding NHIS/NSC)**

| Outcome                     | HR (95% CI)      | P value | Calibrated HR (CI) | Calibrated P value |
|-----------------------------|------------------|---------|--------------------|--------------------|
| Acute myocardial infarction | 1.10 (1.04–1.17) | <0.01   | 1.11 (0.95–1.32)   | 0.19               |
| CVEs                        | 1.04 (0.99–1.10) | 0.12    | 1.06 (0.90–1.25)   | 0.49               |
| Heart failure               | 1.02 (0.94–1.11) | 0.64    | 1.03 (0.87–1.24)   | 0.68               |
| Stroke                      | 1.06 (1.00–1.12) | 0.06    | 1.07 (0.91–1.27)   | 0.40               |

**ABSTRACT:** ACE (angiotensin-converting enzyme) inhibitors and angiotensin receptor blockers are recommended first-line treatments for hypertension, yet few head-to-head studies exist to compare the effectiveness and safety of ACE inhibitors versus ARBs in the first-line treatment of hypertension. We used a retrospective, new-user comparative cohort design to estimate hazard ratios using propensity score adjustment to control for confounding and bias, specifically large-scale propensity score adjustment, empirical calibration, and inclusion of all patients with hypertension initiating monotherapy with an ACE inhibitor or ARB. We used 8 databases from the United States, Germany, and South Korea. The primary outcomes were all-cause mortality, heart failure, stroke, and composite cardiovascular events. We also studied 51 secondary outcomes including angioedema, cough, syncope, and electrolyte abnormalities. Across 8 databases, we identified 11 000 patients on treatment with ACE inhibitors and 673 938 patients with ARBs. We found no statistically significant difference in the primary outcomes of acute myocardial infarction (hazard ratio, 1.11 for ACE versus ARB [95% CI, 0.95–1.27]), stroke (hazard ratio, 1.07 [0.91–1.27]), or composite cardiovascular events (hazard ratio, 1.03 [0.87–1.24]). Across secondary and safety outcomes, patients on ARBs had significantly lower rates of all-cause mortality, heart failure, stroke, and composite cardiovascular events, and significantly higher rates of hypotension, impotence, and malignant neoplasm. There were no significant differences in the rates of angioedema, cough, syncope, or electrolyte abnormalities. Across all secondary and safety outcomes, patients on ACE inhibitors had significantly higher rates of all-cause mortality, heart failure, stroke, and composite cardiovascular events, and significantly higher rates of hypotension, impotence, and malignant neoplasm. There were no significant differences in the rates of angioedema, cough, syncope, or electrolyte abnormalities. These findings support preferentially prescribing ARBs over ACE inhibitors when initiating treatment for hypertension.

| Outcome                                     | HR (95% CI)      | P value | Calibrated HR (95% CI) | Calibrated P value |
|---------------------------------------------|------------------|---------|------------------------|--------------------|
| Abdominal pain                              | 1.00 (0.96–1.03) | 0.87    | 1.01 (0.88–1.19)       | 0.87               |
| Abnormal weight gain                        | 0.82 (0.79–0.86) | <0.01   | 0.84 (0.74–0.98)       | 0.04               |
| Abnormal weight loss                        | 1.18 (1.11–1.25) | <0.01   | 1.18 (1.01–1.41)       | 0.04               |
| Acute pancreatitis                          | 1.32 (1.09–1.60) | <0.01   | 1.32 (1.04–1.70)       | 0.02               |
| Acute renal failure                         | 1.13 (1.08–1.18) | <0.01   | 1.14 (0.98–1.35)       | 0.10               |
| Anaphylactoid reaction                      | 1.31 (1.00–1.72) | 0.05    | 1.31 (0.98–1.79)       | 0.07               |
| Anemia                                      | 0.96 (0.82–0.99) | 0.02    | 0.97 (0.84–1.14)       | 0.76               |
| Angioedema                                  | 3.53 (2.99–4.16) | <0.01   | 3.31 (2.55–4.51)       | <0.01              |
| Anxiety                                     | 0.98 (0.85–1.00) | 0.03    | 0.99 (0.86–1.16)       | 0.91               |
| Bradycardia                                 | 0.96 (0.86–1.08) | 0.52    | 0.98 (0.82–1.18)       | 0.84               |
| Cardiac arrhythmia                          | 0.96 (0.91–1.02) | 0.22    | 0.98 (0.84–1.15)       | 0.82               |
| Chest pain or angina                        | 0.99 (0.97–1.01) | 0.23    | 1.00 (0.87–1.17)       | 0.92               |
| Chronic kidney disease                      | 1.00 (0.93–1.08) | 0.98    | 1.01 (0.87–1.20)       | 0.84               |
| Cough                                       | 1.32 (1.23–1.42) | <0.01   | 1.32 (1.11–1.59)       | <0.01              |
| Decreased libido                            | 0.96 (0.90–1.03) | 0.29    | 0.98 (0.84–1.16)       | 0.83               |
| Dementia                                    | 1.12 (1.06–1.18) | <0.01   | 1.13 (0.97–1.34)       | 0.14               |
| Depression                                  | 1.02 (0.99–1.05) | 0.20    | 1.03 (0.90–1.21)       | 0.65               |
| Diarrhea                                    | 1.06 (1.02–1.09) | <0.01   | 1.07 (0.92–1.25)       | 0.40               |
| End stage renal disease                     | 0.87 (0.62–1.20) | 0.39    | 0.88 (0.63–1.25)       | 0.50               |
| Fall                                        | 1.03 (0.96–1.10) | 0.46    | 1.04 (0.89–1.23)       | 0.64               |
| Gastrointestinal bleed                      | 1.18 (1.11–1.25) | <0.01   | 1.18 (1.01–1.41)       | 0.04               |
| Gout                                        | 1.00 (0.97–1.04) | 0.83    | 1.02 (0.88–1.19)       | 0.81               |
| Headache                                    | 0.97 (0.94–1.00) | 0.04    | 0.98 (0.86–1.15)       | 0.87               |
| Hepatic failure                             | 1.02 (0.89–1.17) | 0.74    | 1.03 (0.86–1.27)       | 0.71               |
| Hospitalization with preictarction syndrome | 1.02 (0.90–1.15) | 0.77    | 1.03 (0.86–1.25)       | 0.74               |
| Hyperkalemia                                | 1.17 (1.04–1.30) | 0.01    | 1.17 (0.98–1.42)       | 0.09               |
| Hypokalemia                                 | 0.95 (0.89–1.03) | 0.21    | 0.97 (0.83–1.15)       | 0.74               |
| Hypomagnesemia                              | 0.96 (0.89–1.04) | 0.36    | 0.98 (0.84–1.16)       | 0.83               |
| Hyponatremia                                | 1.12 (1.06–1.19) | <0.01   | 1.13 (0.97–1.34)       | 0.13               |
| Hypotension                                 | 1.13 (1.09–1.17) | <0.01   | 1.14 (0.98–1.35)       | 0.10               |
| Impotence                                   | 1.06 (1.01–1.12) | 0.02    | 1.07 (0.92–1.27)       | 0.37               |
| Malignant neoplasm                          | 0.97 (0.89–1.05) | 0.39    | 0.98 (0.84–1.16)       | 0.85               |
| Measured renal dysfunction                  | 0.87 (0.66–1.14) | 0.31    | 0.88 (0.66–1.20)       | 0.44               |
| Nausea                                      | 1.10 (1.06–1.13) | <0.01   | 1.11 (0.95–1.30)       | 0.20               |
| Neutropenia or agranulocytosis              | 0.96 (0.89–1.02) | 0.18    | 0.97 (0.84–1.15)       | 0.76               |
| Rash                                        | 0.96 (0.93–1.00) | 0.04    | 0.98 (0.85–1.15)       | 0.82               |
| Rhabdomyolysis                              | 1.10 (0.91–1.34) | 0.32    | 1.11 (0.88–1.43)       | 0.37               |
| Syncope                                     | 1.02 (0.96–1.07) | 0.56    | 1.03 (0.89–1.21)       | 0.71               |
| Thrombocytopenia                            | 1.01 (0.96–1.06) | 0.69    | 1.02 (0.88–1.20)       | 0.76               |
| Type 2 diabetes                             | 1.04 (0.99–1.08) | 0.12    | 1.03 (0.90–1.24)       | 0.54               |
| Vasculitis                                  | 1.01 (0.85–1.20) | 0.88    | 1.03 (0.83–1.29)       | 0.80               |
| Venous thromboembolism                      | 0.97 (0.90–1.04) | 0.35    | 0.98 (0.84–1.16)       | 0.84               |
| Vertigo                                     | 0.95 (0.92–0.99) | 0.01    | 0.97 (0.84–1.13)       | 0.73               |
| Vomiting                                    | 1.15 (1.11–1.19) | <0.01   | 1.15 (0.99–1.36)       | 0.07               |



## Circulation

### **CLINICAL PRACTICE GUIDELINES**



2025 AHA/ACC/AANP/AAPA/ABC/ACCP/ACPM/AGS/AMA/ASPC/NMA/PCNA/SGIM Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

Developed in Collaboration With and Endorsed by American Academy of Physician Associates; American Association of Nurse Practitioners; American College of Clinical Pharmacy; American College of Preventive Medicine; American Geriatrics Society; American Medical Association; American Society of Preventive Cardiology; Association of Black Cardiologists; National Medical Association; Preventive Cardiovascular Nurses Association; and the Society of General Internal Medicine.

#### **Writing Committee Members\***

Daniel W. Jones, MD, FAHA, Chair; Keith C. Ferdinand, MD, FACC, FAHA, FASPC, Vice Chair; Sandra J. Taler, MD, FAHA, Vice Chair; Heather M. Johnson, MD, MS, FAHA, FACC, FASPC, JC Liaison†; Daichi Shimbo, MD, JC Liaison†; Marwah Abdalla, MD, MPH, FAHA, FACC‡; M. Martine Alteri, PA-C, MHSc§; Nisha Bansal, MD, MAS, FAHA; Natalie A. Bello, MD, MPH, FACC; Adam P. Bress, PharmD, MS¶; Jocelyn Carter, MD, MPH||; Jordana B. Cohen, MD, MSCE, FAHA; Karen J. Collins, MBA; Yvonne Commodore-Mensah, PhD, MHS, BSN, RN, FAHA, FPCNA#; Leslie L. Davis, PhD, ANP-BC, FACC, FAHA; Brent Egan, MD, FAHA\*\*; Sadiya S. Khan, MD, MSc, FACC, FAHA; Donald M. Lloyd-Jones, MD, ScM, FAHA, FACC; Bernadette Mazurek Melnyk, PhD, APRN-CNP, FAANP††; Eva A. Mistry, MBBS, MSci, FAHA; Modele O. Ogunniyi, MD, MPH, FACC, FAHA††; Stacey L. Schott, MD, MPH§; Sidney C. Smith Jr, MD, FAHA, MACC; Amy W. Talbot, MPH; Wanpen Vongpatanasin, MD, FAHA, FACC; Karol E. Watson, MD, PhD, FACC, FAHA, FASPC||; Paul K. Whelton, MB, MD, MSc, FAHA; Jeff D. Williamson, MD, MHS, AGSF¶||

### **5.2.3. Initial Medication Selection for Treatment of Primary Hypertension**

#### **Recommendation for Initial Medication Selection for Treatment of Primary Hypertension**

Referenced studies that support the recommendation are summarized in the Evidence Table.

| COR | LOE | Recommendation                                                                                                                                                                                                                                        |
|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | A   | <ol style="list-style-type: none"><li>1. For adults initiating antihypertensive drug therapy, thiazide-type diuretics, long-acting dihydropyridine CCB, and ACEi or ARB are recommended as first-line therapy to prevent CVD.<sup>1,2</sup></li></ol> |



# Potential opportunity for our community

- What could we learn if we:
  - Run a network study across the OHDSI Evidence Network for one drug of shared interest
  - Apply best practices that are implemented using OHDSI HADES packages, including comparative cohort and SCCS designs
  - Share all results that pass objective diagnostics
- What do we need to do before we can learn:
  - Develop and evaluate a more comprehensive universe of outcome phenotypes

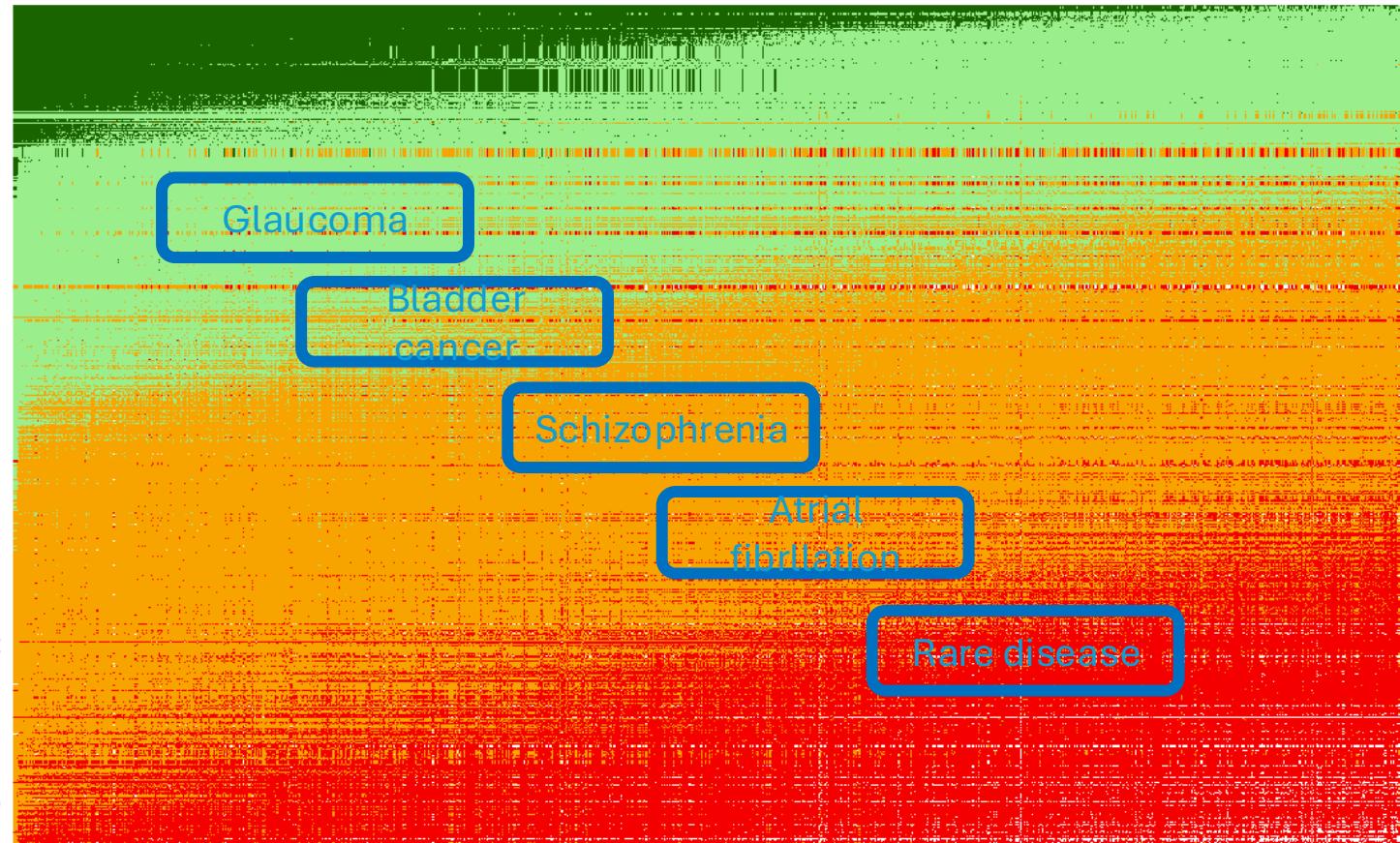
vancomycin

diphenoxylate

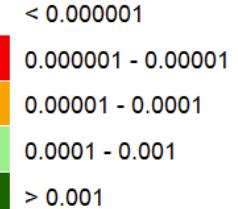
primidone

travoprost

pertuzumab



Drug-outcome Incidence



Potential 2026 opportunity: LEGEND studies for other indications of interest

What do we need for indication?

- Identify and phenotype all outcomes of interest for the indication (benefits and potential harms)
- Identify all treatments for indications
  - Treatment patterns to identify valid comparisons?

Mass of right breast



# Potential opportunity for our community

- What could we learn if we:
  - Run a network study across the OHDSI Evidence Network for one or more indications of shared interest within our clinical subspecialty workgroups
  - Apply best practices that are implemented using OHDSI HADES packages, including comparative cohort and SCCS designs
  - Share all results that pass objective diagnostics
- What do we need to do before we can learn:
  - Develop and evaluate exposure and outcome phenotypes relevant to the indication



# Themes from 2025 OHDSI Global Symposium post-its

## What people are *currently doing*

- OMOP conversions + early network studies
- Methods development
- Domain-specific analyses
- Teaching or learning OHDSI foundational skills

## What people *WANT to be doing*

- Advanced analytics (AI/ML, causal inference, trajectories)
- Larger network studies
- Contributing phenotypes and methods
- Engaging in international collaboration
- Establishing local OHDSI hubs

## Where people *NEED HELP*

- Vocabularies + concept sets
- ETL and data quality
- Study execution (ATLAS/HADES)
- Methods mentoring
- Concrete examples and reproducible code



# Collaboration opportunities



# 2026 OHDSI Global Symposium

Oct. 20-22 • New Brunswick, N.J. • Hyatt Regency Hotel

The 12th annual OHDSI Global Symposium will return to the Hyatt Regency Hotel in New Brunswick, N.J., Oct. 20-22, 2026. All pertinent information will be added to this page when available. Currently, the OHDSI steering group is seeking proposals for both plenaries and tutorials. **The deadline for both is January 30, 2026; more details are below.**





# 2026 OHDSI Global Symposium Call for Plenary Sessions

Symposium plenaries provide opportunities to share innovative, community-developed content to empower researchers to generate reliable real-world evidence. The community is currently seeking proposals for our #OHDSI2026 plenaries. These sessions will be 60 minutes in duration and must touch on at least two of following pillars of our community:

- Open community data standards
- Methodological research
- Open-source development
- Clinical applications

Plenary sessions must also involve three or more on-stage participants across at least two organizations. Sessions may include a combination of keynote talks, panel discussions, interactive activities, and more. We strongly encourage using multiple formats and synthesizing completed research, current perspectives and future calls-to-action to maximize community engagement.

The deadline for proposal submissions is January 30, 2026. Please use the link below to submit your proposal by answering the following questions:

- Name(s) of plenary session organizers:
- Your email address(es):
- Short (2,500 character max) description / abstract of your proposed session:
- Which pillars are you targeting:
- One sentence “pitch” of your session to excite the community:
- Names and roles of individuals who have tentatively agreed to participate in your session:

[Submit Your Plenary Proposal by Jan. 30, 2026](#)



## 2026 OHDSI Global Symposium Call for Tutorials

Tutorial sessions aim to deliver educational content, led by community members who wish to train our global collaborators on scientific, technical, and other skills that can support advancing OHDSI's mission and the effective use of real-world data and the generation and dissemination of reliable real-world evidence. Examples of prior tutorials offered are provided here: <https://www.ohdsi.org/tutorials>.

Tutorial sessions are 4 hours in duration. Registrants for your tutorial will be requested to pay a registration fee. The fees will be used to offset the costs of the symposium and other OHDSI expenses. Sessions may include a combination of talks, interactive activities, and more. We strongly encourage using multiple formats to maximize community engagement. Your session must include at least three people from at least two different organizations.

The deadline for tutorial proposal submissions is January 30, 2026. Please use the link below to submit your proposal by answering the following questions:

- Name(s) of tutorial session organizers:
- Your email address(es):
- Short (2,500 character) description / abstract of your proposed session:
- Names and roles of individuals who have tentatively agreed to participate in your session:

**Submit Your Tutorial Proposal by Jan. 30, 2026**



# OHDSI Europe Symposium 2026



February 6<sup>th</sup>, 2026: Deadline for abstract submissions



# Columbia DBMI Summer School

## The 2026 Summer School in Observational Health Data Science & Informatics, AI, and Real World Evidence

June 22–26, 2026, Columbia Biomedical Informatics

The Columbia OHDSI Summer School provides health professionals, researchers, and industry practitioners with an immersive, hands-on training to working with real-world health data and generating real-world evidence (RWE). Participants will explore the types of healthcare data captured during routine clinical care—such as electronic health records and administrative claims—and learn how to standardize these data using the OMOP Common Data Model to support collaborative, distributed research as part of a data network.

Over the course of the week, participants will engage with three real-world analytic use cases:

- **Clinical characterization** – using descriptive epidemiology to study disease natural history and treatment patterns
- **Population-level estimation** – applying causal inference to assess drug safety and comparative effectiveness
- **Patient-level prediction** – leveraging machine learning for early disease detection and precision medicine

Participants will be guided through the full RWE study lifecycle: from designing observational studies tailored to each use case, to applying open-source tools from the [OHDSI community](#), and executing analyses across real-world data sources.

The curriculum combines foundational lectures on analytical methods with hands-on, interactive, faculty-led group exercises. In addition, participants will have dedicated time to develop and advance their own study concepts with personalized feedback and mentoring.





# OHDSI LATAM 2026

OHDSI LATAM 2026

# Open, Collaborative and Standardized Science for Health in Latin America

The first in-person gathering of the OHDSI community in Latin America —  
advancing interoperability, real-world data, and reproducible research with  
the OMOP Common Data Model.

📍 Salvador, Bahia, Brazil • 🗓 July 30–31, 2026 • 🌐 100 selected participants



# Workgroups led by community

|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------|-----------------------------------|------------------------------------|-----------------------|------------------------------------|-----------------------------------|----------------------|--|--|--|
| ATLAS/WebAPI                                                                                                                                                                 | Clinical Trials                         | Common Data Model                    | CDM Survey                        | CDM Vocabulary                     | Medical Imaging       | Methods Research                   | Natural Language Processing       | Network Data Quality |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Christopher Knoll                                                                                                                                                            | Alexey Manoylenko                       | Mike Hamidi                          | Zhen Lin                          | Clair Blacketer                    | Nicole Gerlanc        | Anna Ostropolski                   | Paul Nagy                         | Song Chan You        |  |  |  |
| Databricks Users                                                                                                                                                             | Dentistry                               | Early-Stage Researchers              | Electronic Animal Health Records  | Oncology                           | Open-Source Community | Patient-Level Prediction (PLP)     | Perinatal and Reproductive Health |                      |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| John Grosh                                                                                                                                                                   | Robert Koski                            | Shounak Chaitanya                    | Bon Martin                        | Harry Reyes Nieva                  | Manlik Kwong          | Wayde Shipman                      | Asieh Golozar                     |                      |  |  |  |
| Evidence Network Partners                                                                                                                                                    | Eye Care and Vision Research            | FHIR and OMOP                        | Perinatal and Reproductive Health | Phenotype Development & Evaluation | Psychiatry            | Rare Diseases                      |                                   |                      |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Clair Blacketer                                                                                                                                                              | Paul Nagy                               | Sally Baxter                         | Cindy Cai                         | Kerry Goetz                        | Michelle Hribar       | Davera Gabriel                     | Louisa Smith                      |                      |  |  |  |
| FHIR and OMOP                                                                                                                                                                | Generative AI & Analytics in Healthcare | GIS - Geographic Information Systems | HADES                             | Rehabilitation                     | Steering              | Surgery and Perioperative Medicine | Themis                            |                      |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Ben Hamlin                                                                                                                                                                   | Guy Tsafnat                             | Martijn Schuemie                     | Robert Miller                     | Kyle Zollo-Venecek                 | Anthony Sena          | Martijn Schuemie                   | Esther Janssen                    |                      |  |  |  |
| Health Economics and Value Assessment                                                                                                                                        | Health Equity                           | Healthcare Systems                   | Industry                          | Medical Devices                    | Transplant            | Vaccine Vocabulary                 | Women of OHDSI                    |                      |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| Gaurav Dravida                                                                                                                                                               | Gowtham Rao                             | Atif Amin                            | Melanie Philofsky                 | Paul Dougall                       | Sarah Seager          | Asiyah Lin                         | Sarah Seager                      |                      |  |  |  |
| <b>Workgroups Homepage</b>                                                                                                                                                   |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| In OHDSI, there is a home for you. Please visit our workgroups home page to learn more about each group, find the meeting schedule and sign up to one or several workgroups! |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
| <a href="http://www.ohdsi.org/workgroups">www.ohdsi.org/workgroups</a>                                                                                                       |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |
|                                                                                                                                                                              |                                         |                                      |                                   |                                    |                       |                                    |                                   |                      |  |  |  |



# Ask to workgroup leads for 2026

- Prepare your 2026 Objectives and Key Results (OKRs)
  - Consider one OKR aligned to shared community goal
- Present your OKRs on Feb3 or 10 Community Call so that other collaborators can be aware of what you aim to achieve and identify where they can contribute
- Maintain open schedule cadence, record/minute meetings so folks who miss synchronous connections can catch up
- Schedule one Community Call update to showcase your workgroup's goals and accomplishments
- Share your work at OHDSI symposia and other scientific conferences and publications

