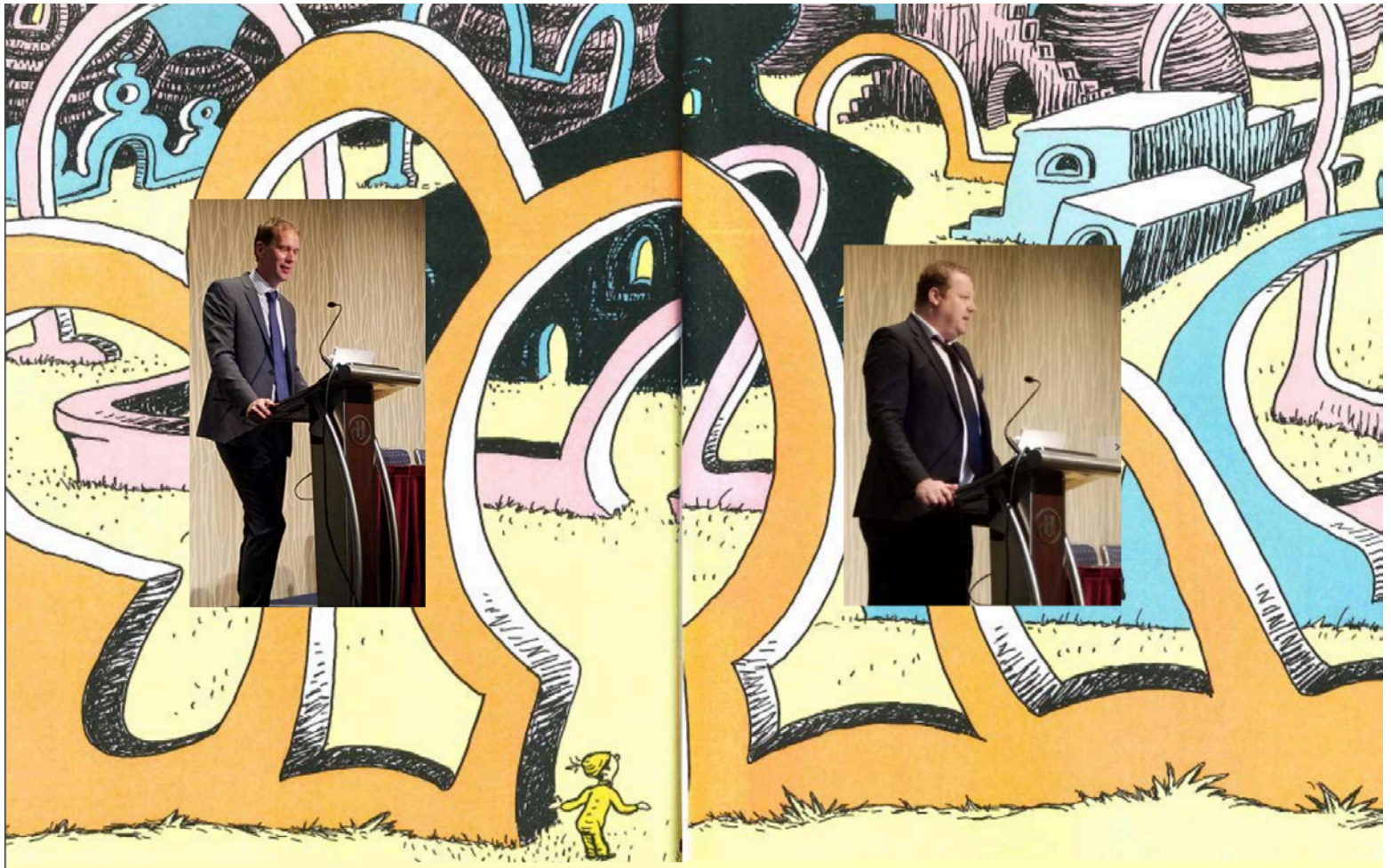
Welcome to OHDSI F2F 2017!

March 17-18

Atlanta, GA


Ex
AP

Not the Glitz of the OHDSI Annual Symposium



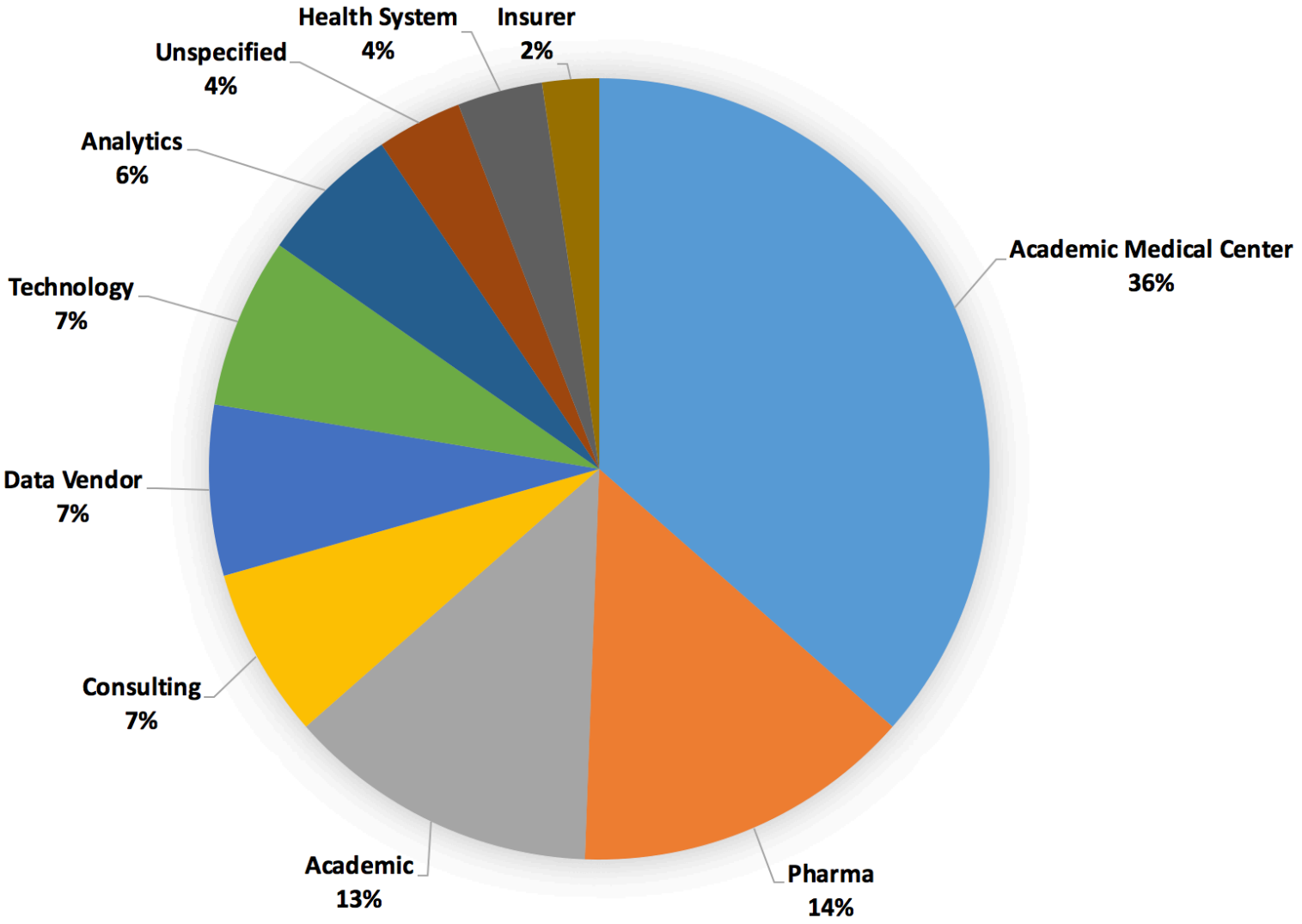
F2F is the OHDSI conference that rolls up its sleeves, spits in its hands, and goes to work.

- Carl Sandburg

Who's Here?

- Amazon.com
- AstraZeneca
- BlueCross BlueShield of South Carolina
- Case Western Reserve University
- Children's Hospital of Philadelphia, PEDSnet
- China Medical University, Taiwan
- Cloudera
- Columbia University
- ConvergeHealth by Deloitte
- Department of Veterans Affairs
- Ephir, Inc.
- Erasmus MC
- Georgia Tech
- Google
- IBM Research
- Janssen R&D
- McKinsey & Company
- Medical University of South Carolina
- Northwestern University
- Odysseus Data Services
- QuintilesIMS
- SHYFT Analytics
- Stanford University
- U of Texas Health Science Center at Houston
- U of Colorado, pSCANNER
- UCLA
- University of Massachusetts Medical School
- University of New Mexico Health Sciences
- University of Pittsburgh
- University of Utah, VA, VINCI
- USC
- Weill Cornell Medicine

Who's Here?


Health System
4%
Insurer
2%
Unspecified
4%
Analytics
6%
Academic Medical Center
36%
Technology
7%
Data Vendor
7%
Consulting
7%
Academic
13%
Pharma
14%

Thank you for your sponsorship!

cloudera

Georgia Tech Research Institute

CHAI

It's not too latte.

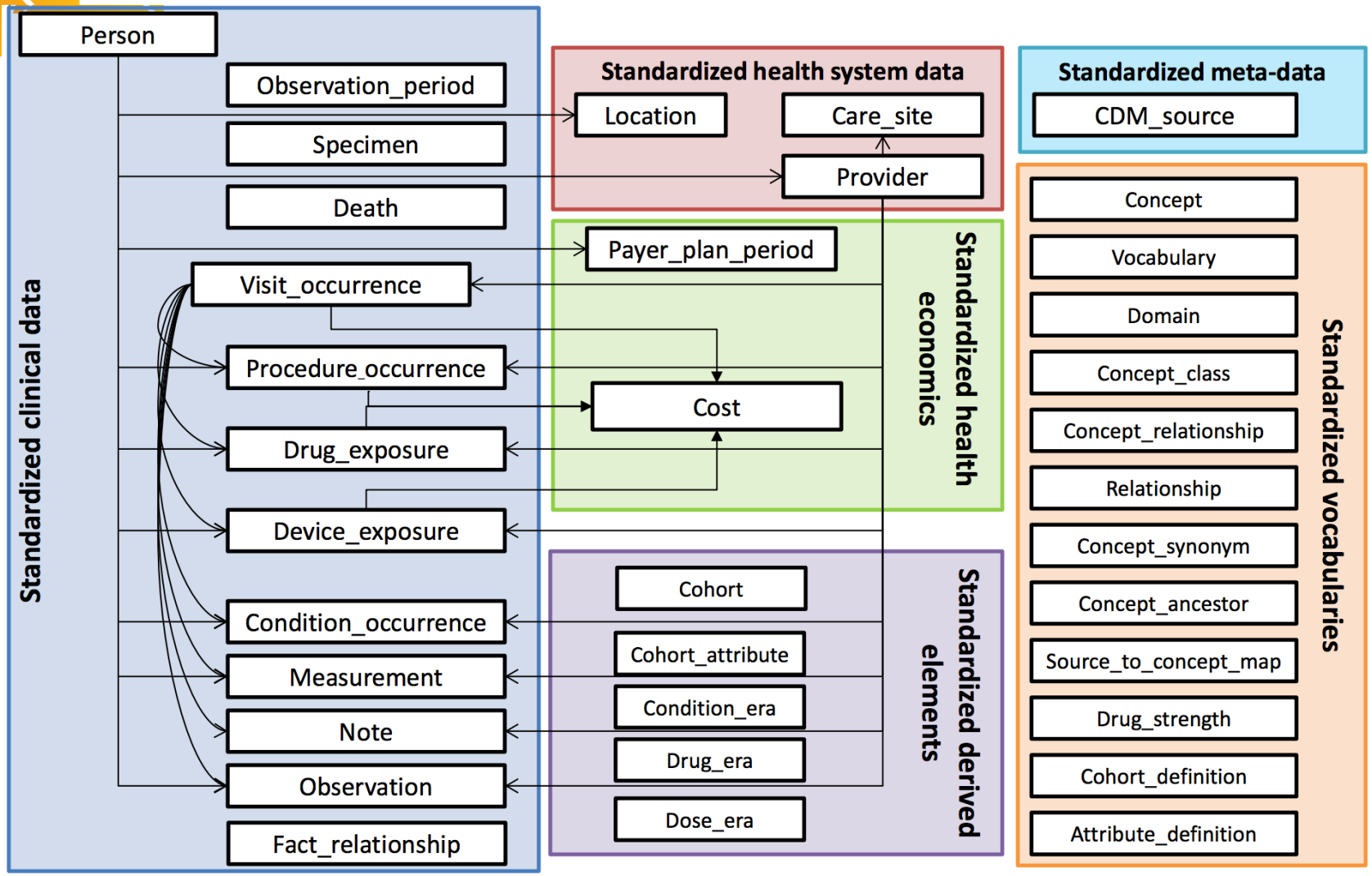
A little context…

OHDSI's Mission

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

Along the way…

Common Data Model

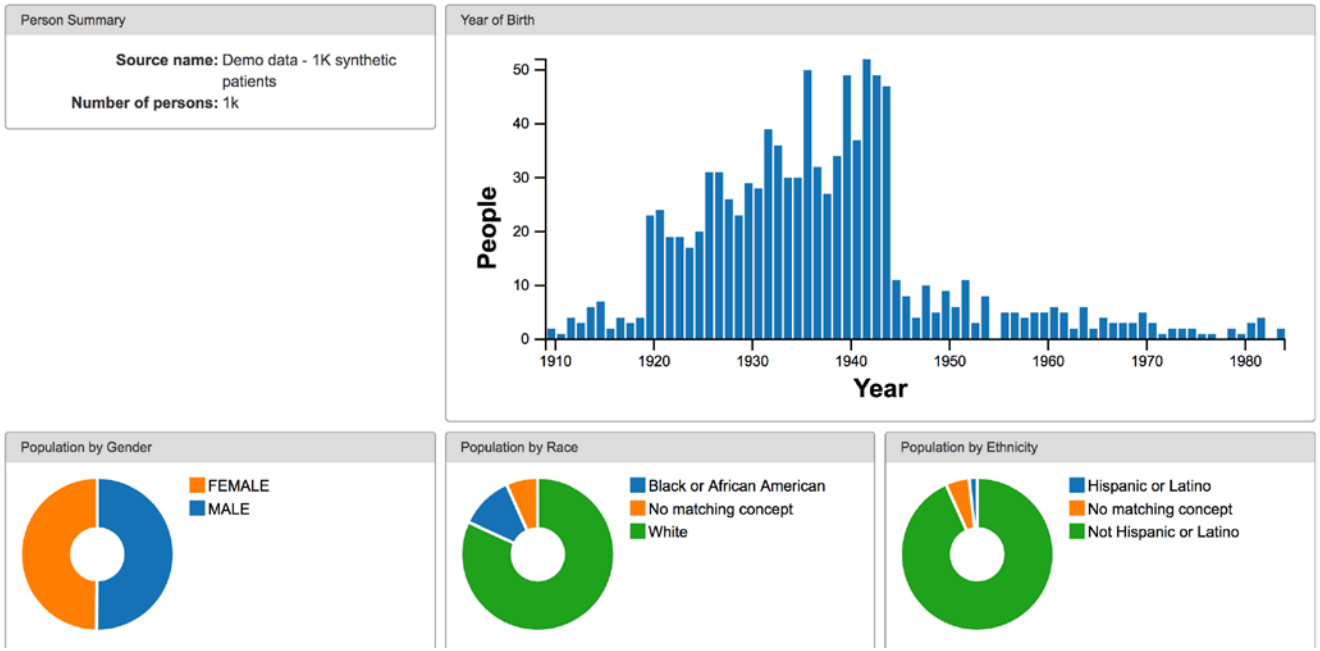


Vocabulary Mappings

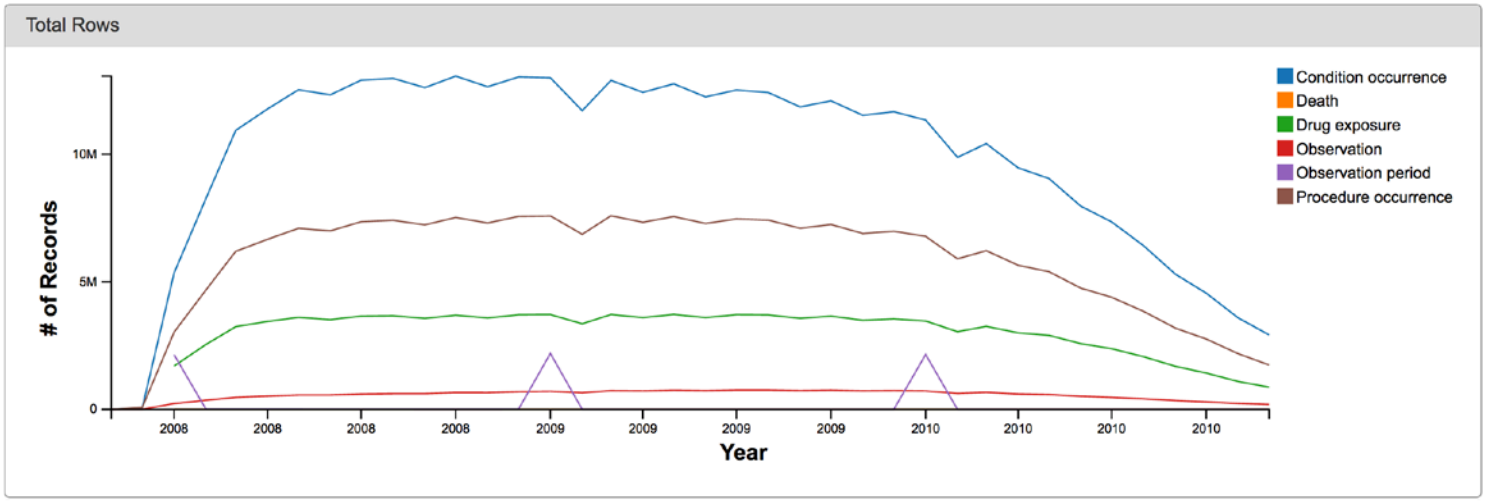
Select vocabularies*:

	Vocabulary ID (CDM V4.5)	Vocabulary code (CDM V5)	VOCABULARY NAME	Available	Latest update
☑	1	SNOMED	Systematic Nomenclature of Medicine - Clinical Terms (IHTSDO)		05-OCT-16
☑	2	ICD9CM	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 1 and 2 (NCHS)		01-OCT-14
☑	3	ICD9Proc	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 3 (NCHS)		01-OCT-14
☑	4	CPT4	Current Procedural Terminology version 4 (AMA)	EULA required	11-MAY-15
☑	5	HCPCS	Healthcare Common Procedure Coding System (CMS)		28-OCT-15
☑	6	LOINC	Logical Observation Identifiers Names and Codes (Regenstrief Institute)		24-JUN-16
☑	7	NDFRT	National Drug File - Reference Terminology (VA)		03-OCT-16
☑	8	RxNorm	RxNorm (NLM)		03-OCT-16
☑	9	NDC	National Drug Code (FDA and manufacturers)		16-OCT-15
☐	10	GPI	Medi-Span Generic Product Identifier (Wolters Kluwer Health)	License required	06-MAY-15
☑	11	UCUM	Unified Code for Units of Measure (Regenstrief Institute)		
☑	12	Gender	OMOP Gender		
☑	13	Race	Race and Ethnicity Code Set (USBC)		
☑	14	Place of Service	Place of Service Codes for Professional Claims (CMS)		
☐	15	MedDRA	Medical Dictionary for Regulatory Activities (MSSO)	EULA required	01-SEP-16
☐	16	Multum	Cerner Multum (Cerner)		
☐	17	Read	NHS UK Read Codes Version 2 (HSCIC)		18-MAR-16
☐	18	OXMIS	Oxford Medical Information System (OCHP)		27-APR-15
☐	19	Indication	Indications and Contraindications (FDB)	License required	19-NOV-15
☐	20	ETC	Enhanced Therapeutic Classification (FDB)	License required	19-NOV-15
☑	21	ATC	WHO Anatomic Therapeutic Chemical Classification		03-OCT-16
☐	22	Multilex	Multilex (FDB)	License required	
☐	28	VA Product	VA National Drug File Product (VA)		03-OCT-16
☐	31	SMQ	Standardised MedDRA Queries (MSSO)		
☑	32	VA Class	VA National Drug File Class (VA)		03-OCT-16
☐	33	Cohort	Legacy OMOP HOI or DOI cohort		
☐	34	ICD10	International Classification of Diseases, Tenth Revision (WHO)		01-DEC-16
☐	35	ICD10PCS	ICD-10 Procedure Coding System (CMS)		18-MAY-16
☐	40	DRG	Diagnosis-related group (CMS)		
☐	41	MDC	Major Diagnostic Categories (CMS)		
☐	42	APC	Ambulatory Payment Classification (CMS)		
☑	43	Revenue Code	UB04/CMS1450 Revenue Codes (CMS)		
☑	44	Ethnicity	OMOP Ethnicity		
☐	46	MeSH	Medical Subject Headings (NLM)		09-MAY-16
☑	47	NUCC	National Uniform Claim Committee Health Care Provider Taxonomy Code Set (NUCC)		

Data Source Exploration



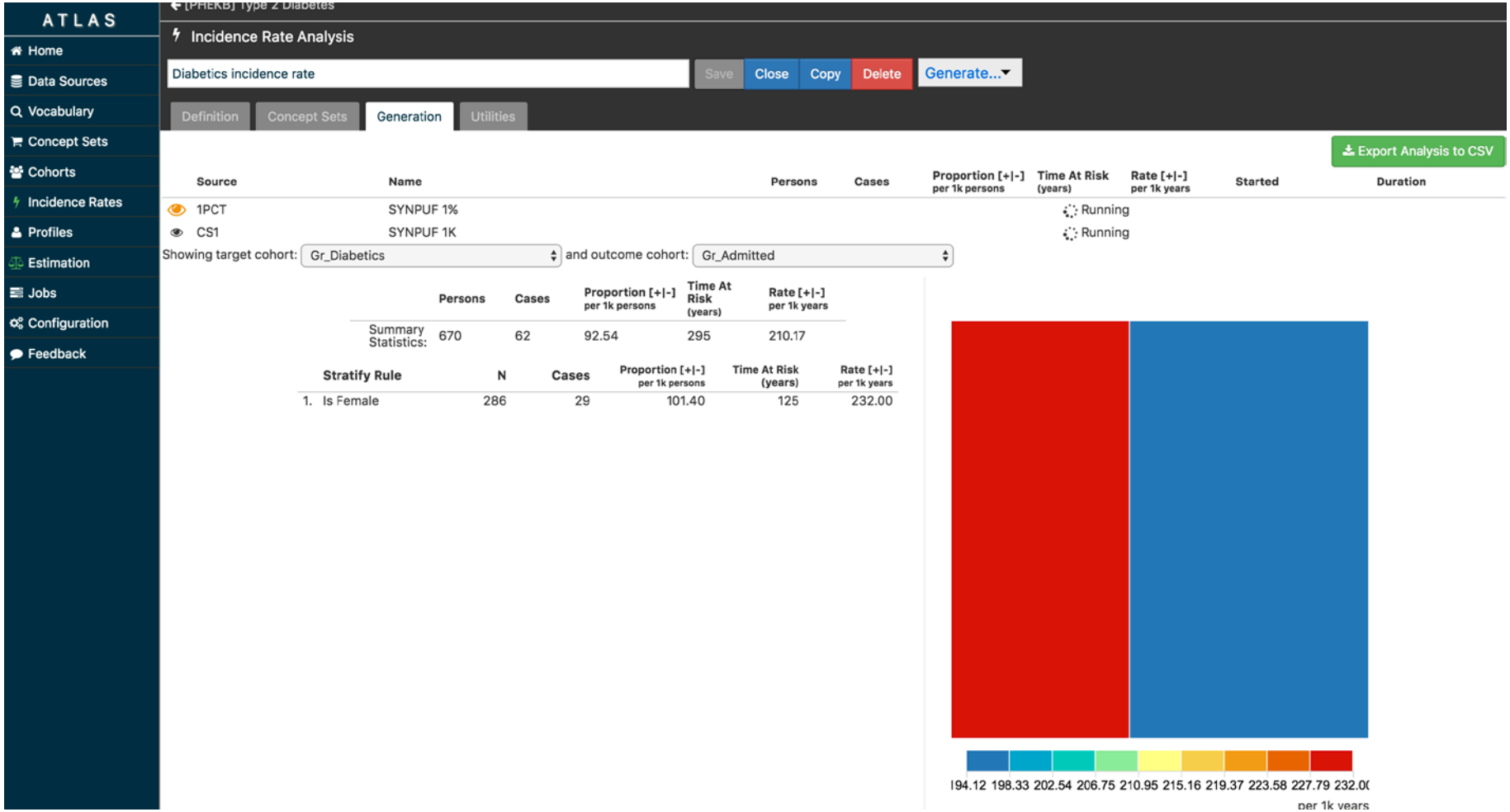
Data Density



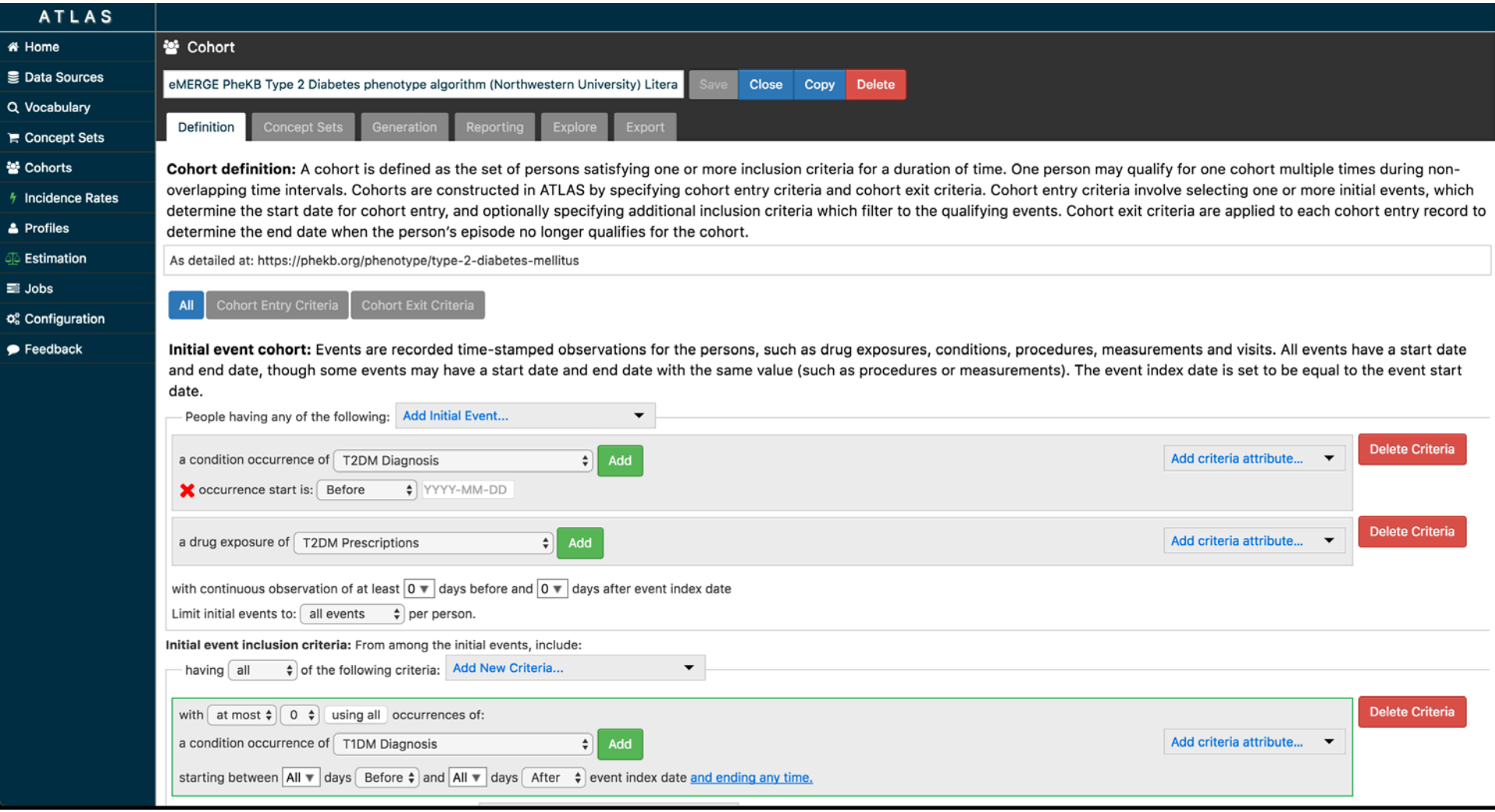
Data Quality Checking

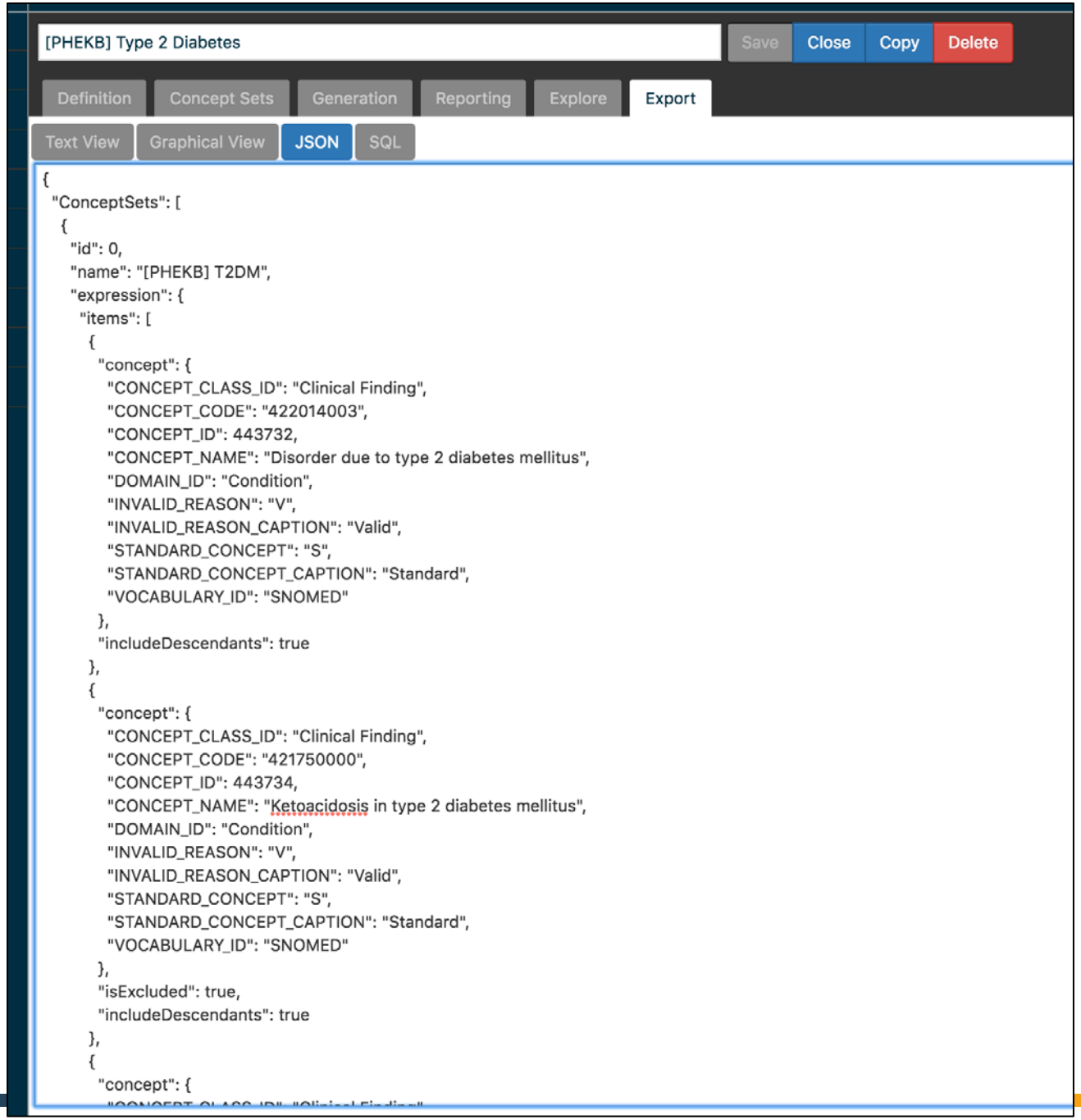
Message Type ▲	Message
ERROR	101-Number of persons by age, with age at first observation period; should not have age < 0, (n=848)
ERROR	103 - Distribution of age at first observation period (count = 1); min value should not be negative
ERROR	114-Number of persons with observation period before year-of-birth; count (n=851) should not be > 0
ERROR	206 - Distribution of age by visit_concept_id (count = 7); min value should not be negative
ERROR	209-Number of visit records with end date < start date; count (n=168074) should not be > 0
ERROR	301-Number of providers by specialty concept_id; 224 concepts in data are not in correct vocabulary (Specialty)
ERROR	400-Number of persons with at least one condition occurrence, by condition_concept_id; 115 concepts in data are correct vocabulary (SNOMED)
ERROR	406 - Distribution of age by condition_concept_id (count = 753); min value should not be negative
ERROR	411-Number of condition occurrence records with end date < start date; count (n=182349) should not be > 0
ERROR	506 - Distribution of age at death by gender (count = 2); min value should not be negative

Health Analytics Workflows

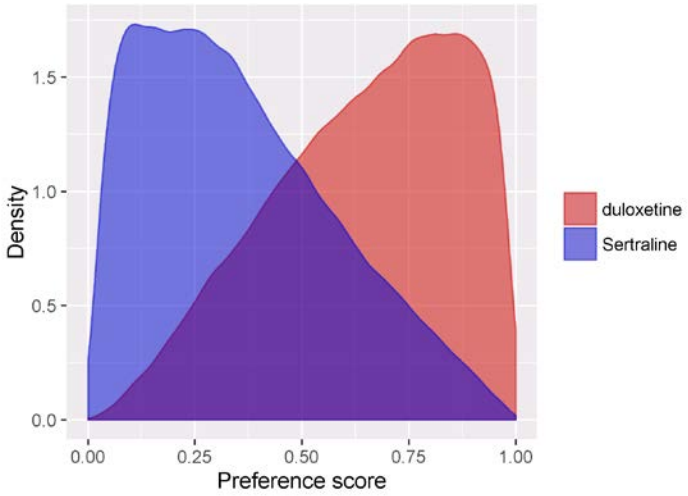


Computable Phenotypes

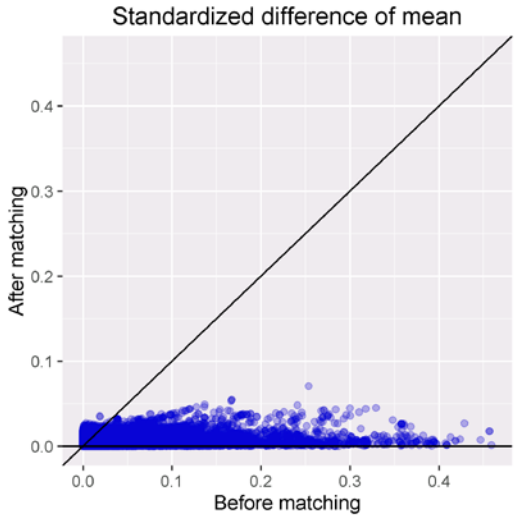



[PHEKB] Type 2 Diabetes
Save
Close
Copy
Delete
Definition
Concept Sets
Generation
Reporting
Explore
Export
Text View
Graphical View
JSON
SQL
{
"ConceptSets": [
{
"id": 0,
"name": "[PHEKB] T2DM",
"expression": {
"items": [
{
"concept": {
"CONCEPT_CLASS_ID": "Clinical Finding",
"CONCEPT_CODE": "422014003",
"CONCEPT_ID": 443732,
"CONCEPT_NAME": "Disorder due to type 2 diabetes mellitus",
"DOMAIN_ID": "Condition",
"INVALID_REASON": "V",
"INVALID_REASON_CAPTION": "Valid",
"STANDARD_CONCEPT": "S",
"STANDARD_CONCEPT_CAPTION": "Standard",
"VOCABULARY_ID": "SNOMED"
},
"includeDescendants": true
},
{
"concept": {
"CONCEPT_CLASS_ID": "Clinical Finding",
"CONCEPT_CODE": "421750000",
"CONCEPT_ID": 443734,
"CONCEPT_NAME": "Ketoacidosis in type 2 diabetes mellitus",
"DOMAIN_ID": "Condition",
"INVALID_REASON": "V",
"INVALID_REASON_CAPTION": "Valid",
"STANDARD_CONCEPT": "S",
"STANDARD_CONCEPT_CAPTION": "Standard",
"VOCABULARY_ID": "SNOMED"
},
"isExcluded": true,
"includeDescendants": true
},
{
"concept": {

Standardized Cohort Diagnostics



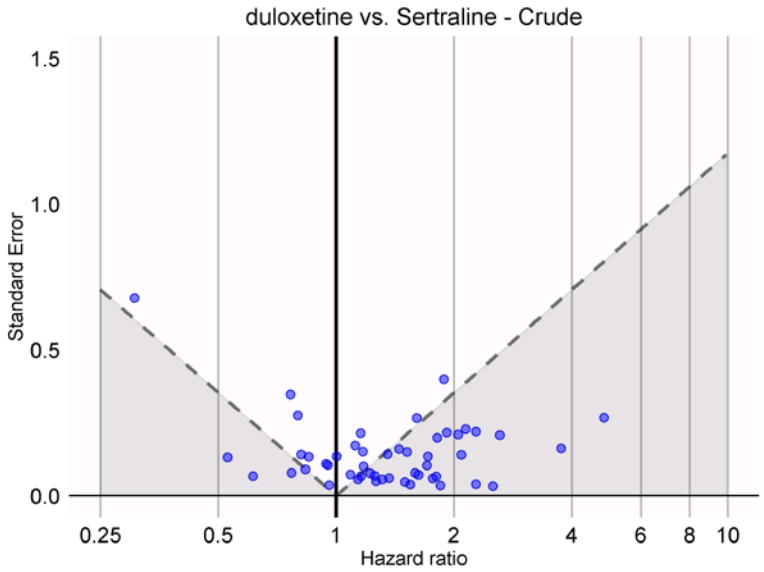
Propensity score distribution

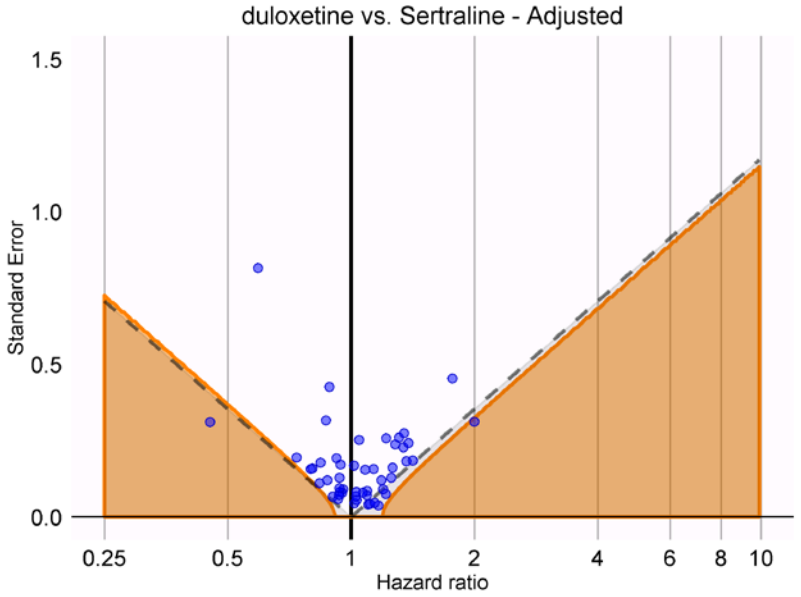


Covariate balance

https://github.com/OHDSI/CohortMethod

Data Source Calibration





Schuemie MJ, Hripcsak G, Ryan PB, Madigan D, Suchard MA. Robust empirical calibration of p-values using observational data. Statistics in Medicine. 2016 Sep 30;35(22):3883-8.

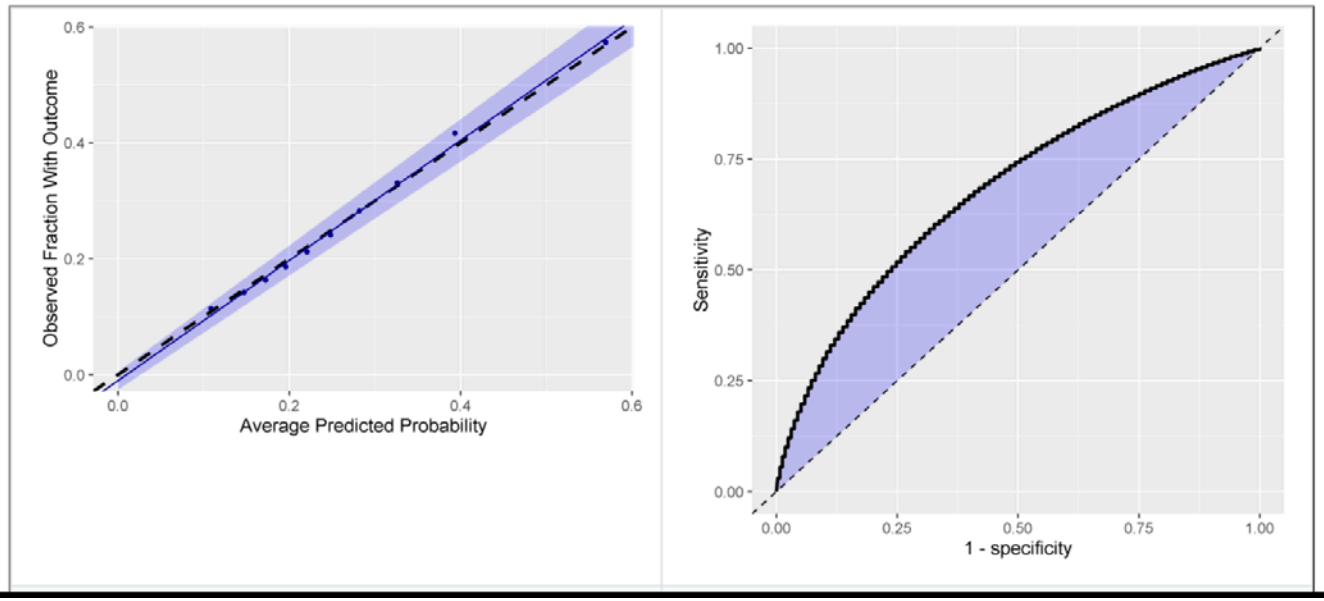
Predictive Modeling

PatientLevelPrediction

Features

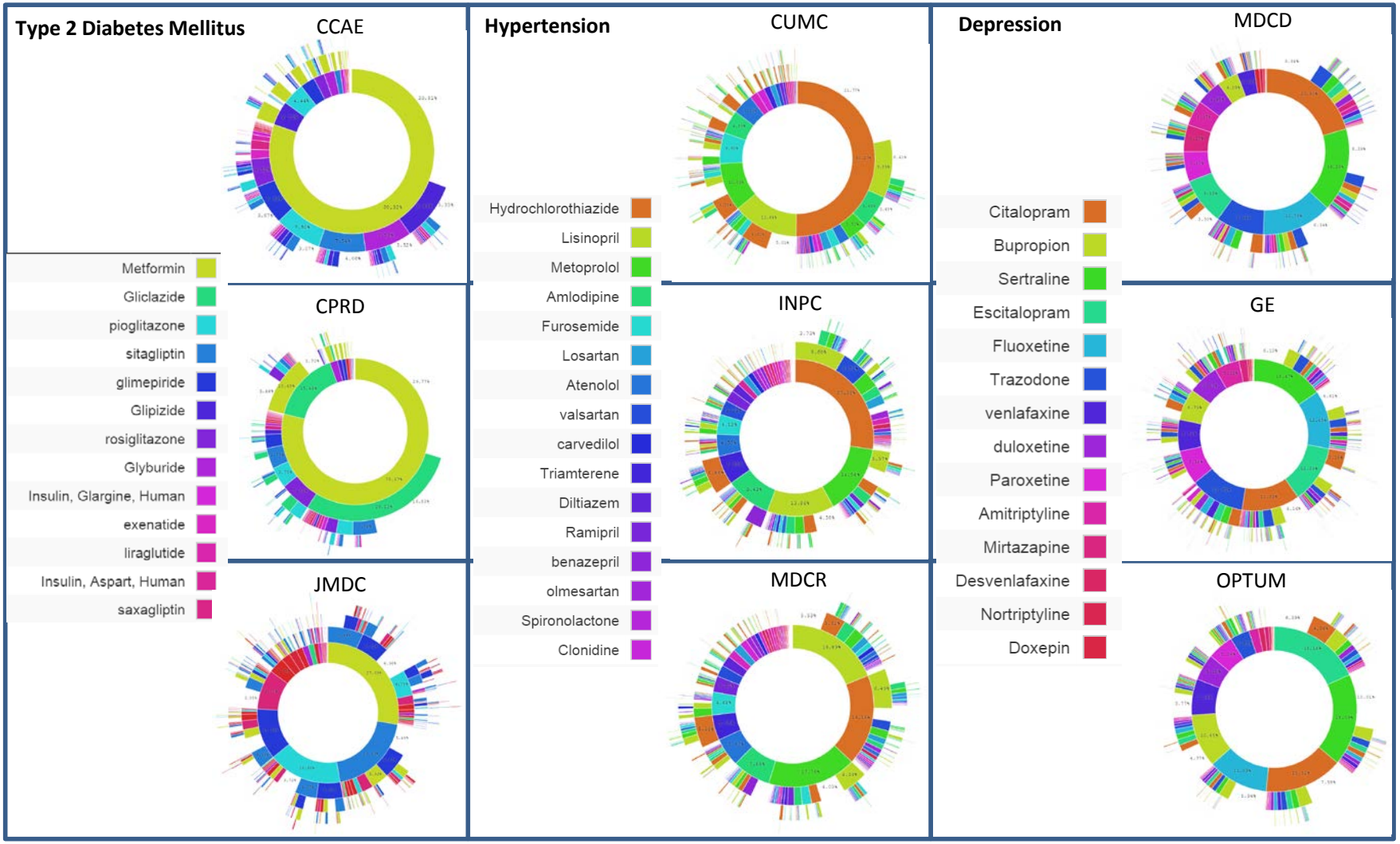
- Takes a cohort and outcome of interest as input.
- Extracts the necessary data from a database in OMOP Common Data Model format.
- Uses a large set of covariates including for example all drugs, diagnoses, procedures, as well as age, comorbidity indexes, etc.
- Various machine learning algorithms can be used to develop predictive models.
- Includes function for evaluating predictive models
- Includes functions to plot and explore model performance (ROC + Calibration)
- Supported outcome models are l1 logistic regression, Random forest, Gradient boosting machines, Naive Bayes, KNN and MLP.

Screenshots



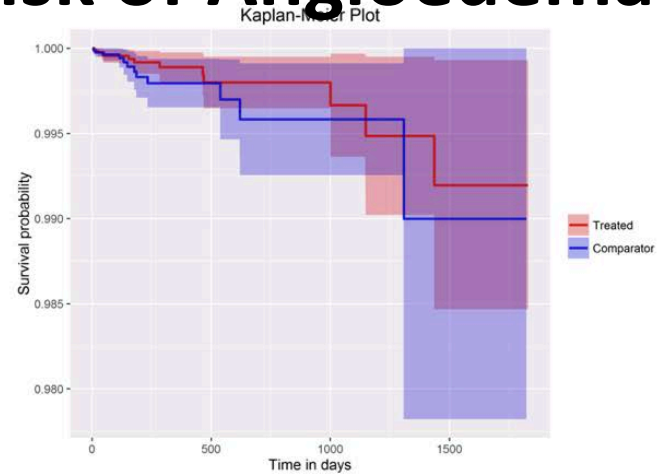
And we've generated evidence…

Answering Questions on a Global Scale: Analysis of Treatment Patterns of 250M Patients

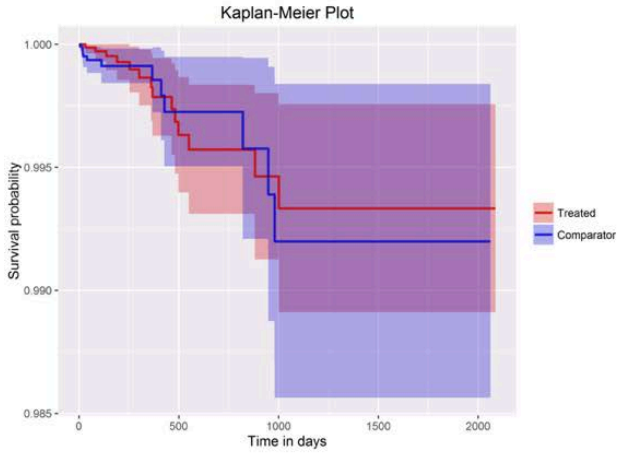


Hripcsak G, Ryan P, Duke J, Shah N, Park R, et al. Addressing Clinical Questions at Scale: OHDSI Characterization of Treatment Pathways. Proceedings of the National Academy of Science (In press).

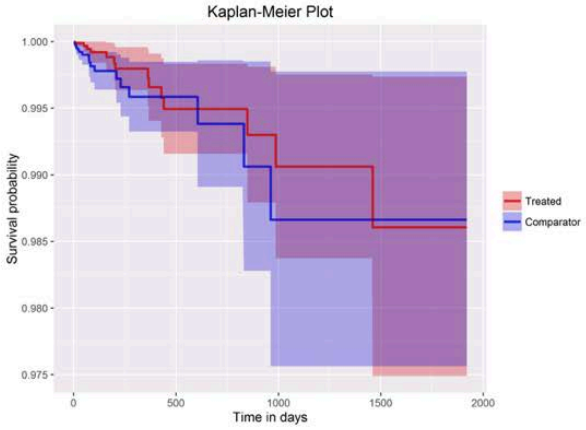
Supporting Medication Safety: Risk of Angioedema with Levetiracetam



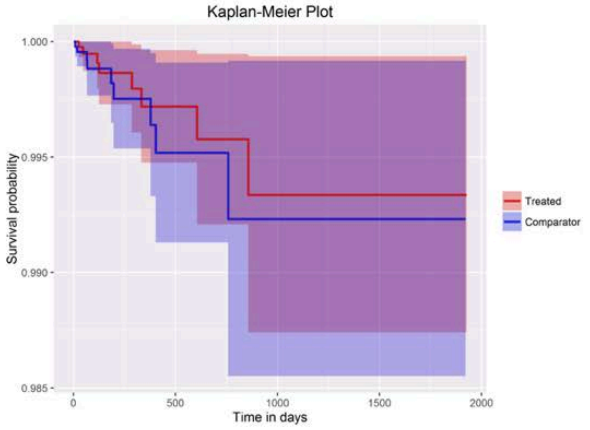
CCAE



OPTUM



MDCD



MDCR

OHDSI in the Literature

Google ohdsi

Scholar About 150 results (0.04 sec)

Articles
Case law
My library

Any time
Since 2017
Since 2016
Since 2013
Custom range...

Sort by relevance
Sort by date

include patents
include citations

[HTML] Observational Health Data Sciences and Informatics (**OHDSI**): opportunities for observational researchers
G Hripcsak, JD Duke, NH Shah, CG Reich… - Studies in health …, 2015 - ncbi.nlm.nih.gov
Abstract The vision of creating accessible, reliable clinical evidence by accessing the clinical experience of hundreds of millions of patients across the globe is a reality. The Observational Health Data Sciences and Informatics (**OHDSI**) has built on learnings from the
Cited by 31 Related articles All 6 versions Cite Save

Characterizing treatment pathways at scale using the **OHDSI** network
G Hripcsak, PB Ryan, JD Duke… - Proceedings of the …, 2016 - National Acad Sciences
Abstract Observational research promises to complement experimental research by providing large, diverse populations that would be infeasible for an experiment. Observational research can test its own clinical hypotheses, and observational studies also
Cited by 8 Related articles All 6 versions Web of Science: 2 Cite Save

[HTML] Improving detection of arrhythmia drug-drug interactions in pharmacovigilance data through the implementation of similarity-based modeling
S Vilar, T Lorberbaum, G Hripcsak, NP Tatonetti - PloS one, 2015 - journals.plos.org
... Department of Biomedical Informatics, Columbia University, New York, NY, United States of America, Department of Systems Biology, Columbia University, New York, NY, United States of America, Observational Health Data Sciences and Informatics (**OHDSI**), New York, NY ...
Cited by 4 Related articles All 14 versions Web of Science: 1 Cite Save More

Google ohdsi

Scholar About 77 results (**0.04** sec)

Articles
Case law
My library

Any time
Since 2017
Since 2016
Since 2013
Custom range...

Sort by relevance
Sort by date

include patents
include citations

Characterizing treatment pathways at scale using the **OHDSI** network

G Hripcsak, PB Ryan, JD Duke… - Proceedings of the …, 2016 - National Acad Sciences

Abstract Observational research promises to complement experimental research by providing large, diverse populations that would be infeasible for an experiment. Observational research can test its own clinical hypotheses, and observational studies also

Cited by 8 Related articles All 6 versions Web of Science: 2 Cite Save

[HTML] Robust empirical calibration of p-values using observational data

MJ Schuemie, G Hripcsak, PB Ryan… - Statistics in …, 2016 - Wiley Online Library

... Martijn J. Schuemie,. Corresponding author: ORCID:orcid.org/0000-0002-0817-5361. Janssen Research and Development LLC, Titusville, NJ, USA; Observational Health Data Sciences and Informatics (**OHDSI**). ... E-mail: schuemie@**ohdsi**.org. Search for more papers by this author ...

Related articles All 5 versions Cite Save

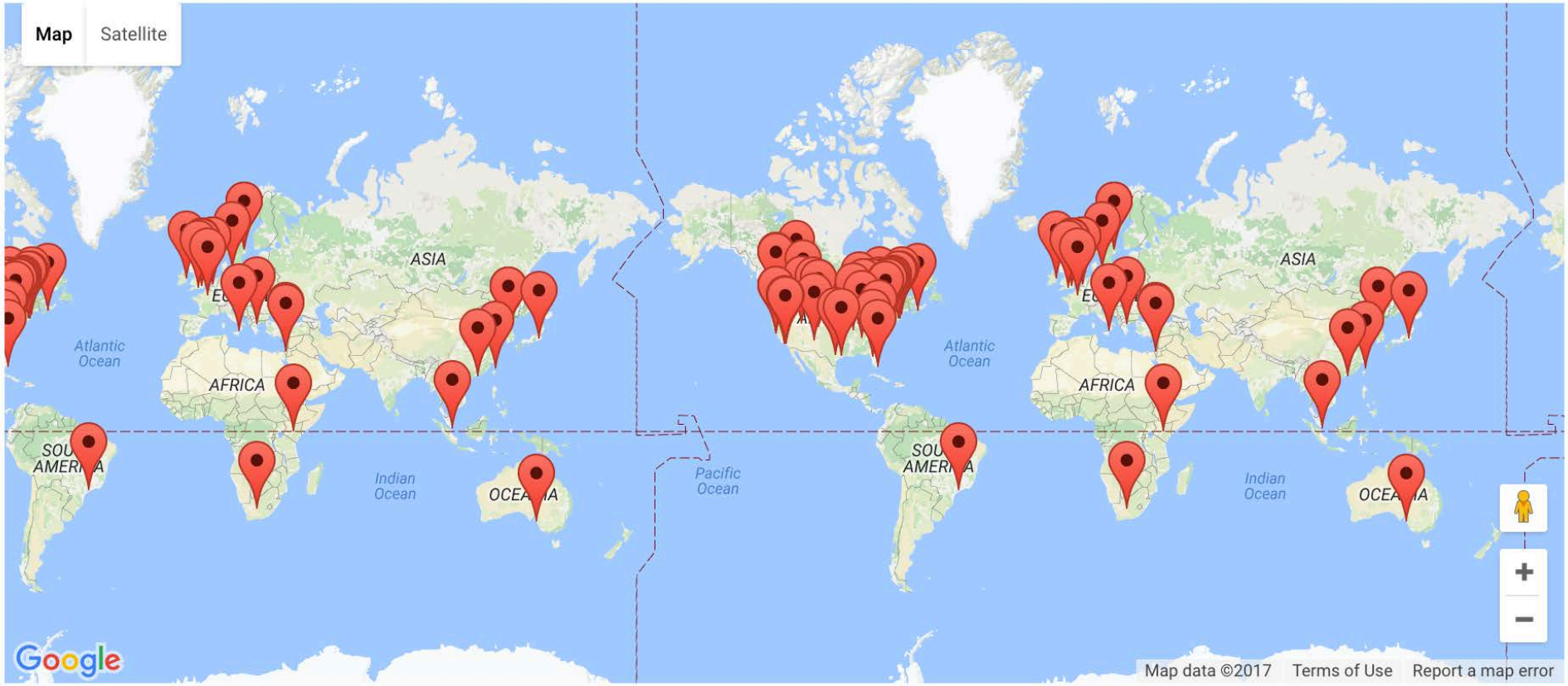
[HTML] Sharing Clinical Big Data While Protecting Confidentiality and Security: Observational Health Data Sciences and Informatics

RW Park - Healthcare Informatics Research, 2017 - synapse.koreamed.org

... Recently, distributed research networks (DRNs), such as Observational Health Data and Informatics (**OHDSI**, pronounced “Odyssey”), the National Patient Centered Clinical Research Network (PICORNET), or Sentinel Initiatives have gained popularity among clinical data ...

All 4 versions Cite Save More

OHDSI across the globe



OHDSI Symposium 2017 강의 내용 및 R shiny 관련 질의

OHDSI in Korea

whk Hyunki Woo — 3 — 4d

안녕하세요.
저는 삼성융합의과학원 디지털헬스학과의 우현기 입니다.

이번 2017 OHDSI Symposium 에 참여하여 매우 유익한 강의들을 들을 수 있어서 뜻깊은 시간이었고, 이런 자리를 마련해주신 관계자 분들의 노고에 깊은 감사를 드립니다.

몇가지 질문 및 요청사항이 있어서 토픽을 남깁니다.

1. 지난 수요일(3/8) 심포지엄 중 두번째 연사였던 Martijn Schuemie 의 강의 내용 중, R shiny 를 통하여 여러 분석데이터들을 도표화 하여 웹에 띄워 주는 아래와 같은 화면을 볼 수 있었고 매우 인상적이었습니다.

   (1) R shiny를 활용한 위 화면의 URL 주소를 좀 알 수 있을까요? (사진을 찍었는데 잘 보이지가 않네요 😂)
   (2) 위 프로그램의 R shiny Code도 혹시 함께 볼 수 있는 방법이 있을까요?

2. R shiny 로 작업할때 다루는 데이터인 csv 파일내의 행(row)이 약 55만개가 넘어가면 아래와 같은 에러가 나오는 경우가 있었습니다.
   Error: 'from' cannot be NA, NaN or infinite
   (1) 위와 같은 에러의 해결방법과 혹시 R shiny에서 다룰 수 있는 데이터의 양(용량 혹은 행, 열의 갯수)에 대한 Limitation 이 있는지 궁금합니다. R shiny 써보신 분 들중 위와 같은 에러를 접하신 분이 계시다면 의견을 부탁드립니다.

Reply

created	last reply	1	34	2
3 days	2 days	reply	views	users

OHDSI Symposium 2017 강의 내용 및 R shiny 관련 질의

OHDSI in Korea

whk Hyunki Woo — 3 edits, 4d

안녕하세요.
저는 삼성융합의과학원 디지털헬스학과의 우현기 입니다.

이번 2017 OHDSI Symposium 에 참여하여 매우 유익한 강의들을 들을 수 있어서 뜻깊은 시간이었고, 이런 자리를 마련해주신 관계자 분들의 노고에 깊은 감사를 드립니다.

몇가지 질문 및 요청사항이 있어서 토픽을 남깁니다.

1. 지난 수요일(3/8) 심포지엄 중 두번째 연사였던 Martijn Schuemie 의 강의 내용 중, R shiny 를 통하여 여러 분석데이터들을 도표화 하여 웹에 띄워 주는 아래와 같은 화면을 볼 수 있었고 매우 인상적이었습니다.

Patrick_Ryan Patrick Ryan — 2d — + Reply as linked Topic

@whk Schuemie 의 강의에 나온 내용에 대해서는 Schuemie 에게 직접 문의하시면 될 듯 합니다. 관심 가져 주셔서 감사합니다. ^^

Reply

Reply

created	last reply	1	34	2
3 days	2 days	reply	views	users

Patrick_Ryan Patrick Ryan — 2d

@whk Schuemie 의 강의에 나온 내용에 대해서는 Schuemie 에게 직접 문의하시면 될 듯 합니다. 관심 가져 주셔서 감사합니다. ^^

Reply

Friendly Forums

	Today	Yesterday	Last 7 Days	Last 30 Days	All
User Visits	56	48 ▲	252 ▼	958 ▼	15863
New Users	4	5 ▲	21 ▲	58 ▼	892
Topics	5	3	15 ▲	47 ▼	1225
Posts	30	28 ▲	128 ▲	329 ▲	6601
Time to first response	1.87	2.22 ▼	17.01 ▼	28.8 ▼	167.9

Too Responsive?

Christian_Reich 3d

@Gowtham_Rao, @hripcsa:

Just got scolded by the Forum website:

> **Let others join the conversation**
> This topic is clearly important to you – you've posted more than 28% of the replies here.
> Are you sure you're providing adequate time for other people to share their points of view, too?

So, this is the last one before I shut up. 😄

Breadth of Topics Evolving with Community

What -omics vocabularies are you using?

Philosophical question on oncology ETL

Creating HEDIS measures as cohort definitions in ATLAS

Using **NLP** sentiment to determine inclusion

OMOP use in Global Epi for CDC? Gates Foundation?

OMOP in Hadoop?

How do we define what is a 'good **study**'?

mrobinson Markeese Robinson 12d

Greetings,

I am Markeese Robinson and I work at a Federally Qualified Community Health Center located in Jackson, Mississippi.

I need help with the OMOP conversion tools that are listed on the OHDSI website.
We would also like to understand the process to convert the EHR data to the OMOP format.

I look forward to hearing from you. Thank you in advance for any assistance that you can offer.

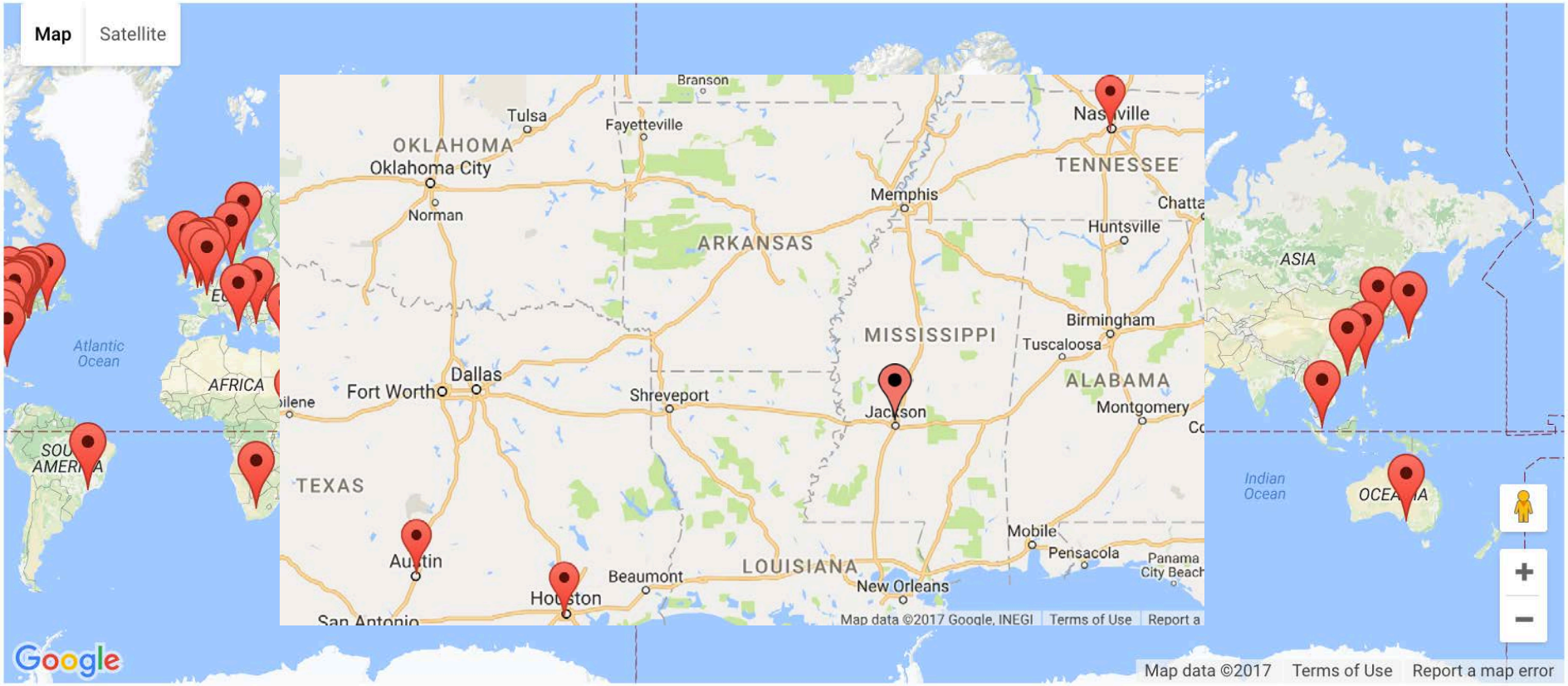
Reply

JACKSON-HINDS COMPREHENSIVE HEALTH CENTER (JHCHC)

As **the largest provider of primary health care services to the poor, uninsured and undeserved population in Mississippi**, the prime objective of JHCHC is to eliminate disparities in health care access for these groups, which often fall between the gaps of private insurance and personal income. Payments for services rendered are based on a number of factors including the patient's ability to pay as well as grant fund availability for various services.

Jackson / Population

172,638 (2013)


Map
Satellite
Branson
Tulsa
Fayetteville
OKLAHOMA
Oklahoma City
Norman
Memphis
TENNESSEE
Huntsville
ARKANSAS
ASIA
Atlantic Ocean
AFRICA
MISSISSIPPI
Birmingham
Tuscaloosa
Dallas
Fort Worth
Shreveport
Jackson
ALABAMA
Montgomery
TEXAS
Indian Ocean
Austin
Houston
Beaumont
LOUISIANA
Mobile
Pensacola
New Orleans
Panama City Beach
San Antonio
Map data ©2017 Google, INEGI
Terms of Use
Report a
Google
Map data ©2017
Terms of Use
Report a map error


Map
Satellite
OpenMRS
ATLAS
Help
Share
View
Download
Sign In
Legend
Research
Clinical
Development
Evaluation
Other
United States
Mexico
Cuba
Puerto Rico
Guatemala
Nicaragua
Venezuela
Colombia
Ecuador
Peru
Brazil
Bolivia
Paraguay
Chile
Argentina
Guyana
Suriname
North Atlantic Ocean
South Atlantic Ocean
Gulf of Mexico
Caribbean Sea
Ireland
United Kingdom
Germany
Poland
Belarus
Ukraine
France
Austria
Italy
Spain
Portugal
Greece
Turkey
Morocco
Algeria
Tunisia
Libya
Egypt
Western Sahara
Mauritania
Mali
Niger
Chad
Sudan
Nigeria
Ghana
Gulf of Guinea
South Sudan
Ethiopia
Somalia
Kenya
Gabon
DR Congo
Tanzania
Angola
Zambia
Mozambique
Namibia
Zimbabwe
Botswana
South Africa
Madagascar
Indian Ocean
Kazakhstan
Mongolia
Uzbekistan
Kyrgyzstan
Turkmenistan
Syria
Iraq
Iran
Afghanistan
Pakistan
China
South Korea
Japan
Sea of Japan
East China Sea
Philippine Sea
Nepal
Myanmar (Burma)
Thailand
Vietnam
Malaysia
Indonesia
Philippines
Saudi Arabia
Oman
Yemen
Gulf of Aden
Arabian Sea
Bay of Bengal
Gulf of Thailand
Andaman Sea
South China Sea
Australia
Great Australian Bight

Time to roll up our sleeves, spit in our hands, and go to work.

Today's Agenda

9:30 – 10:30am	Working Group Breakout Session – Part I •Common data model and vocabulary – Proposal review (Room A) •Population-level estimation (Room B) •Hadoop (Room B) •Vocabulary Visualization (Room B) •Orientation for newcomers (Room C)
10:30 – 11:00am	Break
11:00 – 12:00pm	Working Group Breakout Session – Part II •Common data model and vocabulary – Proposal review (Room A) •Architecture (Room B) •Patient-level prediction •Natural language processing •Orientation for newcomers
12:00 – 1:00pm	Reconvene the community •Summary of key points from each work group •Hack-a-thon presentation: Framing of target problems
1:00 – 1:30pm	Lunch
1:30 – End of day	Hack-a-thon – Three possible tracks •Phenotyping and cohort building •Large scale statistical computing •Design session: UI experience and information dissemination

Tomorrow's Agenda

8:00 – 12:30pm	Continue hack-a-thon activities across three tracks: •Phenotyping and cohort building •Large scale statistical computing •Design session: UI experience and information dissemination
12:30 – 1:30pm	Lunch
1:30 – 3:00pm	Reconvene the community •Review outcomes from each hack-a-thon track
3:00 – 3:30pm	Break
3:30 – 5:30pm	Open community discussion •Next steps for following through on group projects •Other priorities for collaborative projects •Other ways to engage the community and make contributions
5:30pm	Wrap-up