



TECHNISCHE
UNIVERSITÄT
DRESDEN



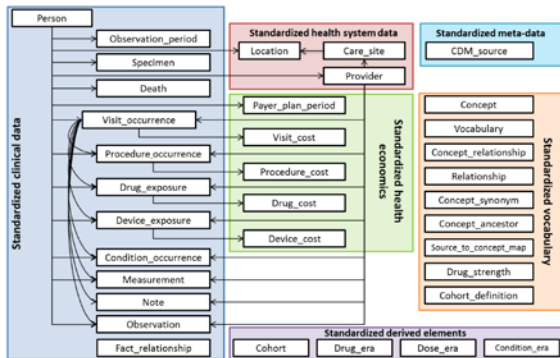
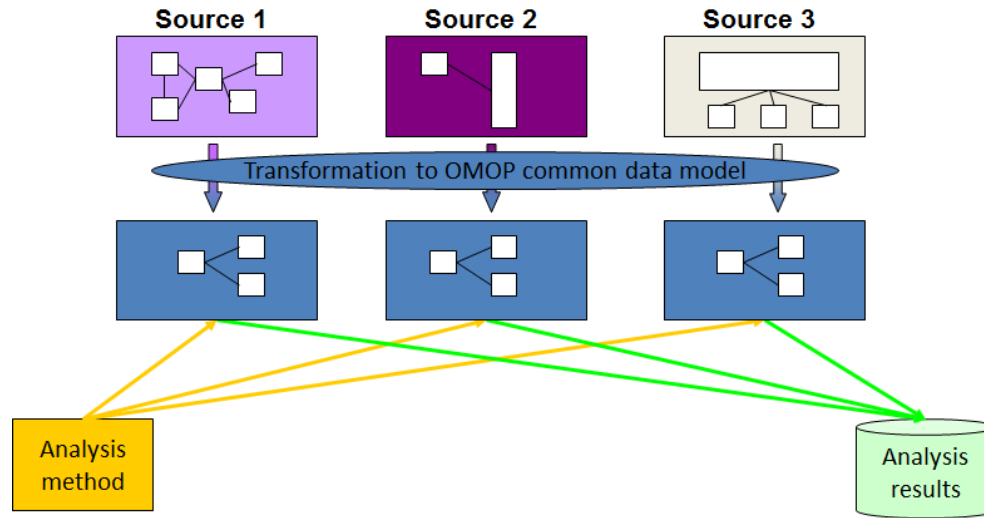
Observational Health and Data Sciences

Martin Sedlmayr

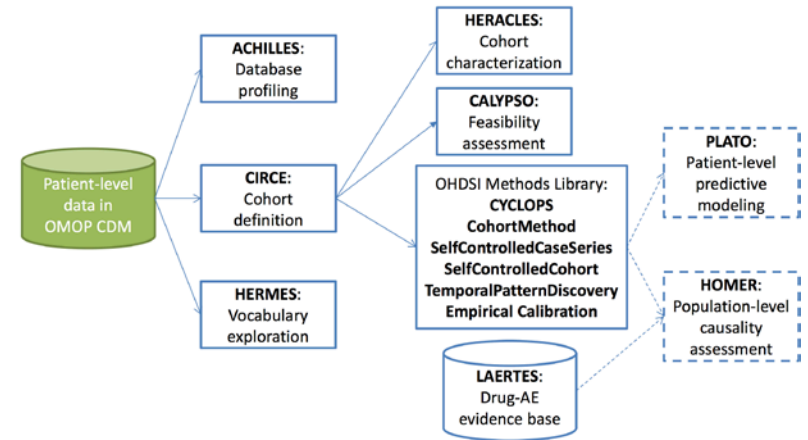
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Professur für Medizinische Informatik
Zentrum für Medizinische Informatik der Hochschulmedizin Dresden*



OMOP & OHDSI

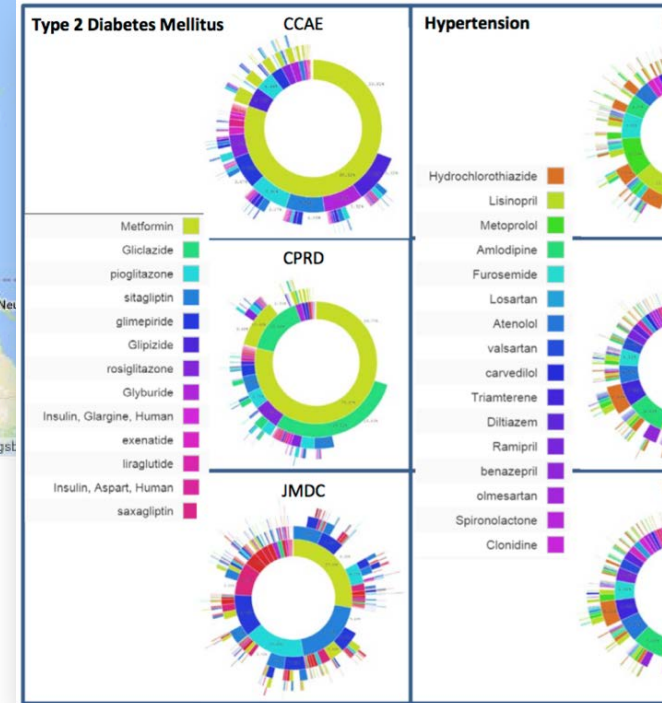


Vocabulary ID (CDM V4.5)	Vocabulary code (CDM V5)	VOCABULARY NAME
1	SNOMED	Systematic Nomenclature of Medicine - Clinical Terms (SNOMED)
2	ICD9CM	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 2
3	ICD9Proc	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 3
4	CFR4	Current Procedural Terminology version 4 (CPT4)
5	HCPCS	Healthcare Common Procedure Coding System (CMS)
6	LOINC	Logical Observation Identifiers Names and Codes (Regeneron Institute)
7	NDRBT	Natural Drug For - Reference Terminology (NLM)
8	RxNorm	RxNorm (NLM)
9	NDC	National Drug Code (FDA and manufacturers)
10	GPI	Med-Span Generic Product Identifier (Indiana Xavier Health)
11	UCLUM	Unified Code for Units of Measure (Regeneron Institute)
12	Gender	OMOP Gender
13	Race	Race and Ethnicity Code Set (USGIC)
14	Place of Service	Place of Service Codes for Professional Claims (CMS)
15	MedDRA	Medical Dictionary for Regulatory Activities (MSDQ)
16	Multum	Cancer Medication (Genentech)
17	Read	NHS UK Read Codes Version 3 (NHSUK)
18	DMDS	Default Medical Information System (DDMP)
19	Indication	Indications and Contraindications (FDB)
20	ETC	Enhanced Therapeutic Classification (FDB)
21	ATC	WHO Anatomical Therapeutic Classification
22	Molecule	Molecule (FDB)
28	VA Product	VA National Drug File Product (VA)
31	SNQ	Standardized MedDRA Queries (MSDQ)
32	VA Class	VA National Drug File Class (VA)
33	Cohort	Legacy OMOP ID or ODD cohort
34	ICD10	International Classification of Diseases, Tenth Revision (WHO)
35	ICD10PROC	ICD-10 Procedure Coding System (CMS)
40	DRG	Diagnosis-related group (CMS)
41	HIC	Major Diagnostic Categories (CMS)
42	ARC	Antibiotic Resistance Classification (CMS)
43	Revenue Code	URAC (CMS) Revenue Codes (CMS)
44	Ethnicity	OMOP Ethnicity
46	MeSH	Medical Subject Headings (NLM)
47	NUCC	National Uniform Claim Committee Health Care Procedure Terminology Code Set (NUCC)
48	Specialty	Medicine (non)prescription specialty codes (CMS)
50	SNL	Structured Product Labeling (FDA)
53	GON_SEQNO	Clinical Formulation ID (FDB)
54	CCS	Clinical Classifications Software for ICD-9-CM (ICLUS)
55	OPCS4	OPCS Classification of Interventions and Procedures version 4 (NHS)





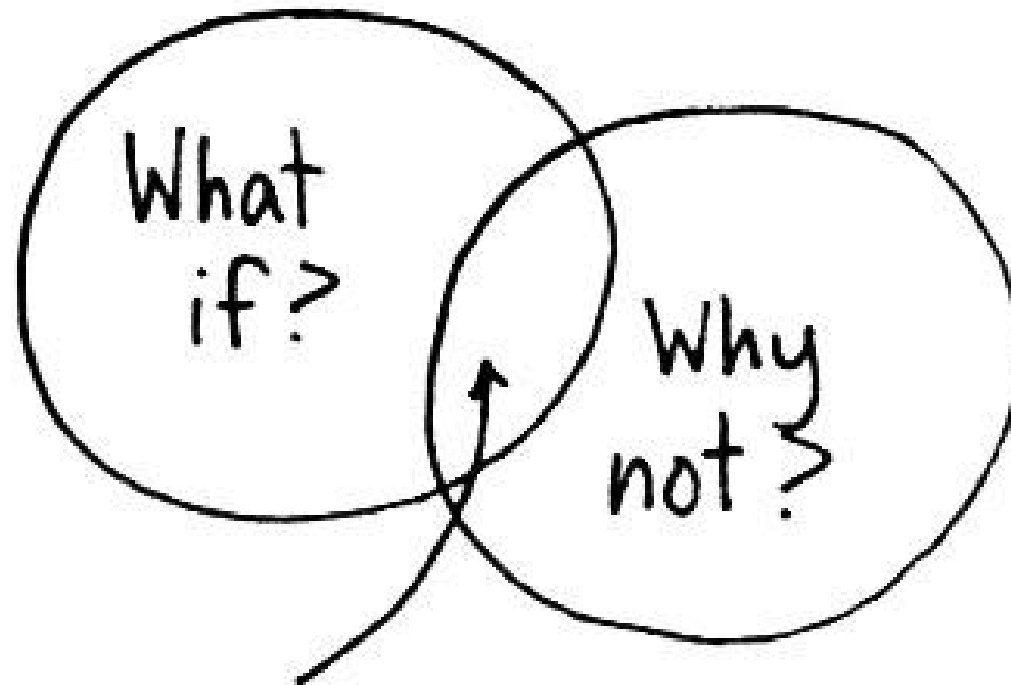
Erfolg!



- 84 Institutionen
- 1.26 Mrd. Patientenakten
- Kohorten größer 100 Millionen Patienten



The American Way?



Let's go.



Mission



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

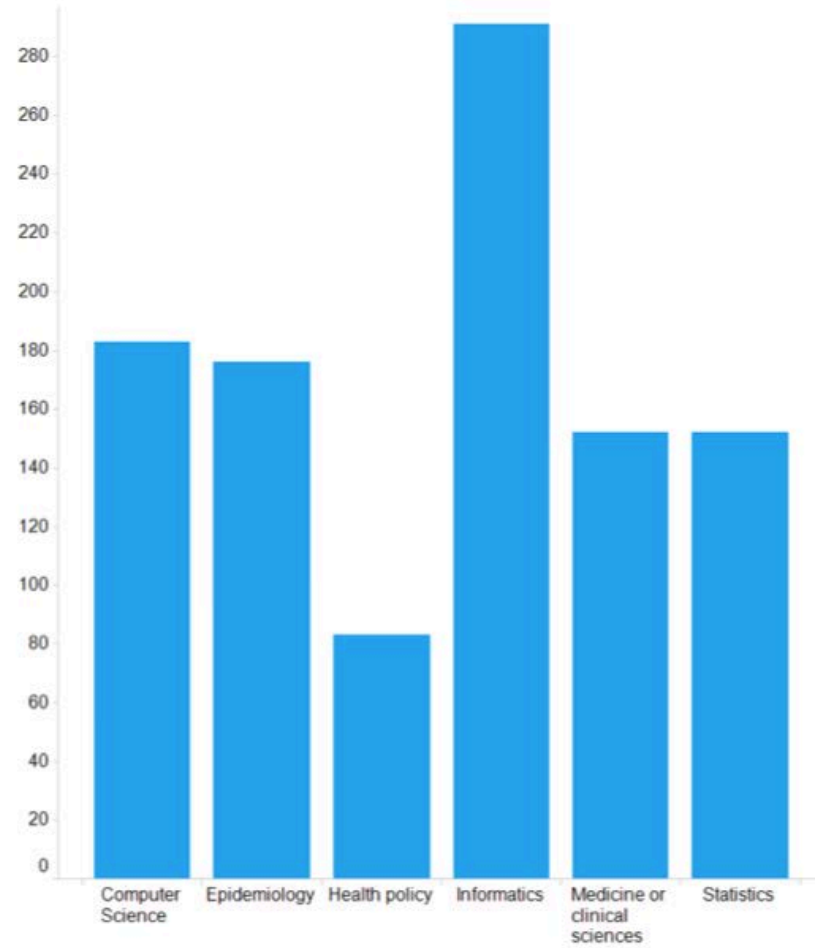
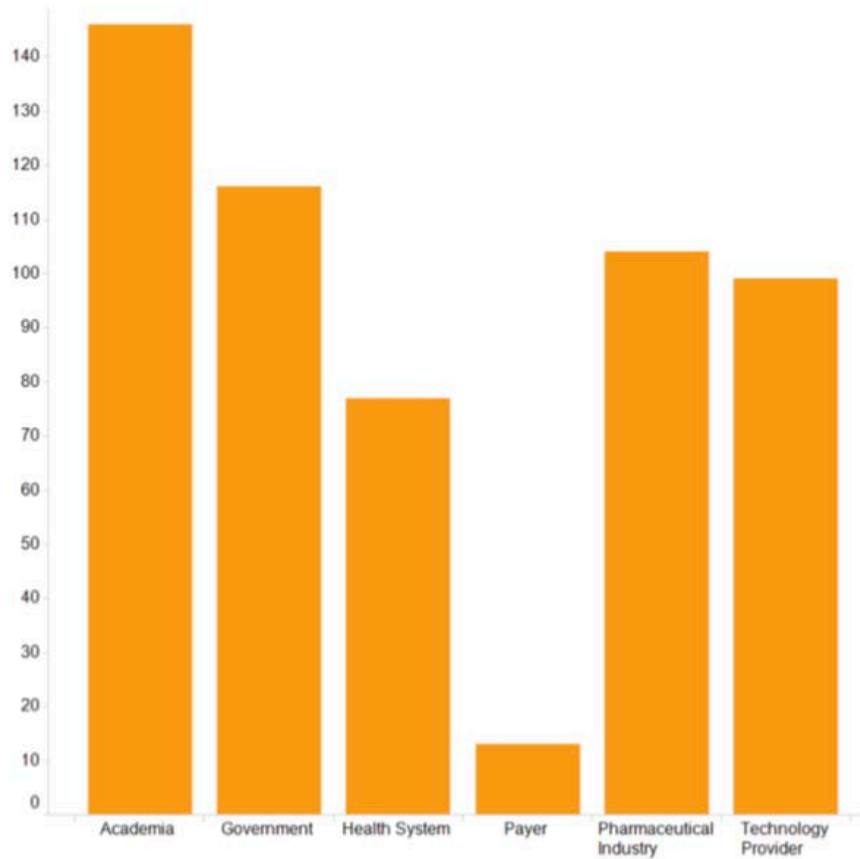


Values

- **Innovation:** Observational research is a field which will benefit greatly from disruptive thinking. We actively seek and encourage fresh methodological approaches in our work.
- **Reproducibility:** Accurate, reproducible, and well-calibrated evidence is necessary for health improvement.
- **Community:** Everyone is welcome to actively participate in OHDSI, whether you are a patient, a health professional, a researcher, or someone who simply believes in our cause.
- **Collaboration:** We work collectively to prioritize and address the real world needs of our community's participants.
- **Openness:** We strive to make all our community's proceeds open and publicly accessible, including the methods, tools and the evidence that we generate.
- **Beneficence:** We seek to protect the rights of individuals and organizations within our community at all times.



Diversity





Critical Mass

- 84 organizations
 - 1.26 billion patient records
 - 78 Vocabularies
 - SNOMED, RxNorm, LOINC, ICD9, ICD10, Read, ...
 - 5.8 million concepts with 32 million relationships
 - 88 developers on 101 Github repositories
 - 594 users in the forum, 9,000 posts, 1,600 topics
-



Impact

Google Scholar OHDSI

Artikel Ungefähr 360 Ergebnisse (0,06 Sek.)

Beliebige Zeit
Seit 2018
Seit 2017
Seit 2014
Zeitraum wählen...

Nach Relevanz sortieren
Nach Datum sortieren

Beliebige Sprache
Seiten auf Deutsch

Patente einschließen
 Zitate einschließen

Alert erstellen

Tip: Suchen Sie nur nach Ergebnissen auf Deutsch. Sie können Ihre Sprache in den Scholar-Einstellungen

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

Type 2 Diabetes Mellitus CCAE **Hypertension**

Metformin
Gliclazide
pioglitazone
sitagliptin
glimepiride
Glipizide
rosiglitazone
Glyburide
Insulin, Glargine, Human

Hydrochlorothiazide
Lisinopril
Metoprolol
Amlodipine
Furosemide
Losartan
Atenolol
valsartan
carvedilol
Triamterene
Diltiazem

CPRD

Von der Hypothese zum eingereichten Paper <4 Wochen bei 7 Zentren und 35 Mio Patienten

- 360 Treffer bei Google Scholar
- Kohorten größer 100 Millionen Patienten
- Publikationszeiten unter 4 Wochen

Niedrige Einstiegshürden & Quick Wins

Design your study

- What's your target cohort?
- What's your compactor cohort?
- What's your outcome cohort?
- What's your time-at-risk?

The screenshot shows the ATLAS web application interface. On the left is a dark blue sidebar with navigation links: Home, Data Sources, Vocabulary, Concept Sets, Cohorts, Incidence Rates, Profiles, Estimation, Jobs, Configuration, R Services, and Feedback. The main content area is titled 'Home' and contains a welcome message, documentation links, and a 'Getting Started' section. Two prominent green buttons are visible: 'Define a New Cohort' and 'Search the Vocabulary'. Below these are 'Release Notes' for ATLAS Version 1.2.0, 1.1.0, and WebAPI Version 1.2.0, each listing recent updates and fixes.

ARACHNE key features

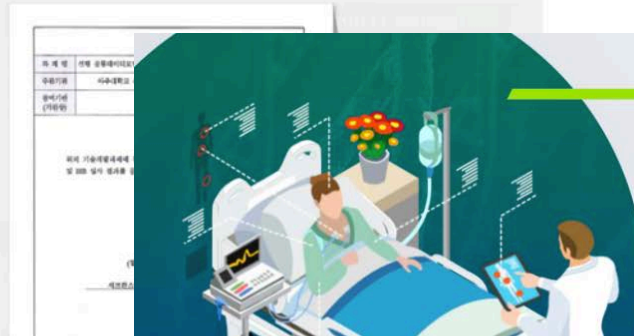
- Study lifecycle and workflow management
- Discover federated data sets in RWE data catalog
- Build study team
- Federated analysis across organizational boundaries
- Secure, compliant and trusted data access
- Exchange and store analysis results
- Support for R, SQL and complex packages
- Integration with OHDSI Platforms (ATLAS, Achilles)
- Support for OHDSI OMOP CDM





OHDSI South Korea

Commitment by 39 Hospital Heads to Share IRB Review Results and Conduct Joint Research



Lesson learned from potential Data Owner

- Quick-prototyping
- Demonstration
- Success story
- Focusing on clinicians
- Governance leadership meeting

Clinicians, rather than informaticians

major decision makers in a hospital are usually clinicians

Young clinicians assistant – associate professors

highest interest on OMOP CDM, because they do not have enough fund, resources and data for their research

Inter-disciplinary clinical meeting

then homogenous clinical meeting at initial stage



OHDSI Europe



The European Medical Information Framework (EMIF) Project

14 European countries combining 57 partners

€56 million worth of resources

3 projects in one

5 year project (2013-2018)

ACADEMIC PARTNERS: EMIL, EXETER, etc.

SME PARTNERS: LIFE, etc.

EPPIA PARTNERS: ARCON, etc.

PATIENT ORGANISATION: ARND, etc.



Why the OMOP-CDM

Our requirements:

- Active open source community: mapping tools, analytical tools etc.
- Solution for semantic harmonization by using standardized vocabularies
- Need to store ALL source data including source vocabularies
- Possibility to refine to database-specific queries
- Multiple technical infrastructures supported



Industrie

Deloitte.

ConvergeHEALTH™

cloudera®

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TED GIOVANIS** | Foundation for
Health and Policy

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BlueCross BlueShield of South Carolina
is an independent licensee of the
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 **INFORMATICS
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Johnson & Johnson OFFICE OF
THE CMO

 **ZS**

 **Ealytica**®


QuintilesIMS™

**Georgia
Tech** 

**CASE
WESTERN
RESERVE** 
UNIVERSITY
SCHOOL OF
MEDICINE


INSTITUTE FOR
COMPUTATIONAL
BIOLOGY


Google Cloud

IMS Health & Quintiles are now
 **IQVIA**™



Open Source

„Während der soziale Wandel als ein unbeabsichtigtes Nebenprodukt des technologischen Wandels auftreten kann, haben Befürworter neuer Technologien diese oft als Instrumente des positiven sozialen Wandels beworben.“

Joel West





Zusammenfassung

- Mission
- Werte
- Community
- Diversität
- Vertrauen
- Kritische Masse
- Impact

