



IQVIA Research Forum 2022

**Pathways and Priorities for High Impact
Health Research**

October 2022

IQVIA Institute for Human Data Science contributes to advancing human health by generating rigorous, evidence-based research



PROPRIETARY DATA SOURCES*



SUBJECT MATTER EXPERTS



ADVANCED ANALYTICAL SKILLS



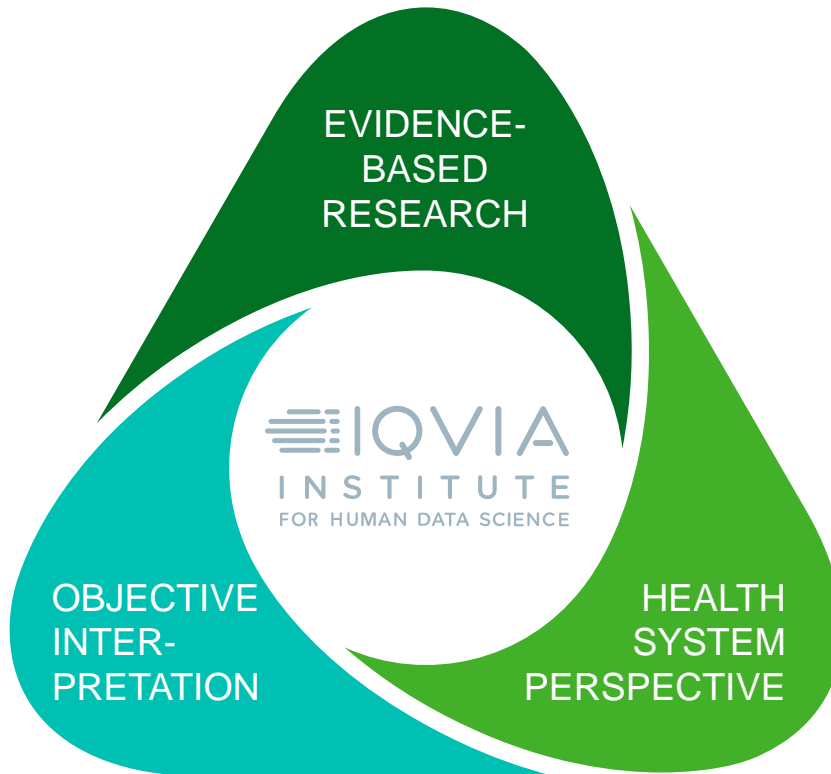
THIRD PARTY INFORMATION



ACADEMIC PARTNERS



EXTERNAL EXPERTS



LIBRARY
OF REPORTS



CONFERENCES
AND FORUMS



PEER-REVIEWED
RESEARCH



PRESS AND
SOCIAL MEDIA
ENGAGEMENT



*No confidential sponsor or customer data is accessible or used

Support for academic researchers



How researchers can benefit from IQVIA data

Through collaboration with the IQVIA Institute, researchers have access to a broad range of proprietary databases and tools to support independent research, discovery work, and requirement development for future funded studies.



Collaborating with the IQVIA Institute

Researchers interested in collaborating with the IQVIA Institute on specific research studies should contact us at info@iqviainstitute.org.

Detailed information is available on our web site at iqviainstitute.org under Research Support.

IQVIA data assets frequently used in academic research

- 1 Formulary Impact Analyzer:** Pharmacy claims with insight into paid, rejected or reversed adjudication status.
- 2 Longitudinal Prescription Claims (LRx):** Prescription claims from retail, mail and long-term care pharmacies.
- 3 Medical and Institutional Claims (Dx and Hx):** Unadjudicated office and institutional medical claims.
- 4 MIDAS:** Global pharmaceutical sales at a country and therapeutic level.
- 5 National Prescription Audit (NPA):** Nationally projected prescription volume from retail, mail and long-term care pharmacies.
- 6 National Sales Perspectives (NSP):** Nationally projected ship-to transaction volume and revenue to all retail and non-retail entities.
- 7 OneKey:** Comprehensive healthcare organizational and professional affiliation data.
- 8 Pharmedics Plus for Academics:** Longitudinal health plan data for adjudicated claims.

Pathways and Priorities for High Impact Health Research

IQVIA Research Forum 2022

Exploring the elusive nature of applied research in national health crises

How to improve the effectiveness of critical health research?

Monday, Oct 10
10 - 11 a.m.

Incorporating the impact of social determinants on outcomes in healthcare research

What are the considerations for the broader use of social determinants in research?

Monday, Oct 10
11 a.m. - 12 p.m.

Navigating the complexity and heterogeneity of patient affordability and access

What do affordability and access mean in a diverse population?

Tuesday, Oct 11
10 - 11 a.m.

Elevating the value to patients of academic health research

What research strategies can achieve increased value to patients?

Wednesday, Oct 12
10 - 11 a.m.

Charting the future of high impact health research

How to raise the ongoing value of health research?

Wednesday, Oct 12
11 a.m. - 12 p.m.



Elevating the value to patients of academic health research

Panelists



Christian Reich, MD

Professor of the Practice, Visiting Scientist, OHDSI
The Roux Institute, Northeastern University

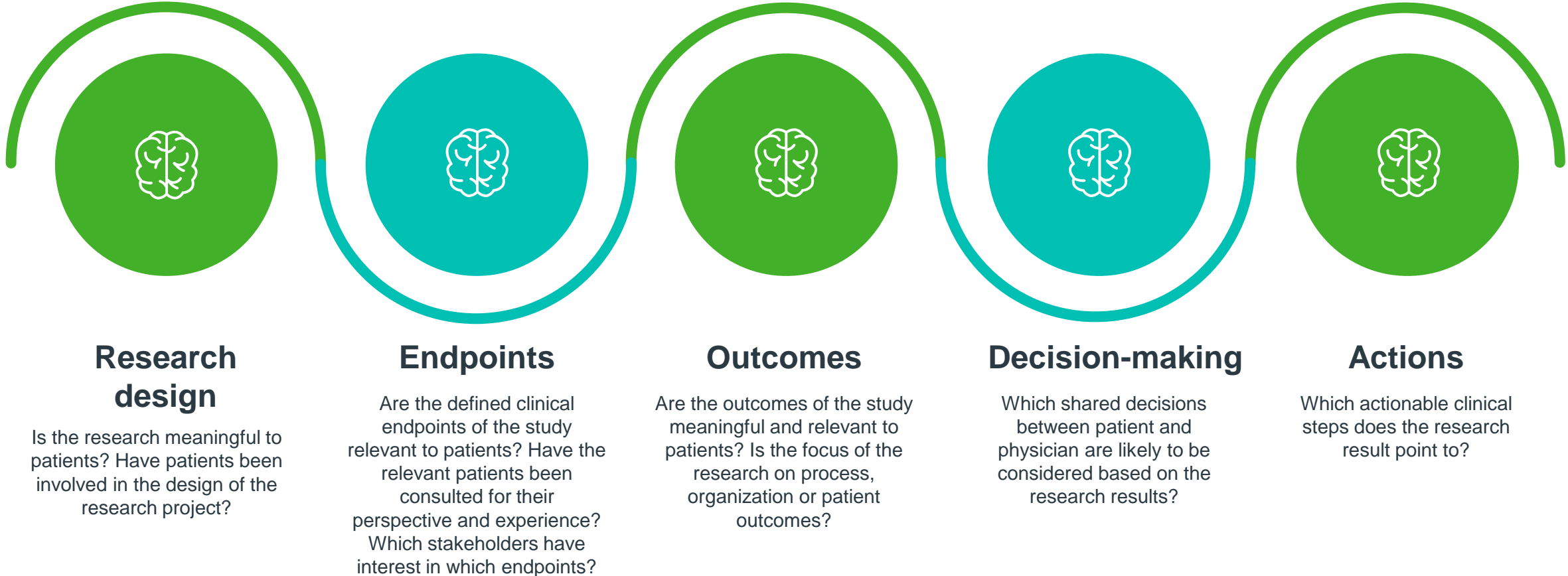


Joseph (Joe) Ross, MD, MHS

Co-founder
MedRxiv

Moderator: Murray Aitken, Executive Director, IQVIA Institute

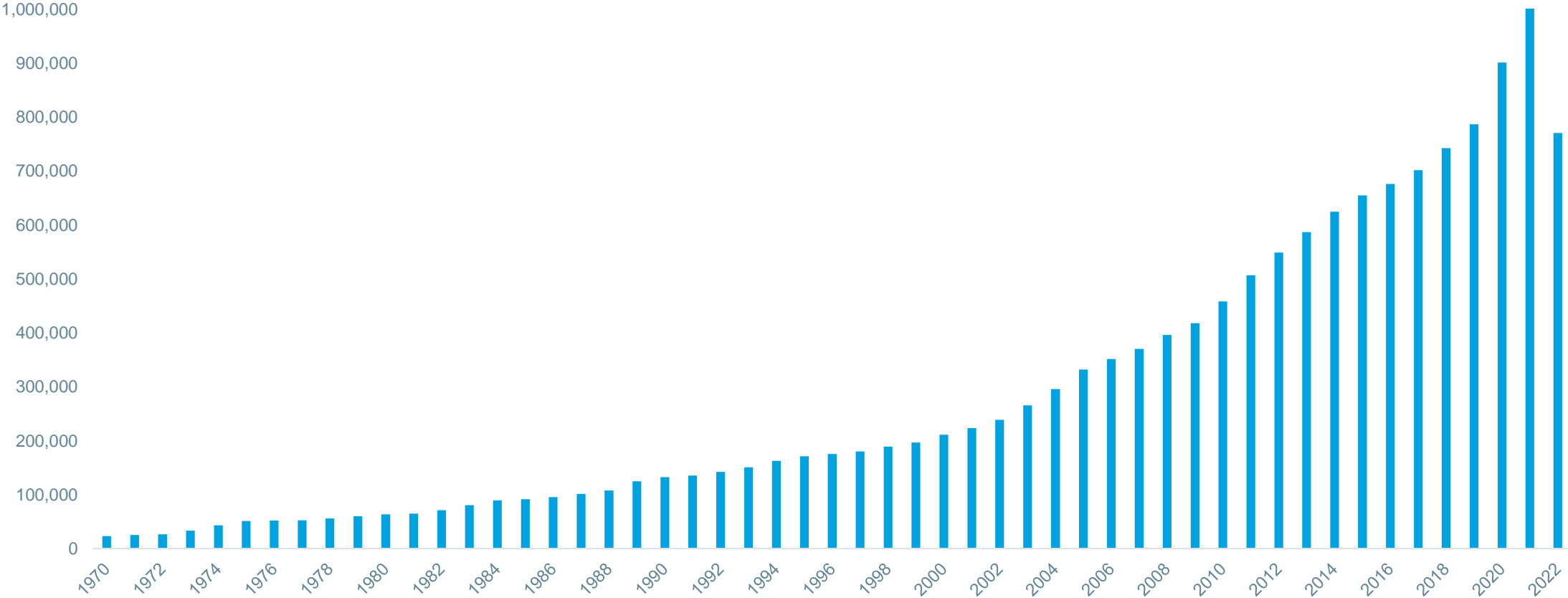
How Do We Determine Whether Academic Research Brings Value to Patients?



Volume of Health Research Growing Rapidly Year over Year

PubMed Annual Rate of Published "Studies" 1970 - 2022

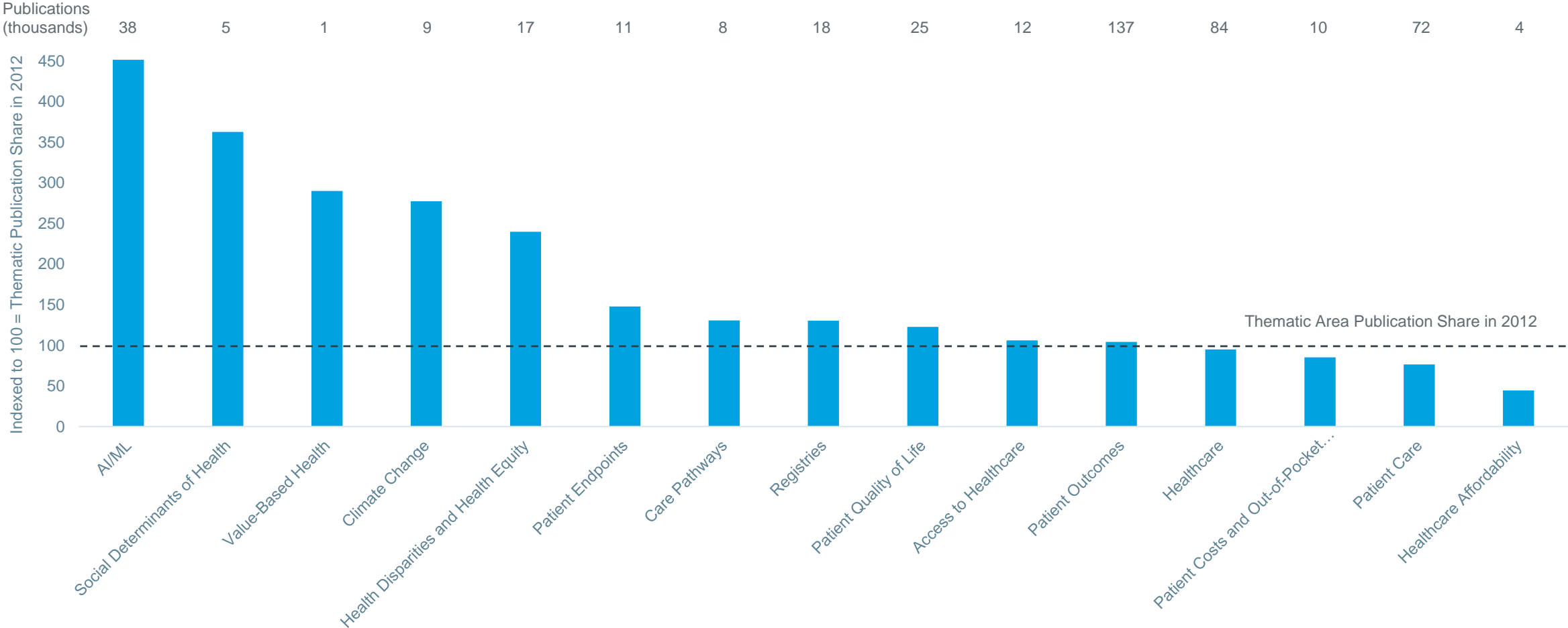
Studies 15,020,024 results



Source: PubMed, October 3, 2022

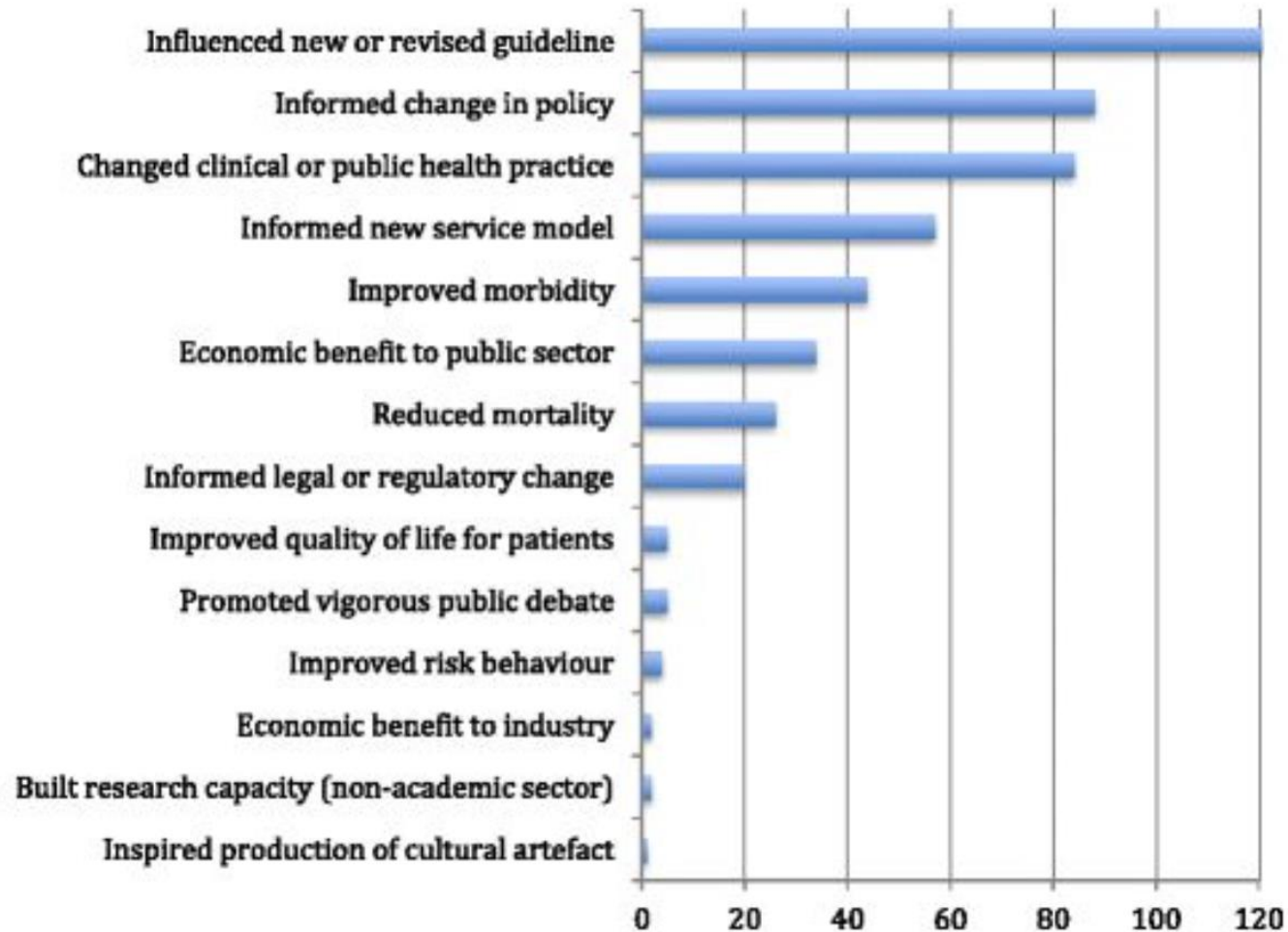
Higher Growth Areas of Research are Reflecting Current Issues

Publications in 2022 Indexed to 2012 Total Publication Share by Thematic Area



Source: PubMed, October 6, 2022

Medical Research Tends to Focus More on Processes than Outcomes



An analysis of the impacts described in 162 case studies submitted from community-based health sciences as part of [the 2014 Research Excellence Framework](#). The majority described changes in processes rather than outcomes

Patient Perspectives on Gaps in Health Research

“Everybody claims to have patient-relevant endpoints, but they are not always based on science and they are not always relevant to patients.”

Bettina Ryll, Chair of Melanoma Patient Network Europe
(At IQVIA Institute, Pre-ESMO Symposium,
September 9, 2022)

The C.D.C. found that record numbers of children under 5 had been hospitalized during the Omicron surge, underscoring the need for vaccines. But it also said that 90 percent of Americans could safely stop wearing masks in public indoor spaces, even in schools with young children.

Confusing, right?

NY Times, Virus Briefing,
March 10, 2022

“By me being a minority, a Black male, I know there are different medications that will help me more than say an Asian or Caucasian, and I ask the doctor... ‘Have there been any studies done on this particular blood pressure medication that’s geared towards minorities?’ and he said ‘Yes.’ I said ‘Well, which one do you think will work best for me?’ “

Quote from patient focus group study. The American
Journal of Bioethics.*

“Yeah, I suppose that’s the key thing is making sure that patients have the chance to give their views, and that those views are listened to... kind of more practical things. ... the kind of outcomes that are relevant in their life, you know, the idea of looking beyond just the clinical outcomes”

Source: * Kelley M et al. Patient Perspectives on the Learning Health System: the Importance of Trust and Shared Decision Making. The American Journal of Bioethics, 25 August 2015.
<https://www.tandfonline.com/doi/full/10.1080/15265161.2015.1062163>

* * Gaasterland, CMV et al. The Patients’s View on Rare Disease Trial Design – A Qualitative Study.” Orphanet Journal of Rare Diseases. 7 February 2019,
<https://ojrd.biomedcentral.com/articles/10.1186/s13023-019-1002-z>

Quote from: “The patient’s view on rare disease trial design – a qualitative study.” * *

Potential Sources of “Leakage” in Health Research Patient Value

Where are the gaps in the evidence chain?



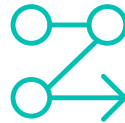
Research design

Research is not always designed to be meaningful to patients by measuring impact for or value to patients.



Capitalize on available data

Research often does not capitalize on available data, for example data from large databases and patient registries.



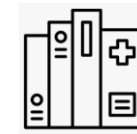
Novel research methods

Novel research methods that can elucidate value to patients in the real world as opposed to a clinical trials setting, for example real-world evidence, is not always applied in health research.



Enabling technologies

Novel enabling technologies that can demonstrate potential value in the real world, such as AI and ML, are complex and require new skills of researchers.



Medical journal process

The medical journal publication process is slow, cumbersome and rather antiquated.



Patient expertise

Medical journal editors don't always engage patient-experts in the review of studies.

New Pathway for Elevating Value of Research to Patients

Co-design research with people affected

Bringing in people who are affected by the issues and interventions that are the subject of health research to help co-design the research



Engage underrepresented populations

Engaging underrepresented populations and communities hitherto have been overlooked in health research

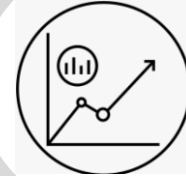
Employ patient-reviewers

Employing experts in patient and real-world issues in the editorial review process



Create review frameworks

Creating and implementing new frameworks for assessing impact of science



Develop measurement guidelines

Developing consensus guidelines for measuring impact and value of research to patients, patient populations and health systems

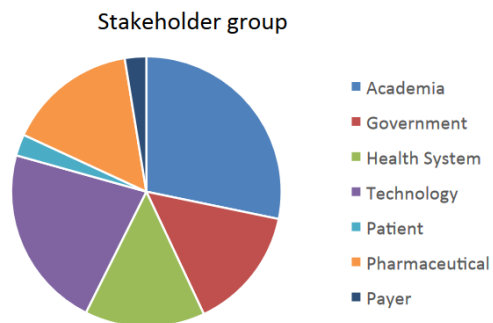


OHDSI Overview

Christian Reich

What OHDSI is:

- ✓ Open Source
- ✓ Community
- ✓ Data



Why Choose OHDSI/OMOP:

- ✓ **Fast, reliable** studies across a series of datasets and data types
- ✓ **Reduced cost of ownership** including understanding coding schemes, writing statistical programs across databases or developing software
- ✓ **Expanded data access** via the OHDSI network and remote multi-center database studies



OHDSI Collaborators:

- 2,900 users
- 29 workgroups
- 46,900 posts on 5,700 topics

OHDSI Network:

- >320+ databases
- 34 countries
- >2.7B patient records, >369M ex-US

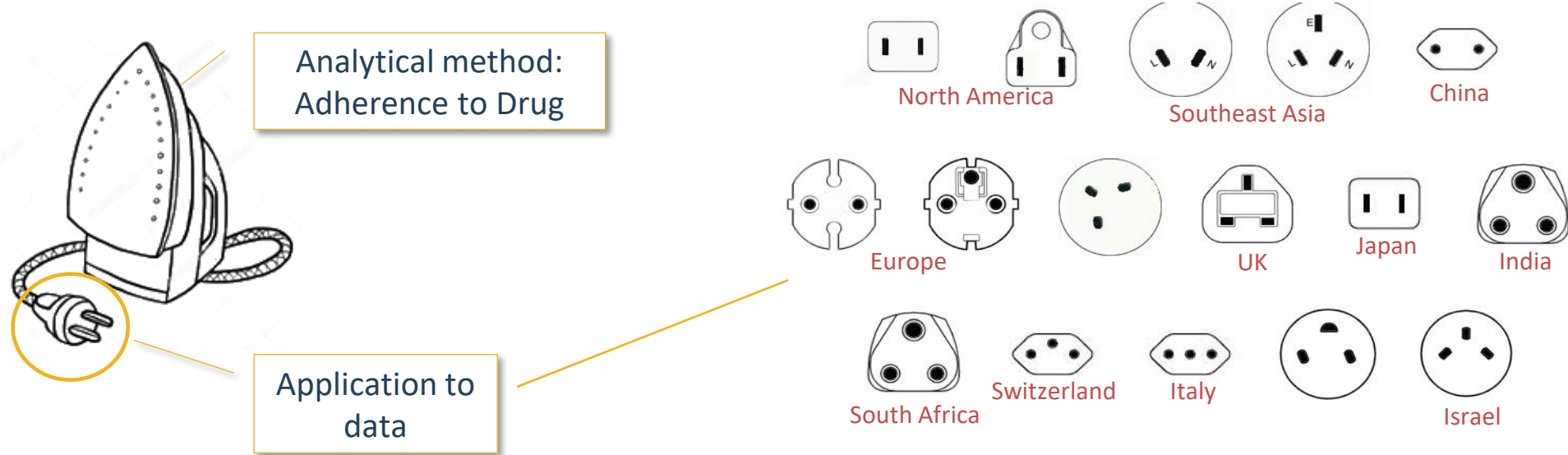


How OMOP Works

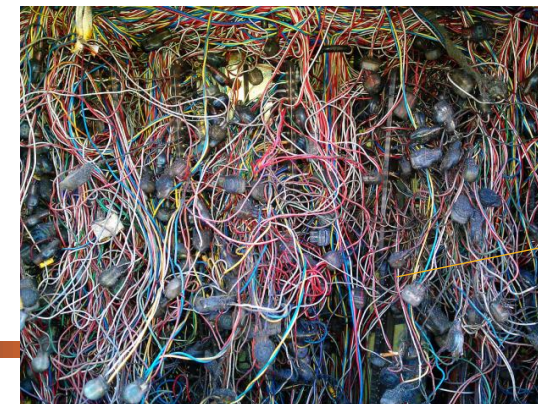
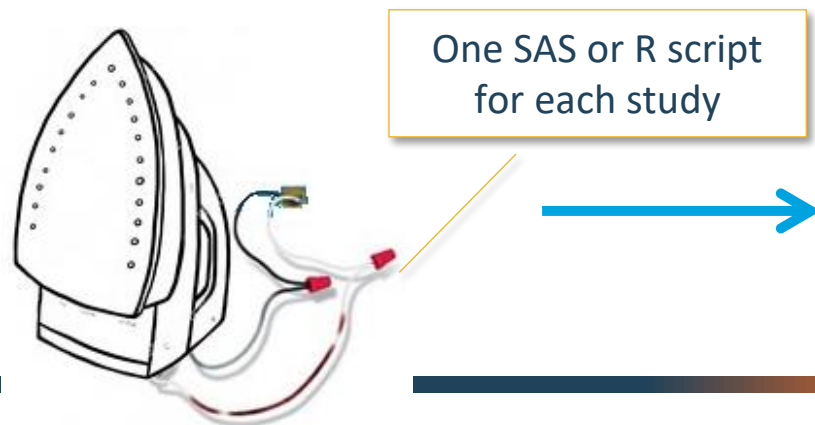


Current Approach: "One Study – One Script"

"What's the adherence to my drug in the data assets I own?"



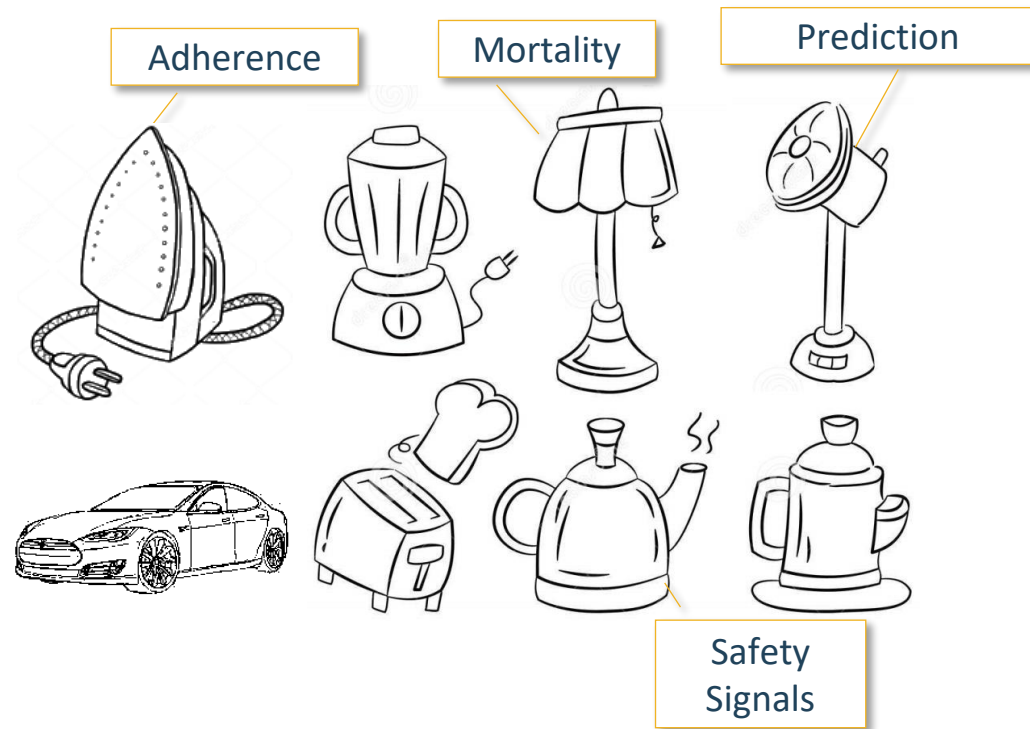
Current solution:



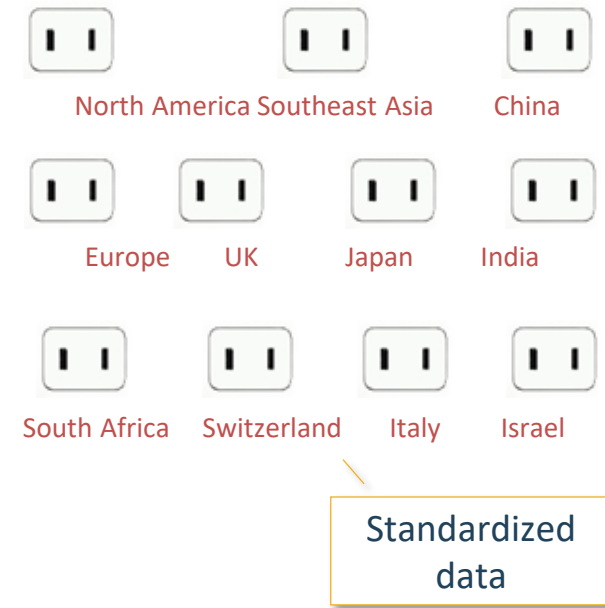
- Not scalable
- Not transparent
- Expensive
- Slow
- Prohibitive to non-expert routine use



The OHDSI Approach



OHDSI Tools



OMOP CDM



Analytics can be remote



North America Southeast Asia China



Europe UK Japan India



So Africa Switzerland Italy Israel



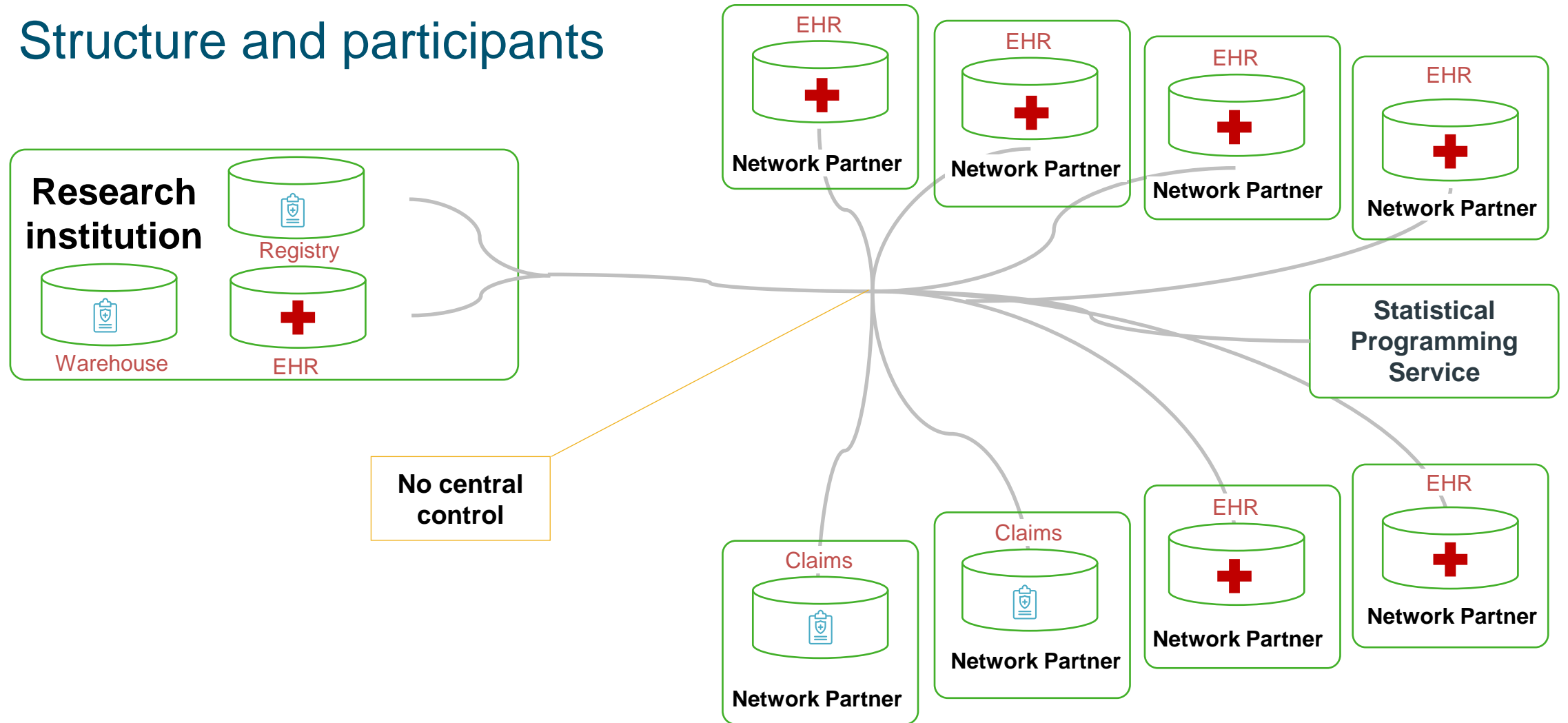
Analytics can be behind firewall





OHDSI Research Network

Structure and participants





OHDSI Tools



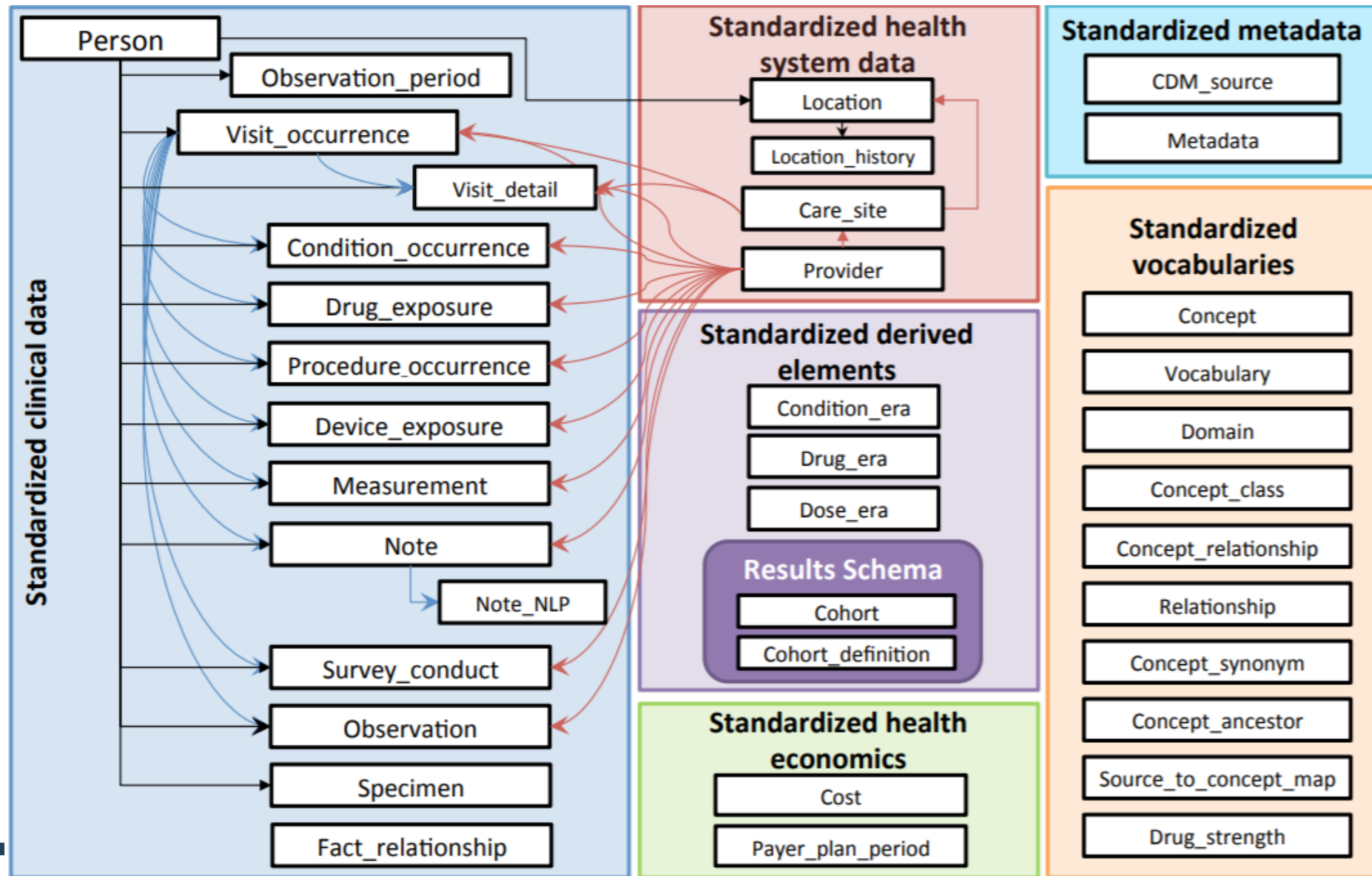
Opportunities for Standardization

Protocol

Data structure	tables, fields, data types
Data content	vocabulary to codify clinical domains
Data semantics	conventions about meaning
Cohort definition	algorithms for identifying the set of patients who meet a collection of criteria for a given interval of time
Covariate construction	logic to define variables available for use in statistical analysis
Analysis	collection of decisions and procedures required to produce aggregate summary statistics from patient-level data
Results reporting	series of aggregate summary statistics presented in tabular and graphical form



Standard Content: OMOP Common Data Model





Applications



Mapping regulatory use cases to evidence types

Support the
planning &
validity of
applicant

Design and feasibility of
planned studies

Representativeness and
validity of Completed
studies

Understand
clinical context

Disease epidemiology

Clinical management &
drug utilisation

Investigate
associations
and impact

Effectiveness and safety
studies

Impact of regulatory
actions

**Clinical
characterization:**
What happened to
them?

**Population-level
effect estimation:**
What are the
causal effects?

**Patient-level
prediction:**
What will happen
to me?

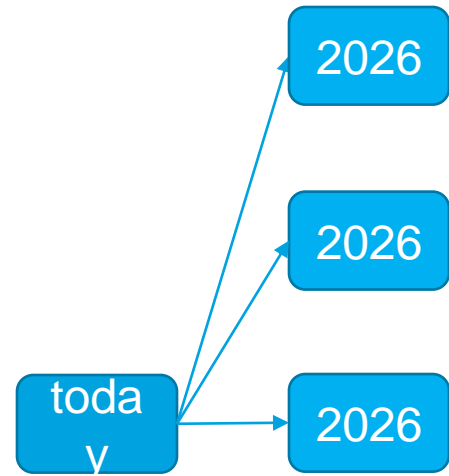
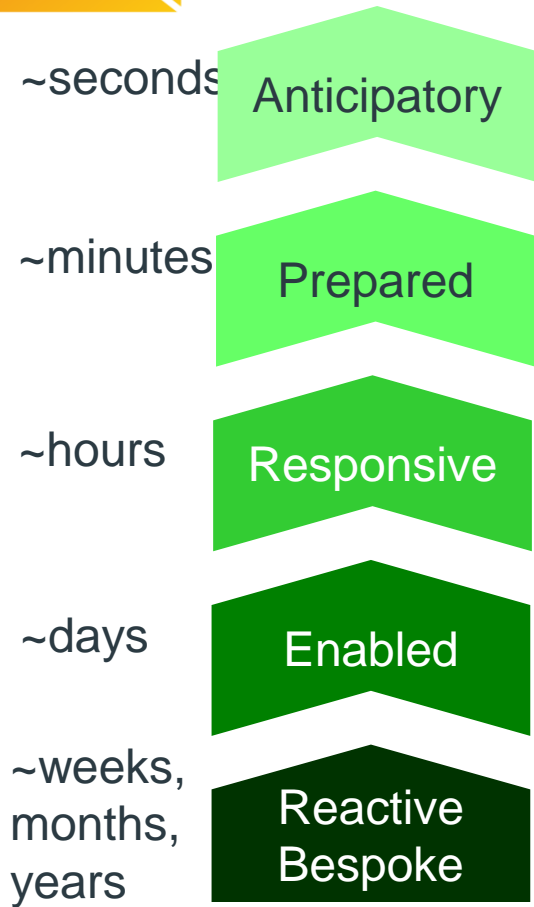
**Questions that can be
informed with real world
evidence:**

Who are the patients with disease
eligible for treatment?
Who are the patients exposed to
those treatments?
How often do outcomes occur
amongst those patients?

Is the outcome causally related to
exposure to treatment?
How does the risk compare with
alternative treatments?

Which risks can be actionably
predicted with available data?
Which patients are at highest risk
of adverse events?

Expanding the proactive use of real-world evidence for study planning and validity



Support the planning & validity of applicant studies

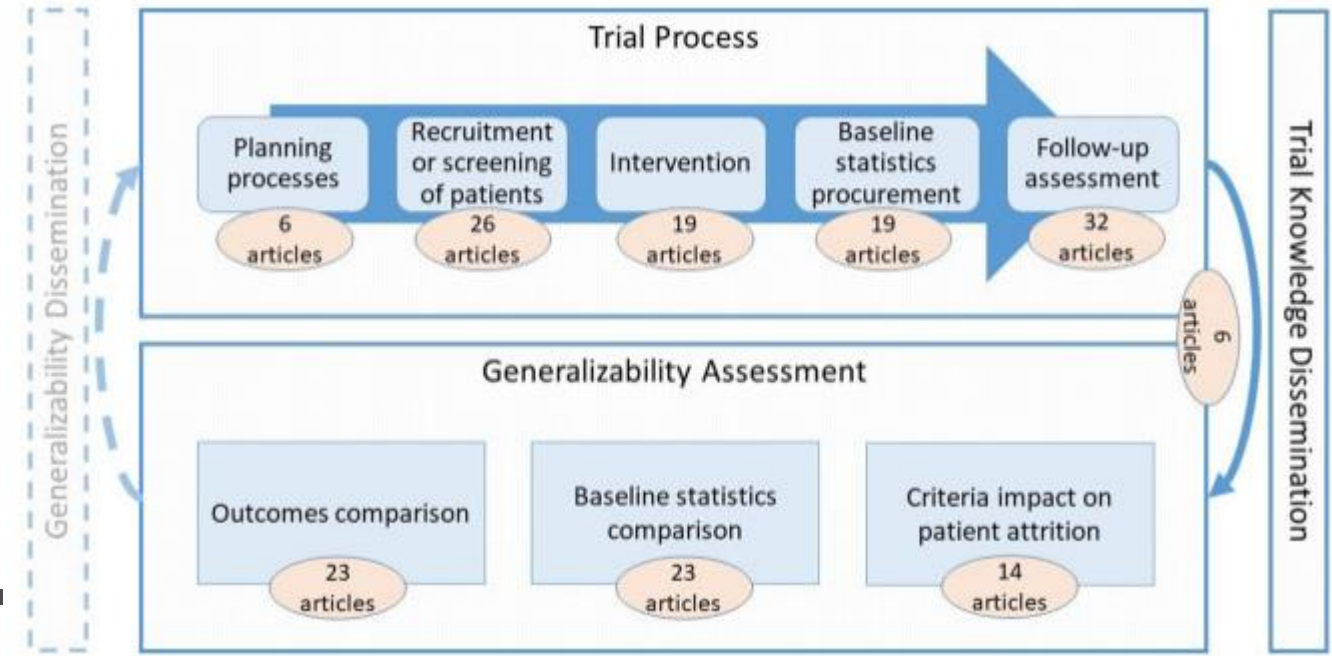
Journal of the American Medical Informatics Association, 28(1), 2021, 144–154
 doi: 10.1093/jamia/ocaa224
 Advance Access Publication Date: 4 November 2020
 Review



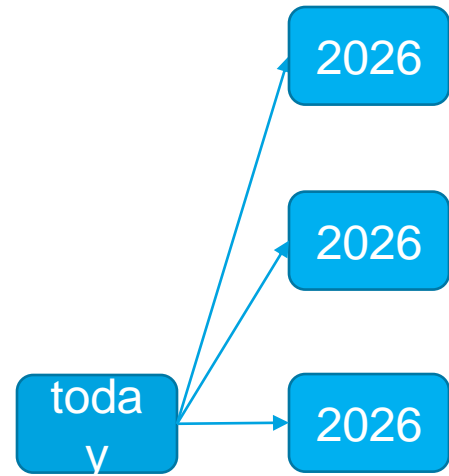
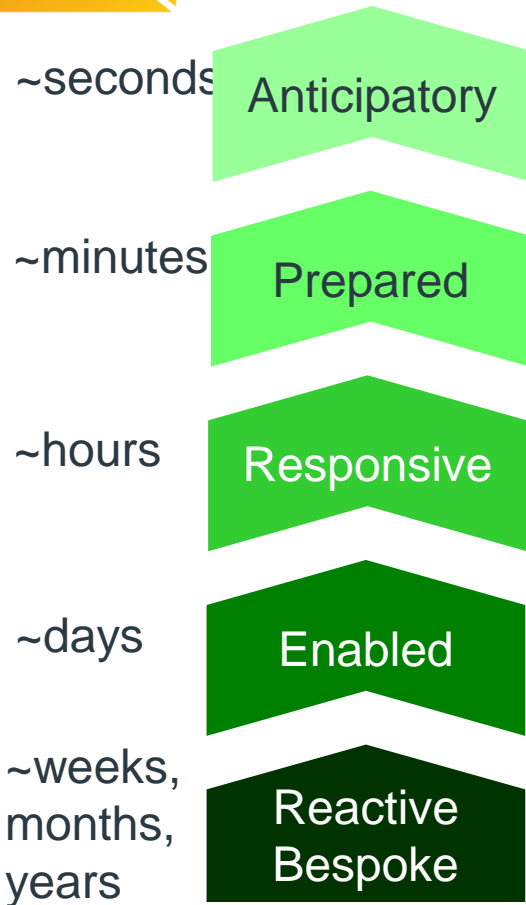
Review

Contemporary use of real-world data for clinical trial conduct in the United States: a scoping review

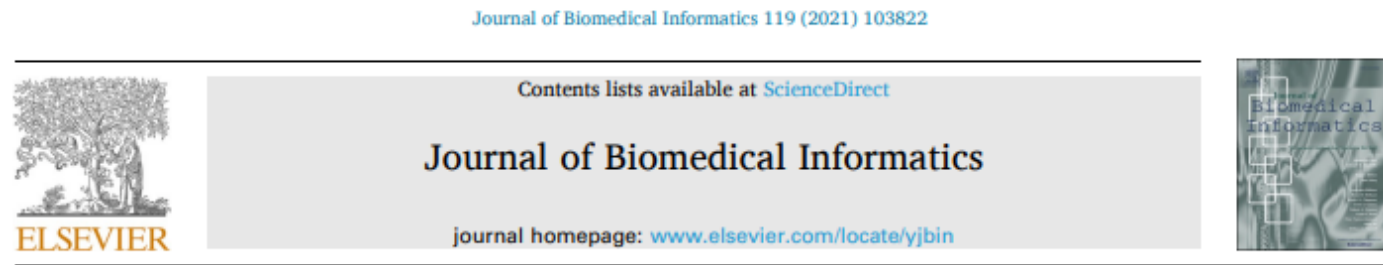
James R. Rogers¹, Junghwan Lee,¹ Ziheng Zhou,² Ying Kuen Cheung,³ George Hripcsak,^{1,4} and Chunhua Weng¹



Expanding the proactive use of real-world evidence for study planning and validity



Support the planning & validity of applicant studies



Original Research

Clinical comparison between trial participants and potentially eligible patients using electronic health record data: A generalizability assessment method

James R. Rogers^a, George Hripcsak^{a,b}, Ying Kuen Cheung^c, Chunhua Weng^{a,*}

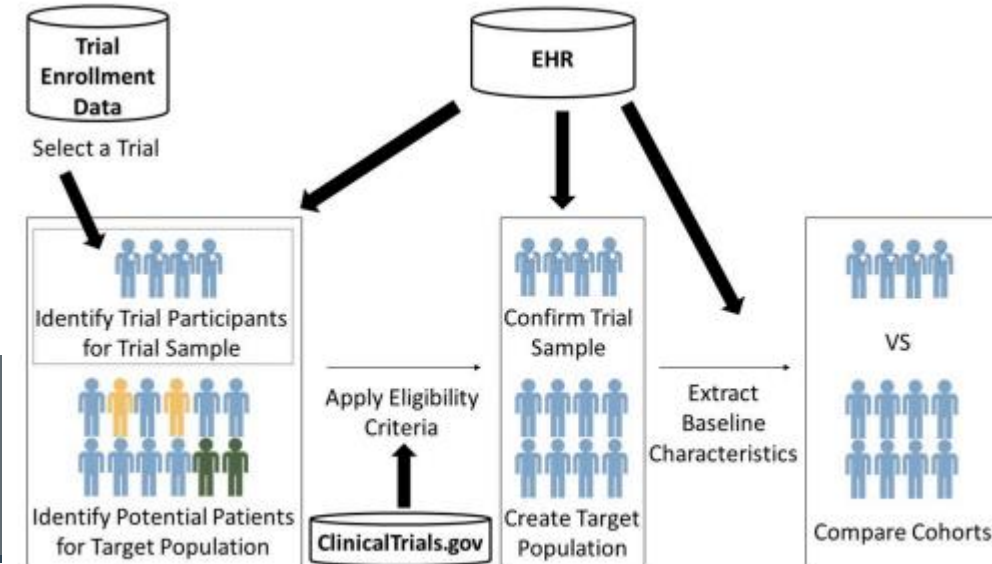


Fig. 1. Overview of study methodology.

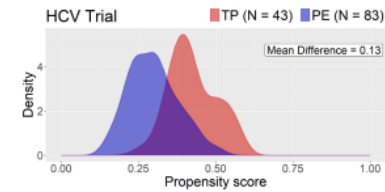


Fig. 3. Distribution of propensity scores between trial participants (TP) and potentially eligible (PE) patients for the hepatitis C virus (HCV) trial.

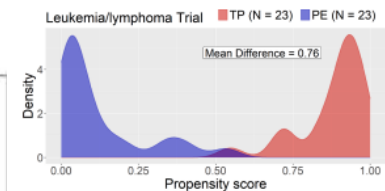


Fig. 4. Distribution of propensity scores between trial participants (TP) and potentially eligible (PE) patients for the leukemia/lymphoma trial.

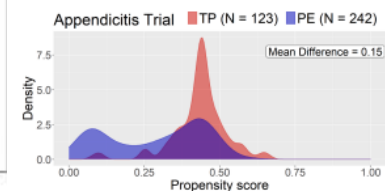
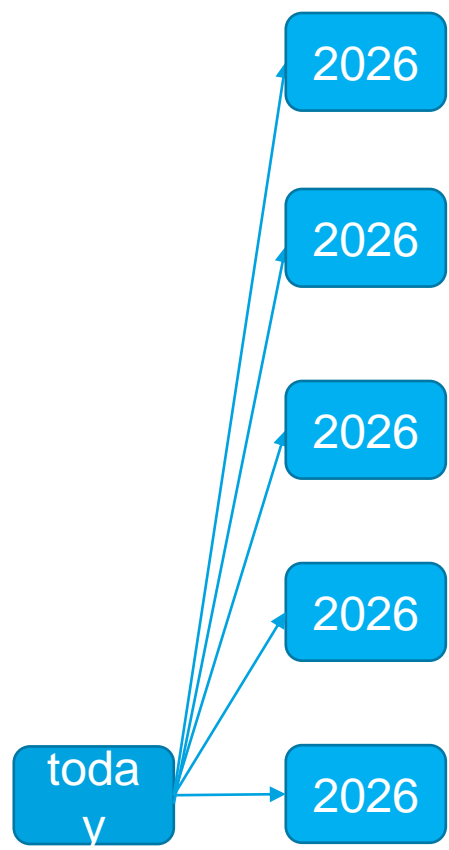
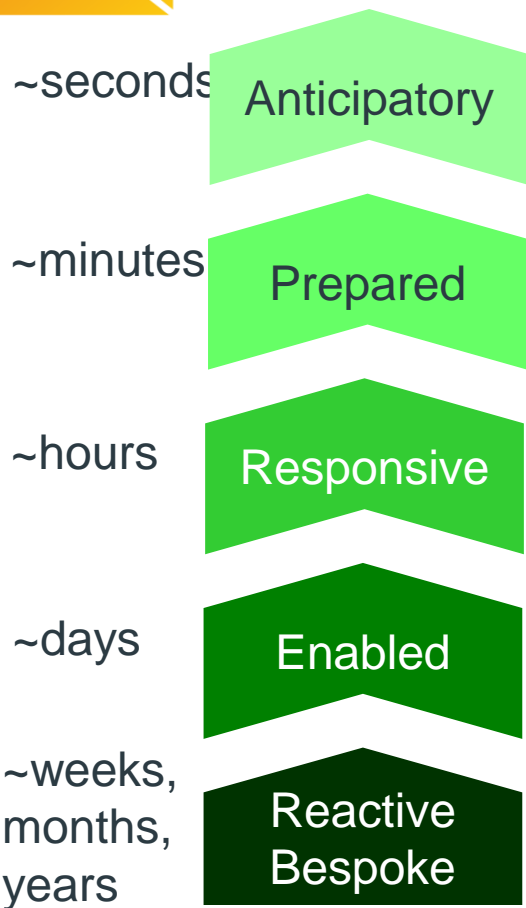


Fig. 5. Distribution of propensity scores between trial participants (TP) and potentially eligible (PE) patients for the appendicitis trial.

Expanding the proactive use of real-world evidence for understanding clinical context



Understand clinical context

CHARYBDIS - OHDSI COVID-19 Data Network

USA (11)	EUROPE (8)	ASIA-PACIFIC (3)
Columbia University (NY – EHR)	CPRD (UK – EHR)	HIRA (South Korea – Administrative Claims)
Department of Veterans Affairs (National – EHR)	DA Germany (Germany – EHR)	DCMC (South Korea – EHR)
HealthVerity (Claims linked to diagnostic testing)	HM Hospitales (Spain – Hospital Billing)	Nanfang Hospital (China – EMR)
IQVIA Open Claims (National – Administrative Claims)	IPCI (Netherlands – EHR)	
Optum EHR (National – EHR)	LPD France (France – EHR)	
Optum SES (National – EHR linked to Socio-economic data)	LPD Italy (Italy – EHR)	
Premier (National – Hospital Billing)	SIDIAP (Spain – EHR)	
Stanford University (CA – EHR)	SIDIAP-H (Spain – EHR Hospital linkage)	
Tufts University (MA – EHR)		
University of Colorado Anschutz Medical Campus (CO – EHR)		
University of Washington Medicine COVID Research Dataset (WA – EHR)		

#OHSDICVID19 EHR = Electronic Health Records, EMR = Electronic Medical Records As of 12Oct2020

CHARYBDIS

Persons with a COVID-19 diagnosis or a SARS-CoV-2 positive test with no required prior observation

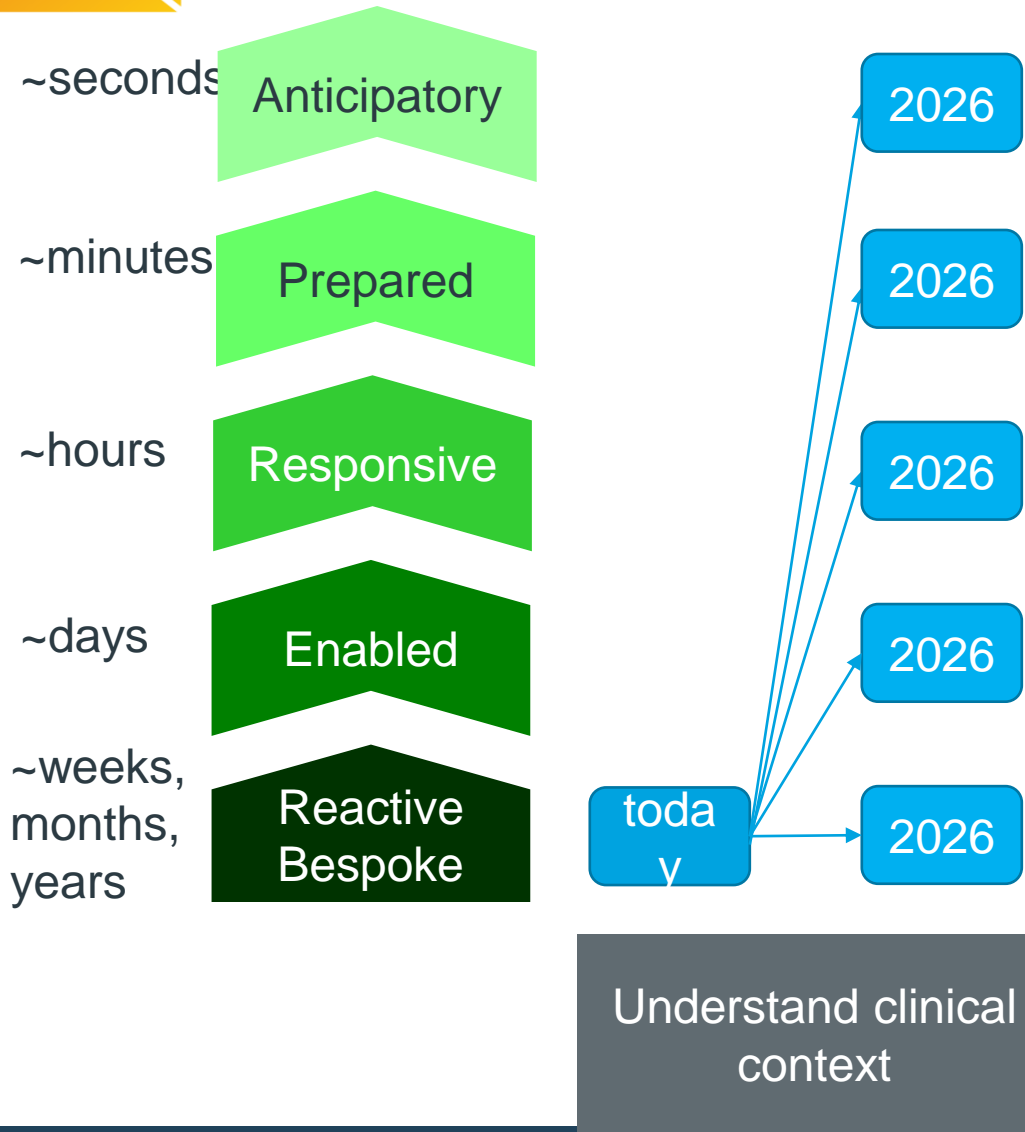
Download

Show 25 entries

Covariate Name	CPRD	CU-AMC HDC	CUIMC	DA-GERMANY	DCMC	hdm	HealthVerity
	(n = 3,864)	(n = 3,481)	(n = 37,773)	(n = 11,500)	(n = 559)	(n = 2,686)	(n = 587,683)
cohort during day -365 through -1 days overlap the index: prevalent pre-existing condition of covid risk factor	35.8%	27.3%	42.4%	25.0%	34.0%	19.7%	10.3%
cohort during day -365 through -1 days overlap the index: Prevalent hypertension	19.0%	24.4%	33.2%	22.3%	27.0%	18.4%	9.8%
cohort during day -365 through -1 days overlap the index: Prevalent obesity	37.0%	29.0%	32.7%	11.6%	5.2%	8.6%	4.9%
cohort during day -365 through -1 days overlap the index: Prevalent heart disease	18.1%	16.7%	29.3%	16.8%	19.0%	10.8%	5.6%
cohort during day -365 through -1 days overlap the index: persons with chest pain or angina	14.9%	18.6%	28.4%	6.7%	14.7%	1.5%	4.9%
cohort during day -365 through -1 days overlap the index: flu-like symptom episodes	19.3%	24.7%	23.5%	9.2%	15.6%	1.0%	13.6%
cohort during day -365 through -1 days overlap the index: Prevalent Asthma or Chronic obstructive pulmonary disease (COPD)	21.0%	16.1%	18.4%	16.0%	4.3%	6.4%	5.4%
cohort during day -365 through -1 days overlap the index: Prevalent malignant neoplasm excluding non-melanoma skin cancer	7.5%	8.1%	15.7%	5.6%	5.4%	6.1%	2.0%
cohort during day -365 through -1 days overlap the index: prevalent type 2 diabetes mellitus	13.9%	11.9%	15.3%	9.3%	18.8%	8.4%	5.5%
cohort during day -365 through -1 days overlap the index: prevalent autoimmune condition	10.2%	7.1%	13.4%	10.1%	8.6%	2.5%	2.2%
cohort during day -365 through -1 days overlap the index: Hospitalization episodes	6.9%	12.9%	12.7%	16.5%	90.7%	5.5%	5.5%
cohort during day -365 through -1 days overlap the index: prevalent asthma without copd	12.8%	10.4%	12.7%	9.0%	2.9%	1.8%	3.4%
cohort during day -365 through -1 days overlap the index: Acute kidney injury (AKI) using diagnosis codes and change in measurements during hospitaliza...	3.4%	6.5%	12.6%	0.9%	16.5%	11.5%	1.0%
cohort during day -365 through -1 days overlap the index: Discharge from hospitalization	6.8%	11.2%	12.7%	16.3%	76.4%	5.0%	5.0%
cohort during day -365 through -1 days overlap the index: fever	0.4%	7.6%	9.9%	2.1%	10.7%	0.5%	3.7%
cohort during day -365 through -1 days overlap the index: cough	12.4%	14.0%	9.6%	3.6%	3.0%	0.3%	6.2%
cohort during day -365 through -1 days overlap the index: dyspnea	7.4%	7.9%	8.9%	1.4%	2.3%	<0.2%	3.8%
cohort during day -365 through -1 days overlap the index: Prevalent chronic kidney disease broad	12.4%	6.3%	8.9%	4.8%	27.9%	5.3%	2.0%



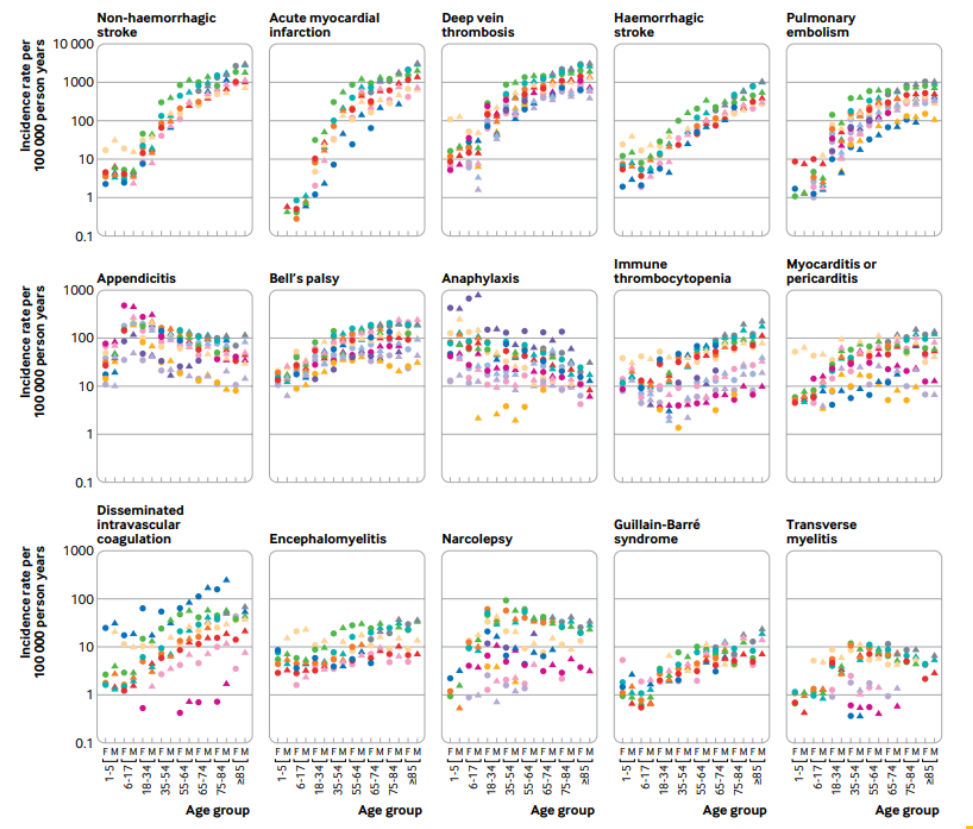
Expanding the proactive use of real-world evidence for understanding clinical context



OPEN ACCESS
Check for updates
FAST TRACK

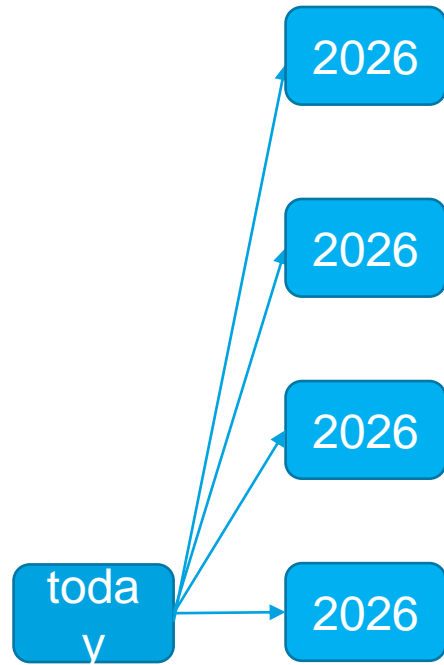
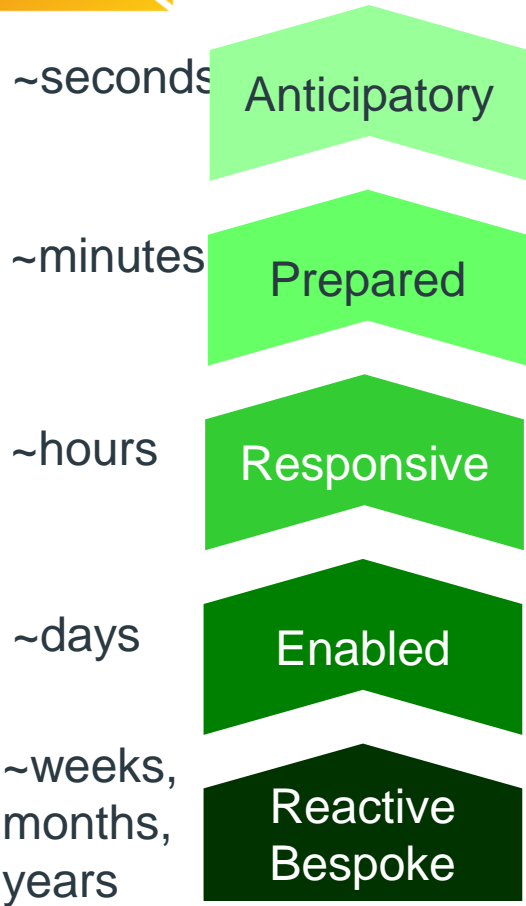
Characterising the background incidence rates of adverse events of special interest for covid-19 vaccines in eight countries: multinational network cohort study

For numbered affiliations see end of the article.
Correspondence to: D Prieto-Alhambra Botnar Research Centre, Oxford, UK daniel.prietoalhambra@ndorms.ox.ac.uk (or@prieto_alhambra on Twitter: ORCID 0000-0002-3950-6346)
Additional material is published online only. To view please visit the journal online.
Cite this as: *BMJ* 2021;373:n1435 <http://dx.doi.org/10.1136/bmj.n1435>
Accepted: 3 June 2021



WHAT IS ALREADY KNOWN
Background rates of adverse

Expanding the proactive use of real-world evidence to investigate associations and impact



Investigate associations and impact

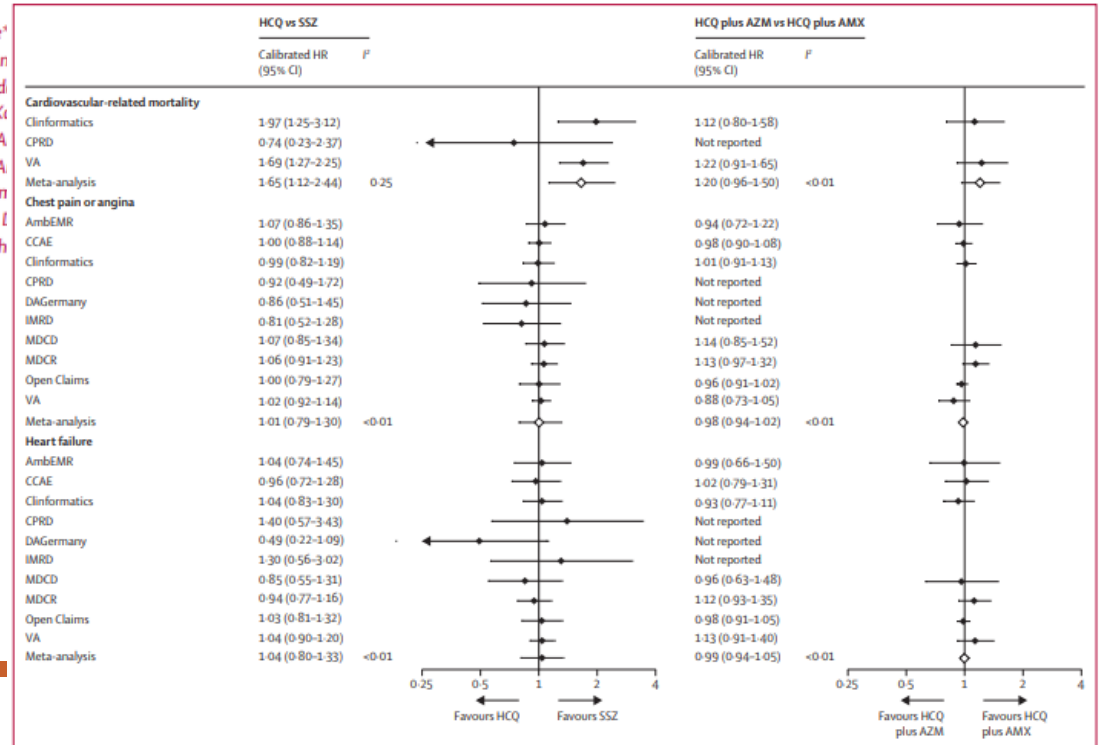
THE LANCET Rheumatology

Articles

Risk of hydroxychloroquine alone and in combination with azithromycin in the treatment of rheumatoid arthritis: a multinational, retrospective study

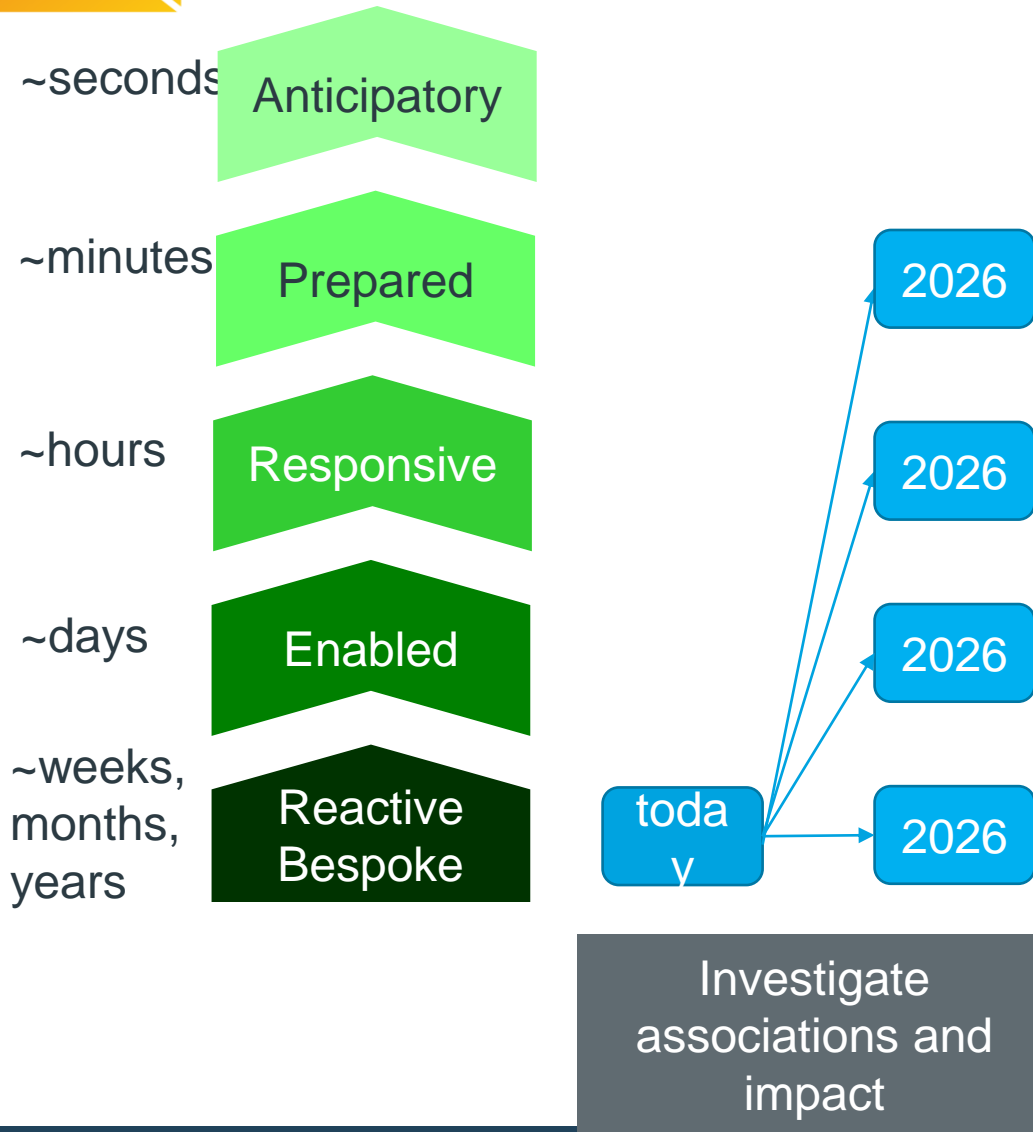


Jennifer C E Lane^{*}
Thamir M Alshan
Alexander Davyd
Benjamin Skov Ki
Rupa Makadia, A
Fredrik Nyberg, A
Selva Muthu Kun
Carmen O Torre, I
Daniel Prieto-Alh





Expanding the proactive use of real-world evidence to investigate associations and impact



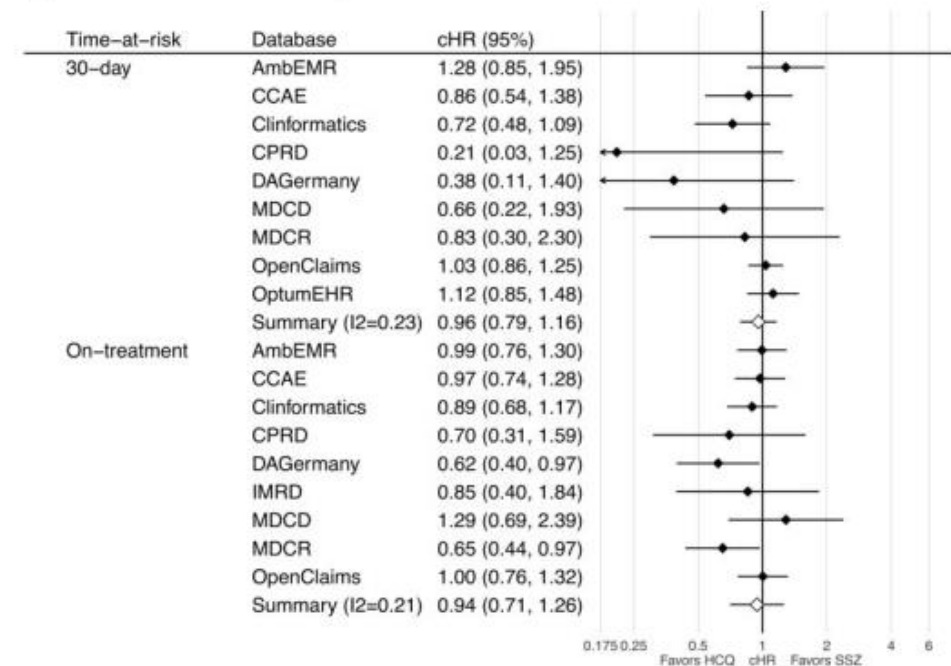
RHEUMATOLOGY

Rheumatology 2021;60:3222-3234
doi:10.1093/rheumatology/keaa771
Advance Access publication 25 December 2020

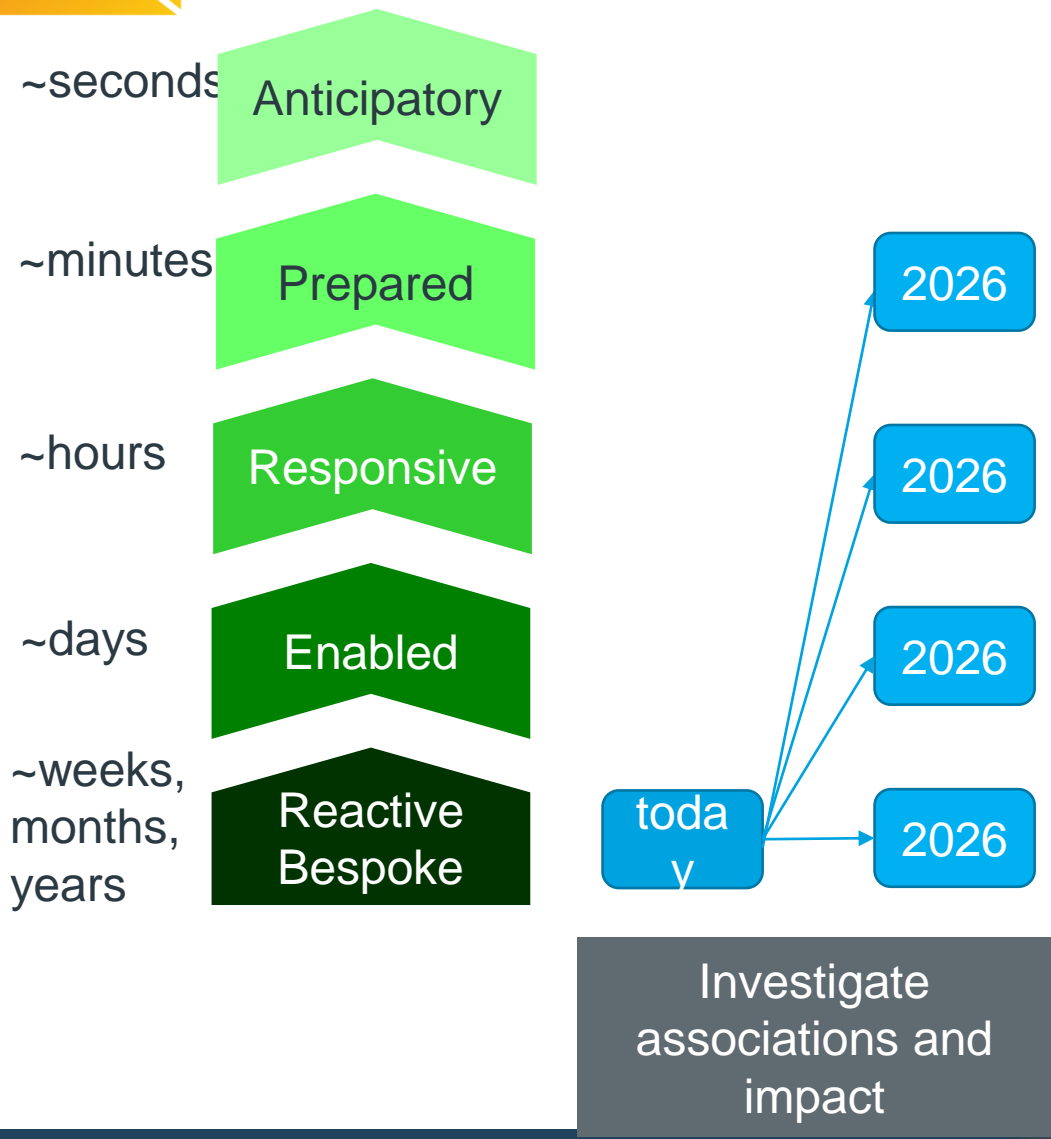
Original article

Risk of depression, suicide and psychosis with hydroxychloroquine treatment for rheumatoid arthritis: a multinational network cohort study

Fig. 1 Forest plot of the association between short- (top) and long-term (bottom) use of HCQ (vs SSZ) and risk of depression, by database and in the meta-analysis



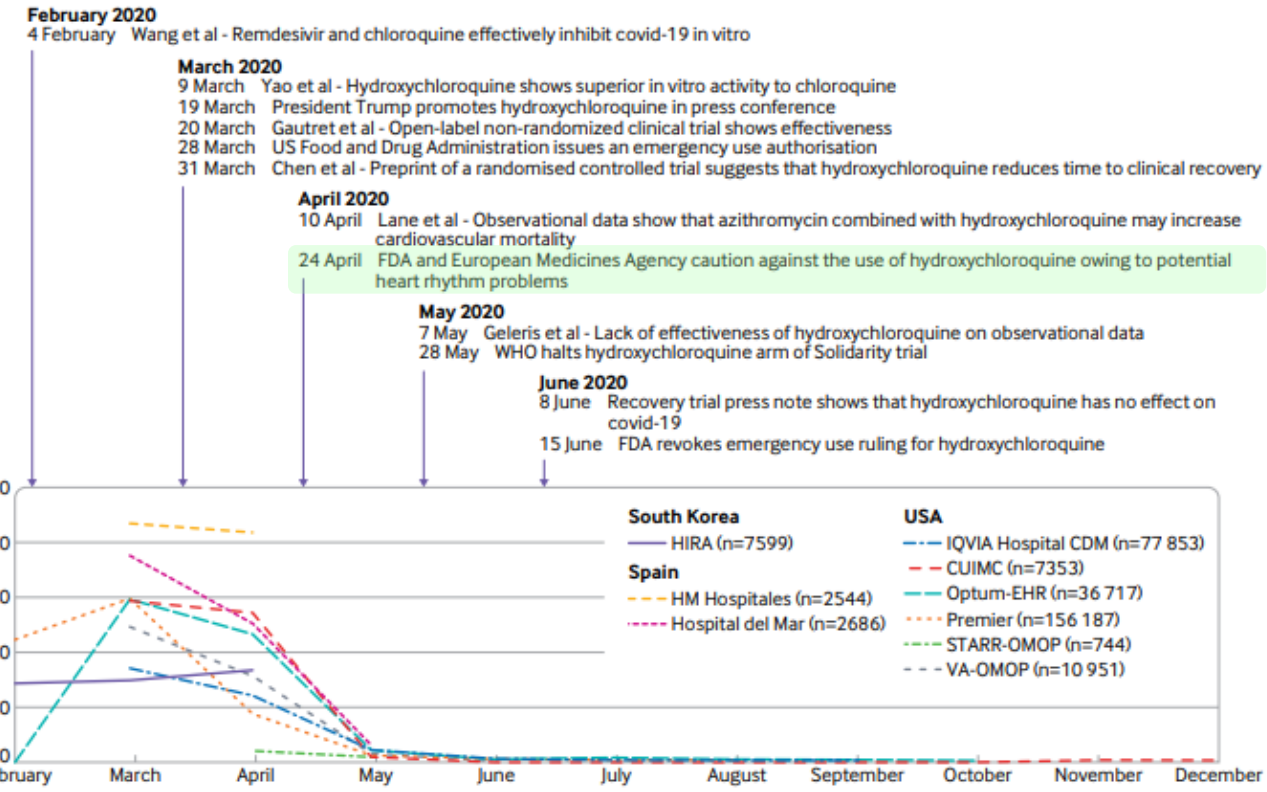
Expanding the proactive use of real-world evidence to investigate associations and impact



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Use of repurposed and adjuvant drugs in hospital patients with covid-19: multinational network cohort study

Albert Prats-Uribe,¹ Anthony G Sena,^{2,3} Lana Yin Hui Lai,⁴ Waheed-Ul-Rahman Ahmed,^{5,6} Heba Alghoul,⁷ Osaid Alser,⁸ Thamir M Alshammari,⁹ Carlos Areia,¹⁰ William Carter,¹¹ Paula Casajust,¹² Dalia Dawoud,^{13,14} Asieh Golozar,^{15,16} Jitendra Jonnagaddala,¹⁷ Paras P Mehta,¹⁸ Mengchun Gong,¹⁹ Daniel R Morales,^{20,21} Fredrik Nyberg,²² Jose D Posada,²³ Martina Recalde,^{24,25} Elena Roel,^{24,25} Karishma Shah,⁵ Nigam H Shah,²³ Lisa M Schilling,¹¹





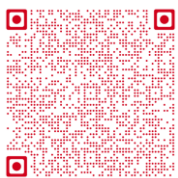
Concluding thoughts

- Enabling use and establishing value of real-world evidence requires building trust across stakeholders – evidence generators and consumers
- People and processes need to be augmented with science, technology and engineering
 - Research network = people + data + analytic tools + best practices
- Open science systems that promote transparency and reproducibility can increase reliability and efficiency
- Regulatory use cases are primarily characterization analyses, have been demonstrated to be feasible, and are ready-to-scale
- Community efforts today can enable a more proactive future tomorrow
 - Design of standardized outputs for regulatory use cases
 - Standardized analytic tool development
 - Phenotype development and evaluation

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Acting Program Director
Director of the OHDSI Center
rwe@northeastern.edu

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Enrollment Deadline: Rolling

Deadline for Spring 2023 Start: Dec 1, 2022

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- 31 total semester hours required
- Minimum 3.000 GPA required

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- HSCI 5130: Introduction to Real World Evidence
- HSCI 5140: Foundations of Data Models
- HSCI 5150: Methods for Observational Research 1
- HSCI 5160: Standardization of Real World Data
- HSCI 5170: Data Model Transformation
- HSCI 5151: Methods for Observational Research 2
- PHSC 5252: Research Skills and Ethics
- HSCI 6980: RWE Capstone

Selectives in Cohort Building / Phenotyping, Advanced Methods

Ensuring Impact and Value of Medical Research to Patients

IQVIA Research Forum
October 12, 2022

Yale



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Joseph S. Ross, MD, MHS

Section of General Internal Medicine, Yale School of Medicine

Associate Editor, The BMJ

Co-Founder, medRxiv



@jsross119

Critical considerations for ensuring research impact and value to patients

- **Bring clinical experience to the table**
- **Engage patients and policy makers to establish the research question**
- **Publicly pre-specify study design, endpoints, methods**
- **Timely and comprehensive results reporting**
- **Translate your findings for patients**
- **Support others in the research community**

SPRIT 2013 Statement: Defining Standard Protocol Items for Clinical Trials

An-Wen Chan, MD, DPHI; Jennifer M. Tetzlaff, MSc; Douglas G. Altman, DSc; Andreas Laupacis, MD; Peter C. Gøtzsche, MD, D; Kamela Kletka-Jeric, MD, DSc; Asbjørn Hróbjartsson, PhD; Howard Mann, MD; Kay Dickersin, PhD; Jesse A. Berlin, ScD; Caroline J. Done, BSc; Wendy R. Parulekar, MD; William S.M. Summerskill, MBBS; Trish Groves, MBBS; Kenneth F. Schulz, PhD; Harold C. Sox, MD; Frank W. Rockhold, PhD; Drummond Rennie, MD; and David Moher, PhD

The protocol of a clinical trial serves as the foundation for study planning, conduct, reporting, and appraisal. However, trial protocols and existing protocol guidelines vary greatly in content and quality. This article describes the systematic development and scope of SPIRIT (Standard Protocol Items: Recommendations for Interventional Trials) 2013, a guideline for the minimum content of a clinical trial protocol.

The 33-item SPIRIT checklist applies to protocols for all clinical trials and focuses on content rather than format. The checklist recommends a full description of what is planned; it does not prescribe how to design or conduct a trial. By providing guidance

for key content, the SPIRIT recommendations aim to drafting of high-quality protocols. Adherence to SPIRIT enhances the transparency and completeness of trial the benefit of investigators, trial participants, patient funders, research ethics committees or institutional peer reviewers, journals, trial registries, policymakers and other key stakeholders.

Ann Intern Med. 2013;158:200-207.
For author affiliations, see end of text.
This article was published at www.annab.org on 8 January 2013.

The protocol of a clinical trial plays a key role in study planning, conduct, interpretation, oversight, and external review by detailing the plans from ethics approval to dissemination of results. A well-written protocol facilitates an appropriate assessment of scientific, ethical, and safety issues before a trial begins; consistency and rigor of trial conduct; and full appraisal of the conduct and results after trial completion. The importance of protocols has been emphasized by journal editors (1-6), peer reviewers (7-10), researchers (11-15), and public advocates (16).

Despite the central role of protocols, a systematic review revealed that existing guidelines for protocol content vary greatly in their scope and recommendations, seldom describe how the guidelines were developed, and rarely cite broad stakeholder involvement or empirical evidence to support their recommendations (17). These limitations may partly explain why an opportunity exists to improve the quality of protocols. Many protocols for randomized trials do not adequately describe the primary outcomes (inadequate for 25% of trials) (18, 19), treatment allocation methods (inadequate for 54% to 79%) (20, 21), use of blinding (inadequate for 9% to 34%) (21, 22), methods for reporting adverse events (inadequate for 41%) (23), components of sample size calculations (inadequate for 4% to 40%) (21, 24), data analysis plans (inadequate for 20% to 77%) (21, 24-26), publication policies (inadequate for 7%) (27), and roles of sponsors and investigators in study design or data access (inadequate for 89% to 100%) (28, 29). The problems that underlie these protocol deficiencies may in turn lead to avoidable protocol amendments, poor trial conduct, and inadequate reporting in trial publications (15, 30).

In response to these gaps in protocol content and guidance, we launched the SPIRIT (Standard Protocol Items: Recommendations for Interventional Trials) initia-

tive in 2007. This international project aims to enhance the completeness of trial protocols by producing based recommendations for a minimum set of addressed in protocols. The SPIRIT 2013 Statement includes a 33-item checklist (Table 1) and diagrams. An associated extension and Elaboration Reporting Evidence and Model

DEVELOPMENT

The SPIRIT consultation with investigators (n = 14), methodologists (n = 14), statisticians (n = 14), and non-academics (n = 3). As detailed later through 2 system process, 2 face-testing (32).

The SPIRIT checklist evolved through iterations. The process began with a preliminary checklist derived from a systematic review of existing guidelines (17). In 2007, 96 expert panelists (n = 1), middle- (n = 6), and high-income countries refined this initial checklist over 3 iterations by e-mail (33). Panelists rated each item on a scale of 1 (not important) to 5 (important), suggested new items, and provided comments that were circulated in subsequent rounds. The median score of 8 or higher in the final round indicated, whereas those rated 5 or lower were

Moher et al. Systematic Reviews 2015, 4:1
http://www.systematicreviewsjournal.com/content/4/1/1



RESEARCH

Open Access

Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement

David Moher^{1*}, Larissa Shamseer², Mike Clarke³, Davina Ghersi⁴, Alessandro Liberati¹, Mark Petticrew⁴, Paul Shekelle⁵, Lesley A Stewart⁶ and PRISMA-P Group

Abstract

Systematic reviews should build on a protocol that describes the rationale, hypothesis, and planned methods of

Publish/report the methods before the results!

to be published daily [1]. Ideally, systematic reviews are based on pre-defined eligibility criteria and conducted according to a pre-defined methodological approach as outlined in an associated protocol.

The preparation of a protocol is an essential component of the systematic review process; it ensures that a systematic review is carefully planned and that what is planned is explicitly documented before the review team, thus promoting consistent conduct by the review team, accountability, research integrity, and transparency of the eventual completed review. A protocol may also reduce arbitrariness in decision-making when extracting

reporting of outcomes has been characterized as a serious problem in clinical research, including systematic reviews [2-7].

Until recently, systematic review protocols were available only through select organizations: The Cochrane [8] and Campbell Collaborations [9]. Joanna Briggs Institute, for which the preparation of a protocol is mandatory. Outside of these organizations, the existence of a protocol is infrequently reported in completed reviews [9,10]. Fewer than half of 30 articles indexed on MEDLINE in November 2014 (most recent generalizable sample; 2014 update) report working from a protocol [10]. 80% are non-Cochrane affiliated. Of the non-Cochrane systematic reviews, only 11% mentioned the existence of a protocol [10]. The majority of reviews in health

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RESEARCH METHODS AND REPORTING



StAR-RWE: structured template for planning and reporting on the implementation of real world evidence studies

Shirley V Wang,¹ Simone Pinheiro,² Wei Hua,² Peter Arlett,^{3,4} Yoshiaki Uyama,⁵ Jesse A Berlin,⁶ Dorothee B Barlets,⁷ Kristijan H Kahler,⁸ Lily G Bessette,⁹ Sebastian Schneeweiss¹⁰

In alignment with the International Council of Harmonization's strategic

products and is compatible with multiple study designs, data sources, reporting guidelines, checklists, and bias assessment tools.

Real world evidence (RWE) generated from sources of real world data via the application of principled database epidemiology increasingly informs important decisions about the clinical effectiveness of medical products and interventions.^{1,2} Unlike clinical trials, which can leverage the power of randomization, or non-randomized studies with prospective data collection for a specific research purpose, most RWE studies make secondary use of electronic data collected as part of routine healthcare processes (eg, administrative claims and electronic health records). Generating high quality evidence when analyzing data not collected for research purposes requires decision making about many complex design and analytical parameters to handle temporality, measurement, confounding, and other potential sources of bias. Compared with trials and non-experimental studies that prospectively collect data for a research question, RWE studies have greater variability in design and analysis options. Owing to the current lack of structure in study reporting, assessment of RWE studies often requires substantial resources within regulatory and other organizations.

Despite recommendations from the International Committee of Medical Journal Editors that the methods sections of research publications should provide enough detail so that others with access to the data would be able to reproduce the results,³ attempts to replicate results from database studies have been hampered by a lack of clarity in reporting on critical study implementation details.⁴⁻¹¹ Many organizations recognize this problem and have created guidelines and checklists for research reporting.¹²⁻²² Existing guidelines and checklists already have a strong consensus regarding what main elements are important to report. However, these guidelines are general in order to cover a broad base—which leaves room for ambiguity, assumptions, and misinterpretation when planning and implementing RWE studies.^{7,8}

The multidisciplinary, multi-database, and collaborative nature of RWE study design and conduct would be improved by clearer communication of critically important details. This need is particularly relevant for common protocol studies involving collaboration between multiple groups, where different interpretation by the groups executing a protocol can substantially influence results.²³ Unambiguous documentation of

and evidence synthesis. The template is intended for use with studies of the effectiveness and safety of medical

SUMMARY POINTS

Compared with clinical trials and non-experimental studies that prospectively collect data, studies that use routinely collected electronic healthcare data have a greater variability in design and analysis options. Existing guidelines and checklists have a strong consensus regarding what main elements are important to report, but they can lead to ambiguity, assumptions, and misinterpretation when planning and implementing RWE studies. An increasing number of stakeholders have moved towards routine registration of RWE studies with fully specified study implementation protocols to support regulatory and coverage decisions. Through a public-private collaboration with broad and international stakeholder input, a structured template for planning and reporting on RWE study implementation (StAR-RWE) has been developed. StAR-RWE is intended to serve as a didactic tool for designing and conducting good RWE studies; set clear expectations for communication of RWE methods; reduce misinterpretation of prose that lacks specificity; allow reviewers to quickly find key information; and facilitate reproducibility, validity assessment, and evidence synthesis. The template has been endorsed by the International Society of Pharmacoepidemiology (ISPE) and the Transparency Initiative led by the International Society of Pharmacoeconomics and Outcomes Research. In partnership with ISPE, Duke Margolis Health Policy, and the National Pharmaceutical Council.

BMJ: first published as 10.1136/bmj.m4856 on 12 January 2015. Downloaded from <http://www.bmj.com/> on 27 June 2024 at Yale University. Protected by copyright.

Timely and comprehensive results reporting

- Research projects invariably deviate from the pre-specified study protocol and analysis plan – report everything that you said you would do that you did and explain everything that you did not!
- Follow EQUATOR guidelines on research reporting
- Clinical trial registration number and/or link to study protocol

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PLOS MEDICINE

The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for Reporting Observational Studies

Erik von Elm^{1*}, Douglas G. Altman², Matthias Egger^{1,3}, Stuart J. Pocock⁴, Peter C. Gøtzsche⁵, Jan P. Vandenbroucke⁶ for the STROBE Initiative

¹ Institute of Social and Preventive Medicine (ISPM), University of Bern, Bern, Switzerland, ² Centre for Statistics in Medicine, University of Oxford, Oxford, United Kingdom, ³ Department of Social Medicine, University of Bristol, Bristol, United Kingdom, ⁴ London School of Hygiene and Tropical Medicine, University of London, London, United Kingdom, ⁵ Nordic Cochrane Centre, Copenhagen, Denmark, ⁶ Department of Clinical Epidemiology, Leiden University Hospital, Leiden, The Netherlands

RESEARCH METHODS AND REPORTING

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The reporting of studies conducted using observational routinely collected health data statement for pharmacoepidemiology (RECORD-PE)

Sinéad M Langan,¹ Sigrún AJ Schmidt,² Kevin Wing,¹ Vera Ehrenstein,² Stuart G Nicholls,^{3,4} Kristian B Filion,^{5,6} Astrid Guttman,^{10,11} Sebastian Schneewang,¹² Shirley V Wang,¹⁴ Er

GUIDELINE

Open Access

Consolidated Health Economic Evaluation Reporting Standards 2022 (CHEERS 2022) statement: updated reporting guidance for health economic evaluations

Don Husereau^{1,2*}, Michael Drummond³, Federico Augustovski^{4,5,6}, Esther de Bekker-Grob⁷, Andrew H. Briggs⁸, Chris Carswell⁹, Lisa Caulley^{10,11,12}, Nathorn Chaiyakunapruk¹³, Dan Greenberg¹⁴, Elizabeth Loder^{15,16}, Josephine Mauskopf¹⁷, C. Daniel Mullins¹⁸, Stavros Petrou¹⁹, Raoh-Fang Pwu²⁰, Sophie Staniszweska²¹ and on behalf of CHEERS 2022 ISPOR Good Research Practices Task Force

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Endocrinology (including Diabetes Mellitus and Metabolic Disease)	Neurology	Public and Global Health
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Gastroenterology	Obstetrics and Gynecology	Respiratory Medicine
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Health Systems and Quality Improvement		Transplantation
		Urology

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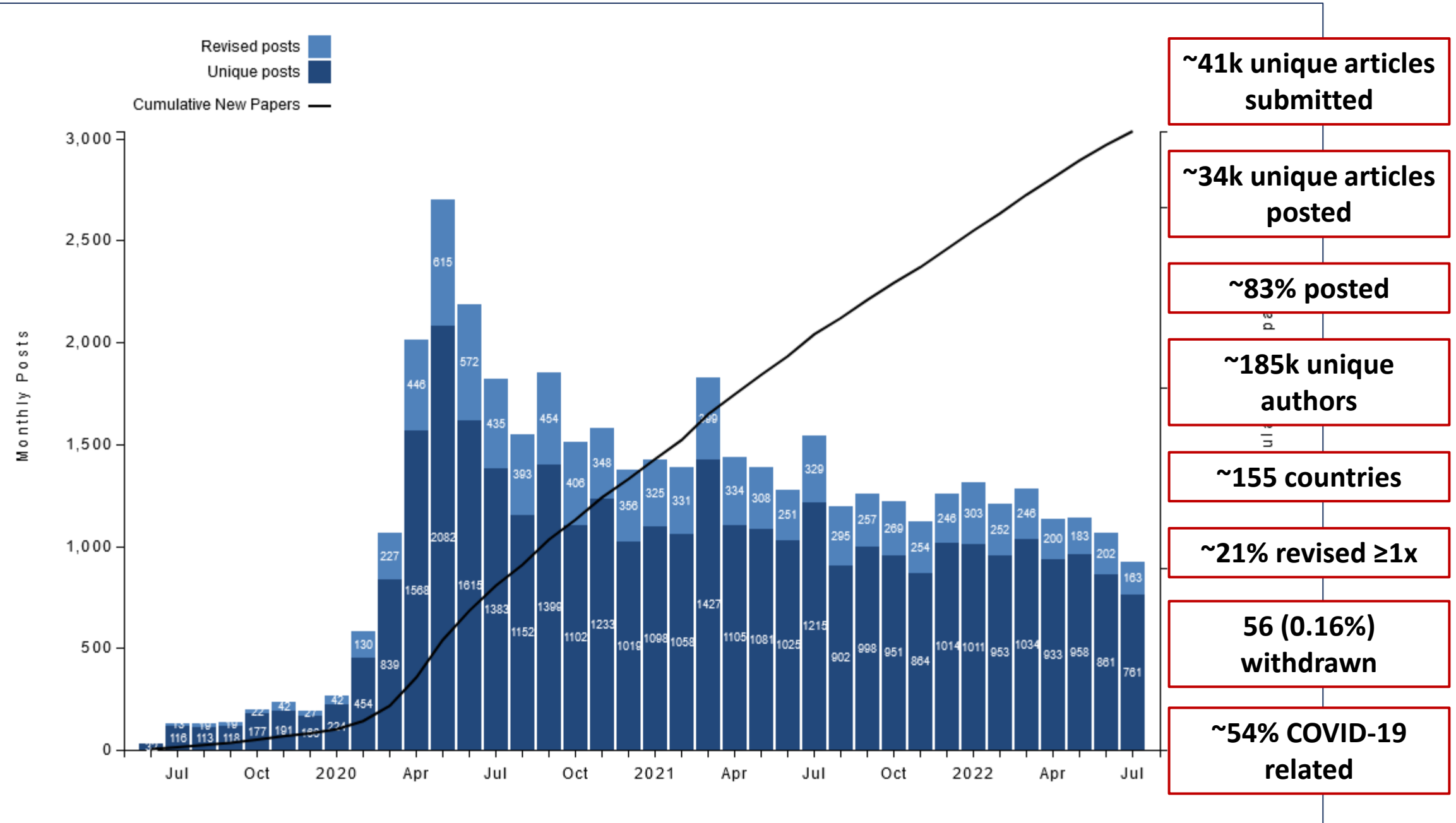
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Platform Policies

- Submission requirements that follow ICMJE guidance on author details, funding statements, ethical oversight, trial registration
- Only original research articles and study protocols allowed
- Screening by staff and affiliates before posting
- Signals for caution

Potential Benefits

- Rapid, early sharing of new information
- Demonstrates scientific productivity
- Prompts scientific feedback and enhances collaboration



~41k unique articles submitted

~34k unique articles posted

~83% posted

~185k unique authors

~155 countries

~21% revised ≥1x

56 (0.16%) withdrawn

~54% COVID-19 related

Effect of Dexamethasone in Hospitalized Patients with COVID-19 – Preliminary Report

[Peter Horby](#), [Wei Shen Lim](#), [Jonathan Emberson](#), [Marion Maflam](#), [Jennifer Bell](#), [Louise Linsell](#),
[Natalie Staplin](#), [Christopher Brightling](#), [Andrew Ustianowski](#), [Einas Elmahi](#), [Benjamin Prudon](#),
[Christopher Green](#), [Timothy Felton](#), [David Chadwick](#), [Kanchan Rege](#), [Christopher Fegan](#),
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[Edmund Juszcak](#), [J Kenneth Baillie](#), [Richard Haynes](#), [Martin J Landray](#),
 RECOVERY Collaborative Group

doi: <https://doi.org/10.1101/2020.06.22.20197275>

Now published in *New England Journal of Medicine* doi: [10.1056/NEJMoa2021436](https://doi.org/10.1056/NEJMoa2021436)

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- 8754 total user comments on preprints; 2352 (6.8%) have at least one.
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- Thus far, 13,361 (38.8%) preprints published in 2684 peer-reviewed journals (median interval of 153 days between posting and publication)
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Now just because bias is present doesn't mean the findings are useless. It depends on the direction of the bias. But many health practitioners recommend

Translate findings

WHAT IS ALREADY KNOWN ON THIS TOPIC?

Evidence on the links of infertility, miscarriage, and stillbirth have been inconclusive

Limited evidence is available on the association of infertility and stillbirth with stroke by subtype

WHAT THIS STUDY ADDS

Infertility and pregnancy loss, especially recurrent miscarriage and recurrent stillbirth (at least two), increased women's risk of and fatal stroke

The risk of non-fatal or fatal stroke associated with infertility and stillbirths was mainly driven by a single subtype of stroke (ischemic stroke or fatal haemorrhagic stroke) associated with recurrent miscarriage

A history of recurrent pregnancy loss was a significant risk factor for stroke

JAMA Network Open

RCT: Efficacy and Safety of V

POPULATION 236 Men, 64 Women	INTERVENTIONS 300 Patients
Adults <75 y with type 2 diabetes who smoke ≥10 cigarettes/d and desire to quit Mean age, 57 y	150 Varenicline Oral varenicline smoking cessation prevention
SETTINGS / LOCATIONS 5 Hospitals in Sicily, Italy	PRIMARILY Continuous smoking self-report

Russo C, Walicka M, Caponnetto P, et al. Efficacy and safety of varenicline for smoking cessation in adults with type 2 diabetes. *JAMA Netw Open.* 2022;5(6):e2217709. doi:10.1001/jamaopen.2022.17709

Visual summary of recommendation Last updated 22 Apr 2022

Population
This recommendation applies only to people with these characteristics:
Patients with confirmed covid-19

Disease severity

Non-severe	Severe	Critical
Absence of signs of severe or critical disease	Oxygen saturation <90% on room air Signs of pneumonia Signs of severe respiratory distress	Requires life sustaining treatment Acute respiratory distress syndrome Sepsis Septic shock

Interventions

- Strong recommendations in favour
 - Corticosteroids
 - IL-6 receptor blockers (IL-6 receptor blockers OR Baricitinib)
 - Depending on availability as well as clinical and contextual factors
 - Nirmatrelvir and ritonavir
- Weak or conditional recommendations in favour
 - Molnupiravir (Mitigation strategies to reduce potential harms should be implemented)
 - Sotrovimab
 - Remdesivir
 - Casirivimab and imdevimab (Evidence of limited efficacy against Omicron BA1 variant)
 - Casirivimab and imdevimab (For those with seronegative status for SARS-CoV-2 antibodies)
- Weak or conditional recommendations against
 - Corticosteroids (Should be considered only if neither baricitinib nor IL-6 receptor blockers are available)
 - Ruxolitinib and tofacitinib
 - Ivermectin (Should be considered only in the context of a clinical trial)
 - Convalescent plasma (Should be considered only in the context of a clinical trial)

For those with highest risk of hospital admission

Use the interactive multiple comparison tool to compare and choose treatments

MATCH-IT

Monkeypox?

Monkeypox is a rare infection caused by a virus that circulates in some animals in forested areas of Africa, but cases recently have been reported in people in multiple countries.

What is monkeypox?
Monkeypox is a rare infection that is closely related to the smallpox virus, which was eradicated in 1980. Monkeypox can spread by direct contact with a person infected with the monkeypox virus, or through contact with contaminated fabrics, objects, or surfaces. Monkeypox can also spread through respiratory droplets or oral fluids during intimate contact, such as kissing, or vaginal sex. Contact with fabrics, clothing, or surfaces contaminated with the monkeypox virus (such as bedding) can also spread infection.

How is monkeypox spread?
Monkeypox is a rare infection that can spread through skin-to-skin contact, respiratory droplets, oral fluids during intimate sexual contact, or contact with fabrics, objects, or surfaces contaminated with the monkeypox virus.

Symptoms include fever, headache, swollen lymph nodes, fatigue, and back or muscle aches followed by a rash that spreads over the body.



Individuals diagnosed with monkeypox should isolate at home and avoid contact with others until all skin lesions have healed.

How is monkeypox treated?
There are currently no specific treatments for monkeypox infections. Individuals diagnosed with monkeypox infection should isolate at home and avoid intimate contact until all of their skin lesions have healed. In consultation with the CDC, patients with severe monkeypox infection or those who are immunosuppressed, pregnant, breastfeeding, or younger than 8 years may be candidates for antiviral medication or antibody treatment (intravenous vaccinia immune globulin).

How is monkeypox infection treated?
There are currently no specific treatments for monkeypox infections. Individuals diagnosed with monkeypox infection should isolate at home and avoid intimate contact until all of their skin lesions have healed. In consultation with the CDC, patients with severe monkeypox infection or those who are immunosuppressed, pregnant, breastfeeding, or younger than 8 years may be candidates for antiviral medication or antibody treatment (intravenous vaccinia immune globulin).

Prevention of Monkeypox infection
Monkeypox infection can be prevented by avoiding contact with infected animals or people or materials used by animals or people infected with monkeypox. There is a vaccine that provides some protection against monkeypox; however, it is not currently available for general use.

Individuals suspected of monkeypox, or (3) is a man who regularly has close or intimate contact with other men.

How Is Monkeypox Infection Treated?

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FOR MORE INFORMATION

Centers for Disease Control and Prevention
www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

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JAMA (Walicki) Associate Editor, JAMA (Malani) Editor
University of Michigan Health Systems, Ann Arbor, Mich
June 27, 2022
www.jama.com
www.who.int/emergencies/diseases/novel-coronavirus-2019/monkeypox

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Strengthening Science through Data Sharing

- Ensures all data can be used to inform clinical decisions
- Positions research as a public good
- Respects contributions of participants:
 - maximizing value of collected data, while
 - minimizing duplicative data collection
- Facilitates secondary studies of existing data
- Promotes transparency and reproducibility:
 - sample, design, and analysis



Q&A

Post your questions and comments in the Q&A box





Charting the future of high impact health research

Panelists



Caleb Alexander, MD, MS

Professor

Johns Hopkins Bloomberg School of Public Health



Mui Van Zandt

VP&GM Real World Data & Tech

IQVIA



Murray Aitken

Executive Director

IQVIA Institute for Human Data Science

Moderator: Stig Albinus, Senior Advisor, IQVIA Institute for Human Data Science

Charting the Future with High Impact Health Research - Perspectives from the 2022 Research Forum

High impact health research is delivered through:



Advancing a multidisciplinary learning health systems approach to national health crises, balancing timeliness and quality



Navigating the complexity and heterogeneity of patient affordability and access in diverse populations by focusing on gaps or missing data, and the impact of the Inflation Reduction Act



Rethinking research approaches to social determinants of health across a range of issues, including gaps in data, linkage of data and validation of what data matters most



Elevating the value to patients of academic health research

2022 Research Forum Agenda

Exploring the elusive nature of applied research in national health crises

How to improve the effectiveness of critical health research?

Monday, Oct 10
10 - 11 a.m.

Incorporating the impact of social determinants on outcomes in healthcare research

What are the considerations for the broader use of social determinants in research?

Monday, Oct 10
11 a.m. - 12 p.m.

Navigating the complexity and heterogeneity of patient affordability and access

What do affordability and access mean in a diverse population?

Tuesday, Oct 11
10 - 11 a.m.

Elevating the value to patients of academic health research

What research strategies can achieve increased value to patients?

Wednesday, Oct 12
10 - 11 a.m.

Charting the future of high impact health research

How to raise the ongoing value of health research?

Wednesday, Oct 12
11 a.m. – 12 p.m.

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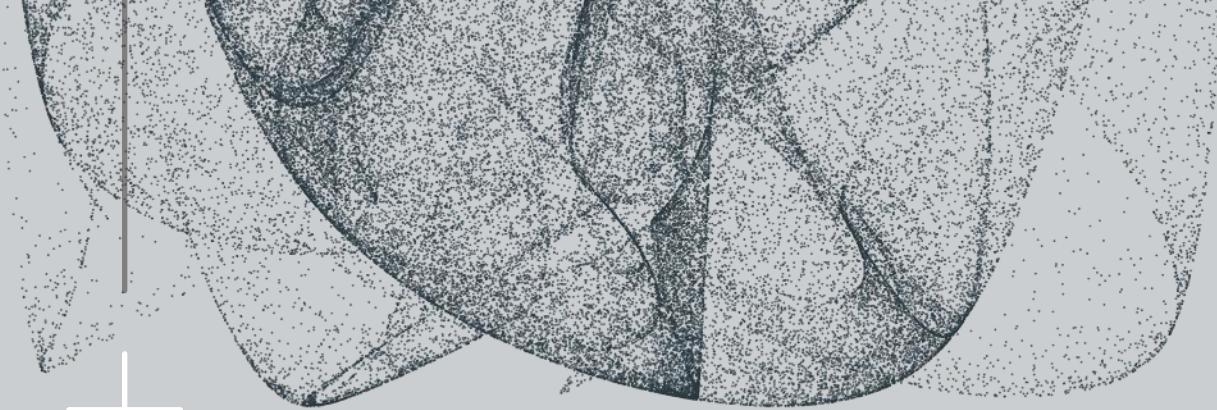
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Thank you