



How to Run an OHDSI Network Study

Kristin Kostka, MPH
IQVIA

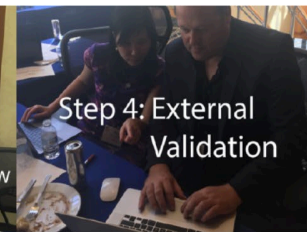
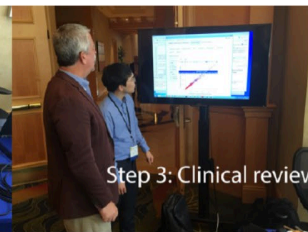


Confession: I'm hooked on network research.

2018 US Symposium Live Study – Predicting HT after Ischemic Stroke(Oct '18)



***F2F 2018 Study-a-thon –
Recreating a Rheumatoid
Arthritis RCT (May '18)***



***Fudan Bootcamp – Endometrial
Cancer Study (Aug '19)***



***Women of OHDSI Breast
Cancer Study (Sep '19)***



Why conduct OHDSI research?

World's Largest Multi-center Studies



Corroborating single-center research with a diverse, global network of more than 152 databases in 18 countries

Established Reproducibility



Framework for large scale validation of results and reproducibility of hypothesis cross a variety of healthcare settings

Preeminent Scientific Network



Expertise from Columbia, Stanford, Oxford, UPenn, Vanderbilt, Yale, Cornell, Northwestern, UCLA, Uni of South Australia, Erasmus MC and more

Robust Methodologies



Empirical validation of the design and implementation of OHDSI statistical methods library and open source tools/packages



Potential to Impact Practice Patterns

THE LANCET

ARTICLES | VOLUME 394, ISSUE 10211, P1846-1856, NOVEMBER 16, 2019

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

Prof Marc A Suchard, MD, [A](#), [B](#), [C](#), [D](#), [E](#), [F](#), [G](#), [H](#), [I](#), [J](#), [K](#), [L](#), [M](#), [N](#), [O](#), [P](#), [Q](#), [R](#), [S](#), [T](#), [U](#), [V](#), [W](#), [X](#), [Y](#), [Z](#), [AA](#), [AB](#), [AC](#), [AD](#), [AE](#), [AF](#), [AG](#), [AH](#), [AI](#), [AJ](#), [AK](#), [AL](#), [AM](#), [AN](#), [AO](#), [AP](#), [AQ](#), [AR](#), [AS](#), [AT](#), [AU](#), [AV](#), [AW](#), [AX](#), [AY](#), [AZ](#), [BA](#), [BB](#), [BC](#), [BD](#), [BE](#), [BF](#), [BG](#), [BH](#), [BI](#), [BJ](#), [BK](#), [BL](#), [BM](#), [BN](#), [BO](#), [BP](#), [BQ](#), [BR](#), [BS](#), [BT](#), [BU](#), [BV](#), [BW](#), [BX](#), [BY](#), [BZ](#), [CA](#), [CB](#), [CC](#), [CD](#), [CE](#), [CF](#), [CG](#), [CH](#), [CI](#), [CJ](#), [CK](#), [CL](#), [CM](#), [CN](#), [CO](#), [CP](#), [CQ](#), [CR](#), [CS](#), [CT](#), [CU](#), [CV](#), [CW](#), [CX](#), [CY](#), [CZ](#), [DA](#), [DB](#), [DC](#), [DD](#), [DE](#), [DF](#), [DG](#), 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"This study is turning me away from ACE inhibitors as a first line agent for hypertension. There are many other inexpensive options, including thiazide diuretics, and so, until more compelling information becomes available, there is little reason not to change practice."

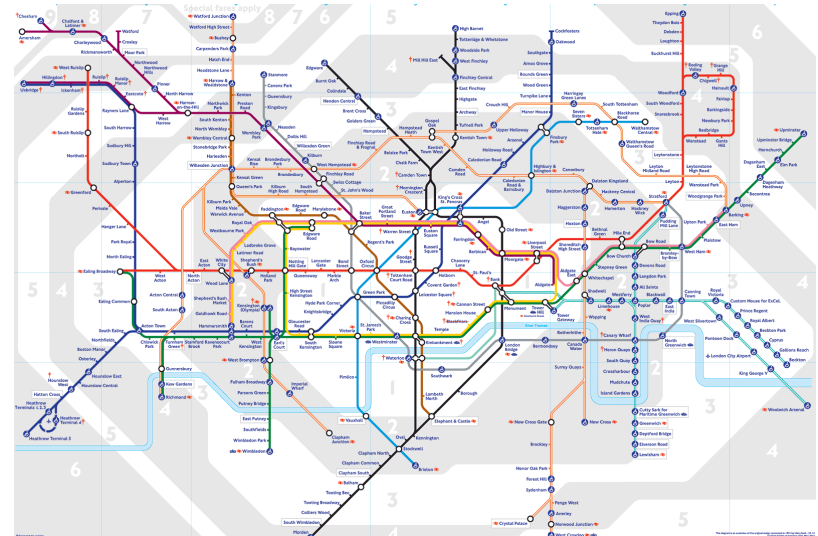
- Harlan Krumholz, MD, SM



Starting the journey...

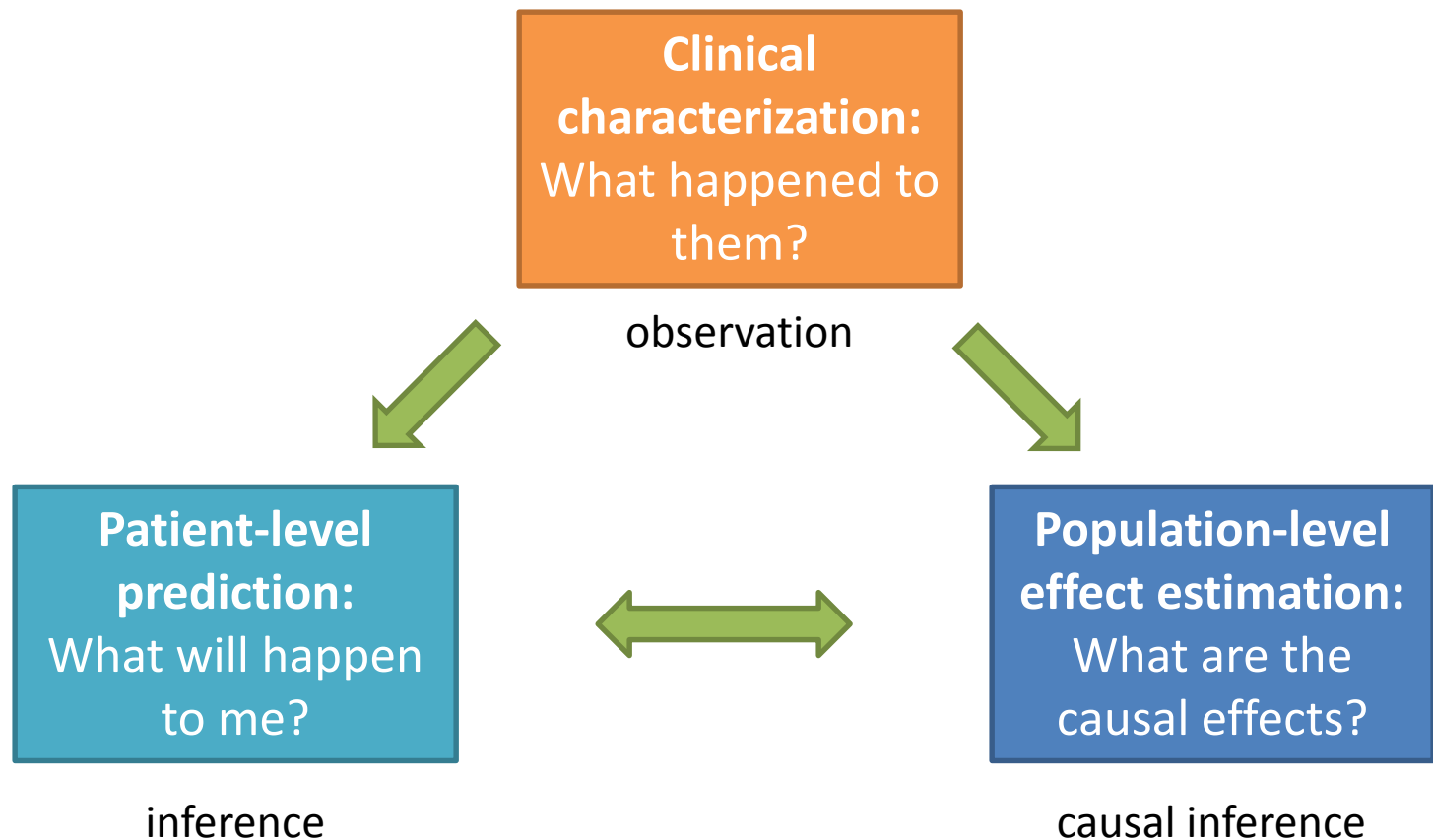


Massachusetts Bay Transportation Authority Rapid Transit/Key Bus Routes Map



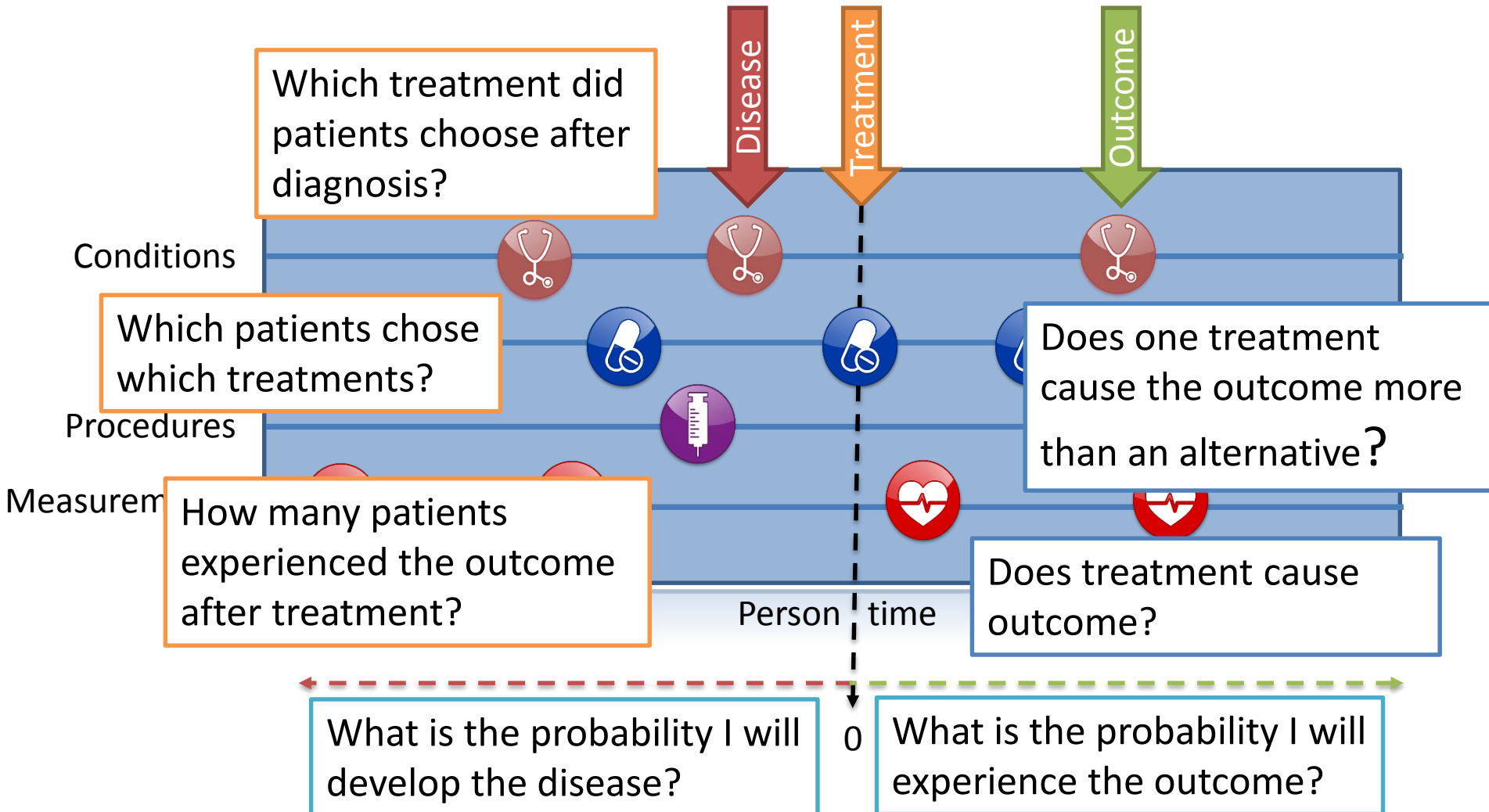


OHDSI has maps for your journey...





Questions asked across the patient journey





The common building block of all observational analysis: cohorts

Required inputs:

Target cohort:
Person
cohort start date
cohort end date

Comparator cohort:
Person
cohort start date
cohort end date

Outcome cohort:
Person
cohort start date
cohort end date

Desired outputs:

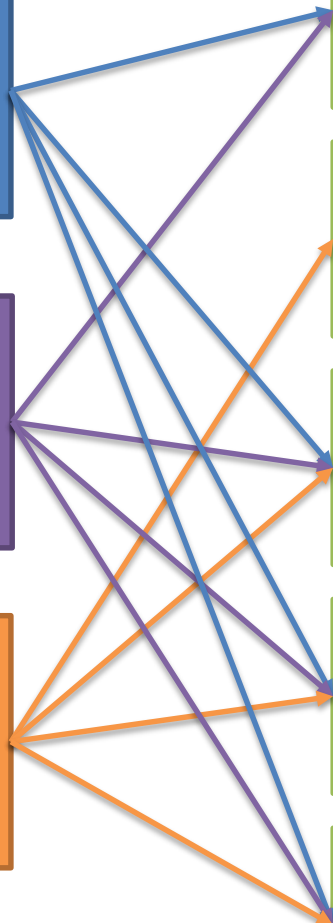
Clinical characterization
Baseline summary of exposures
(treatment utilization)

Clinical characterization
Baseline summary of outcome
(disease natural history)

Incidence summary
Proportion/rate of outcome
occurring during time-at-risk for exposure

Population-level effect estimation
Relative risk (HR, OR, IRR) of outcome
occurring during time-at-risk for exposure

Patient-level prediction
Probability of outcome occurring during
time-at-risk for each patient in population





Our common toolkit

ATLAS

- Home
- Data Sources
- Search
- Concept Sets
- Cohort Definitions
- Characterizations
- Cohort Pathways
- Incidence Rates
- Profiles
- Estimation
- Prediction
- Jobs
- Configuration
- Feedback

[Apache 2.0](#)

open source software

provided by




[join the journey](#)

Home

Welcome to ATLAS.

ATLAS is an open source application developed as a part of [OHDSI](#) intended to provide a unified interface to patient level data and analytics.

Documentation

 The ATLAS user guide can be found [here](#).

Getting Started

Define a New Cohort

Begin performing research by defining the group of people you intend to study

Search the Vocabulary












Search the different ontologies used to describe patient level data around the world

Release Notes

[ATLAS Version 2.7.4 Release Notes](#)

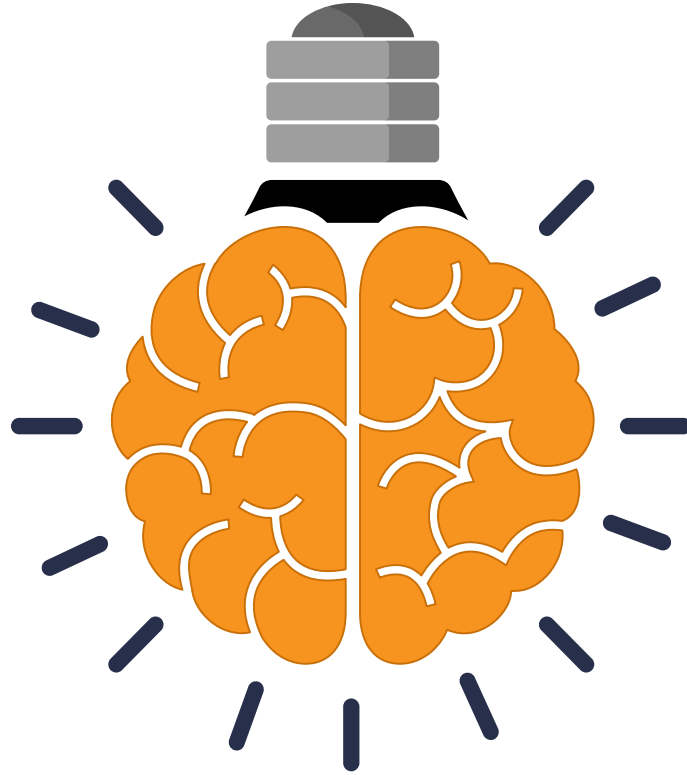
[WebAPI Version 2.7.4 Release Notes](#)

This latest release contains **12** feature enhancements and issue resolutions:

-  [WebAPI fails to compile with missing zip4j dependency](#)
-  [Blinking horizontal scroll during page navigation](#)
-  [Colors Not Working in Event Highlighting for Patient Viewer](#)
-  [Show closed issues both from Atlas and WebAPI in the Latest release block](#)
-  [Concept set filter fails on included concepts](#)
-  [PLE / PLP execution results contain keyfile when executed using BigQuery](#)
-  [Cohort definition message tab](#)
-  [/cache/clear endpoint cannot be accessed in secure mode](#)
-  [Cohort generation fails on IMPALA due to wrong SQL](#)
-  [WebAPI fails with heavily parametrized PG connection URL](#)
-  [Access denied in throw for saved and just executed ID reports](#)



You have one of those genius moments...



I have a brilliant idea for a network study!



And you think to yourself...





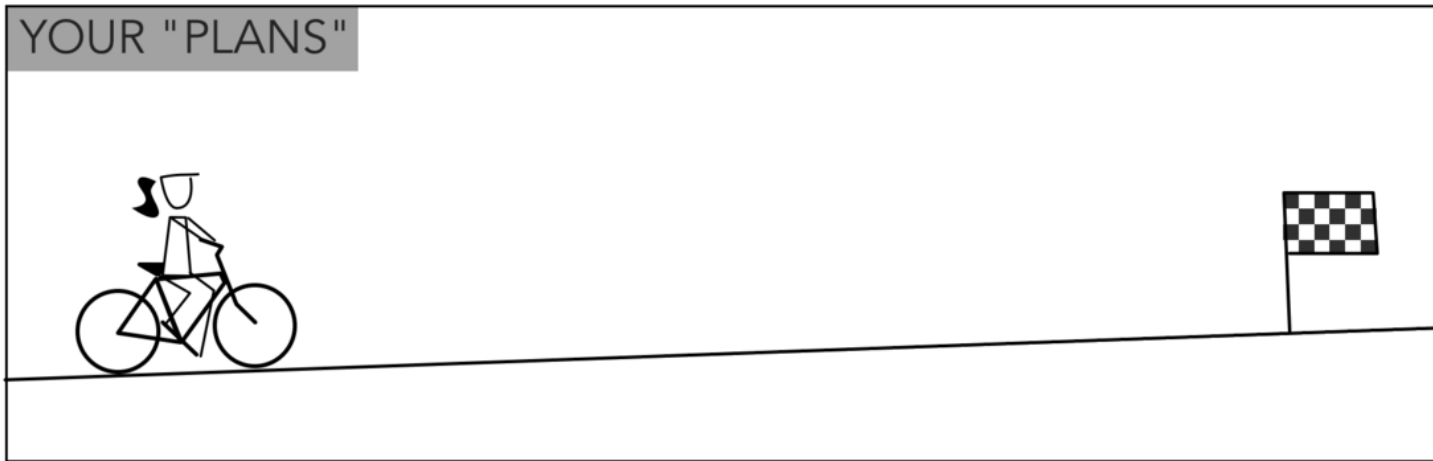
Not so fast...



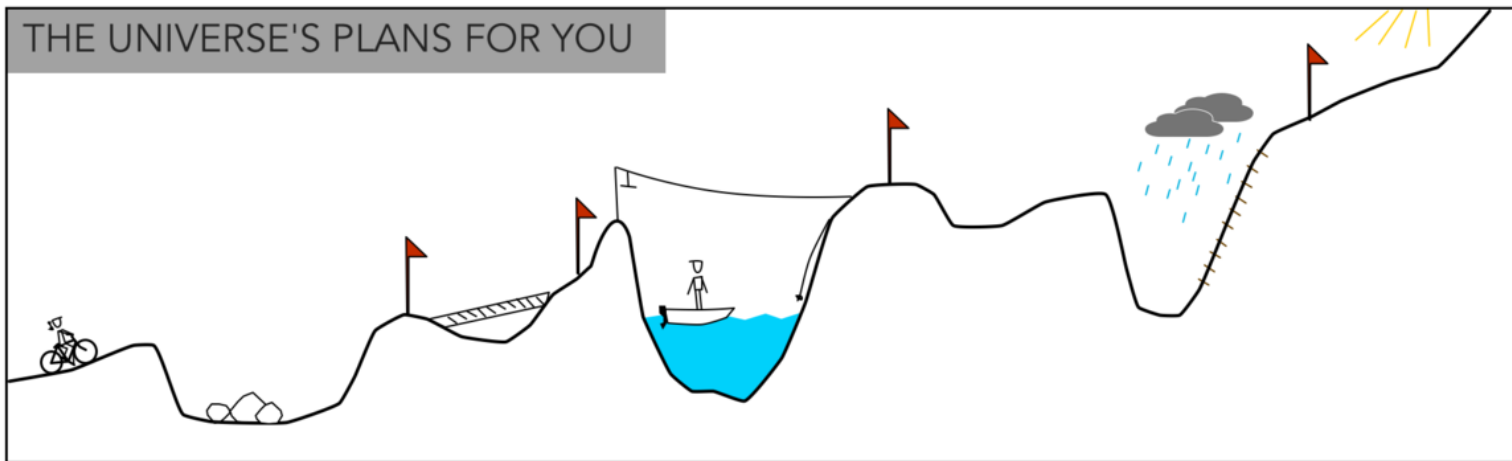


Scenario 1: You don't attend this community call...

YOUR "PLANS"



THE UNIVERSE'S PLANS FOR YOU





Scenario 2: You showed up here today and get a cheat sheet for success!





The essentials of network research



Access to a Bench of Experts

Possess cross-cutting expertise in epidemiology, statistics and clinical care



A Novel Idea

Develop a study question to execute in the OHDSI research network



Time / Bandwidth

Ability to iterate on a regular basis with research team



Capabilities

Skill to install tools, debug code, synthesize results and disseminate evidence



Embarking on your network study journey

Results Consolidation

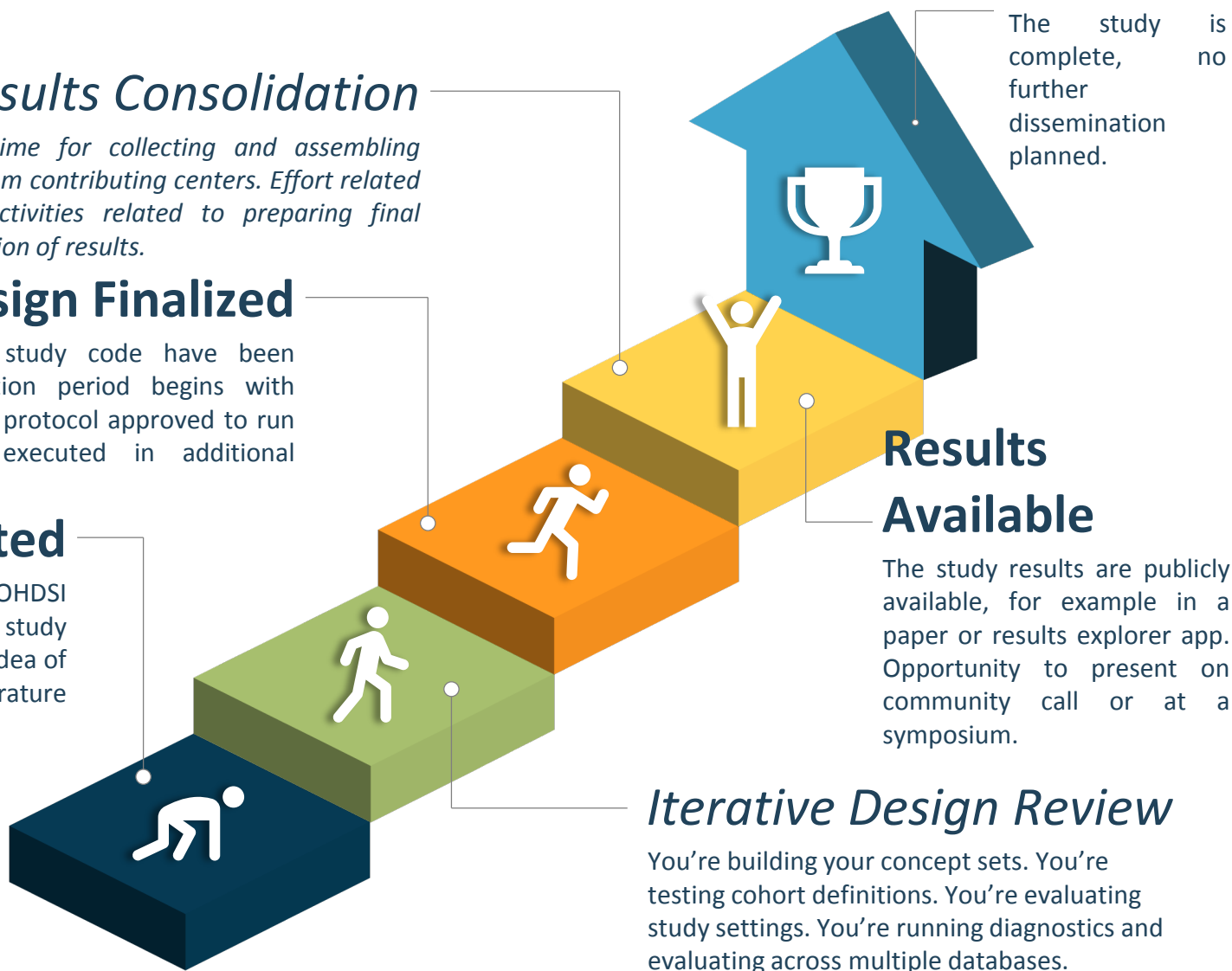
Process time for collecting and assembling results from contributing centers. Effort related to the activities related to preparing final presentation of results.

Design Finalized

The protocol and study code have been finalized. Collaboration period begins with network sites to get protocol approved to run and study code executed in additional environments.

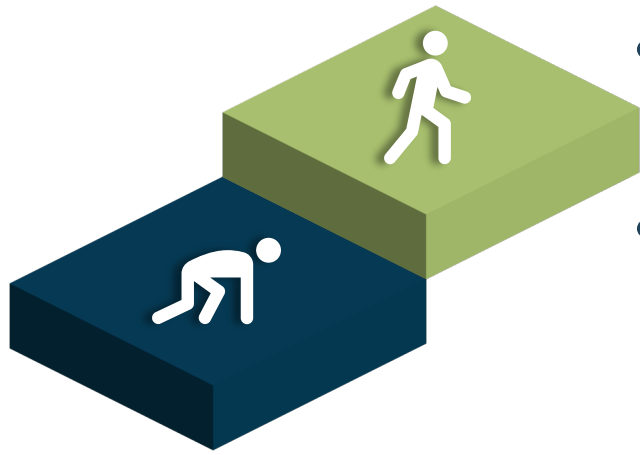
Started

You've worked with the OHDSI community to open a GitHub study repo. You're starting to get an idea of your study question via literature review and clinical input.





Making the transition...



To go from crawling to walking:

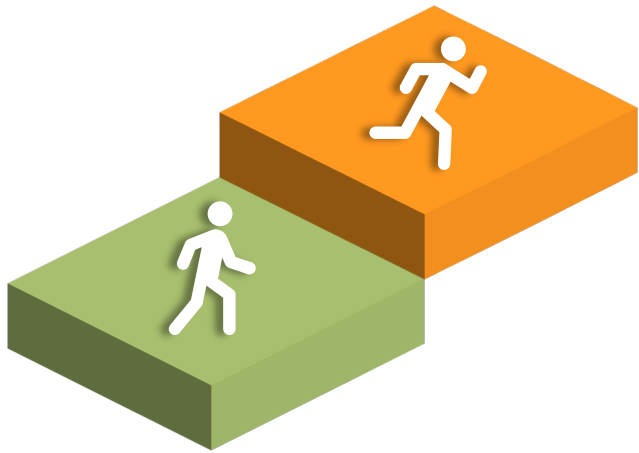
- Engage with clinical experts
- Build cohorts
- Run diagnostics on your ideal design
- Test out your study package on your data (if you have it) and solicit input from other centers
- **NO** peeking at the good stuff (aka unblinded results)!



Making the transition...

To go from walking to running:

- Fully specified design including a written protocol and complete study package
- Set limits on how long you'll be collecting results
- Be ready to triage bumps in the road





Making the transition...

To go from running to done:

- Identify target journal and documenting journal submission guidelines
- Draft manuscript and review with research team
- Go through publication approvals
- Finalize of manuscript – including responses to reviewers





Complete



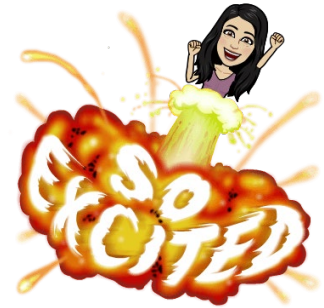
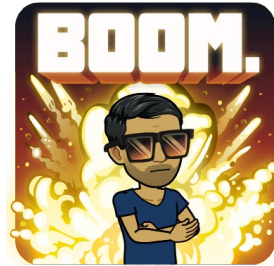
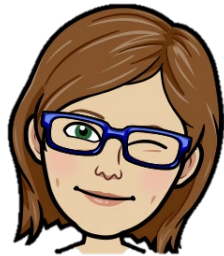
Don't forget to submit abstracts
for OHDSI Symposiums across the
globe or volunteer to speak on a
community call!



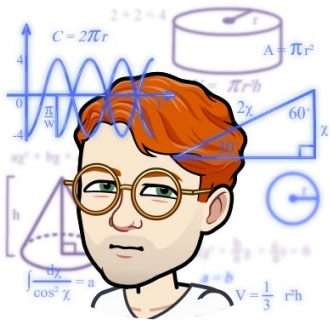
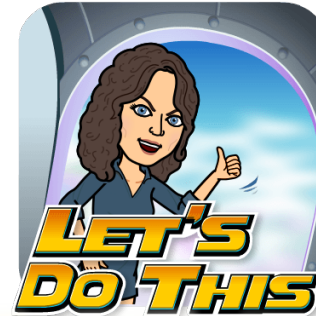
“You’ll never walk
alone on your
OHDSI Journey.”
– Peter Rijnbeek
(probably)



The community has your back.



YOU DA BEST!!





Questions?

Kristin.Kostka@iqvia.com

Join the Journey

<http://ohdsi.org>

