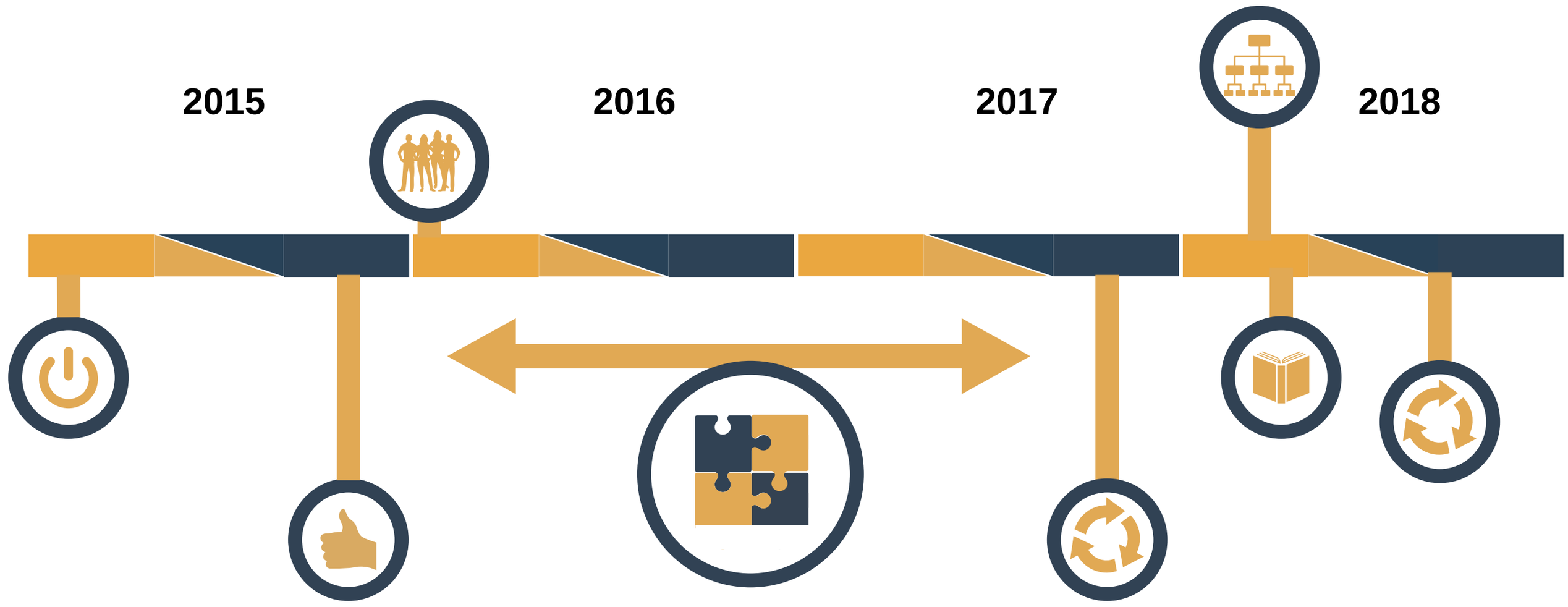
The OHDSI Patient-Level Prediction Journey



PLP identified as OHDSI priority analytic use case

PLP workgroup started

PLPv1 released

PLP Framework and best practices developed

PLP Tutorials offered

PLPv2 released

PLP toolkit expanded (deep learning, ensemble ~~methods~~, network external validation)

PLPv3 released

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Article Contents

Abstract
Introduction
Methods

Design and implementation of a standardized framework to generate and evaluate patient-level prediction models using observational healthcare data

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Abstract

The OHDSI community have published a framework for developing large-scale patient-level prediction models and the software to apply the framework

Join the OHDSI Patient-Level Prediction Journey

Prediction Checklist

Standardized Framework - we have a framework for developing and evaluating patient-level prediction models

State
pac
fra

We need you to help us apply the tools to important areas and solve clinically useful prediction problems…

Data -
repres

more than 1 billion patient records

Questions - We need clinically useful research areas to apply our framework

Components within the Patient-Level Prediction Framework

Prediction Components	Description	Example
T (Target Population)	Who do you want to do the prediction for?	Patients with atrial fibrillation
O (Outcome)	What do you want to predict?	Ischemic stroke
TAR (Time-at-risk)	When do you want to predict whether the outcome occurs?	1 day until 1 years after initial atrial fibrillation diagnosis
Clinical Application	Why is this clinically relevant or important to public health?	Can identify patients who would most benefit from anticoagulant therapy

We need your help

Can you tell us what predictions to focus on?

https://goo.gl/WGeHeG

Scan me

Types of Patient-Level Prediction Questions to Consider

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Type	Structure	Example
Disease onset and progression	Amongst patients who are newly diagnosed with <insert your favorite disease>, which patients will go on to have <another disease or related complication> within <time horizon from diagnosis>?	Among newly diagnosed AFib patients, which will go onto to have ischemic stroke in next 3 years?
Treatment choice	Amongst patients with <indicated disease> who are treated with either <treatment 1> or <treatment 2>, which patients were treated with <treatment 1> (on day 0)?	Among AFib patients who took either warfarin or rivaroxaban, which patients got warfarin? (as defined for propensity score model)
Treatment response	Amongst patients who are new users of <insert your favorite chronically-used drug>, which patients will <insert desired effect> in <time window>?	Which patients with T2DM who start on metformin stay on metformin after 3 years?
Treatment safety	Amongst patients who are new users of <insert your favorite drug>, which patients will experience <insert your favorite known adverse event from the drug profile> within <time horizon following exposure start>?	Among new users of warfarin, which patients will have GI bleed in 1 year?
Treatment adherence	Amongst patients who are new users of <insert your favorite chronically-used drug>, which patients will achieve <adherence metric threshold> at <time horizon>?	Which patients with T2DM who start on metformin achieve >=80% proportion of days covered at 1 year?

Let’s see your questions

https://docs.google.com/forms/d/1l_qgBYy4PLfEpx8KcpLq4onzZhamIwM0bR98VWLRBXQ/edit