



Replication and extrapolation from RCTs to observational data to predict treatment effects: Why, What, How

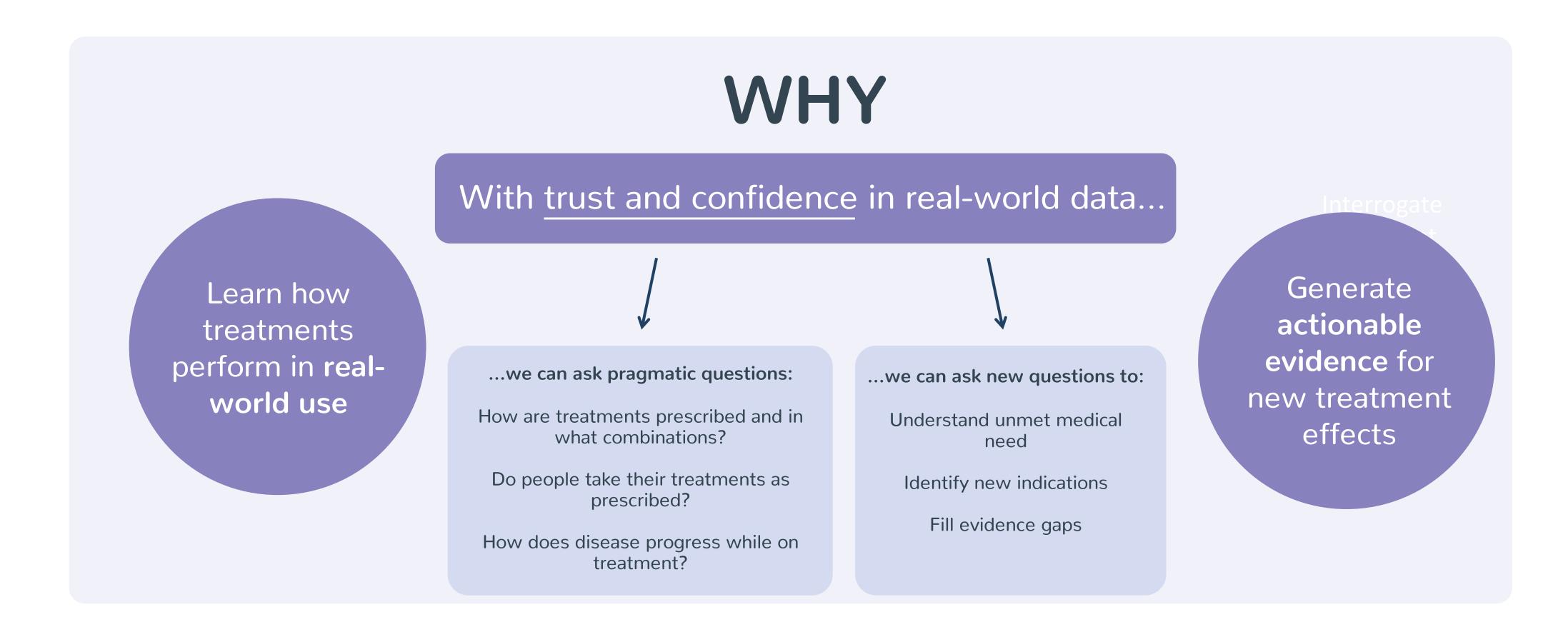
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Introduction

RCT Duplicate¹ has shown that it is possible to replicate the results of an RCT using real-world, observational data. Where such a replication is possible, it provides

- 1) <u>trust</u> in the evidence coming from the observational data, and
- 2) an estimation of <u>bias</u> introduced by moving from trial to observational data.

Building from this support, we can go beyond the scope of the trial, leveraging the richness of real-world data and extrapolating findings beyond what was initially reported in the trial.



WHAT

Assuming the bias between RCT and observational study remains constant over the variables via which we extrapolate, we can estimate the treatment effect...

of additional comparators

over longer time periods

after such regime

after therapy adaptations, such as different dosing regimens

2 of different endpoints

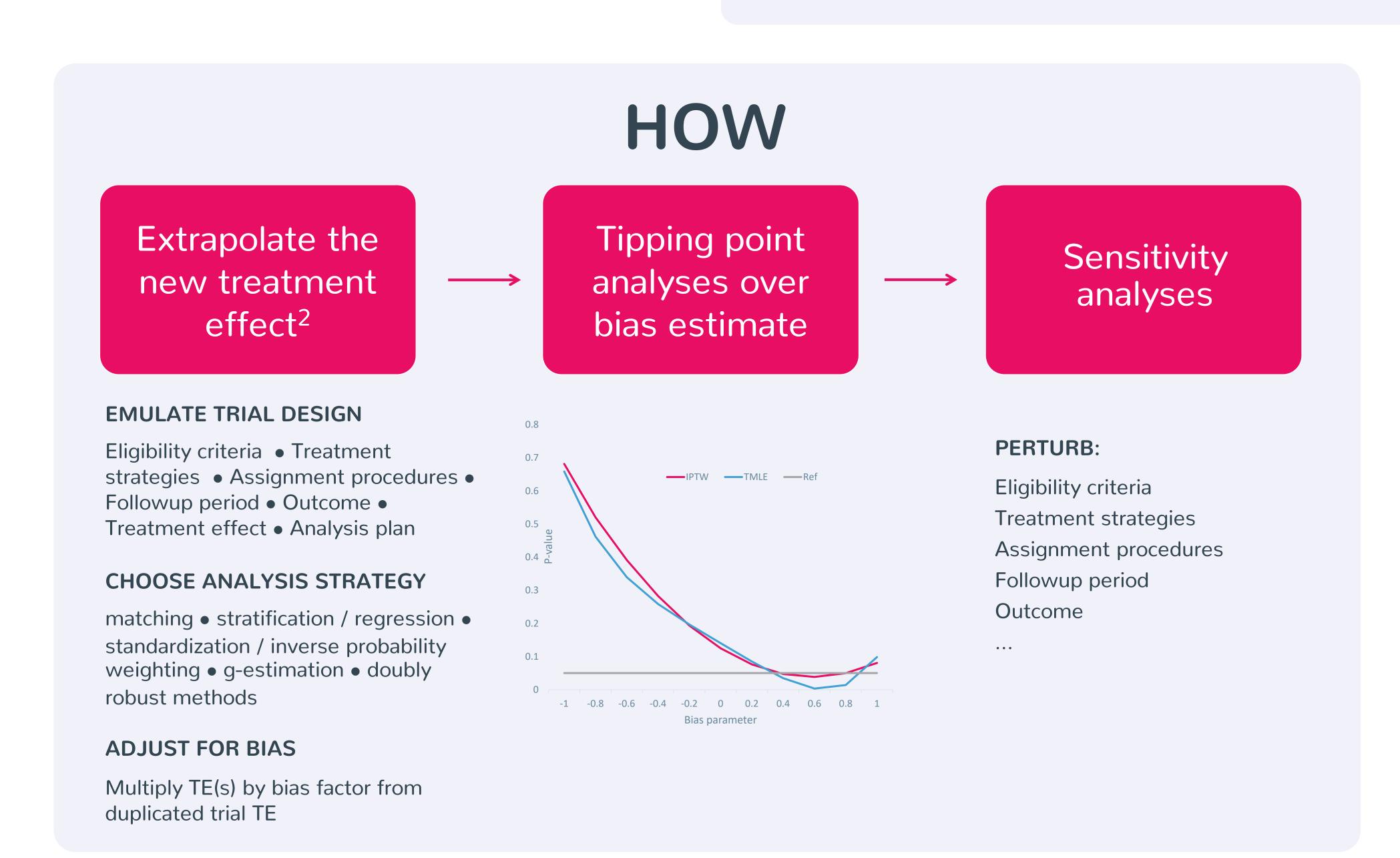
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in patient
populations not
included in the trial

6

including effects from concomitant medication not allowed in the trial

or, if enough data is available, a combination of these extrapolations.



Concluding Remarks

Combining replication of existing clinical trials with the strengths of real-world data through extrapolation leads to increased trustworthiness of the results from real-world studies.

Real-world analyses offer cheaper, faster routes to evidence than traditional RCTs.

Appropriate tipping point and sensitivity analyses elucidate the robustness of conclusions and help decision makers best exploit the potential of new and existing treatments.