

Assessing treatment effect heterogeneity using the RiskStratifiedEstimation R-package

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INTRODUCTION

In the presence of a truly effective treatment, effect heterogeneity should always be anticipated on some scale, as baseline risk is bound to vary across the study population.

METHODS

- We translated existing RCT guidelines to the observational setting.
- We created an open-source software package for the application of our framework.
- Hypertension:** We compared ACE inhibitors to beta blockers with regard to 3 main outcomes (acute myocardial infarction-MI, hospitalization with heart failure, and stroke) and 6 safety outcomes (abnormal weight gain, angioedema, cough, hyperkalemia, hypokalemia, and hypotension) in IBM MarketScan Commercial Claims and Encounters (CCAE), IBM MarketScan Medicaid (MDCD), and IBM MarketScan Medicare Supplemental Beneficiaries (MDCR).
- Osteoporosis:** We compared the effect of teriparatide to oral bisphosphonates in female patients over the age of 50, diagnosed with osteoporosis in CCAE, Optum De-Identified Electronic Health Record Dataset (Optum-EHR), and Optum De-Identified Clinformatics Data Mart Database-Date of Death (Optum-DOD).

RESULTS

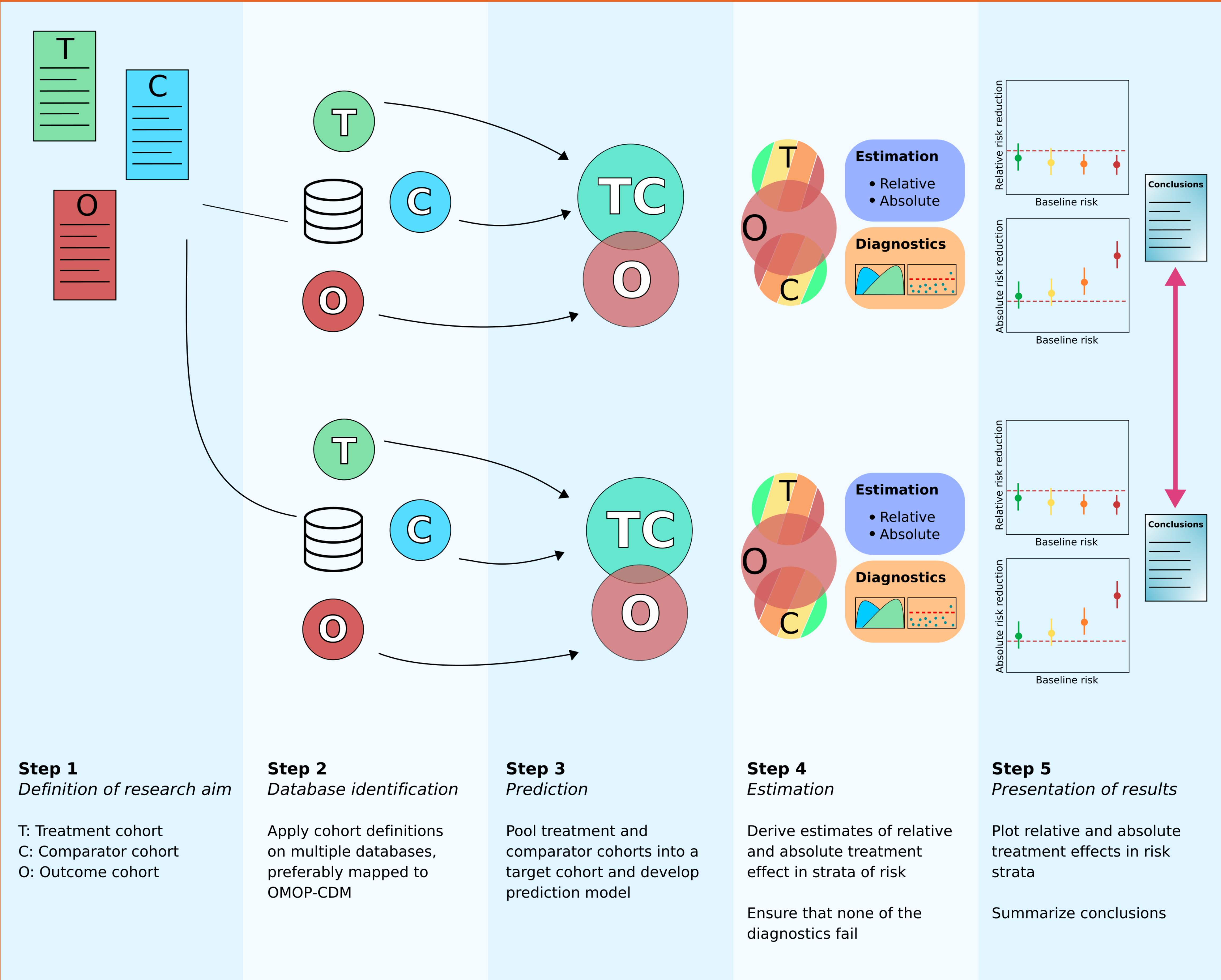
Hypertension

- With increasing acute MI risk we observed increasing absolute benefits in terms of acute MI and hospitalization with heart failure with ACE inhibitors.
- We also observed large cough risk increase with ACE inhibitors across all acute MI risk strata.

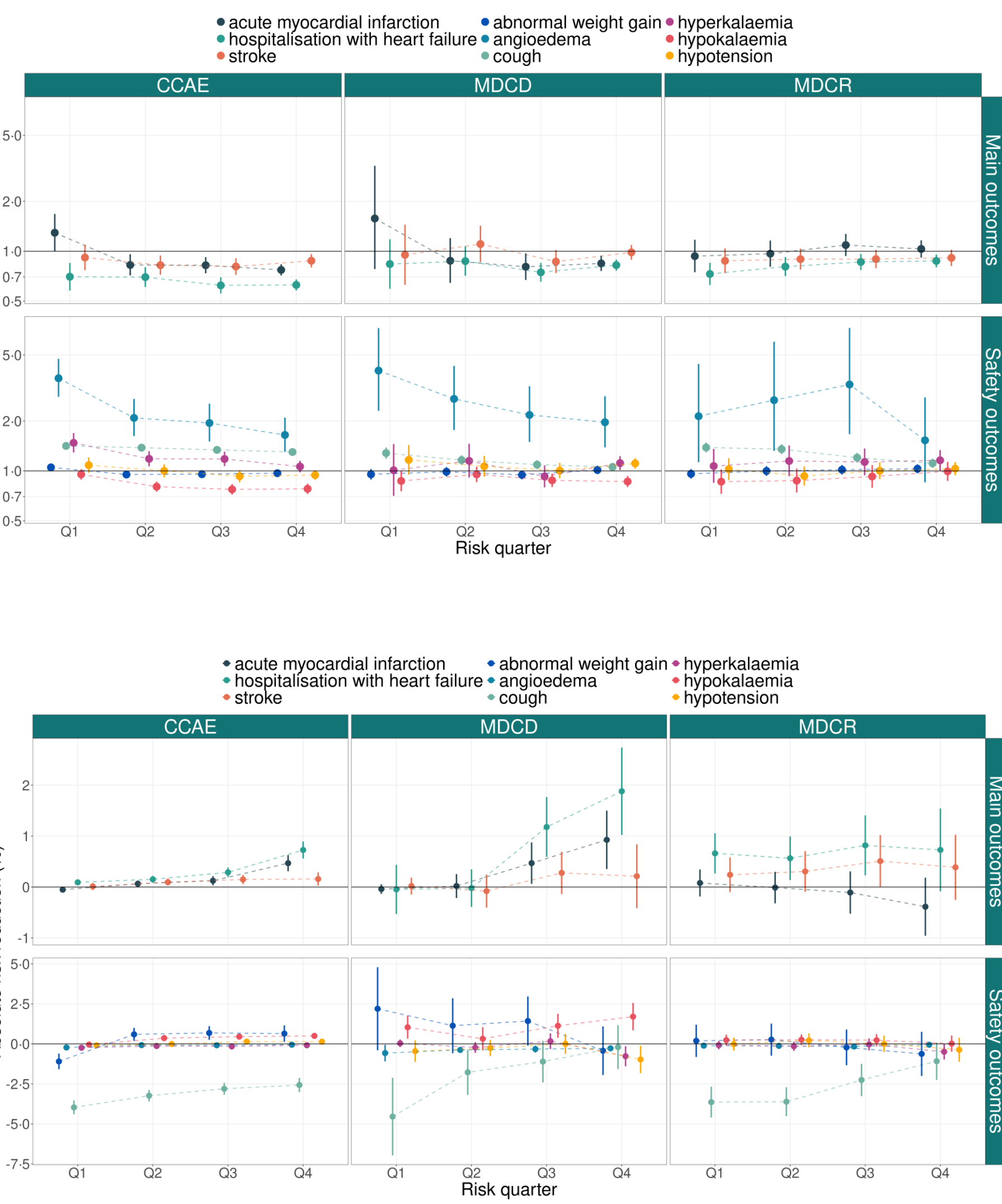
Osteoporosis

- Strong evidence of residual confounding limits our ability to draw conclusions.

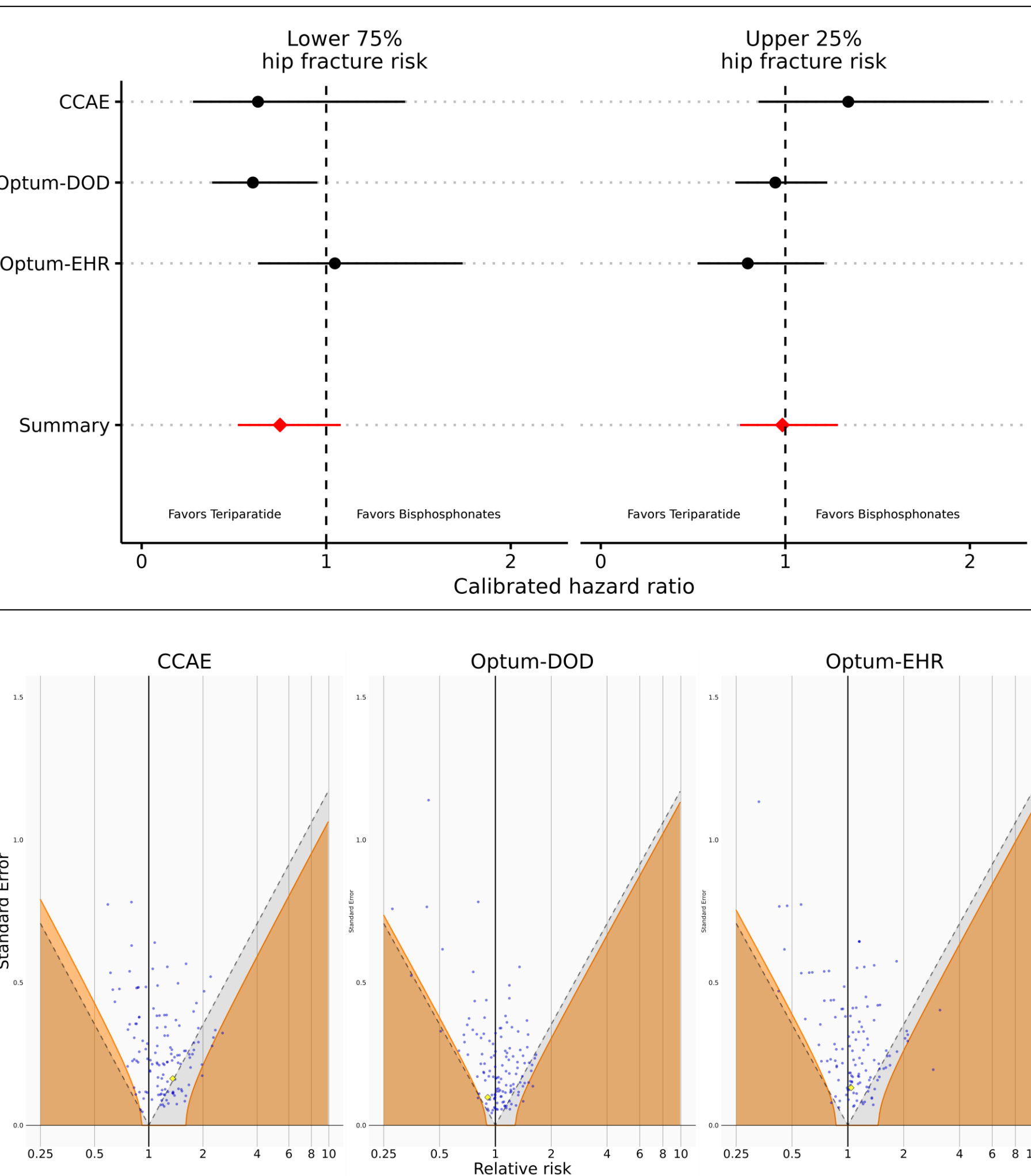
Large-scale evaluation of treatment effect heterogeneity is feasible



Hypertension



Osteoporosis



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Scan QR code
Link to github

