

DEVELOPING A RELIABLE QUALITY INDICATOR FOR DELIRIUM: MEANINGFULLY ASSESSING INCIDENCE WITHOUT PENALIZING GOOD SCREENING COMPLIANCE

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Swiss 335-bed hospital

12 months

surgical inpatients

non-cardiac

age 60+

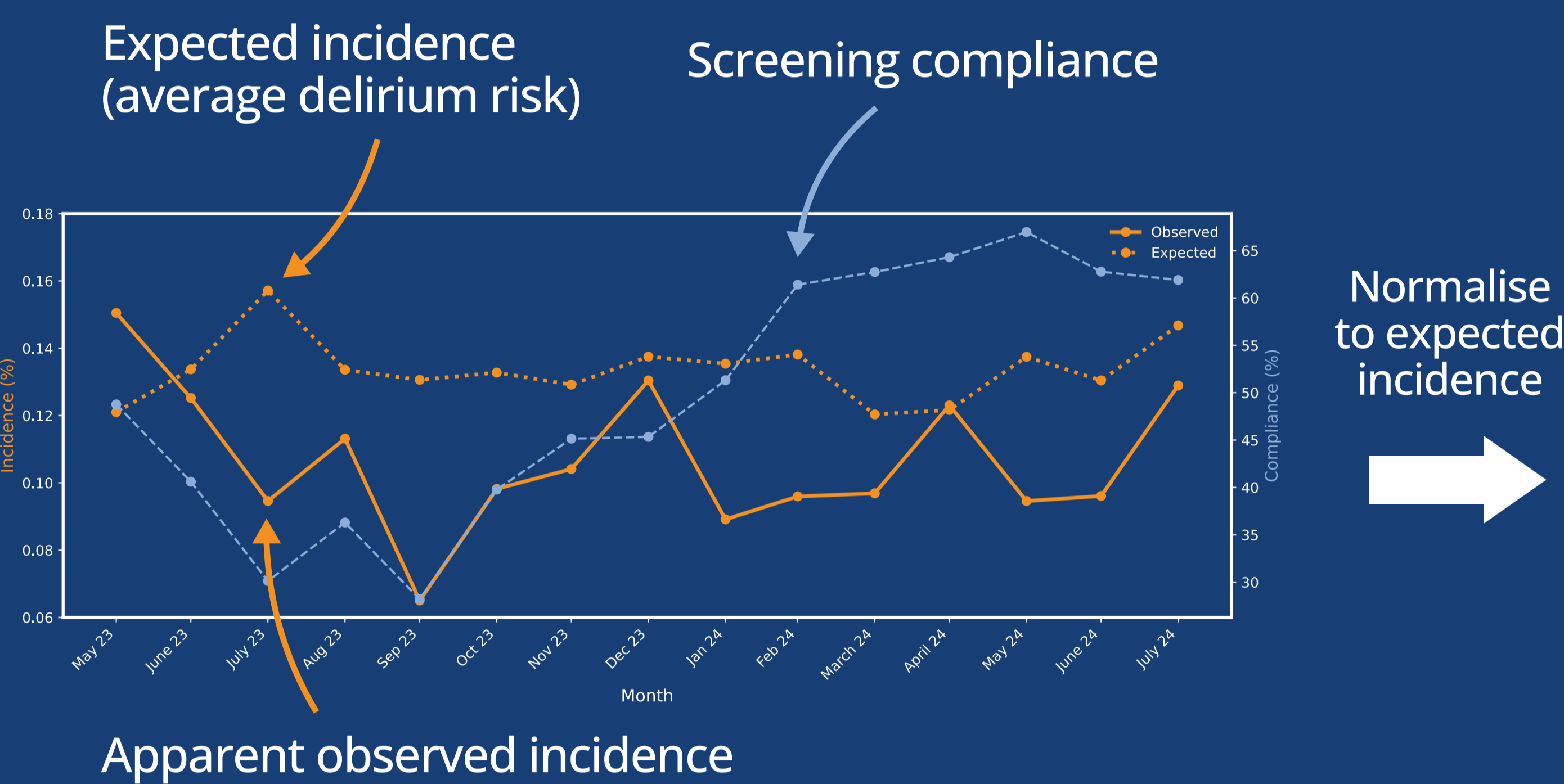
PIPRA risk prediction + prevention

"Delirium" = DOS => 3

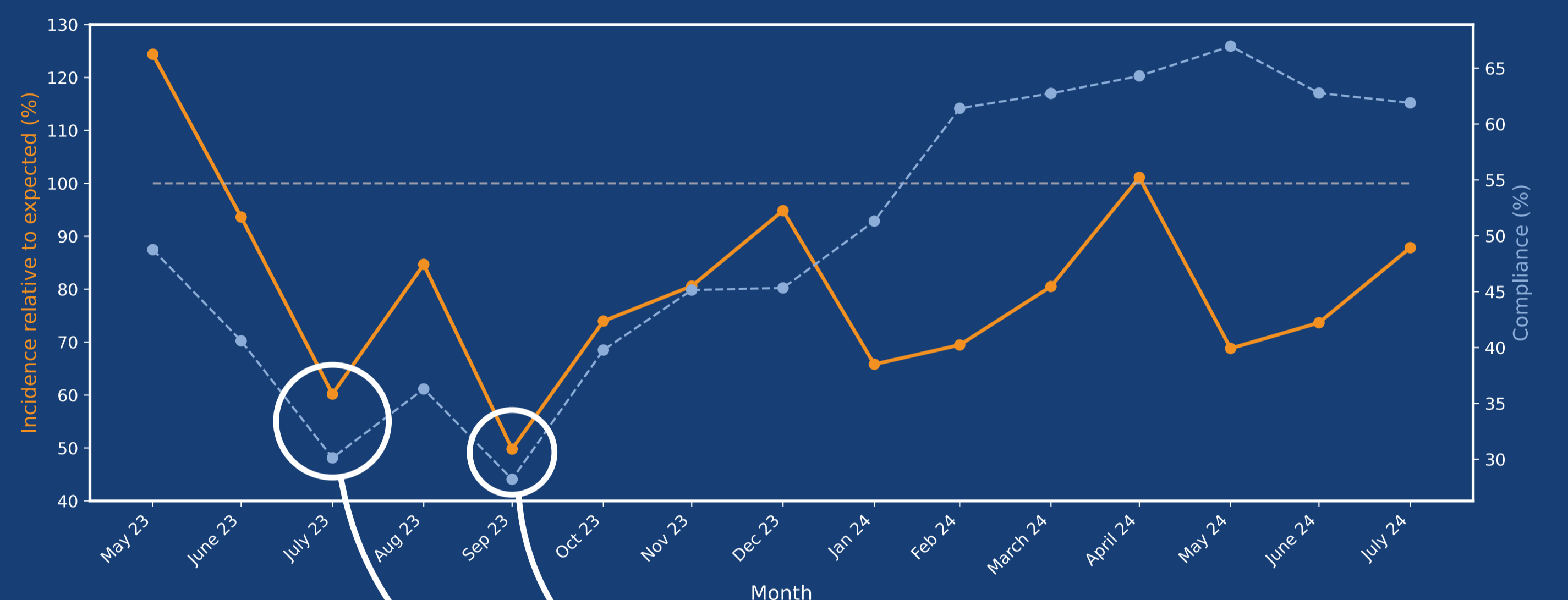
routine data

n = 4,670

Observed and expected delirium incidence and screening compliance over time

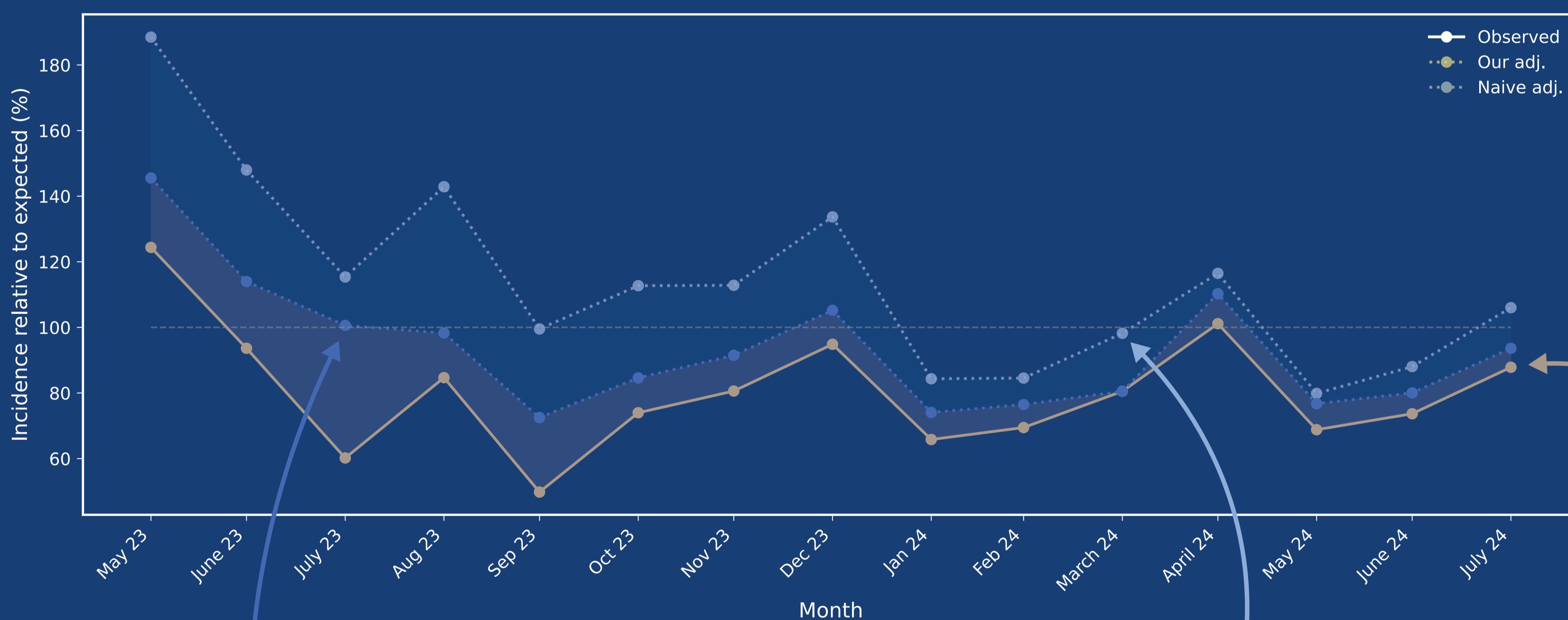


Observed delirium incidence (relative to expected) and screening compliance over time



Is the incidence really lower?
Or is delirium not identified?

Adjusted delirium incidence over time



Option 1: Ignore the problem

Leads to celebration of bad practises:
Screening compliance affects delirium diagnosis ($p < 0.01$). Lowest compliance → lowest observed incidence

Option 2: Ignore the low compliance patients

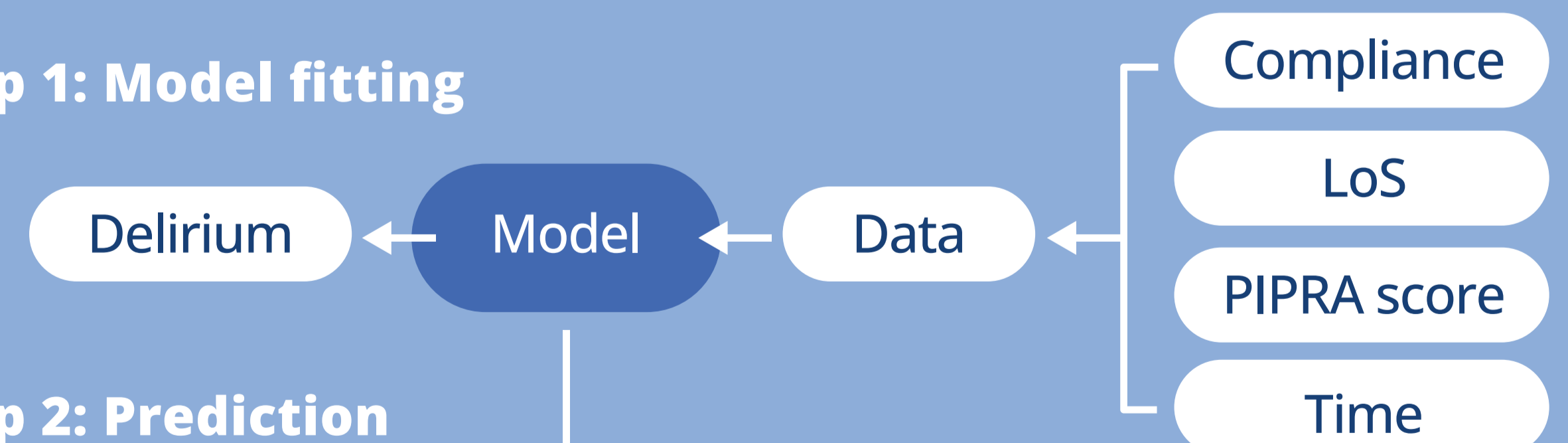
- ➖ Removal of 1,628 (35%) patients (with compliance < 0.33)
- ➕ Simple but somewhat arbitrary
- ➕ Because it's normalised to expected incidence, systematic bias from e.g. nurses screening predominantly high risk patients is removed

Option 3: Data science

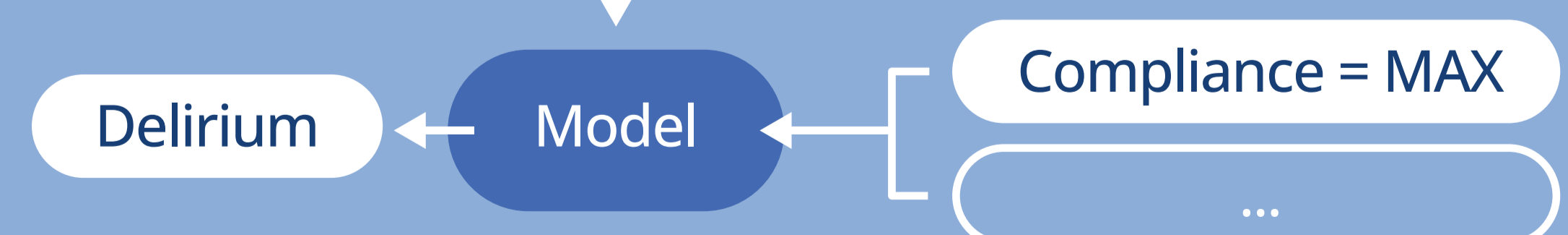
- ➖ More complicated
- ➕ Less arbitrary
- ➕ Can deal with more complex relationships
- ➕ Takes into account likelihood of delirium also based on LoS

What would incidence be if compliance = 100%?

Step 1: Model fitting



Step 2: Prediction



CONCLUSION: Best is to have high compliance, but second best is option 2 or 3

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