What-if a hospital (country, . . .)
(1) will or **(2) had** adopt(ed)
the treatment policy of another?

Counterfactual Treatment–Outcome Trajectories Under Policy Interventions

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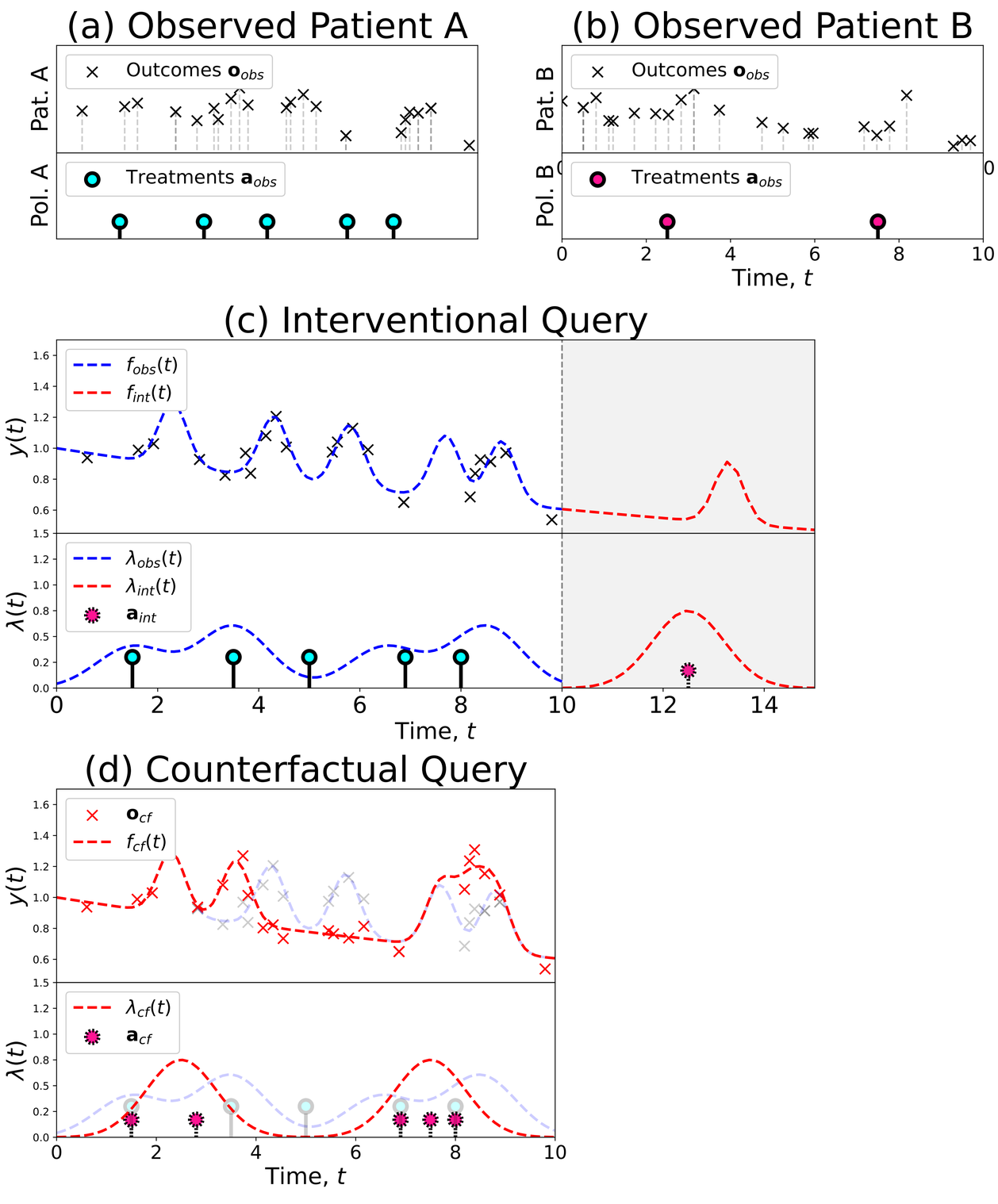


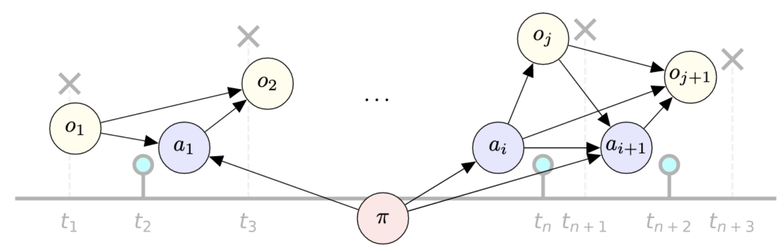
Details

How?

- Joint treatment-outcome model learned from observed treatment and outcome sequences.

$$p(\mathcal{D}) = \exp(-\Lambda) \prod_{i=1}^{I} \underbrace{\lambda_\pi^*(t_i) p^*(m_i \mid t_i)}_{\text{Treatment Intensity}} \prod_{j=1}^{J} \underbrace{p^*(y_j \mid t_j)}_{\text{Outcome Model}} \mid_{t_j \in \mathbf{t_o}},$$

- Consider a policy intervention as a stochastic intervention on the treatment sequence.



- Sample from the interventional and counterfactual distributions of the joint trajectory.

Benefits

- No need for interventional treatments as input.
- Counterfactual treatment sampling.

Challenges

- Hard to optimize the treatment model.
- Not trivial to measure the performance.

Drawbacks

- Scalability.
- Additive treatment response.

What's missing?

- Practical estimation characteristics.
- Detailed comparison with related work.

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