

Foresight-SDE: A National Scale Foundation Model of 51 million Patients for Generative Medical Event Prediction

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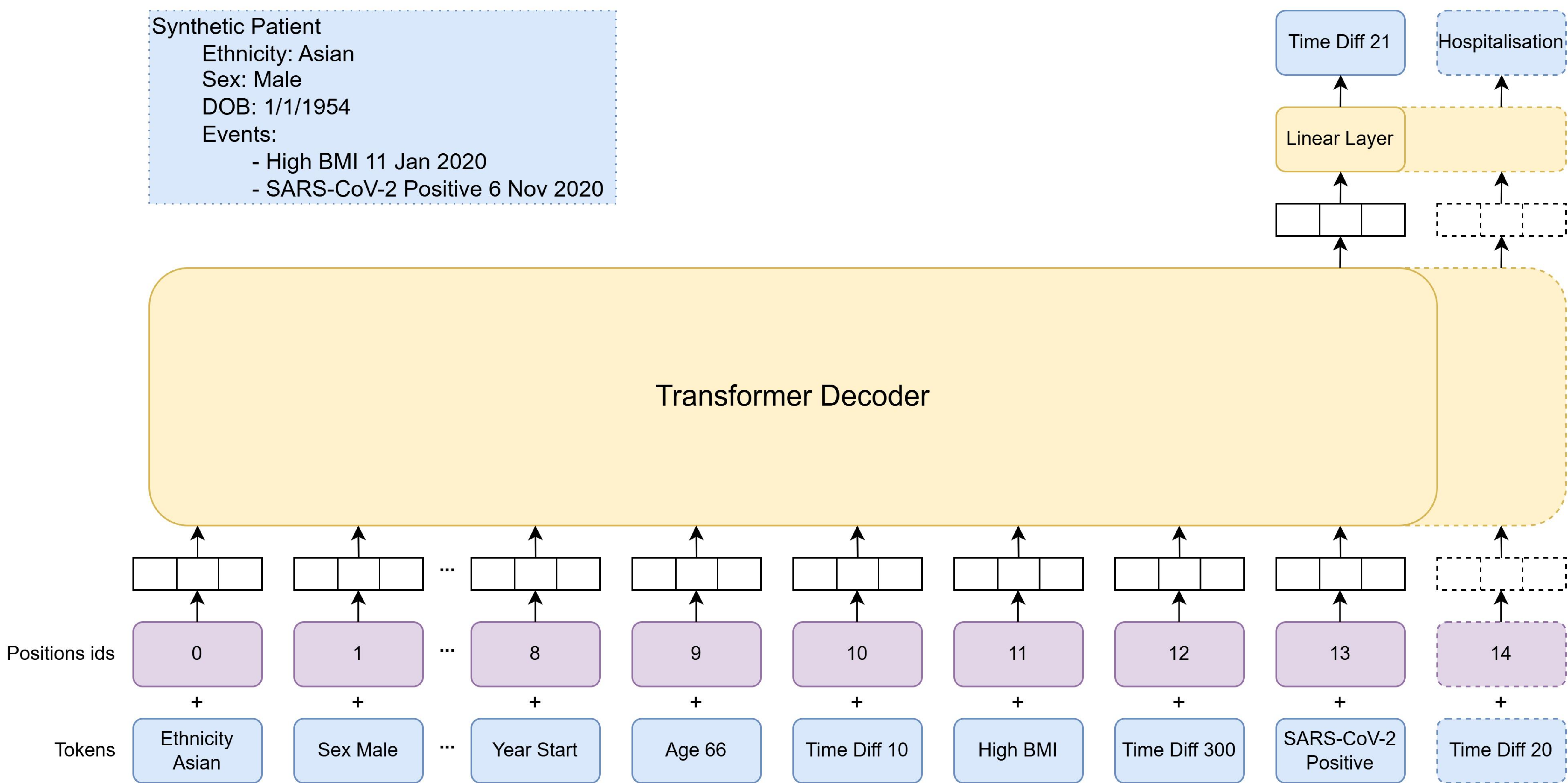
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Overview

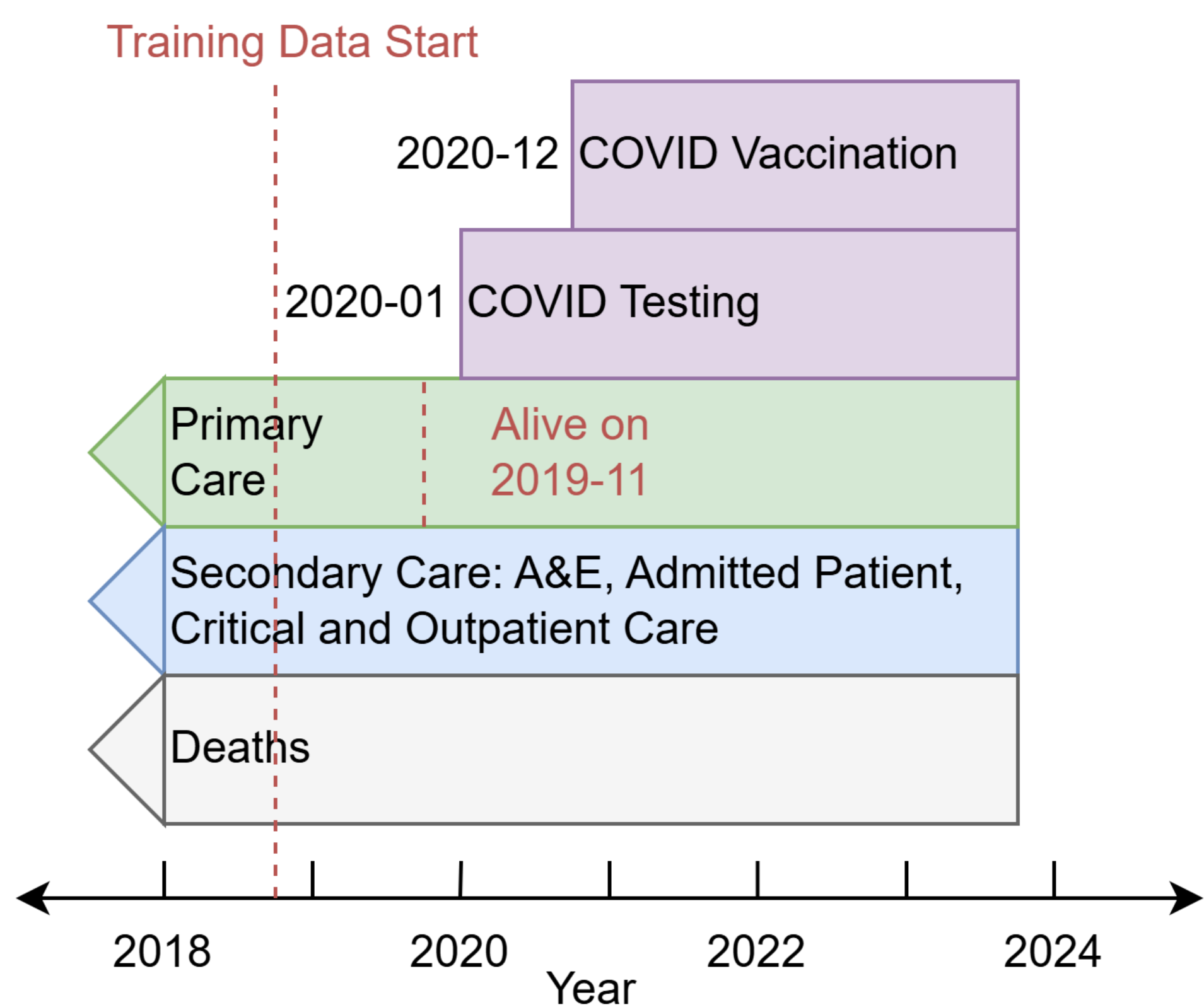
- We are training and evaluating Foresight-SDE, the world's first national-scale generative AI model for medical event prediction.
- The next-token prediction transformer methodology can be applied to electronic health records (EHRs) by converting a patient's coded medical history into a sequence of tokens.
- Joint access to compute and EHR data at scale has previously been a bottleneck. We have overcome this by:
 - Provisioning the first multi-GPU cluster *within* the NHS England's National Secure Data Environment (SDE), supported by AWS and Databricks.
 - Training on the linked routinely collected EHR data of 51M patients accessed through the COVID-IMPACT consortium of the British Heart Foundation's Data Science Center.

“Foresight is to Electronic Health Records, as GPT is to text”

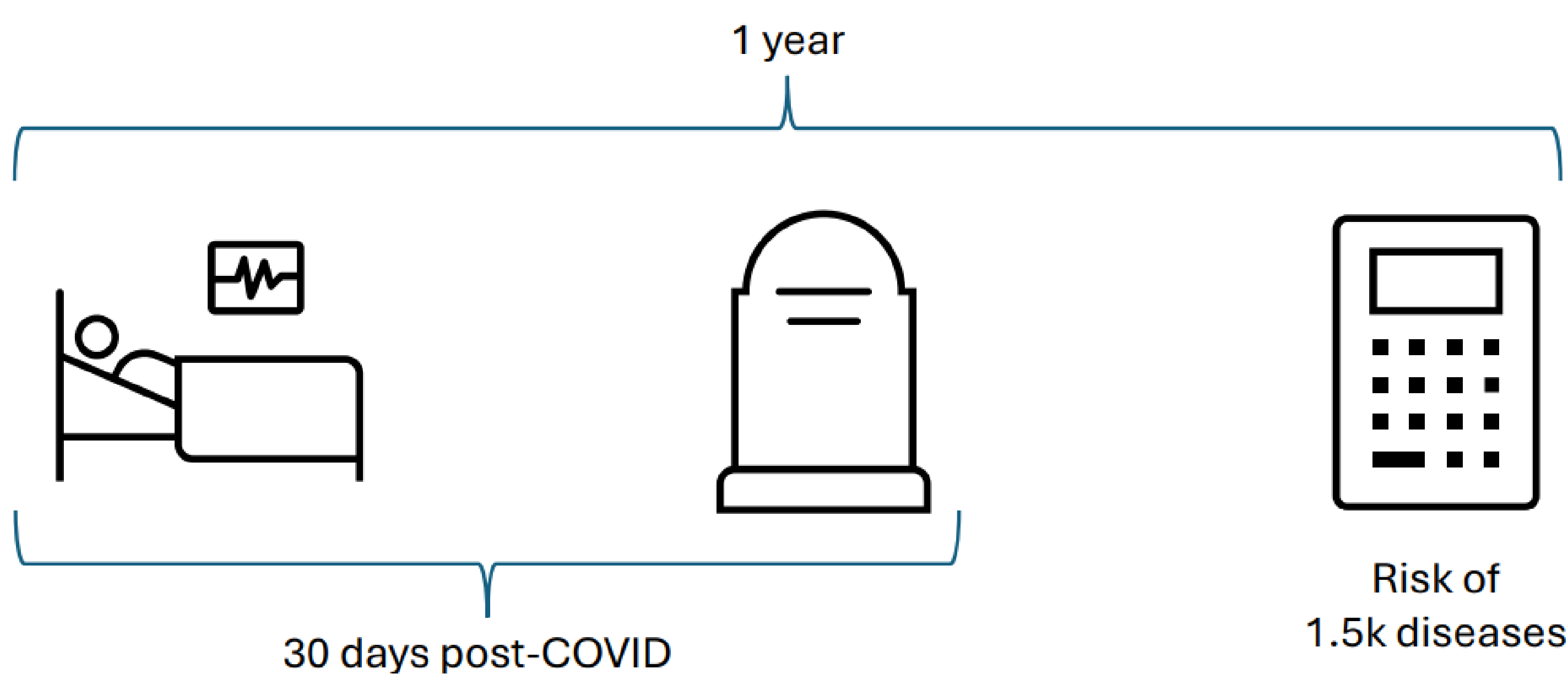


Data

- 40k vocabulary
- Diagnoses, operations, medications etc...
- 51M patients
- 13B events



Initial Evaluation



Applications

- Demand forecasting
- Risk prediction and patient stratification
- Counterfactual 'trial emulation'