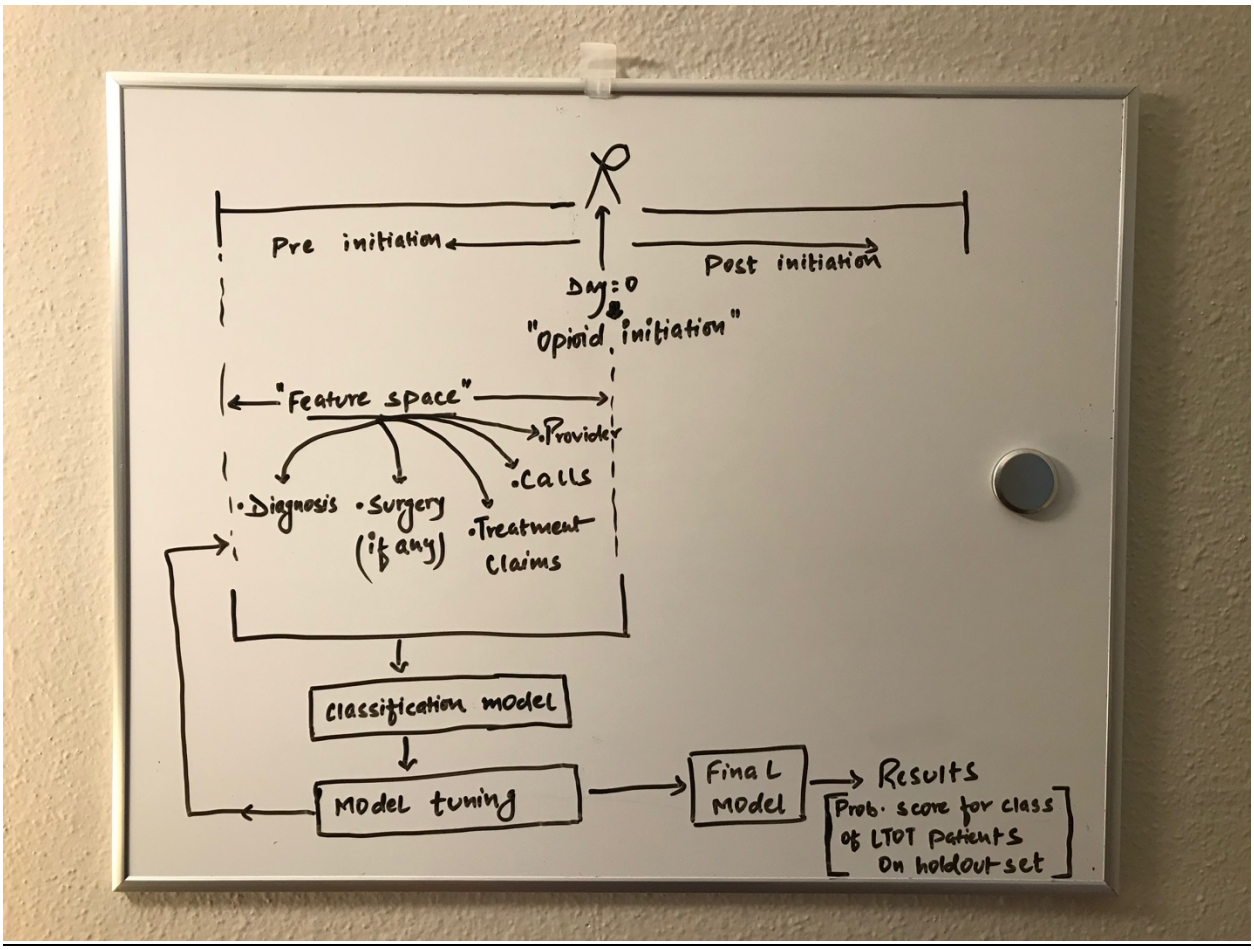
HUMANA-MAYS CASE SUMMARY



Problem Statement: For a patient who is taking opioid on day zero, model is predicting the chances of the patient being 'on-hand' in next 180 days.

Approach: Based on the diagnosis and treatment history of a patient till day zero our model is trying to flag patients LTOT on day zero. To identify a patient as a LTOT patient our model is taking into account all the data present for that particular patient before day zero. The entire event history for a patient is broadly classified into four major buckets –

- **Diagnosis events**
  - Captures patient's diagnosis history for example what kind of diagnosis a patient is going through, when was the last diagnosis taken before day 0, expenditure on diagnosis etc.
- **Surgery events**
  - Captures surgery history for a patient (if he has any) for example when was the last time a surgery happened etc.
- **Treatment events**
  - Rx claims related history for example what different kind of treatments a patient is taking. We categorized the medicine taken into 3 broad categories – opioids, other pain treating drugs and others. All features such as cost, days on therapy, MME intake (for opioid claims only) etc were summarized for the 3 categories

- **Calls (by member or other)**
    - Patient's interaction with the provider. Features based on how many calls made by member or by the physician or others, reason for calling etc.
- **Provider change events**
    - When was the last time patient changed his/her provider etc.

Model selection and model training:

We tried RandomForest classifier to train our model. Parameters for RandomForest classifier were decided based on the results of GridSearch and based on the knowledge of the opioid market and challenges in the market

Final result:

After finalizing the model, holdout set was fitted to the model and the probability score for class 1 i.e. LTOT patients along with the rank is provided in the csv file.