

DUHS
Inpatient
General De-
compensation
Prediction

Ziyuan Shen,
Mengxuan Cui

Brief Review

Cohort
Extraction &
Outcome
Labelling

Data
Visualization

Future Work
Plan



DUHS Inpatient General Decompensation Prediction

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Duke University

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Content

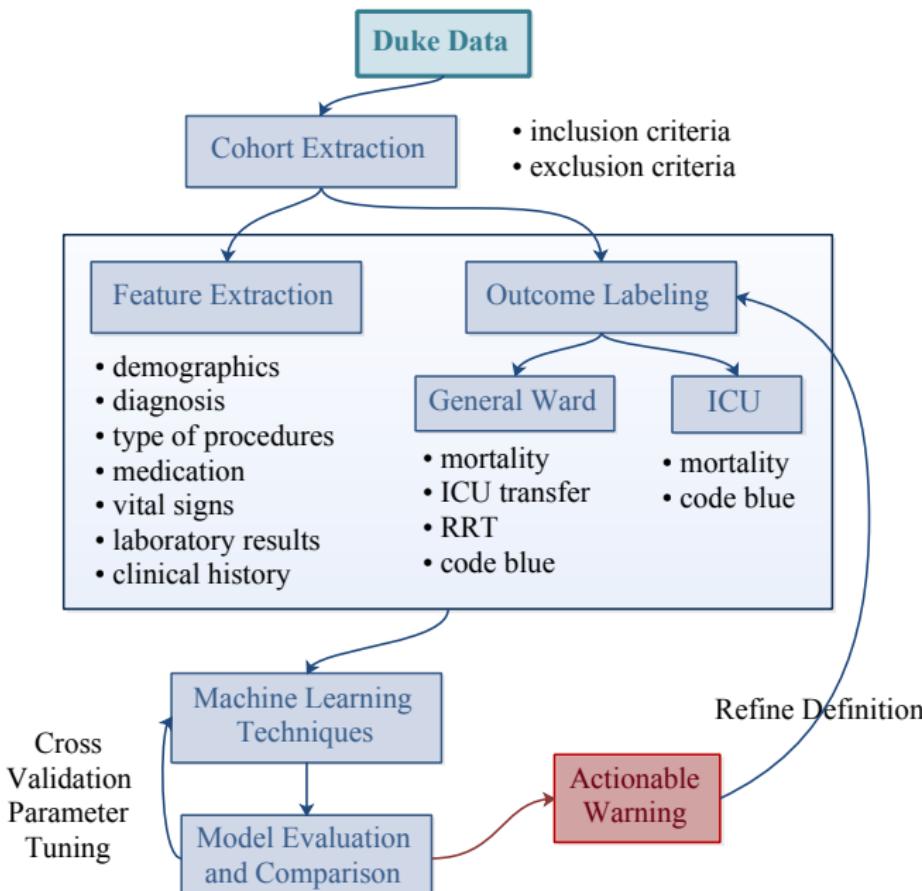
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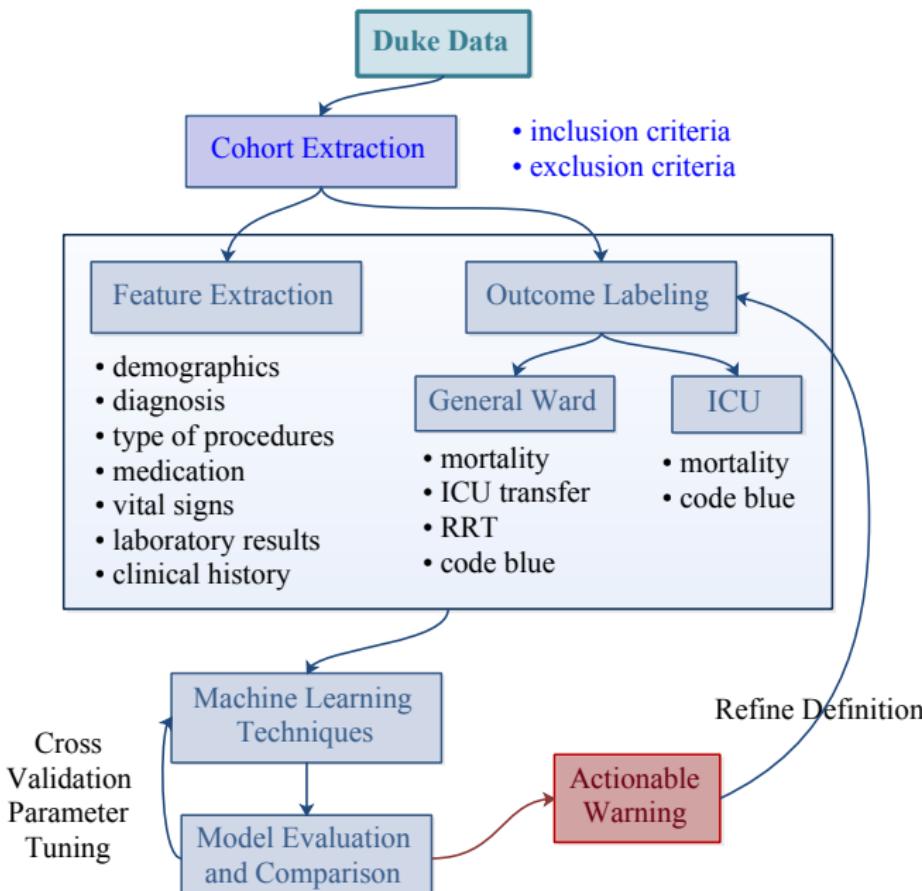
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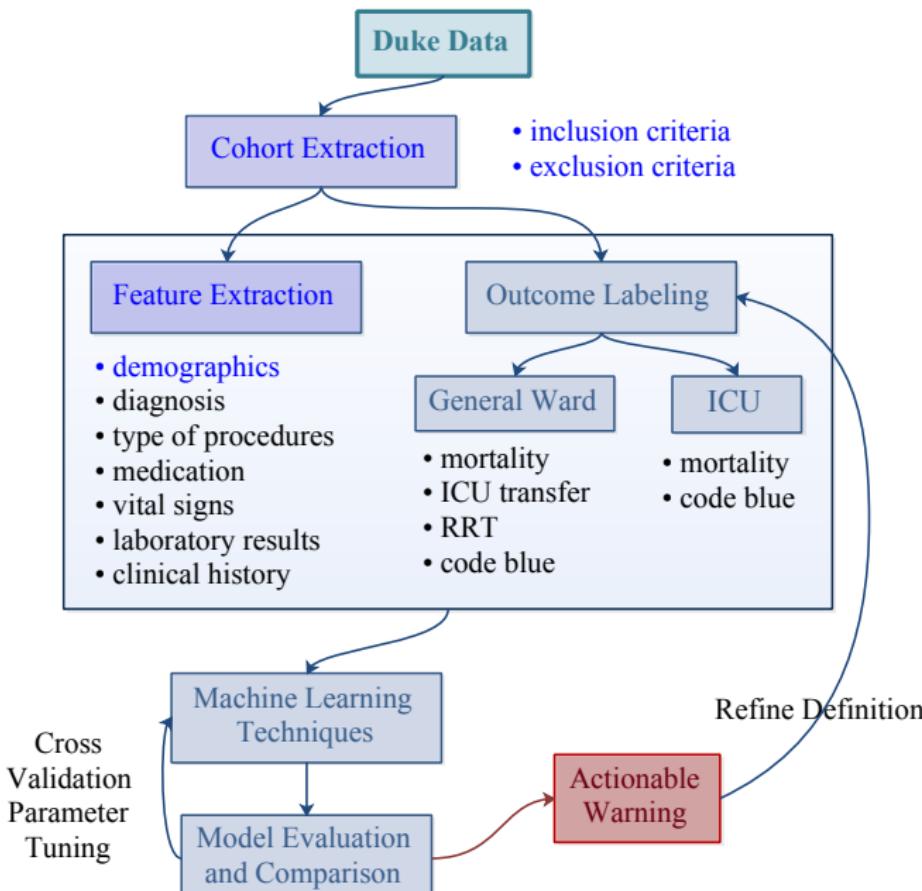
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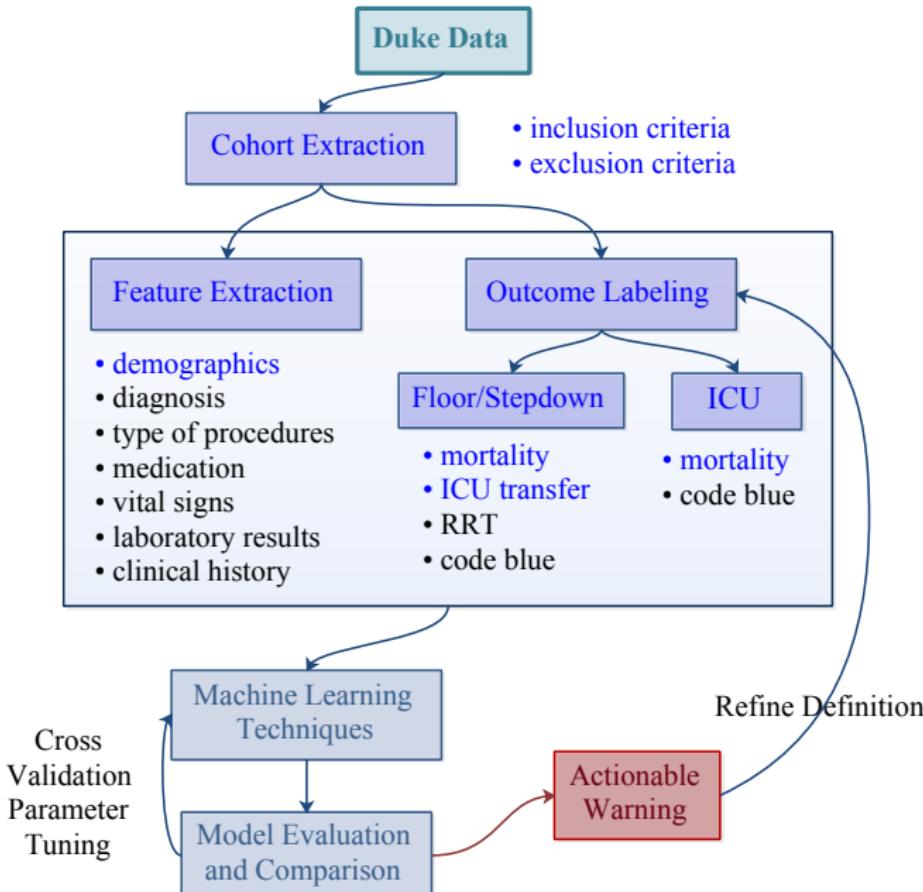
Purpose of Study

- ① Define decompensation
- ② Create a state-of-the-art of the machine learning model applied for decompensation detection
- ③ Reduce deterioration and standardize response protocols



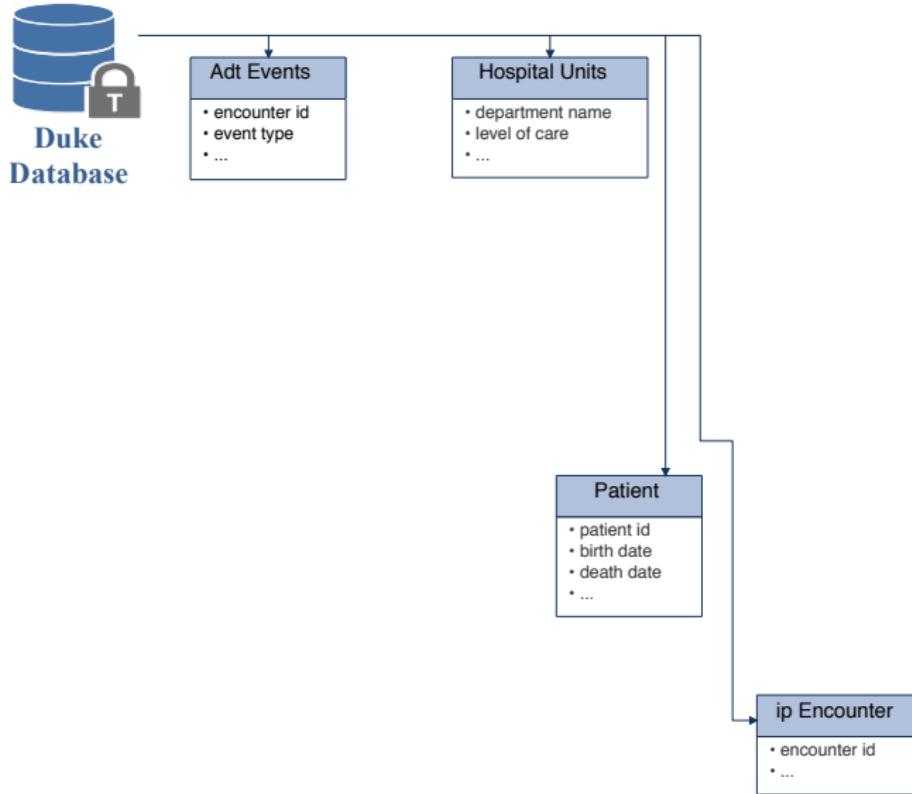


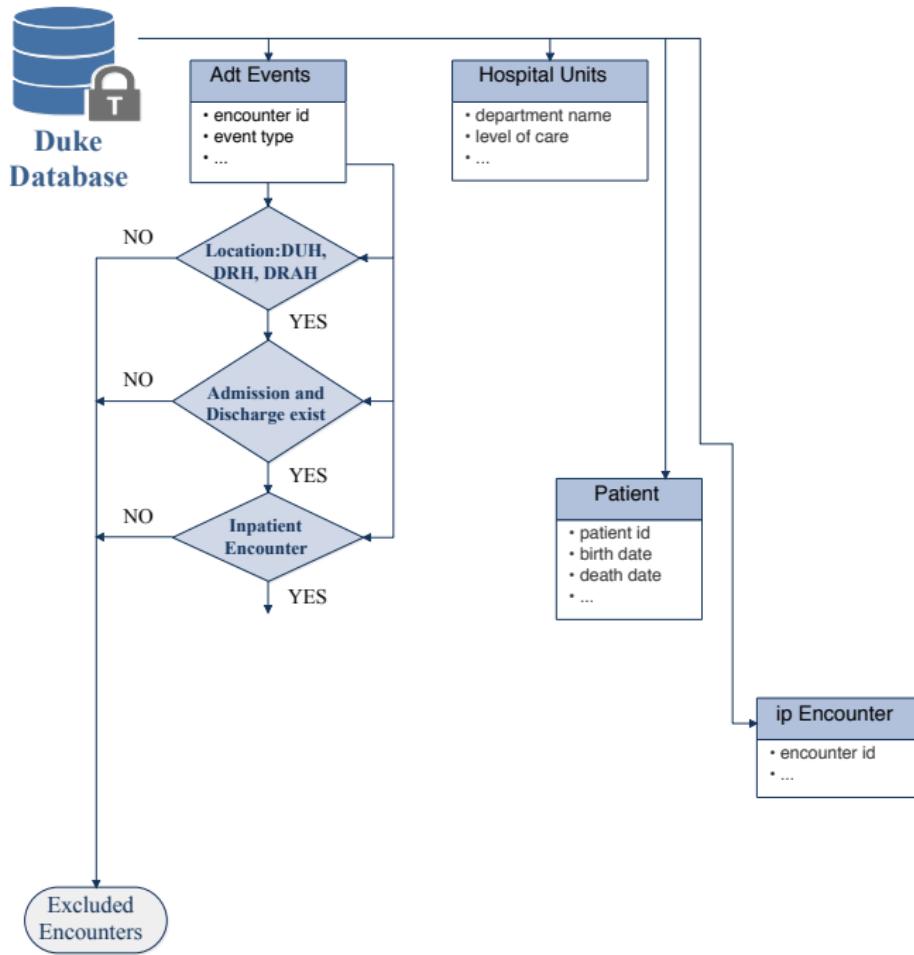


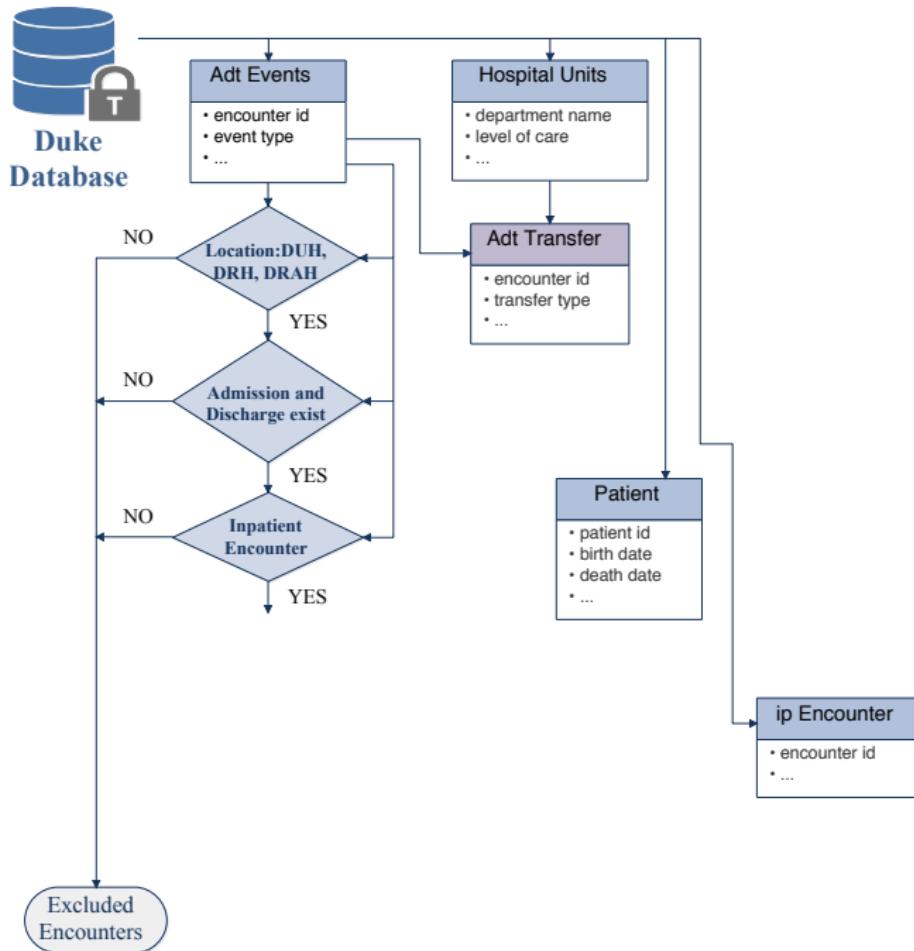


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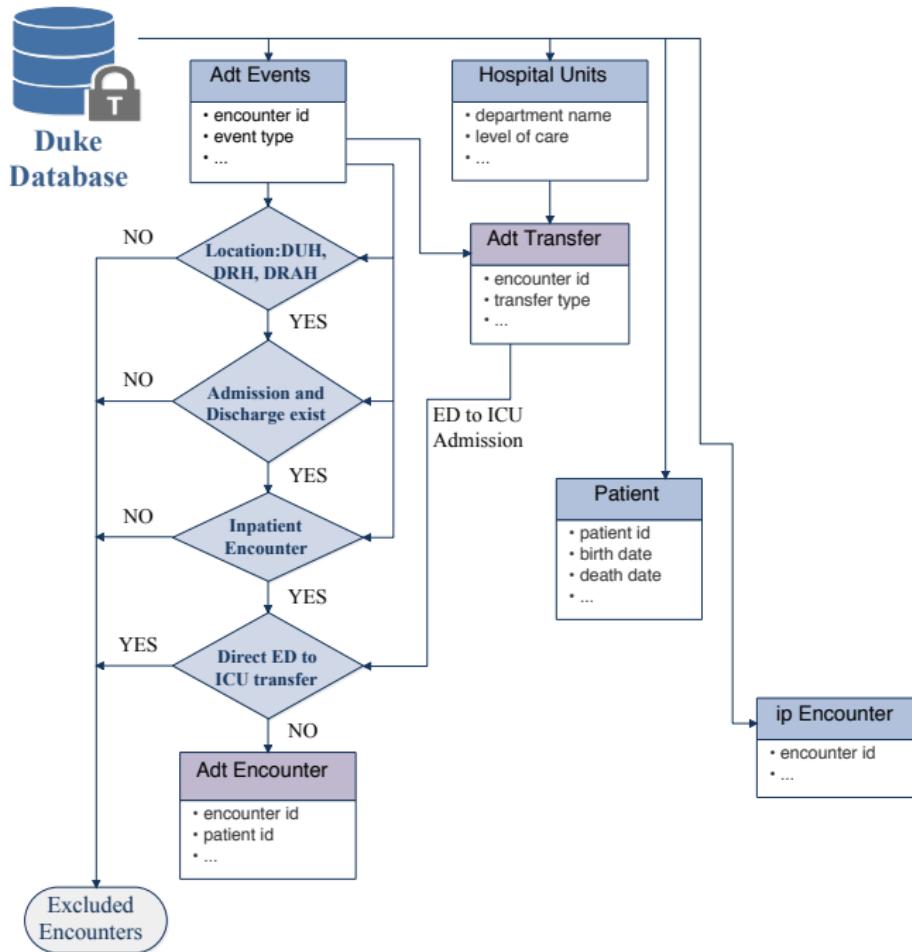
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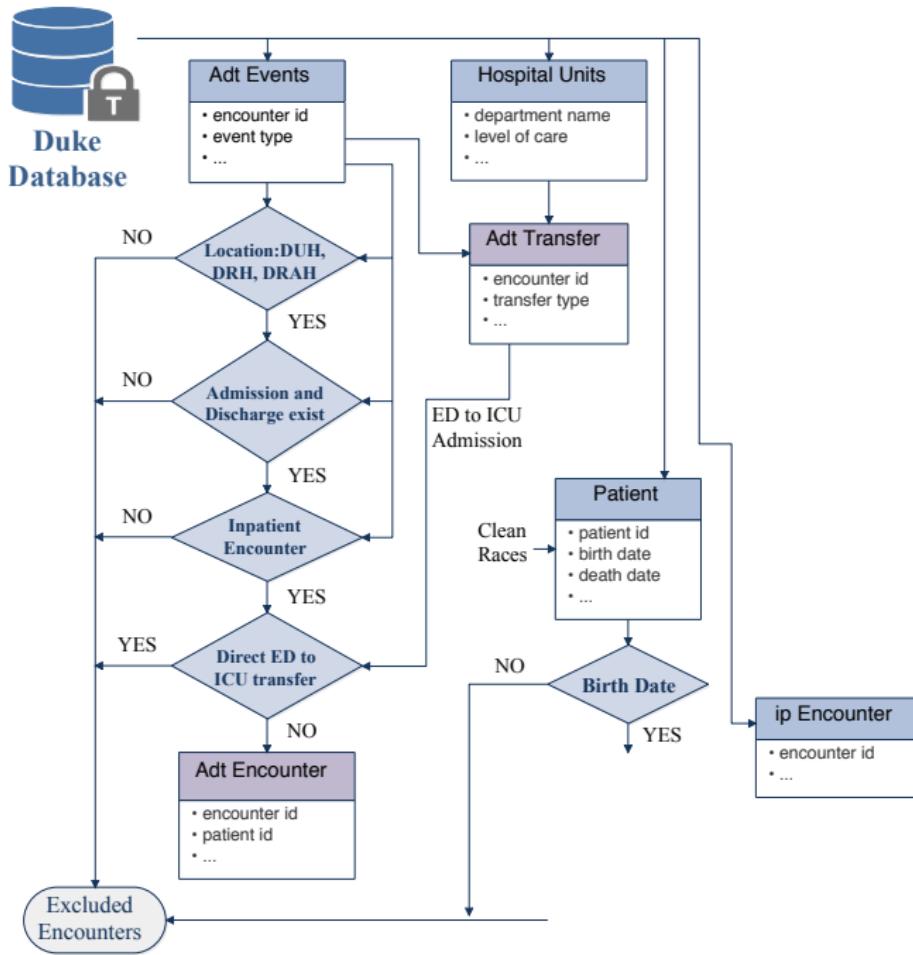
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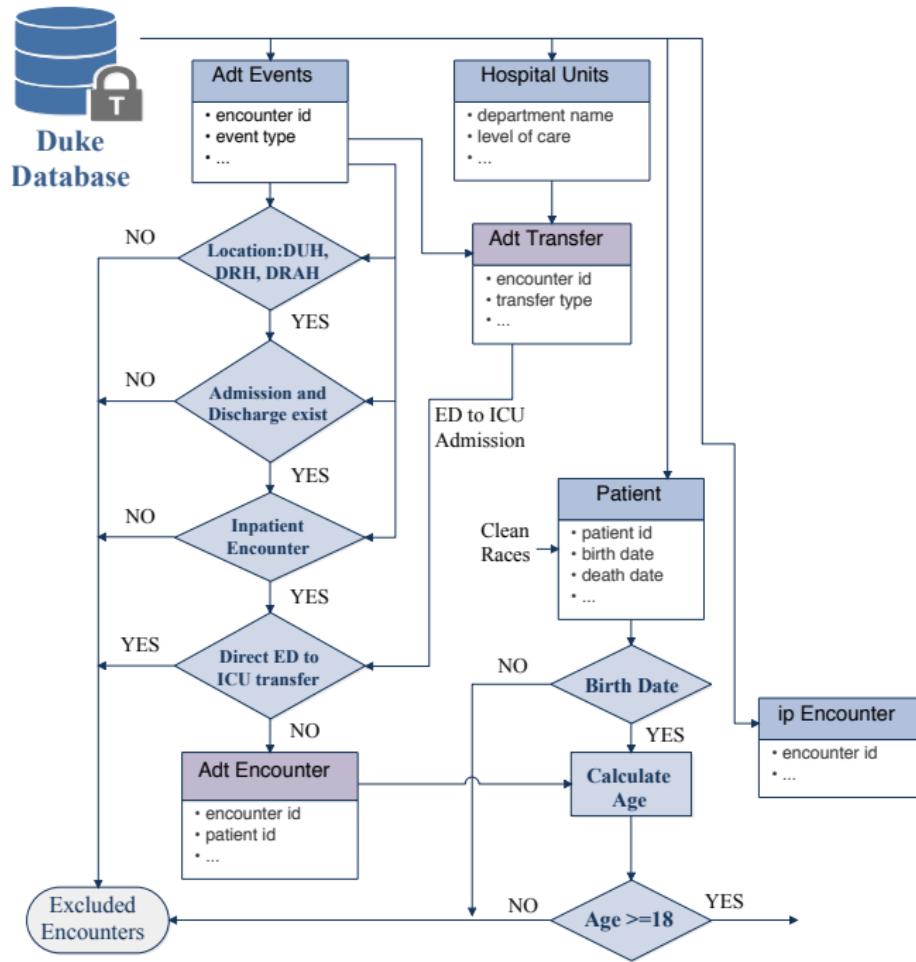
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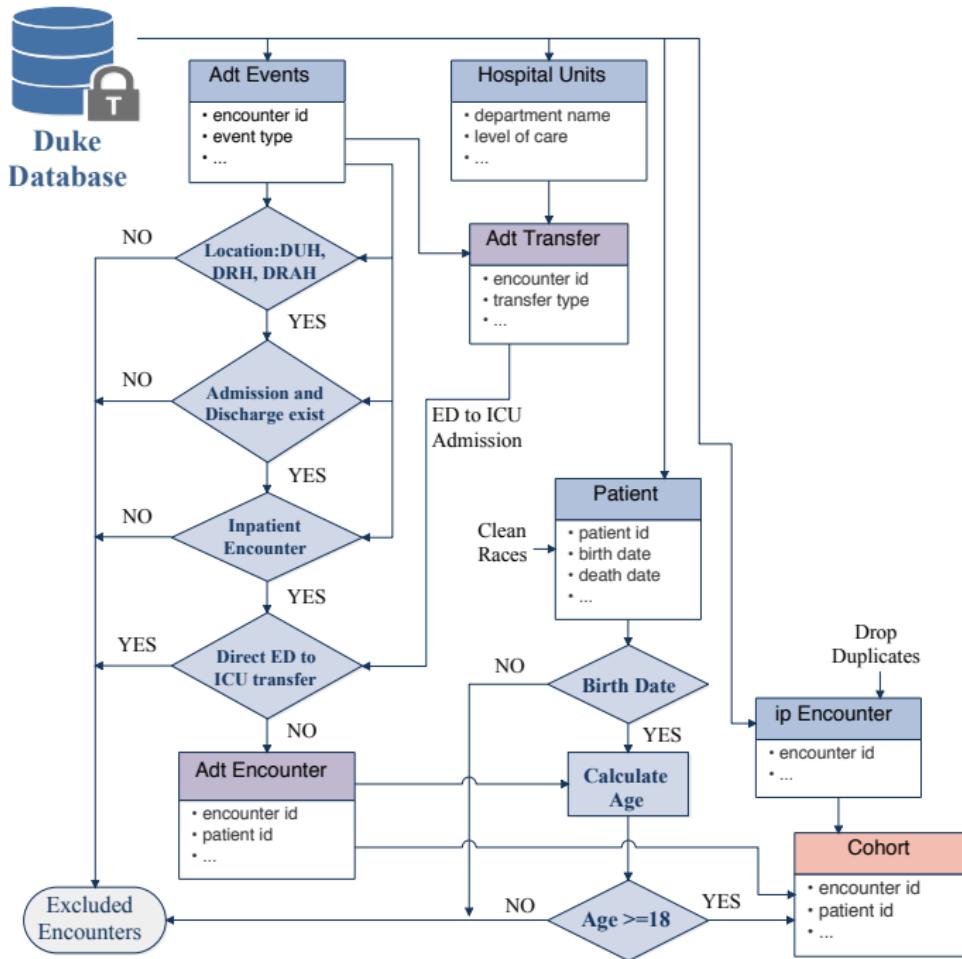
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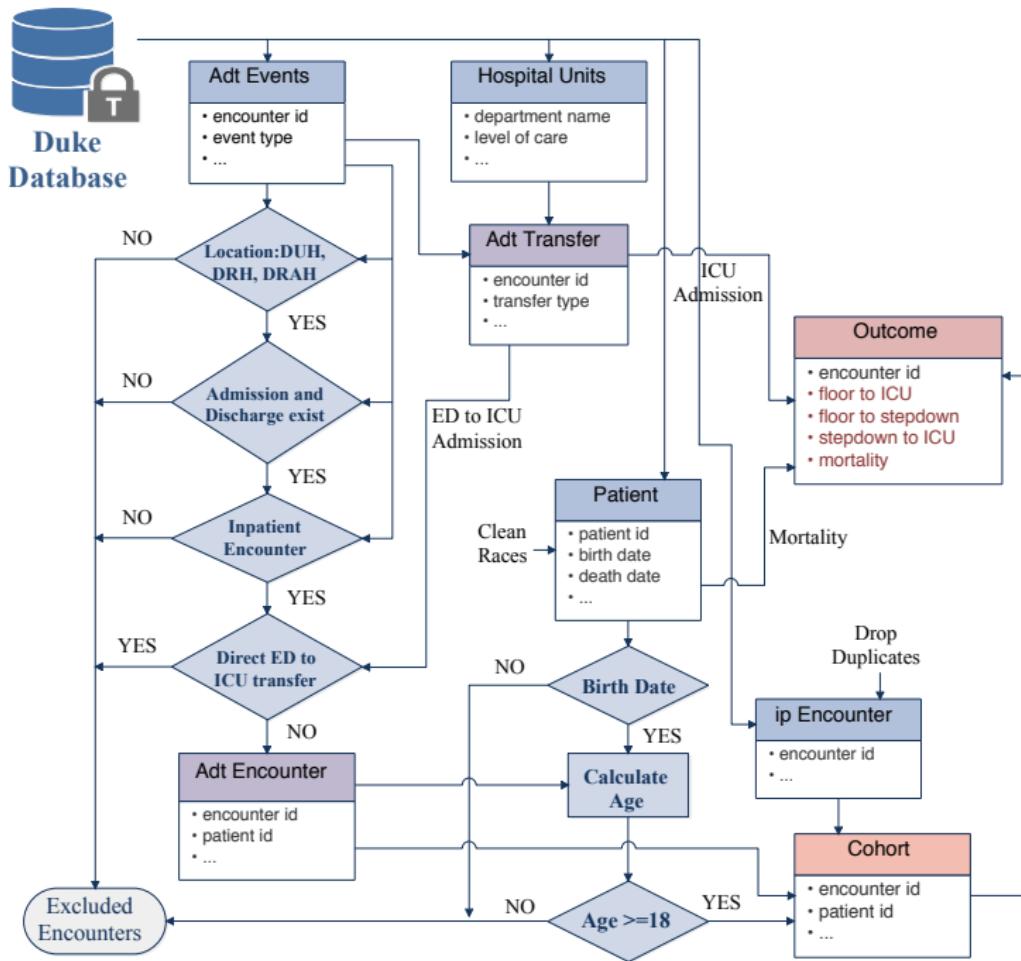
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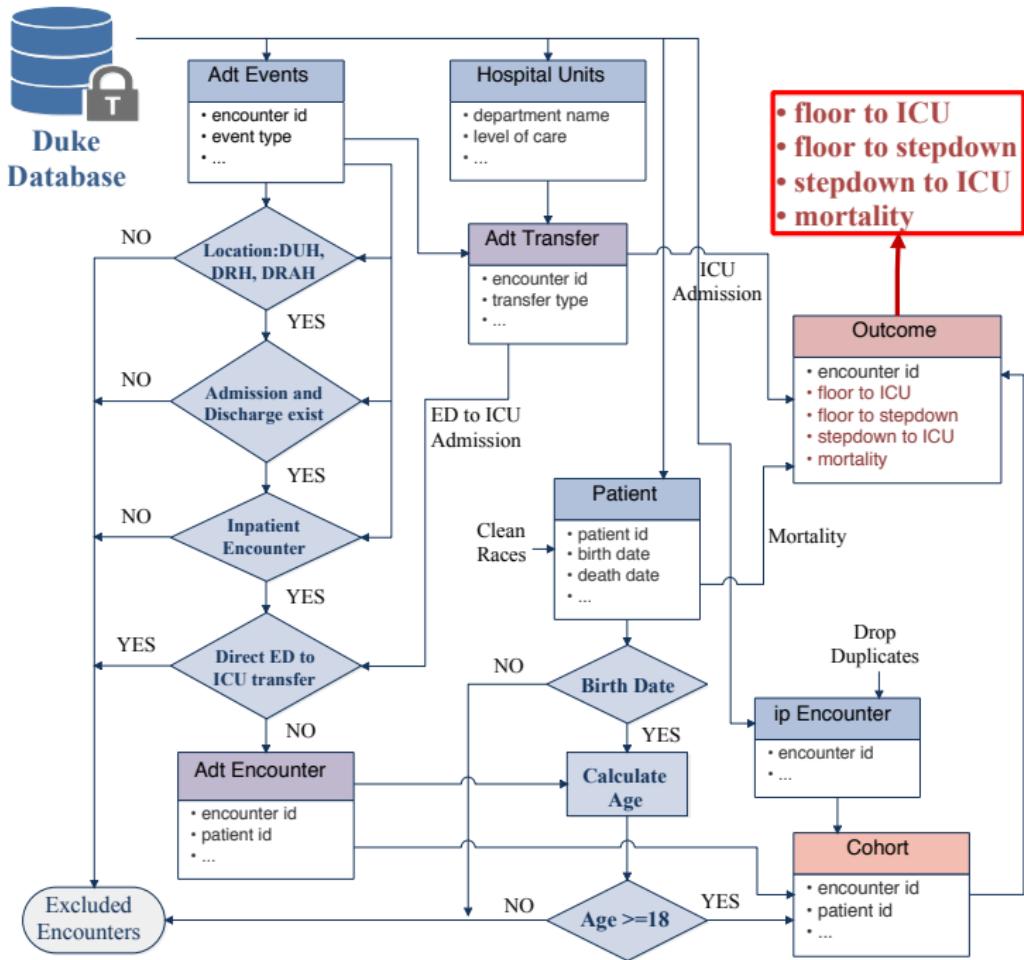
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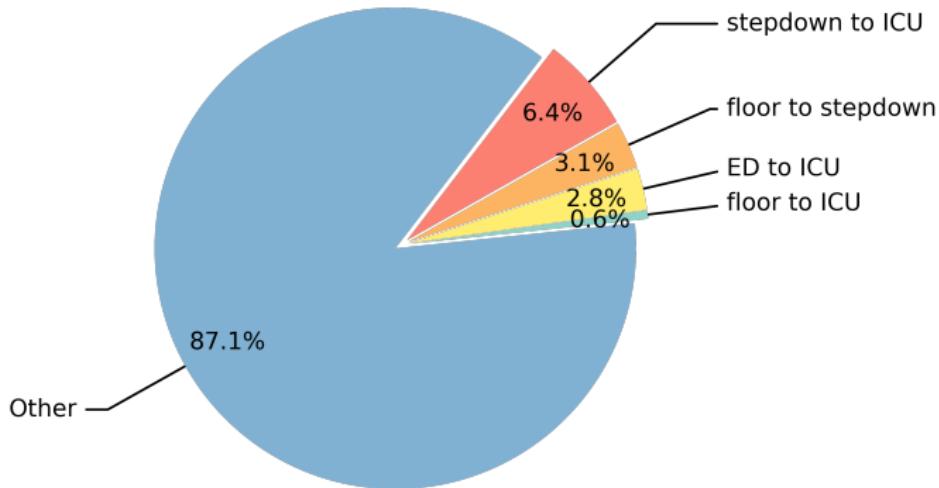


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Outcome

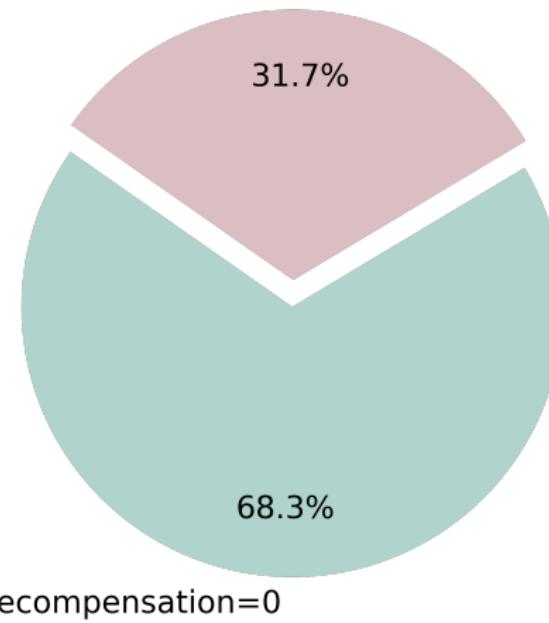
Transfer Types Percentage Across All Unit Transfers



Outcome

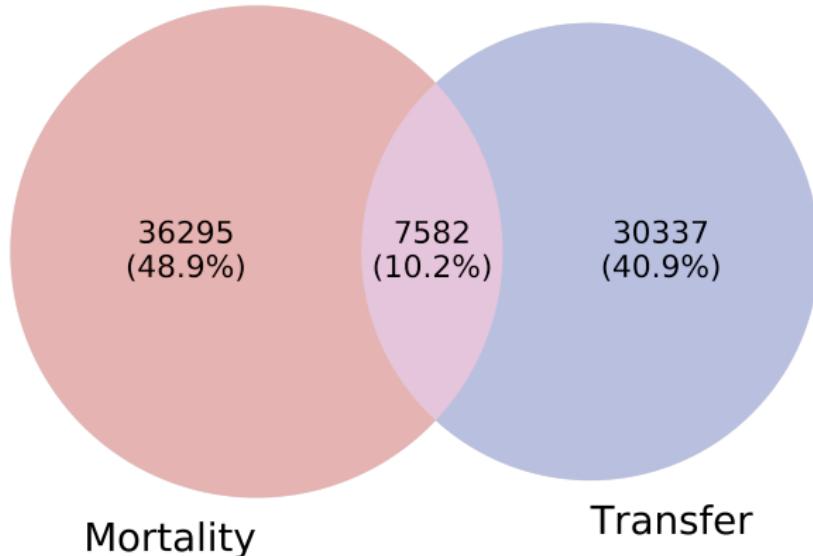
Cohort Decompensation Across Encounters

decompensation=1



Outcome

Decompensation Composition

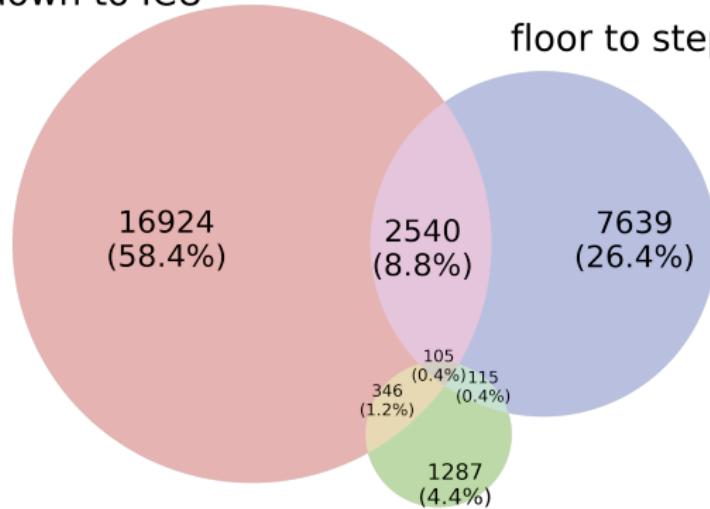


Outcome

Transfer Type Composition

stepdown to ICU

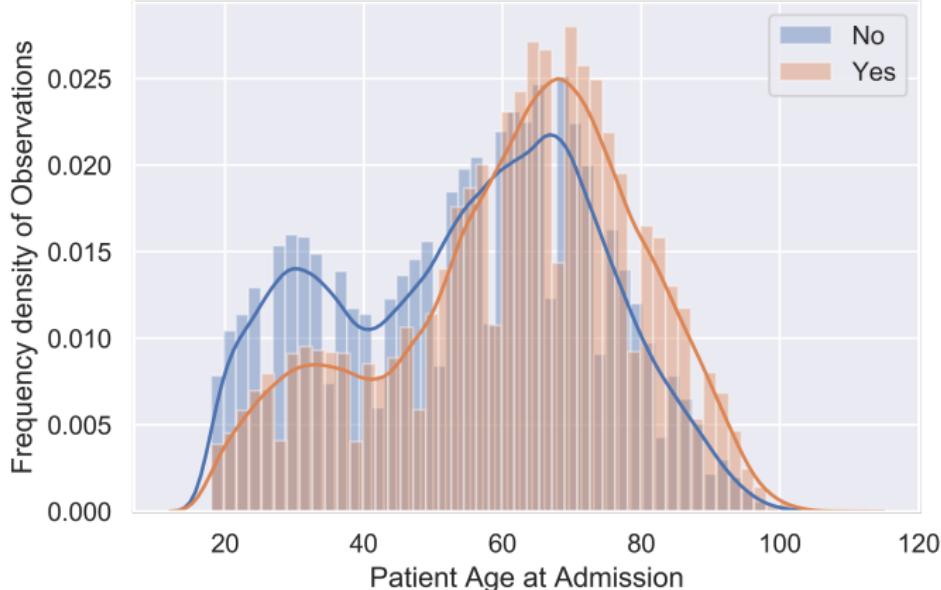
floor to stepdown



floor to ICU

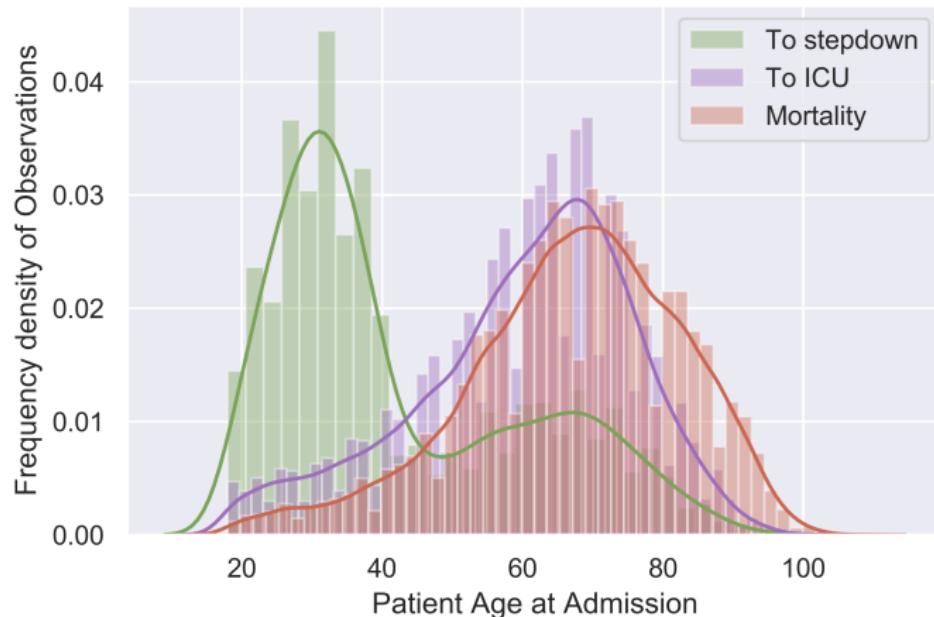
Demographic: age

Distribution of Patient Age Across Decompensation Occurrence



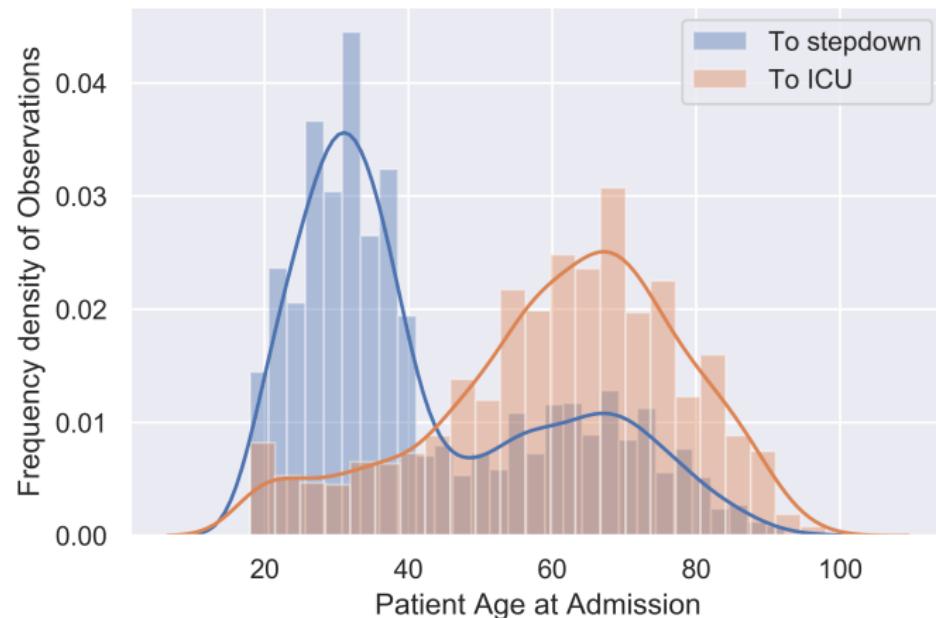
Demographic: age

Distribution of Patient Age Across Cohort
Suffered Decompensation



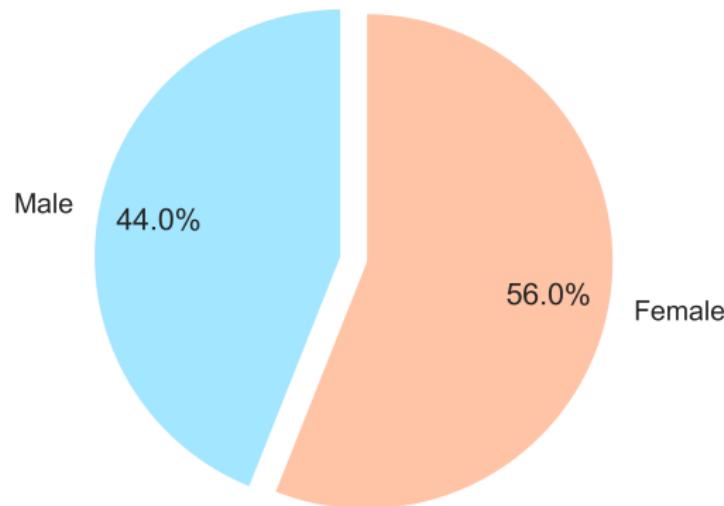
Demographic: age

Distribution of Patient Age Across Cohort
Transferred out from Floor

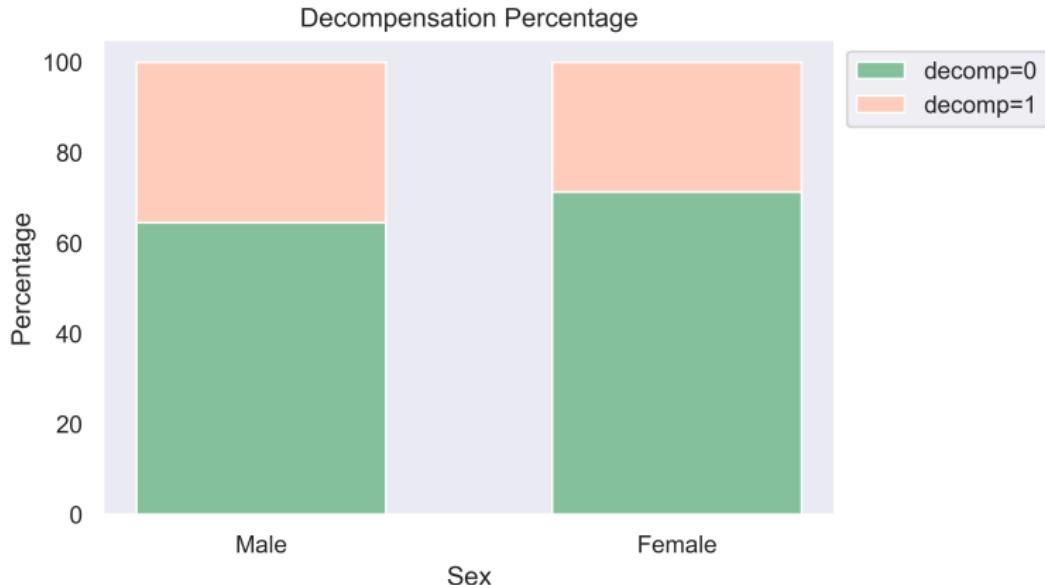


Demographic: gender

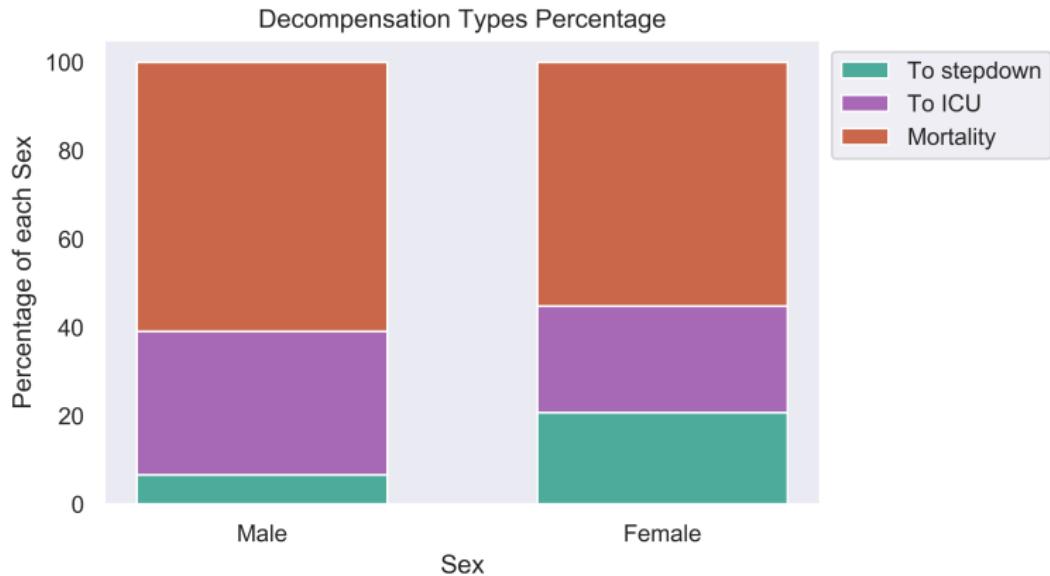
Patient Sex Across Encounters



Demographic: gender

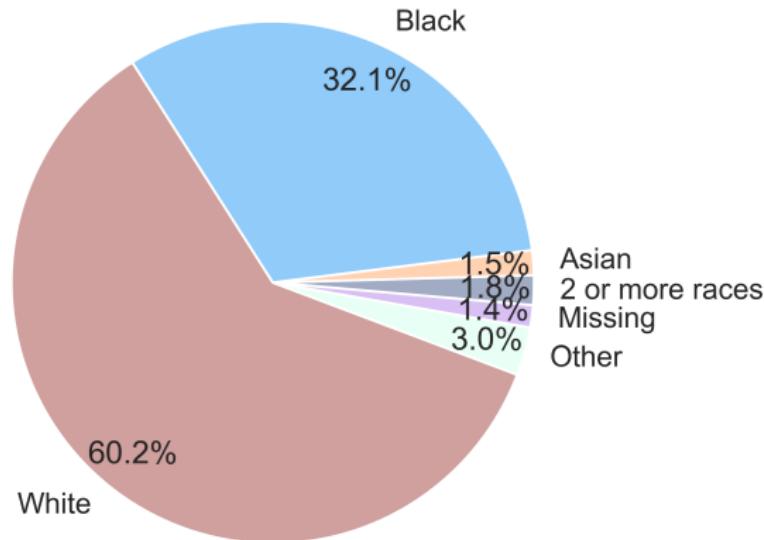


Demographic: gender



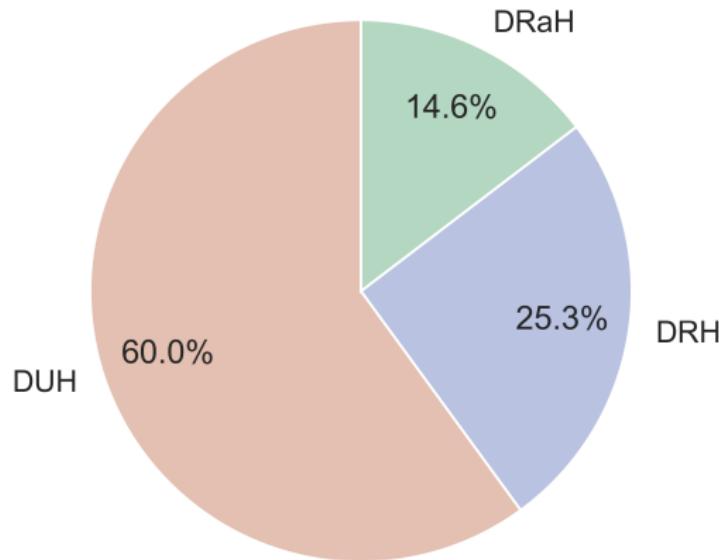
Demographic: race

Patient Race Across Encounters

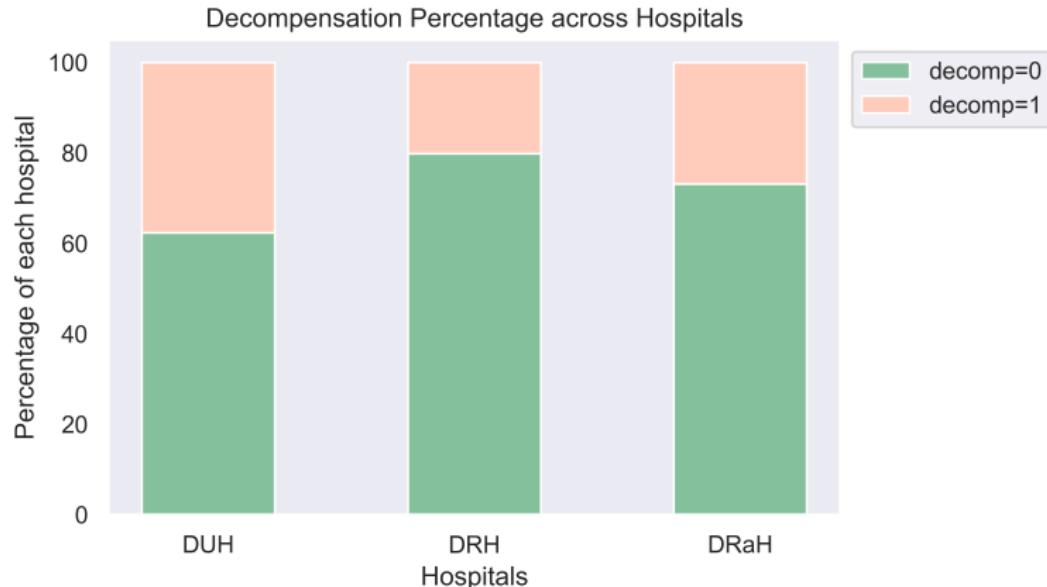


Admission Hospital

Encounters in Each Hospital

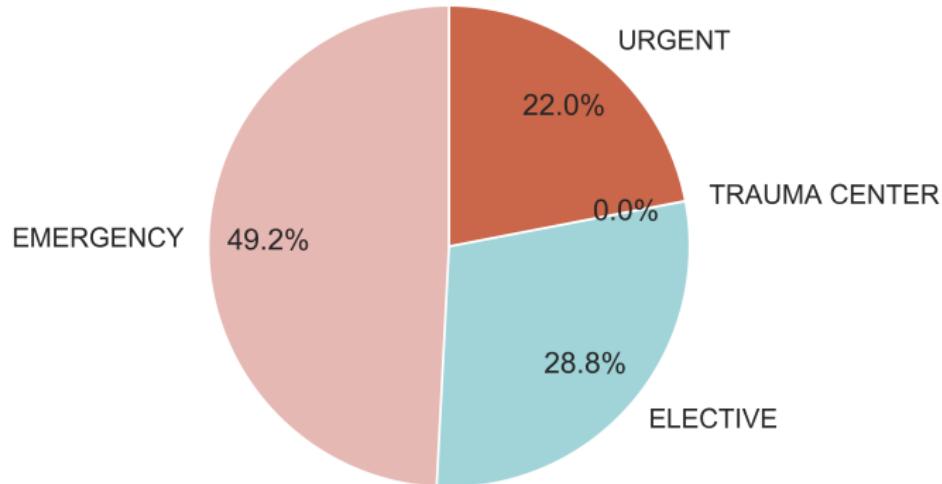


Admission Hospital

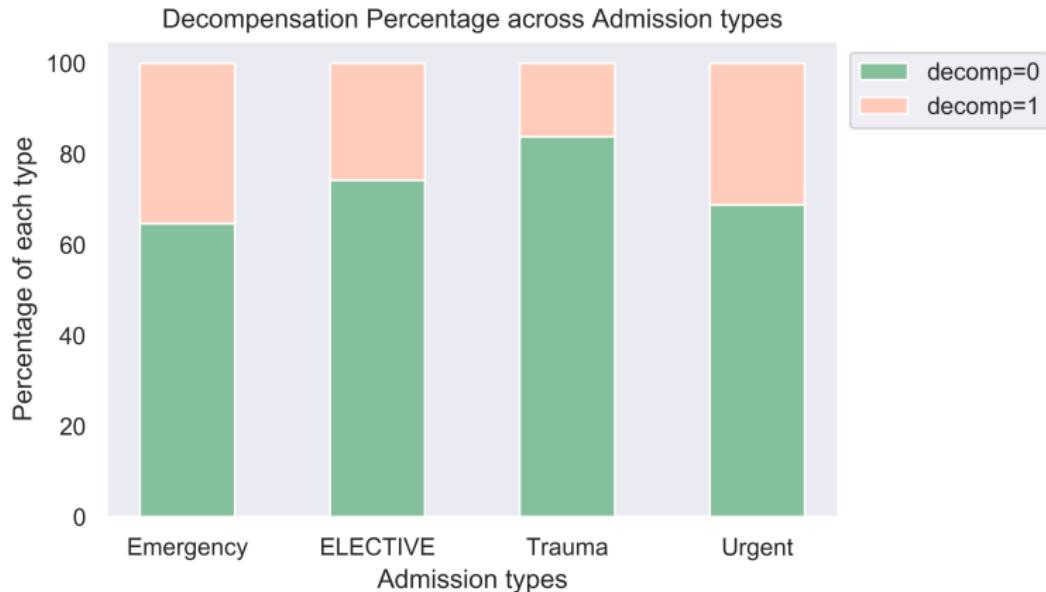


Admission Type

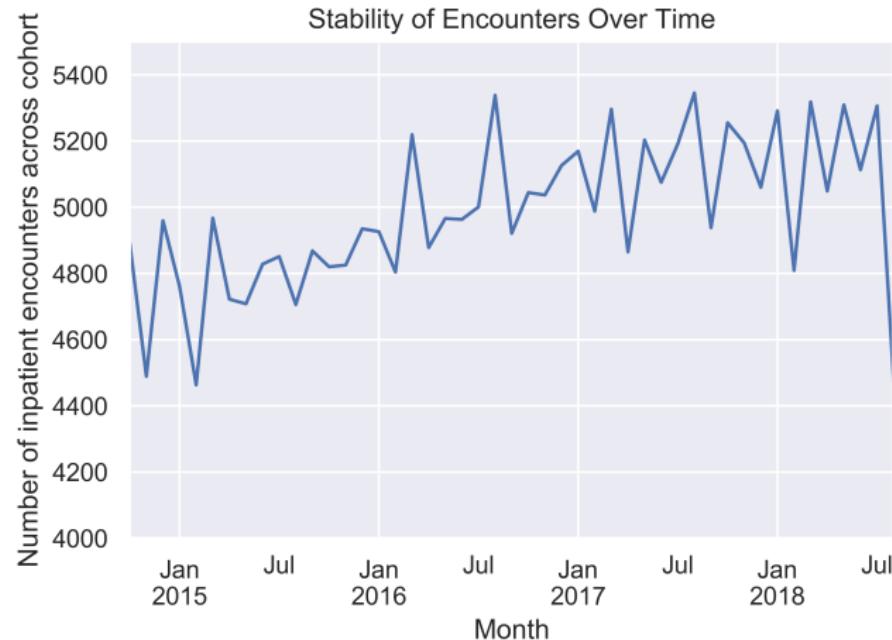
Admission Type Across Encounters



Admission Type

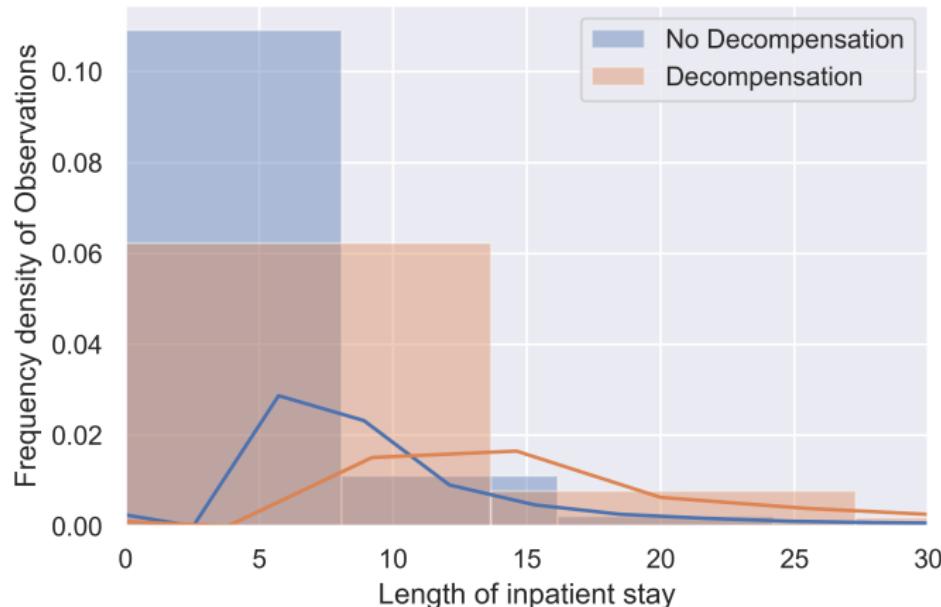


Stability of Encounters



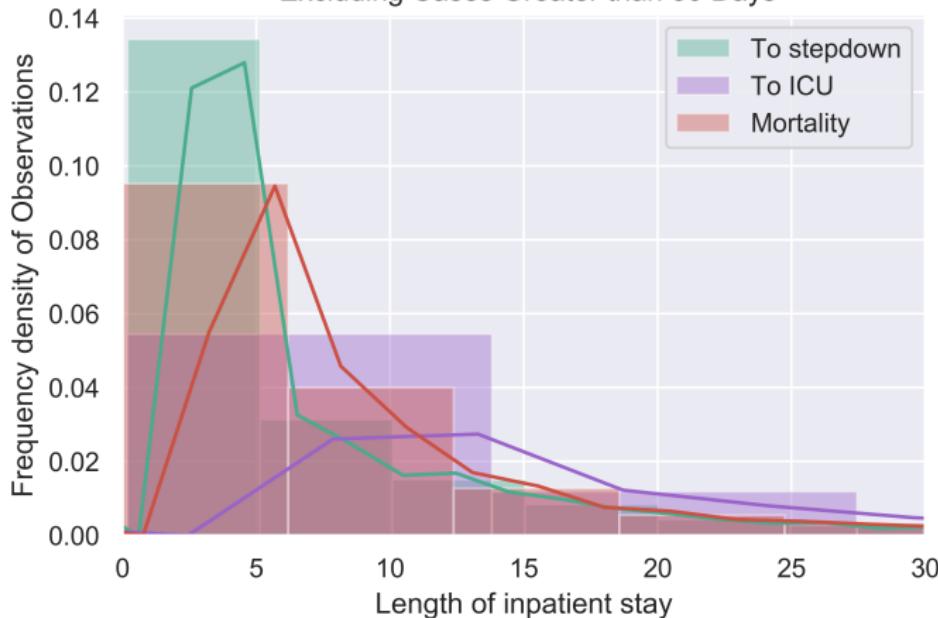
Length of Stay

Distribution of Inpatient LOS (days) Across Cohort
Excluding Cases Greater than 30 Days



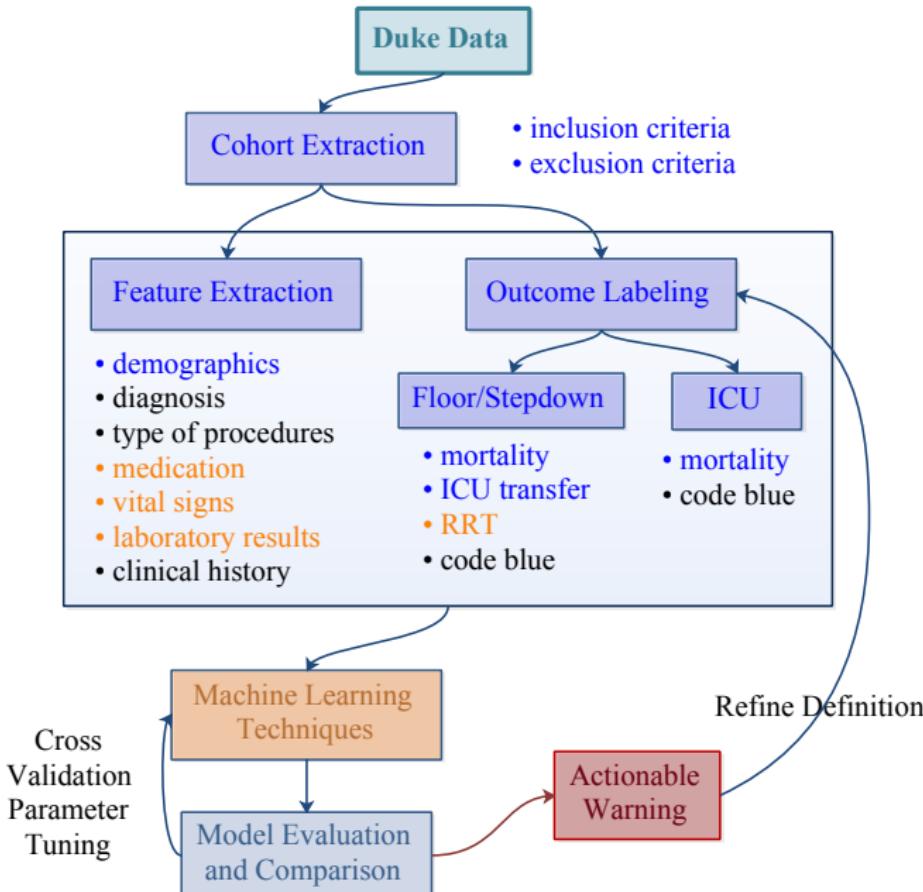
Length of Stay

Distribution of Inpatient LOS (days) Across
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Thank you for listening!

Q&A