



University of Glasgow | School of  
Computing Science

THE AWARDS  
2020

UNIVERSITY  
OF THE YEAR

# Relation of Catheterization to Mortality – Data Extraction

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Lead of the Computing Technologies for Healthcare Theme

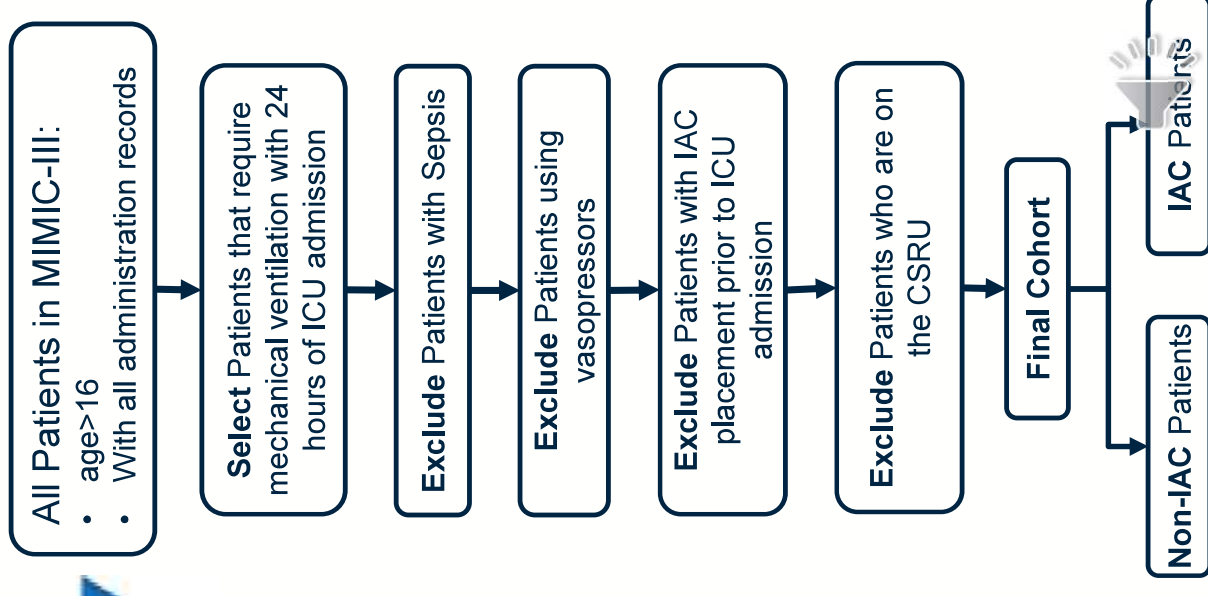
<https://www.gla.ac.uk/schools/computing/staff/fanideligianni>

WORLD  
CHANGING  
GLASGOW



# Flowchart of Patient Inclusion

- Flowchart of patient inclusions
- Data queries involved in inclusion and exclusion criteria
- Real-scale exercise to extract data from a clinical database



# Flowchart of Patient Inclusion

All Patients in MIMIC-III:

- age > 16
- With all administration records

Select Patients that require mechanical ventilation with 24 hours of ICU admission

Exclude Patients with Sepsis

Exclude Patients using vasopressors

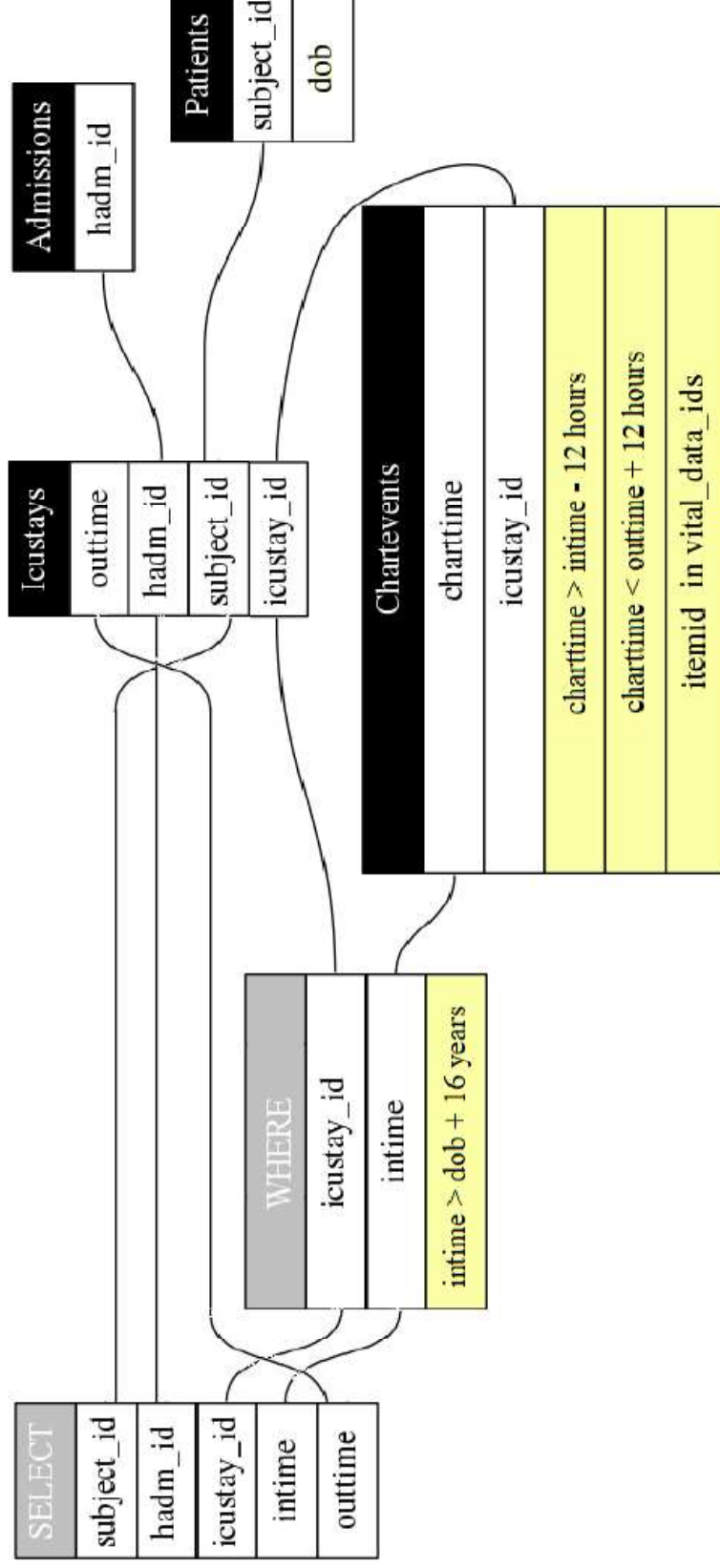
Exclude Patients with IAC placement prior to ICU admission

Exclude Patients who are on the CSRU

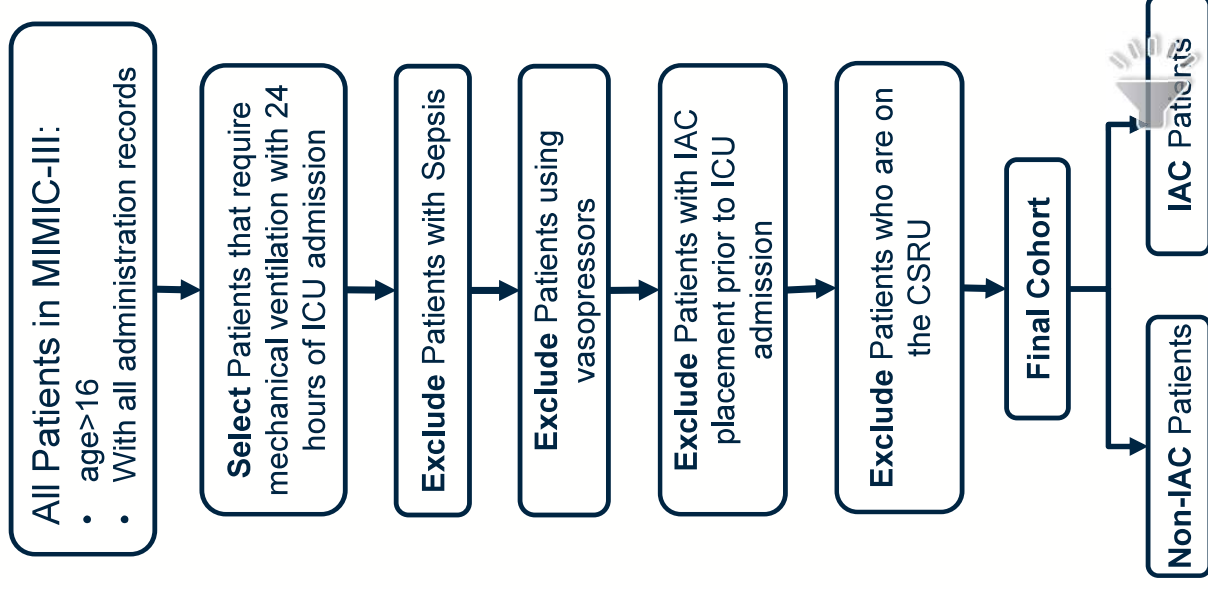
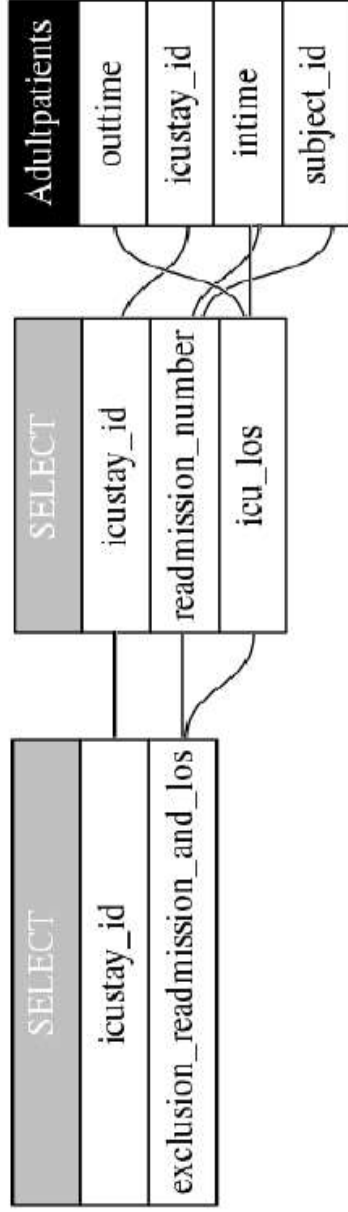
Final Cohort

Non-IAC Patients

IAC Patients

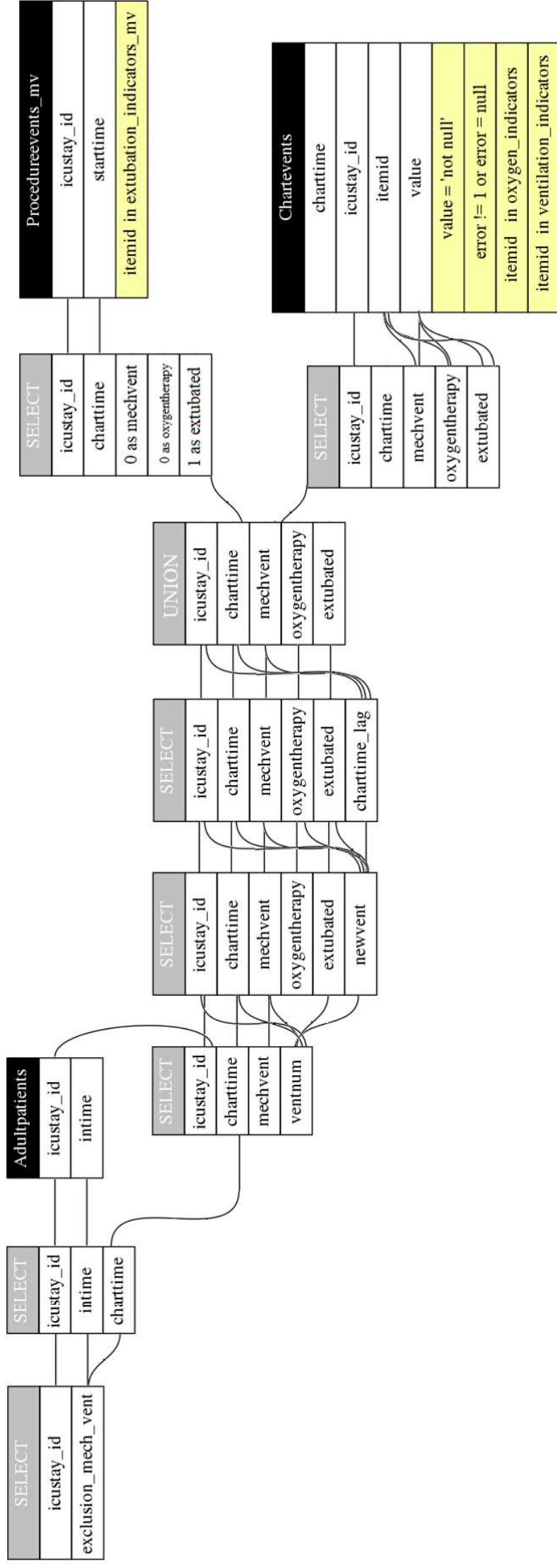


# Exclude Readmissions

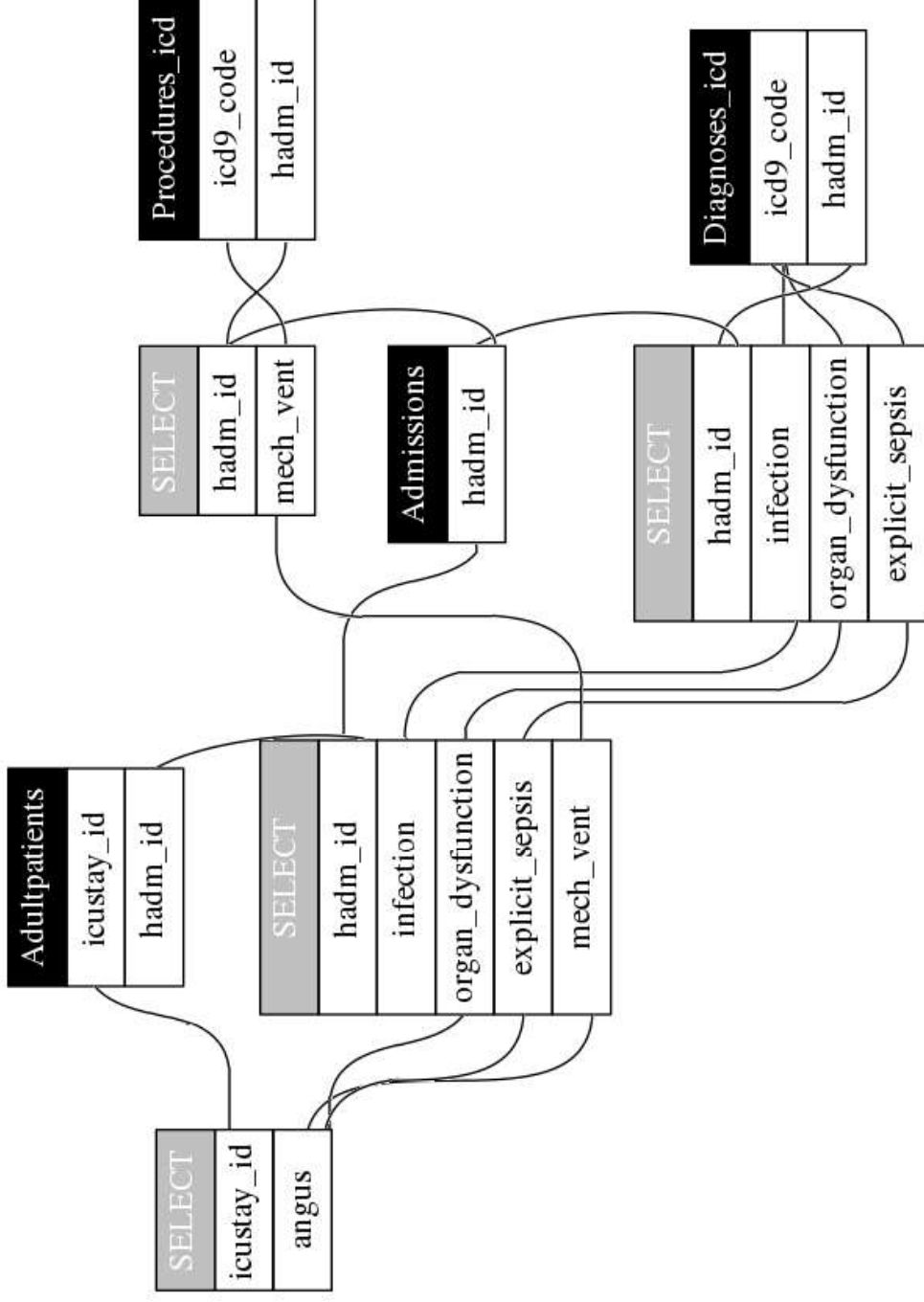




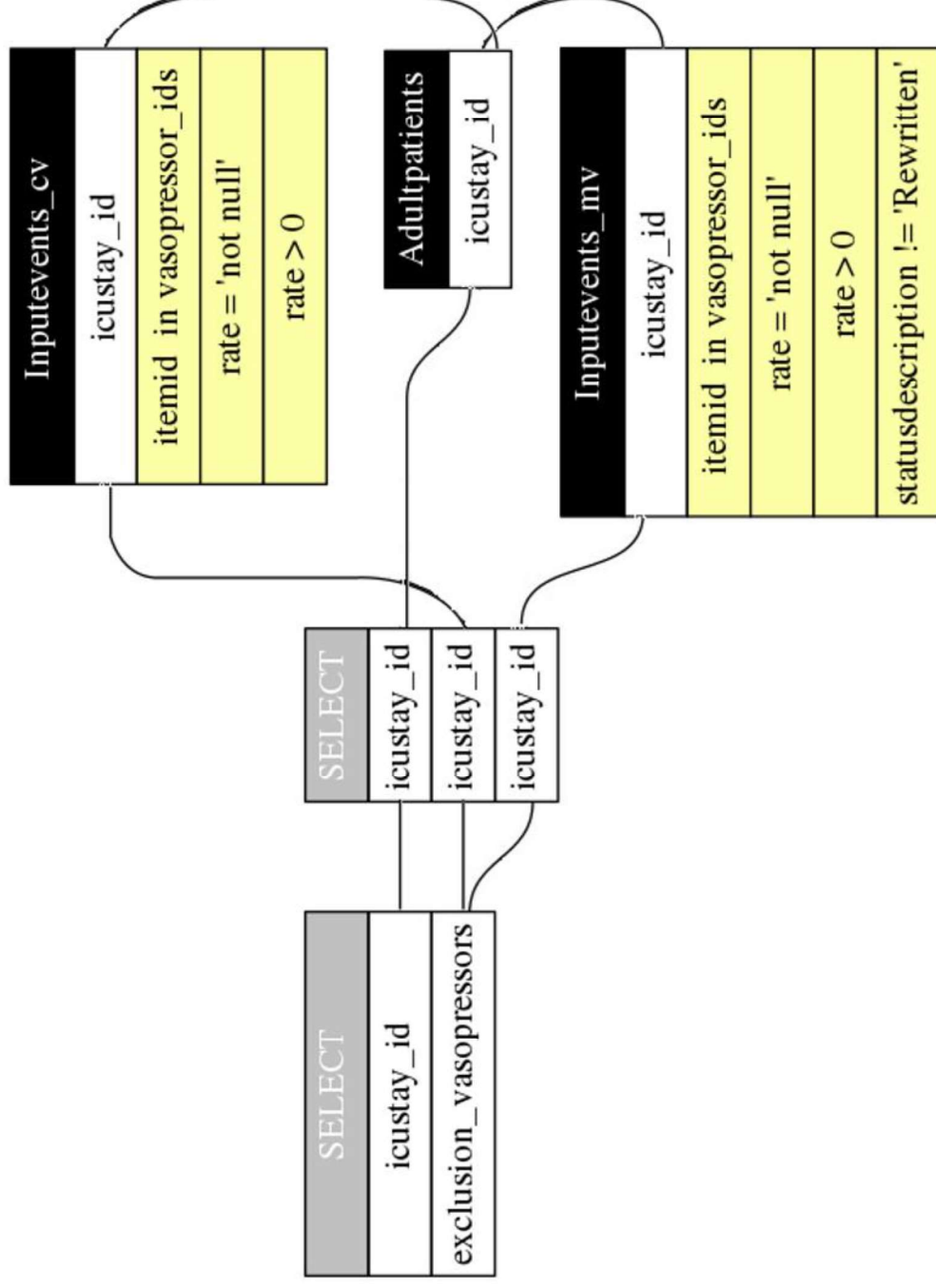
# Patients Requiring Ventilation



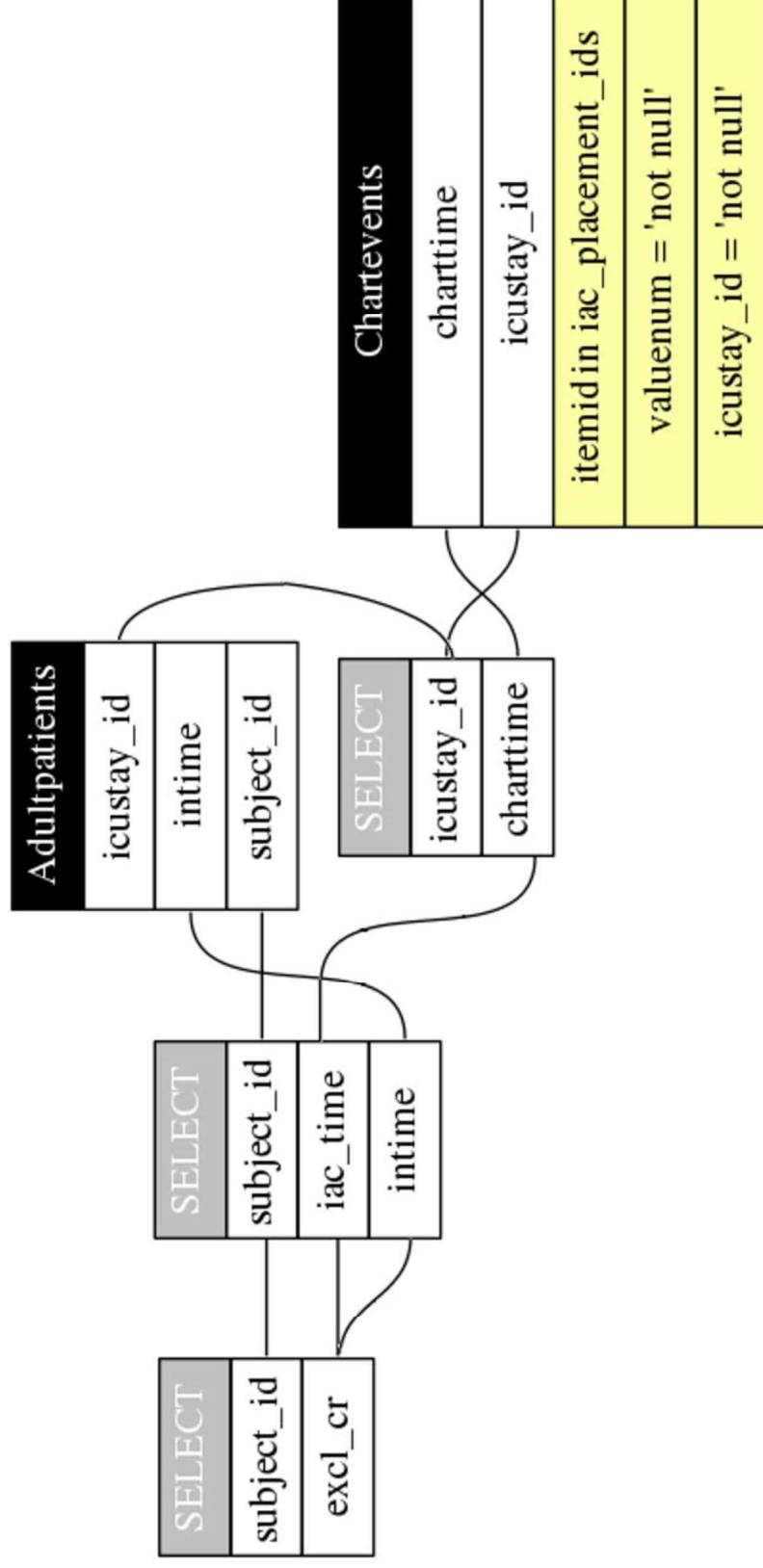
# Exclude Patients with Sepsis



# Exclude Patients with Vasopressors

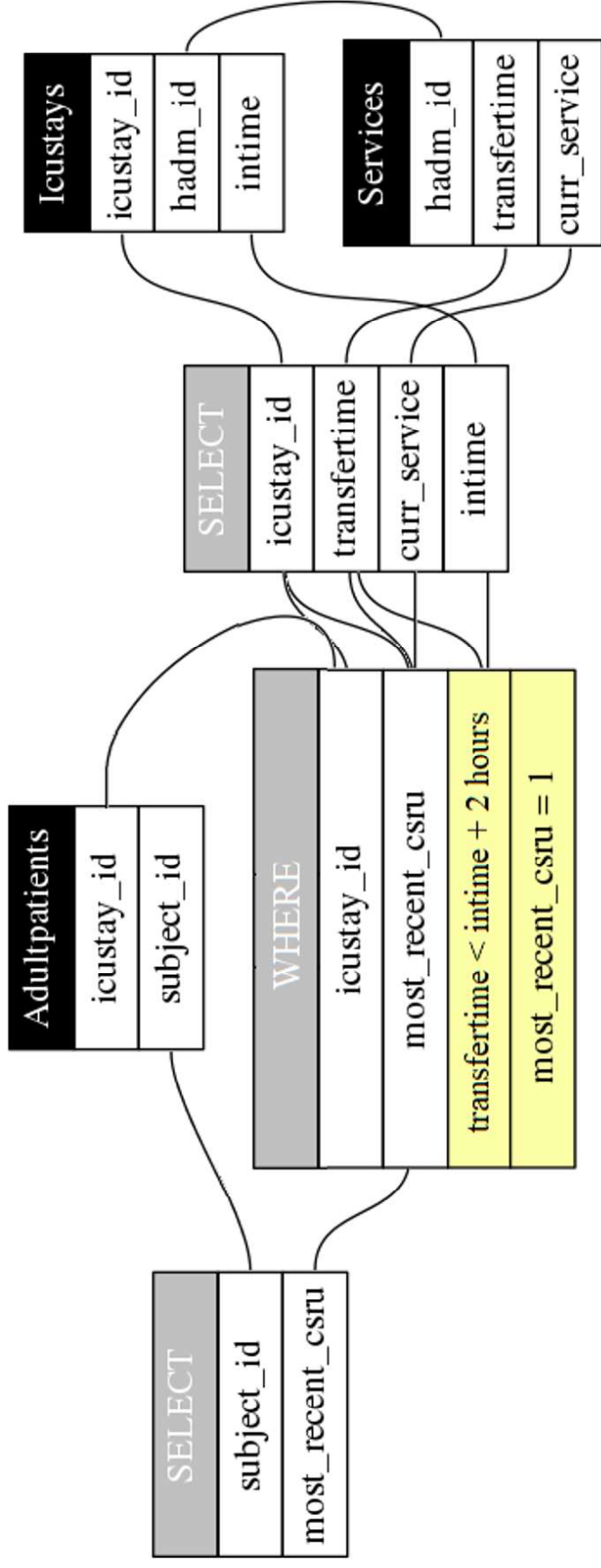


# Patients with IAC placed

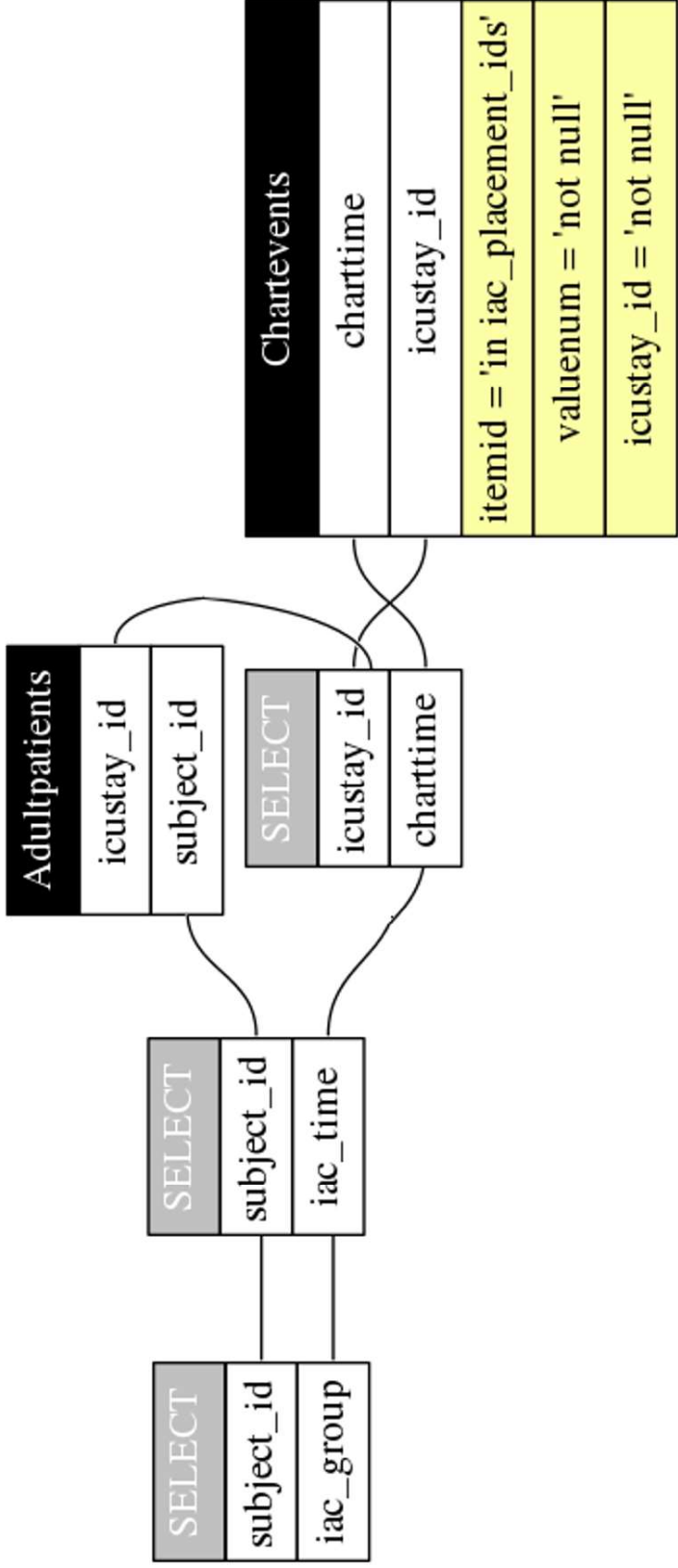
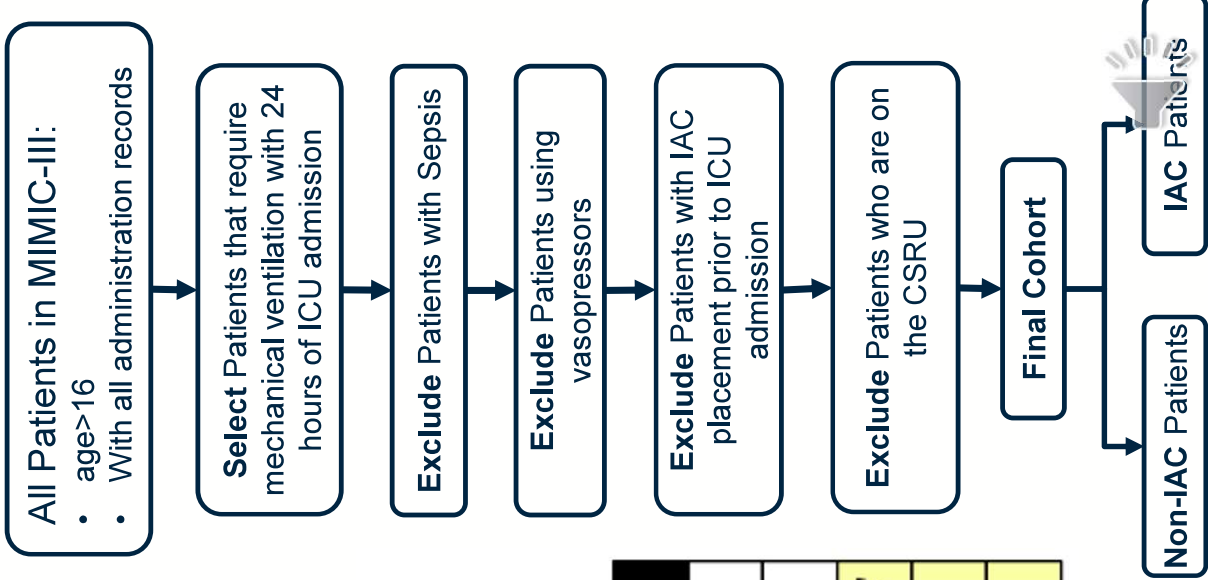




# Exclude Patients in CSRU or CCU



# Divide Cohort



# Summary

- MIMIC-III enabled the reproducibility of both clinical and machine learning studies
- Extraction pipelines are complex and details can affect performance
- MIMIC-III demystified data extraction processes



## References

- Johnson et al. The MIMIC Code Repository: enabling reproducibility in critical care research, Journal of the American Medical Informatics Association, 2018.
- Hsu et al. The Association Between Indwelling Arterial Catheters and Mortality in Hemodynamically Stable Patients With Respiratory Failure A Propensity Score Analysis, Chest, 2015.