SHADE ‘22 Datathon Team 14

Antiplatelet therapy for myocardial injury in ICU patients

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Clinical question:

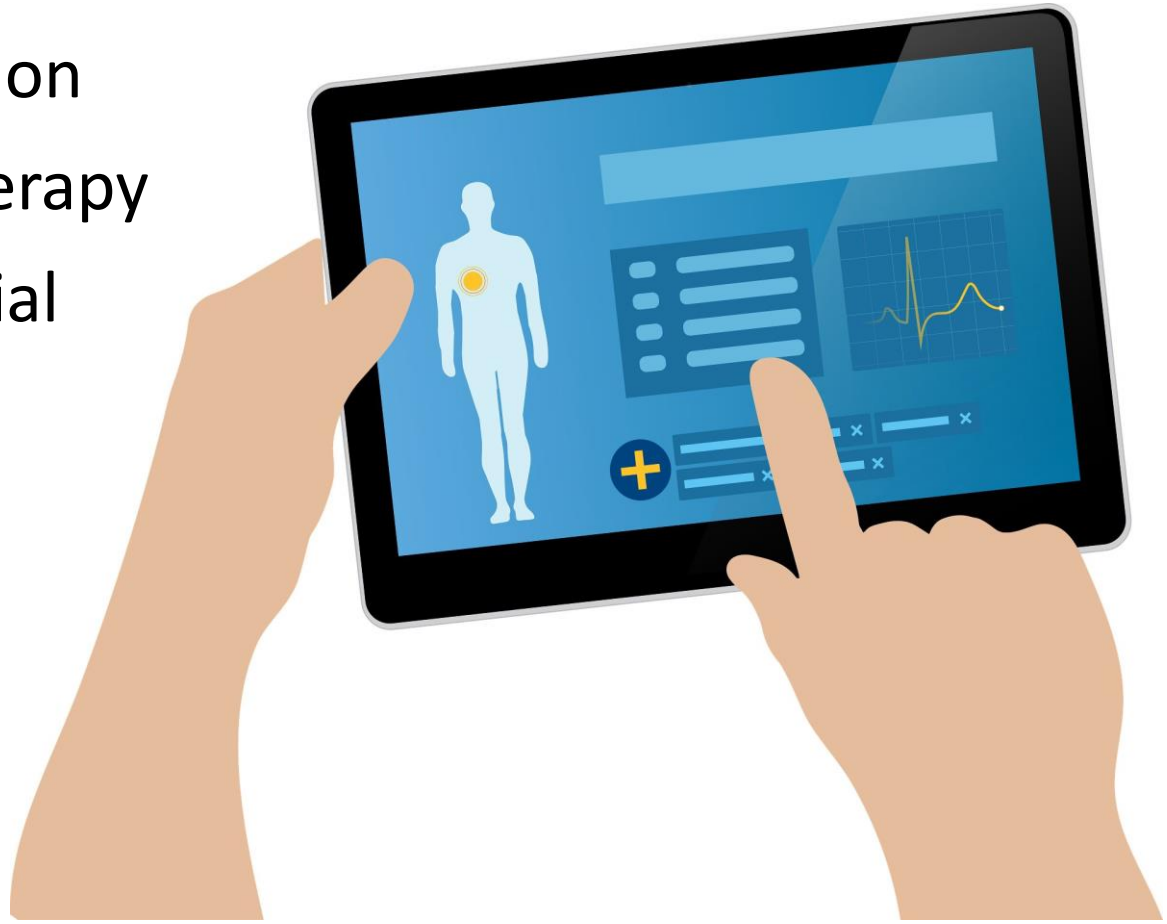
Is antiplatelet therapy beneficial for patients who had myocardial injury during their stay in the ICU?

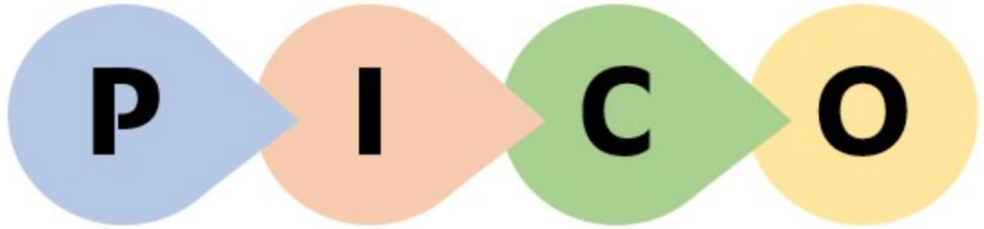
Background

- Management of patients with type 2 myocardial infarction (MI) or myocardial injury is a recognized gap in existing knowledge
- JACC 2022 Expert Consensus guidelines recommend that where there is uncertainty regarding whether the diagnosis is a type 1 or type 2 MI (T2MI), clinicians should generally manage as presumed type 1 MI (T1MI)

Aim

Determine if there is an association between antiplatelet medical therapy for patients in ICU with myocardial injury, and mortality

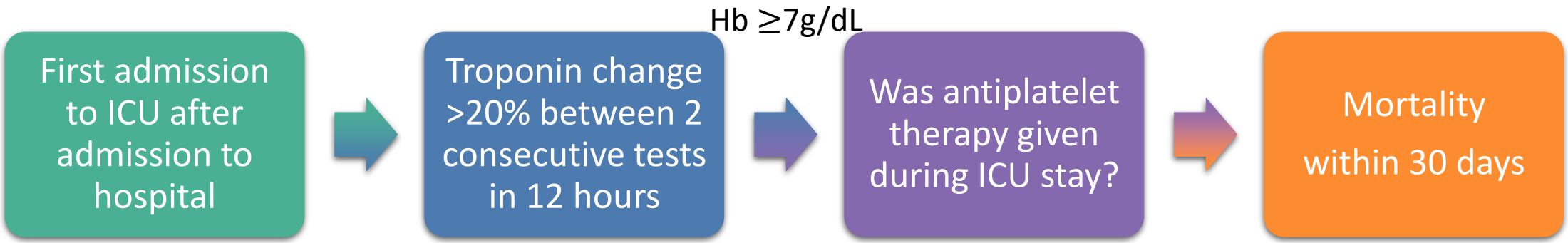




Population	Patients with index ICU admission who present with myocardial injury – as defined by 20% change in serial troponin values
Intervention	Antiplatelet was given
Comparison	Antiplatelet was **not** given
Outcome	Mortality in 30 days after myocardial injury

Method

Using the MIMIC-IV dataset,



Cohort flow diagram

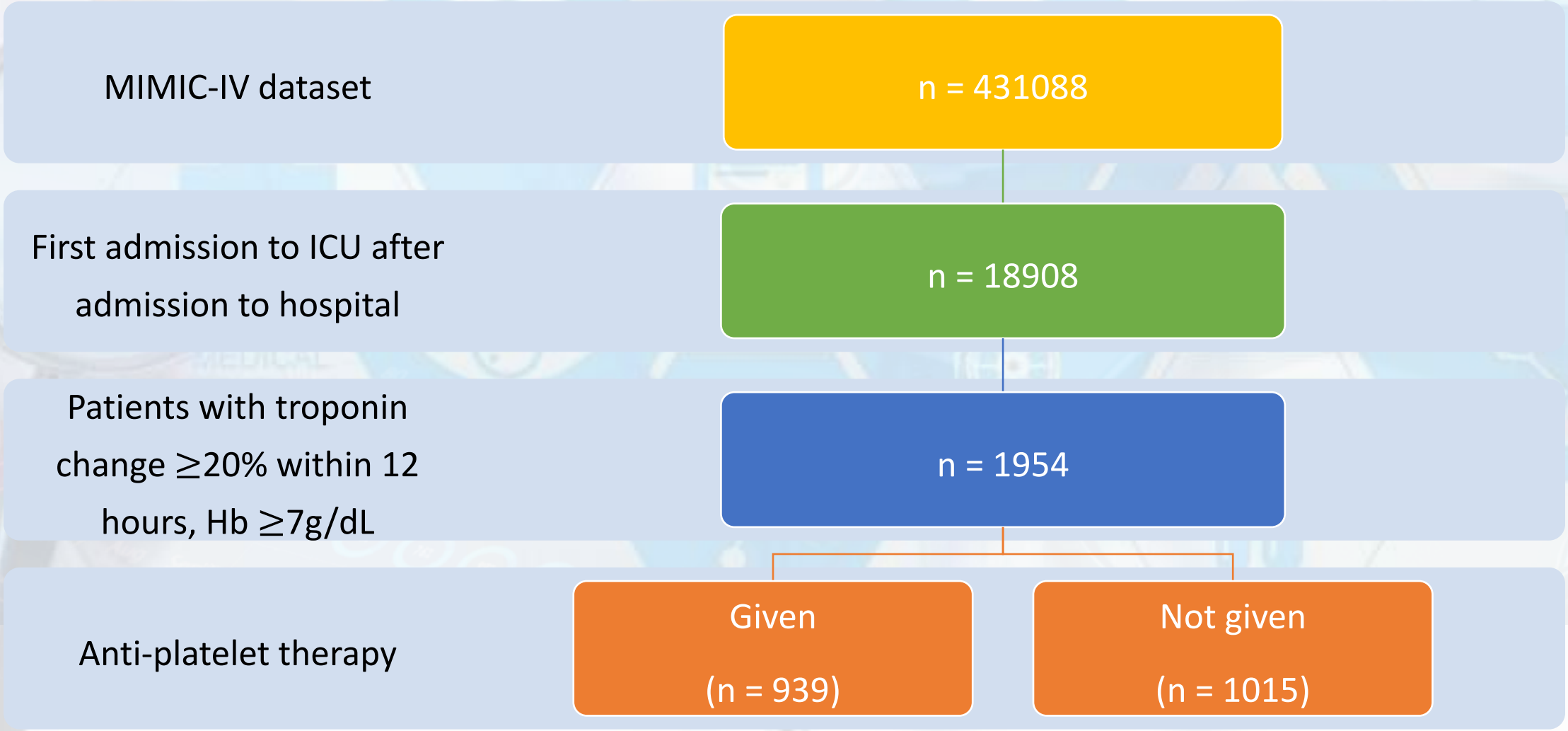


Table 1. Baseline characteristics

Characteristics		Antiplatelet therapy (n=939)	No antiplatelet therapy (n=1015)	Total (n=1954)
Age		69.0 (60.0-80.0)	71.0 (61.0-80.0)	70.0 (61.0-80.0)
Gender	Male	561 (59.7%)	606 (59.7%)	1167
	Female	378 (40.3%)	409 (40.3%)	787

Table 2. Results

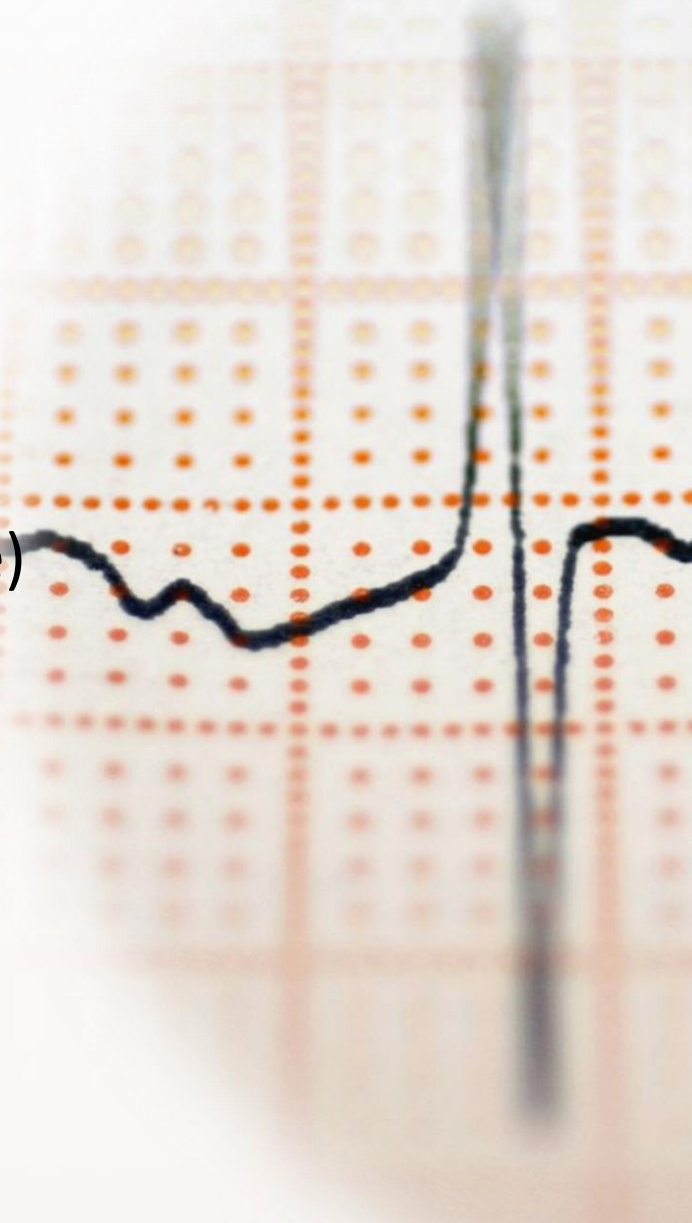
	Antiplatelet therapy (n=939)	No antiplatelet therapy (n=1015)
Mortality (percentage)	24 (2.6%)	38 (3.7%)

Strengths

- Large patient volume over 11 years (2008-2019)
- Patient-oriented outcome: mortality
- Novel question about a common clinical scenario lacking clear evidence-based guidance

Limitations

- Did not fully distinguish between T1MI, T2MI, and myocardial injury
- Needs further adjustment for comorbidities and illness severity (e.g. mechanical ventilation, RRT, vasopressor use)
- Did not investigate bleeding post-antiplatelet therapy
- Did not fully exclude patients who are already bleeding
- Observational data: unable to account fully for unknown confounders



Future work

- Applying statistical methods to account for confounders: TMLE
- Better differentiation of T1MI, T2MI and myocardial injury: Using data from ECGs, Echo, Cath
- Subgroup analysis: Risk stratification of patients according percentage of troponin change
- Expanding population to include all admissions