HiSTORIC - High-Sensitivity cardiac Troponin On presentation to Rule out myocardial InfarCtion: a stepped-wedge cluster-randomized controlled trial

Purpose: Evaluate whether use of the High-STEACS (High-sensitivity troponin in the evaluation of patients with suspected acute coronary syndrome) pathway in patients with suspected acute coronary syndrome reduces length of stay and allows more patients to be safely discharged from the ED.

Design: n = 31,492. Stepped wedge cluster randomized controlled trial. High-sensitivity cardiac troponin I testing to rule out MI if troponin concentrations are <5 ng/L on presentation, with further testing indicated at 3 hours only in those presenting early or with troponin concentrations between 5 ng/L and the 99th percentile.

Primary Endpoints: 1) Length of hospital stay (minutes), which is time from initial presentation to the ED until final discharge from hospital, an average of 24 hours. 2) Type 1 or type 4b MI or cardiac death after discharge within 30 days of index admission (reported here).

Secondary Endpoints: Proportion of patients discharged directly home from ED; Type 1 or 4b MI after discharge; cardiac death after discharge; CV death after discharge; all-cause death after discharge; unplanned coronary revascularization after discharge; proportion of patients re-attending the ED

	HighSTEACS	Standard care	Hazard Ratio	P value
Length of stay (geo mean (SD) hrs.	6.8 ± 4.1 n = 16,792	10.1 ± 4.1 n = 14,700	HR = 0.76 CI = (0.73 – 0.83)	P= <0.0001

Results:

- First trial to evaluate the effectiveness and safety of implementing an early rule-out pathway in consecutive patients with suspected acute coronary syndrome.
- Implementation of this pathway reduced the length of stay by 3.3 hours, and increased the proportion of patients discharged from the ED by 57%.
- This trial demonstrates that implementation of this early rule-out pathway is effective and safe.

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