

Pre-planned sub study analysis of a randomised controlled multi-centre trial. Participants  $\geq 16$  years old presenting to 10 UK hospital EDs with palpitation or pre-syncope whose underlying ECG rhythm during these episodes remained undiagnosed after ED assessment were enrolled. The treating ED clinician was asked to rate the likelihood of underlying cardiac arrhythmia ranging from 1 (least likely) to 10 (most likely). Participants were then randomised to either an intervention group using a smartphone-based event recorder or a standard care control group. Primary endpoint of this sub study was symptomatic cardiac arrhythmia at 90 days.

243 patients were enrolled. 6 patients had no ED clinician likelihood rating recorded and two further patients were lost to follow-up leaving 235 available for analysis. There were 12 patients recording a symptomatic cardiac arrhythmia at 90 days. These were atrial fibrillation (8), SVT (3), sinus bradycardia ( $< 40$  bpm; 1) and atrial flutter (1). One patient recorded 2 categories of arrhythmia. The AUC for prediction of cardiac arrhythmia was 0.81 (95% CI; 0.71–0.90). An ED clinician likelihood rating of 5 or more had 92% sensitivity and 59% specificity for predicting cardiac arrhythmia.

**Conclusion** ED clinicians are able to predict the likelihood of cardiac arrhythmia in patients presenting to the ED with palpitation or pre-syncope with reasonable accuracy.

shows that over the last 10 years, attendances in young adults have doubled, whereas those in over-65s have increased by just 16%. Studies show that patients aged 18–40 are least likely to attend their GP; perhaps they see the ED as a convenient one-stop shop for 24-hour access to care. Until now, literature exploring their motivations to attend the ED has been sparse, often limited to establishing characteristics of a frequent user.

**Method and results** This project investigated the reasons for attendance to the ED in young adults aged 18–40 and their opinions of the emergency services at the RIE. A survey was conducted for three weeks where 131 patients were recruited at check-in, the waiting room and within department cubicles.

Questions were based around recurrent themes of previous literature, which discussed the ideas of the ED being a convenient system to acquire medical attention at any time of day. Patients were asked about their reasons for attendance and to rate on a Likert scale a series of statements about the ED.

**Conclusions** Our findings show that patients aged 18–40 in fact, did not consider the ED more convenient in terms of time or location than their GP, nor did they think the ED provides better care.

However once they considered their problem as urgent they did not perceive primary care as being able to accommodate this urgency. Patients therefore present to the ED as the only other option. Understanding this perspective provides potential targets for intervention, allowing patients to be seen by the right person, in the right setting, the first time.

**019 CLUB 18–40: WHY DO YOUNG ADULTS ATTEND THE EMERGENCY DEPARTMENT? M**

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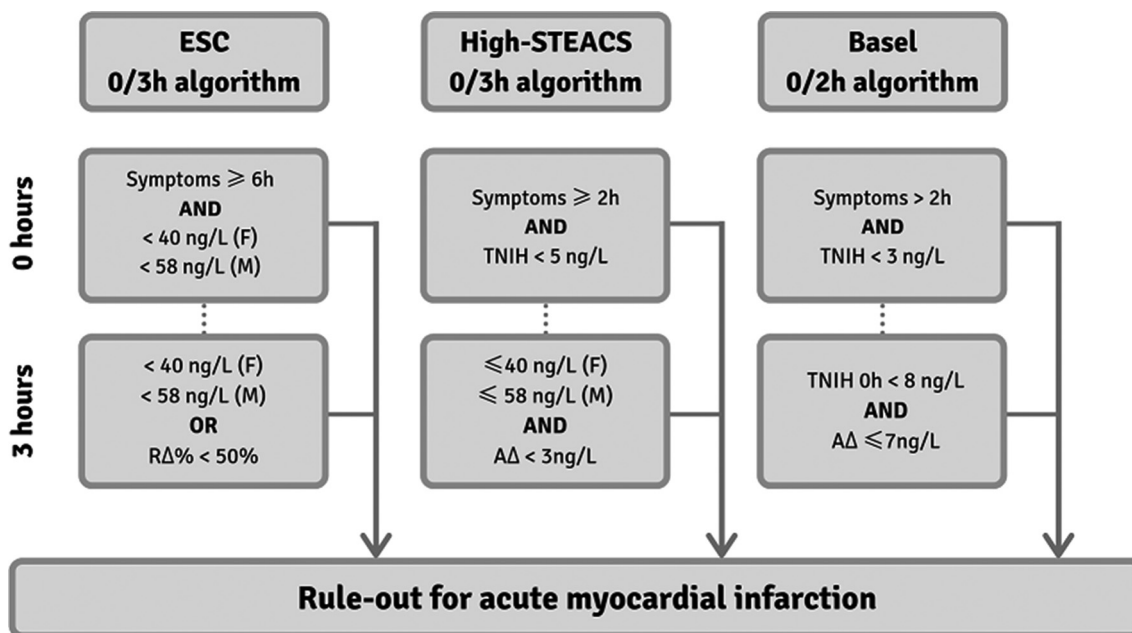
10.1136/emered-2019-RCEM.19

**Background** Crowding in the Emergency Department (ED) continues to be a challenge across the country. Recent focus has been on the increasingly complex elderly patients. However, data from the Royal Infirmary of Edinburgh (RIE)

**020 DIAGNOSTIC ACCURACY OF THE SIEMENS TNIH ASSAY WITH 0/3 HOUR RULE OUT ALGORITHMS**

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Abstract 020 Figure 1 Siemens TNIH algorithms

## Validation of Siemens TNIH assay with 0/3h pathways (95% confidence intervals in parentheses)

	ESC 0/3h pathway		High-STEACS 0/3h pathway		Basel 0/2-h algorithm	
	AMI	30-day MACE	AMI	30-day MACE	AMI	30-day MACE
<b>Sensitivity</b>	88.3% (80.8-93.6)	86.8% (79.2-92.4)	93.7% (87.4-97.4)	93.0% (86.6-96.9)	98.2% (93.6-99.8)	97.4% (92.5-99.5)
<b>Specificity</b>	95.8% (94.0-97.2)	95.9% (94.2-97.3)	84.7% (81.8-87.3)	84.9% (82.0-87.5)	73.1% (69.6-76.4)	73.3% (69.8-76.5)
<b>PPV</b>	77.2% (68.9-84.1)	78.0% (69.7-84.8)	49.5% (42.6-56.5)	50.5% (43.5-57.4)	37.0% (31.4-42.7)	37.6% (32.1-43.4)
<b>NPV</b>	98.1% (96.7-99.0)	97.8% (96.4-98.8)	98.8% (97.6-99.5)	98.7% (97.4-99.4)	99.6% (98.6-100)	99.4% (98.3-99.9)

Abstract 020 Figure 2 Diagnostic accuracy of 0-3h pathways

**Background** Chest pain accounts for approximately 6% of all Emergency Department (ED) attendances. We evaluated the diagnostic accuracy of a high-sensitivity cardiac troponin I assay (Siemens TNIH) on serial sampling for patients presenting to the ED with suspected cardiac chest pain. Specifically, we evaluated the accuracy of three previously reported accelerated diagnostic algorithms (figure 1), the 99th percentile upper reference limit and absolute and relative changes in TNIH over 3 hours.

This is a secondary analysis from a multi-centre prospective diagnostic accuracy study across 14 UK sites. Patients presenting to the ED with chest pain of suspected cardiac nature warranting investigation were included. The target diagnosis was acute myocardial infarction (AMI), which was adjudicated by two independent investigators. Serum blood samples were taken on ED arrival and 3 hours later. Stored frozen samples were subsequently analysed with the Siemens TNIH assay (ADVIA Centaur, 99th percentile upper reference limit: female 39.6 ng/L, male 58.0 ng/L; coefficient of variation 10% at 4.50 ng/L) and absolute ( $\Delta\Delta = |3h-TNIH - 0h-TNIH|$ ) and relative ( $R\Delta\% = (\Delta\Delta * 100) / 0h-TNIH$ ) changes calculated.

Of 802 included patients, 13.8% had AMI. Absolute delta had superior accuracy to relative delta (C-statistic 0.94 vs 0.76,  $p < 0.001$ ). However, used alone no optimised delta could achieve sensitivity  $> 95.5\%$  for AMI. Simply ruling out AMI in patients with TNIH below the 99th percentile at 3h had only 88.3% (95% CI 80.8–93.6) sensitivity. The Basel algorithm had higher sensitivity (98.2%) than both High-STEACS (93.7%,  $p = 0.03$ ) and the ESC 0/3h algorithm (88.3%,  $p < 0.001$ ) (see figure 1). The algorithms ruled out 63%, 74% and 84% patients respectively.

With serial sampling over 3h, the Siemens TNIH assay should be used with a validated algorithm incorporating bespoke cut-offs and absolute delta changes. In our analysis, the Basel algorithm had greatest sensitivity. ‘Ruling out’ AMI using the 99th percentile upper reference limit of the assay cannot be recommended.

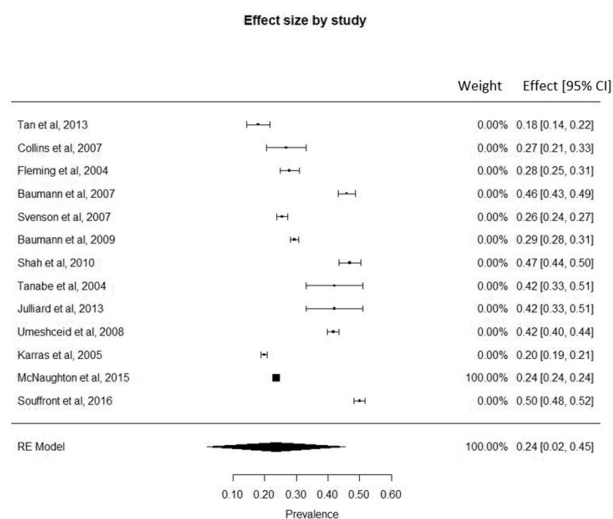
## 021 EMERGENCY DEPARTMENT HYPERTENSION, IS IT REAL? A SYSTEMATIC REVIEW AND META-ANALYSIS

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10.1136/emered-2019-RCEM.21

**Background** In 2017 15,379,166 patients attended emergency departments (ED) across the U.K. Attention is focussed on how EDs are struggling to cope with rising demand. However, each attendance presents an ideal screening opportunity for the nation’s second largest cause of avoidable mortality; cardiovascular disease. We sought to evaluate a common cardiovascular prognostic factor measured in the ED.

We aimed to conduct a systematic review of the prevalence and reliability of ED hypertensive readings.



Abstract 021 Figure 1