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Low risk chest pain pathway incorporating modified heart score and high sensitivity troponin reduces patient length of stay and hospital admissions whilst promoting safety with targeted follow up.

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Introduction:
Chest pain is a common presenting complaint to the Emergency Department encompassing a spectrum of disease from benign to life threatening conditions accounting for up to 30% of medical admissions. There is much interest in using rapid rule out troponin assay strategies along with clinical decision rules to streamline the management of low risk chest pain presentations. We report on the introduction of a low risk chest pain pathway (Green Pathway), including the use of a modified HEART score and 3 hour troponin testing strategy at a District General Hospital in the UK.

Purpose of Green Pathway:
Discharge 10-20% of chest pain presentations from the ED
Reduce length of stay to <12 hours
Reduce unnecessary follow up and investigations
Ensure safety <1% major adverse cardiovascular events

Methods:
The Green Pathway incorporating risk stratification using the modified HEART Score, new use of the Emergency Department Observation Ward and targeted follow up in Cardiology Hot Clinic (CHC) was implemented. The troponin assay was changed to the High Sensitivity Troponin I with a 0 and 3 hour rule out strategy adopted. All patients who entered the pathway were followed up at 30 days to assess for Major Adverse Cardiac Events.

Results:
Following implementation, 402 patients entered the Green Pathway over 24 weeks (17% of chest pain presentations). 394 (98%) of these patients were discharged home from the ED in under 12 hours (3 hours 25 minutes average length of stay). The Green Pathway saved up to 404 medical bed days and there was a 20% increase in discharges within 0-4 hours.

101 patients were followed up in CHC (25% of Green Pathway patients) on average within 48 hours. 30 (29%) of these patients had further investigations tailored to their presentation - Computed Tomography Coronary Angiography (CTCA), Echocardiography, Coronary Angiography. Prior to the introduction of the CHC service, 50% of patients who were followed up had investigations arranged, all of which were CTCA. The reduced number of CTCA requests has made 1 week of CT scanner time available for other uses per month.

1 patient suffered an ST segment elevation myocardial infarction after their follow up appointment, and another suffered a Non ST segment myocardial infarction awaiting their follow up (this patient was not eligible for entry to the Green Pathway) resulting in a Major Adverse Cardiac Event rate of 0.5% overall.

Conclusions:
The Green Pathway is a safe and effective approach to assess and follow up patients presenting to the ED with chest pain. By utilising a 3 hour rule out troponin testing strategy more patients can be discharged from the ED. The use of the modified HEART score and specialist CHC follow up ensures that patients are assessed and investigated for coronary artery disease using a strategy individually tailored to each patient. The Green Pathway has reduced medical admissions and ED crowding.