Government of JERSEY

Health and Community Services

Atraumatic Chest Pain of recent onset in patients ≥18yrs

June 2021

DOCUMENT PROFILE

Document Registration	HSS-GD-CG-0614-01
Document Type	Guideline
Title	Atraumatic chest pain in patients ≥ 18yrs
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Publication date	Sept 2021
Target audience	Emergency Department Physicians, Acute Medical Teams, General Practitioners
Circulation list	HCS Intranet
Description	Guideline for assessing the cardiac risk and then the ongoing management of patients presenting with atraumatic chest pain of recent onset in those>18 yrs. using a high sensitivity troponin assay and the HEAR score.
Linked policies	Management of Suspected Acute Coronary Syndromes
Approval forum	Medical Care Group Governance Meeting
Review date	3 years from approval
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1. INTRODUCTION

1.1 Rationale

The recommendations outlined in this document aim to provide useful advice for all clinical staff involved in the care of patients with chest pain where a cardiac cause is within the differential diagnoses.

The intention is to support clinical practice, in cases of doubt, they do not replace senior clinical review and clinical discussion between colleagues.

1.2 Scope

The purpose of this document is to provide a series of recommendations for the management of adult patients presenting with chest pain to the emergency department and to acute medical assessment areas. The recommendations will be subject to regular updates and review in light of emerging evidence and best practice guidance.

This guideline is not designed to be used for patients with already confirmed Acute Coronary Syndrome (ACS) or ST Elevation Myocardial Infarction - See Guidelines for the Management of Suspected Acute Coronary Syndromes **for this.**

1.3 Principles

Atraumatic chest pain is a Royal College of Emergency Medicine consultant sign off condition, as it is recognised as a high-risk presentation requiring careful consideration of differential diagnoses. Therefore **patients being discharged must be discussed with an ST3+ clinician** with documentation of this recorded in the patient notes.

2. GUIDELINE PURPOSE

Rapid rule in/out of Acute Coronary Syndrome enabling timely treatment and discharge.

3. CORPORATE PROCEDURE

3.1 Chest pain history

A structured approach to a pain history assists in gaining a clear history, which is essential to generating differential diagnoses, and to using subsequent risk stratification tools. Consider using SOCRATES:
Site of pain
Onset time of pain
Character (e.g. crushing, stabbing, burning)
Radiation
Associated features
Timing or duration of pain
Exacerbating and relieving factors

Severity

Risk factors should be considered within the history, including significant family history, along with risk factors for Ischaemic Heart Disease and Venous Thromboembolic disease.

There are a wide range of differential diagnoses for chest pain symptoms. Attention should be given in the history and examination towards exclusion of life-threatening causes of chest pain.

Differential diagnoses in the setting of acute chest pain – ESC Guidelines 2020 (Section 3.4)

Cardiac	Pulmonary	Vascular	Gastro-intestinal	Orthopaedic	Other
Myopericarditis	**Pulmonary embolism**	**Aortic dissection**	**Oesophagitis, reflux, or spasm**	**Musculoskeletal disorders**	**Anxiety disorders**
Cardiomyopathies[a]	**(Tension)- pneumothorax**	Symptomatic aortic aneurysm	Peptic ulcer, gastritis	Chest trauma	Herpes zoster
Tachyarrhythmias	Bronchitis, pneumonia	Stroke	Pancreatitis	Muscle injury/inflammation	Anaemia
Acute heart failure	Pleuritis		Cholecystitis	Costochondritis	
Hypertensive emergencies				Cervical spine pathologies	
Aortic valve stenosis					
Takotsubo syndrome					
Coronary spasm					
Cardiac trauma					

Bold = common and/or important differential diagnoses.
a Dilated, hypertrophic and restrictive cardiomyopathies may cause angina or chest discomfort.

3.2 Initial Assessment & Management

Examination should be performed of cardiovascular and respiratory systems, and should include a full set of observations to generate a National Early Warning Score (NEWS). Blood pressure should be measured in both arms.

An **ECG should be undertaken and reviewed ideally within 10 minutes** of first medical contact (especially important for patients who do not arrive via ambulance), along with review of any information and ECGs from ambulance services.

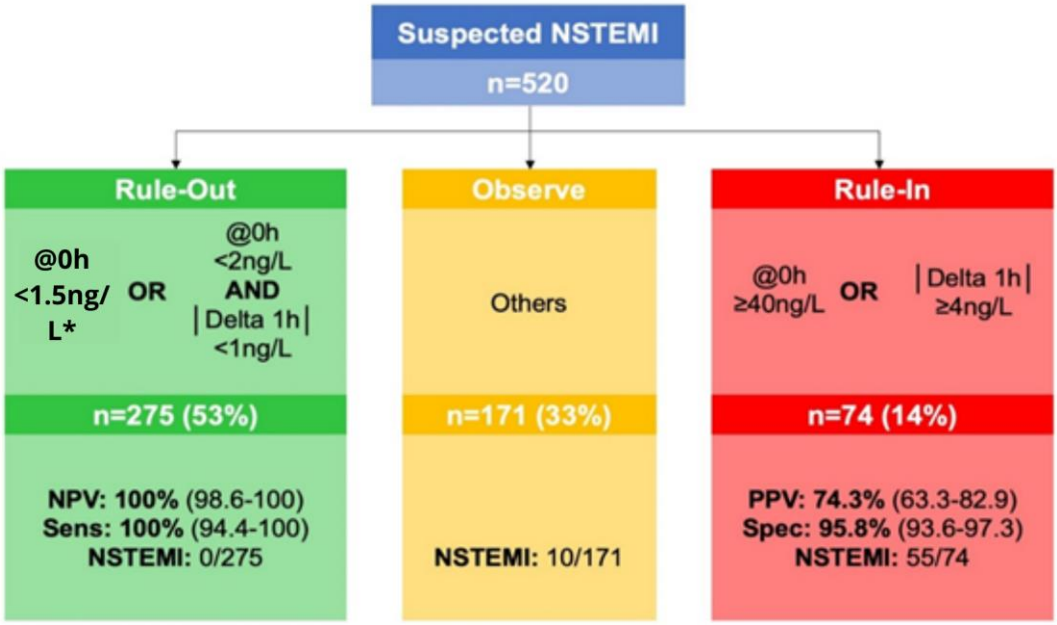
Pathology testing should be undertaken as part of narrowing down the differential diagnoses and should include; FBC, U&E's, LFT's, Lipid profile, Coagulation screen, Glucose +/- HbA1c, Venous blood gas, +/- Troponin, +/- D-Dimer, +/- Amylase. Where cardiac chest pain is in the differential, request and take blood samples for troponin and perform ECGs at 0 and 1hr from arrival.

If cardiac chest pain is suspected then a loading dose of Aspirin 300mg should be given as soon as possible. Pain should be managed with GTN and reassessed five minutes later, where pain persists opiate analgesia should be considered.

3.3 High sensitivity Troponin and the European Society of Cardiology 0/1hr algorithm.

Jersey General Hospital uses Vitros High sensitivity troponin I in laboratory testing.

This is measurable in 50% of normal individuals. The 99th centile = 11ng/L. This assay is sensitive enough to allow the use of the ESC 0/1 hr algorithm as below (amended for limit of detection with our local assay);



*single troponin result is valid if >3 hours from onset of chest pain

- Patients with a HEART Score of 3 or less (see below) are considered to be extremely low risk and can be discharged back to their GP, with a request for the GP to undertake QRisk3 scoring and risk factor modification in primary care. Where senior clinician concern remains that ACS is the most likely differential diagnosis and in particular where there is a raised Troponin level, further review of the history should be undertaken to consider alternative causes of a raised troponin and cardiology review considered.

- Patients with a Troponin consistent with a rule in of NSTEMI/ACS should be commenced on the ACS pathway, with treatment prescribed and administered as per this pathway as soon as ACS is recognised. These patients should be referred to Acute Medicine for inpatient management and local site processes followed for Cardiology referrals/review.

- Patients who do not qualify for ‘rule-out’ or ‘rule-in’ levels of Troponin, are assigned to observe. They represent a heterogeneous group that require senior review of history to consider alternative causes of a raised troponin, they usually require a third measurement of cardiac troponin at three hours from presentation to assess trend.

- They should be referred to acute medicine for a period of observation unless an alternative diagnosis has been made

3.4 Risk stratification: Use of the modified HEART pathway for those without definite ACS

Available in the Heart Pathway app

History	**Highly suspicious (Typical anginal pain)**	**2**	
	Moderately suspicious (Atypical pain)	**1**	
	Slightly suspicious (Non-ischaemic pain)	**0**	
ECG	**Significant ST-deviation**	**2**	
	Non-specific repolarisation disturbance/LBBB/Paced	**1**	
	Normal	**0**	
Age	**≥ 65 years**	**2**	
	45-65 years	**1**	
	≤ 45 years	**0**	
Risk Factors	**≥ 3 risk factors or history of vascular disease**	**2**	
	1 or 2 risk factors	**1**	
	No known risk factors	**0**	
Total Score			

Troponin	**Troponin @ 0hr**	**ng/L**
	Troponin @ 1 hr	**ng/L**

Cardiovascular Risk Factors	**Hypercholesterolaemia**	**Smoking**	**Family History**	**CKD**
	Diabetes Mellitus	**Hypertension**	**Obesity (BMI >30)**	

A highly suspicious history is one that is typically descriptive of ACS, a moderate suspicion is where there are some features that are typical and some that are not, a slightly suspicious history is where there are no specific features of an ACS history.

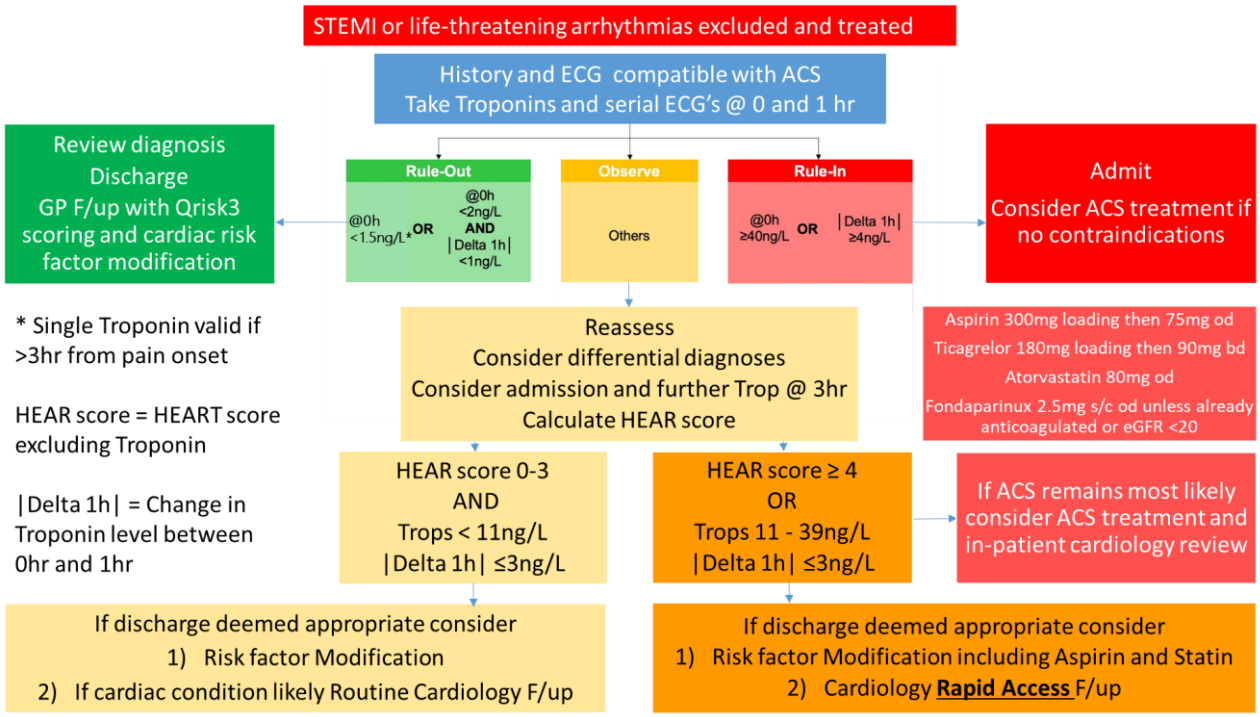
ESC definition of cardiac sounding chest pain:

- pain, pressure, heaviness or discomfort in the front of the chest, or in the neck, shoulders, jaw or arms, which lasts more than 20 minutes
- associated with nausea/vomiting, sweating, breathlessness or a combination of these

- precipitated by exertion, and relieved by rest or GTN within about five minutes (do not use this to make a diagnosis, as GTN can ease other causes of pain)

3.5 Heart Pathway for Jersey General Hospital

HEART pathway for Jersey General Hospital



3.6 Cardiology Out-Patient Chest Pain Referral

Cardiology Out-Patient Chest Pain Referral

Where ACS excluded and discharge deemed appropriate please complete HEART score, enter Troponins and circle risk factors/referral path. Please add additional information as required.

Please send along with copies of ECG's to: Cardiology Secretaries, 2nd Floor Peter Crill House (Fax 442266)

Patient Name:

URN:

DOB:

HEART score for patients without ACS (available in Heart Pathway App)

History	Highly suspicious (Typical anginal pain)	2	
	Moderately suspicious (Atypical pain)	1	
	Slightly suspicious (Non-ischaemic pain)	0	
ECG	Significant ST-deviation	2	
	Non-specific repolarisation disturbance/LBBB/Paced	1	
	Normal	0	
Age	≥ 65 years	2	
	45-65 years	1	
	≤ 45 years	0	
Risk Factors	≥ 3 risk factors or history of vascular disease	2	
	1 or 2 risk factors	1	
	No known risk factors	0	
		Total Score	

Troponin	Troponin @ 0hr	ng/L
	Troponin @ 1 hr	ng/L

Cardiovascular Risk Factors	Hypercholesterolaemia	Smoking	Family History	CKD
	Diabetes Mellitus	Hypertension	Obesity (BMI >30)	

HEAR score 0-3
AND
Troponins < 11ng/L
|Delta 1h| ≤3ng/L

HEAR score ≥ 4
OR
Troponins 11 - 39ng/L
|Delta 1h| ≤3ng/L

Risk factor Modification
Consider **Routine** Cardiology appointment if cardiac condition likely

Risk factor Modification including Aspirin 75mg od and Atorvastatin 40mg od
Urgent Cardiology appointment

Key clinical features:

See appendix 1 for link to referral form

4. DEVELOPMENT AND CONSULTATION PROCESS

A record of who is involved in the development of this document. This may include HCS committees, service users and other agencies.

4.1 Consultation Schedule

Name and Title of Individual	Date Consulted
Lesley Cain – Lab manager and her team	2020/2021

Name of Committee/Group	Date of Committee / Group meeting
Medical Care Group	June 2021

5. REFERENCE DOCUMENTS

ESC 2020 Guidelines 2020 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation | European Heart Journal | Oxford Academic (oup.com)

6. BIBLIOGRAPHY

HEART Score HEART Score for Major Cardiac Events - MDCalc

HEART Pathway Mahler et al. **The HEART Pathway Randomized Trial.** Identifying Emergency Department Patients With Acute Chest Pain for Early Discharge**. Circulation Quality and Outcomes 8 (2) : 195-203 https://www.ahajournals.org/doi/epub/10.1161/CIRCOUTCOMES.114.001384**

HEART Pathway Ljung et al. 2019 A Rule-Out Strategy Based on High-Sensitivity Troponin and HEART Score Reduces Hospital Admissions. Annals of Emergency Medicine 73 (5): 491-499 https://doi.org/10.1016/j.annemergmed.2018.11.039

NICE chest pain of recent onset. Overview | Recent-onset chest pain of suspected cardiac origin: assessment and diagnosis | Guidance | NICE

7. GLOSSARY OF TERMS / KEYWORDS AND PHRASES

Term	Meaning
ACS	Acute Coronary Syndrome
ECG	Electrocardiogram
eGFR	Estimated Glomerular Filtration Rate
FBC	Full Blood Count
GTN	Glyceryl Trinitrate
LFT's	Liver Function Tests
NICE	National Institute of Clinical Excellence
NSTEMI	Non-ST elevation MI
S/C	Subcutaneously
STEMI	ST elevation MI
Trop	High sensitivity Troponin I
U&E's	Urea and electrolytes

8. IMPLEMENTATION PLAN

A summary of how this document will be implemented.

Action	Responsible Officer	Timeframe
All Staff education via webinar	Dr Chris Edmond	1 month
Medical Staff education	Dr Catherine Leeson-Payne	1 month
Updating laboratory processes/reports	Julie Bellamy/Tim Sims	1 month

9. Appendices

Appendix 1: Cardiology Out-Patient Chest Pain Referral