FACILITY DOCUMENT NO: C104.013

PROCEDURE TITLE:	ASSESSMENT AND MANAGEMENT OF CARDIAC CHEST PAIN PRESENTATIONS TO THE EMERGENCY DEPARTMENT

Joondalup Health Campus recognises that the principal responsibility for a patient's care lies with that patient's doctor. Following consultation with doctors and clinical employees, and through reference to current industry best practice standards, we have developed this procedure as a minimum standard designed to deliver optimal care to patients.

Keywords/search terms

Cardiac Monitoring

Bookmarks to section or topic headings:

JHC Code STEMI/Primary PCI Guideline, Acute Coronary Syndrome Guideline

PROCEDURE SCOPE

This document applies to medical and nursing staff in the Emergency Department.

PROCEDURE PURPOSE

The purpose of this document is to is to guide staff in the timely and efficient assessment and management of patients presenting to the Emergency Department (ED) with chest pain.

EQUIPMENT

- Cardiac monitor with 12 lead recording capabilities - Draeger Cardiac Monitor M500/540
- Oxygen
- Sphygmomanometer
- SpO_2 monitor
- Adult Observation Chart Early Warning System (HR 549-1)
- Emergency Department Triage/Nursing Assessment (RHC WA 1109)
- Emergency Department Medical Assessment (RHC WA 1108)
- Integrated Progress Notes (RHC WA 290)

PROCEDURE[1-4]

Patients presenting with clinical features which may be consistent with Acute Coronary Syndrome are to be assessed for the same. This is not for patients with a non-cardiac cause for the chest pain, i.e. Pulmonary Embolism, Aortic Dissection.

Clinical pathways never replace clinical judgement. Care outlined on the flowchart must be altered if not clinically appropriate for the patient.

Nursing:

1. An initial rapid assessment confirms a complaint of chest pain and the patient is transferred immediately into a monitored bay[2,3]
2. Apply oxygen to
    - Patients with oxygen saturation (SpO_2) of less than 94% who are not at risk of hypercapnic respiratory failure. Aim for SpO_2 of 94–98%
    - Patients with chronic obstructive pulmonary disease who are at risk of hypercapnic respiratory failure, to achieve a target SpO_2 of 88–92% [3]

3. The patient is attached to the cardiac monitor and a rhythm obtained.
4. A 12 lead ECG is performed, and the pain score **must** be recorded on the ECG.
    a. Refer the ECG to an ED Registrar or ED Consultant with a concise history of the presentation. Repeat ECG time determined by senior doctor or change in patient condition. Patients to remain cardiac monitored until reviewed by the Emergency Department Medical Officer (EDMO).
    b. Ongoing frequency of ECG determined by EDMO or on change of patient pain or clinical condition
5. Perform a blood pressure and SaO_2 monitoring
6. Document a full assessment in the Emergency Department Triage/Nursing Assessment (RHC WA 1109) or Integrated Progress Notes (RHC WA 290).

Medical:

1. EDMO assessment conducted.
    a. If evidence of a ST elevation myocardial infarction (STEMI) identified follow STEMI guideline below.
    b. If nil evidence of STEMI follow Acute Coronary Syndrome Guideline below

JHC Code STEMI/Primary PCI Guideline

*****If suspected STEMI with SJA out of hours keep on stretcher and conduct an ECG until decision is made*****

Criteria for Rapid ED activation

- Symptom onset < 12/24
- ECG evidence of STEMI
  - >2mm anterolateral ST elevation
  - >1mm inferior ST elevation

  In 2 or more contiguous leads
- < 80 years
- Ongoing pain
- Mobile and independent

Exclusion Criteria

- **Suspected or confirmed COVID-19 infection**
- LBBB
- Prior CABG
- Significant co-morbidities: eg
  - Malignancy
  - Dementia
- Out of hospital cardiac arrest
- Pulmonary oedema / Cardiogenic shock
- Recent major surgery (< 2/52)
- Active bleeding

YES

Monday – Friday 7am – 4pm

YES

NO

ED Consultant/Night Senior Registrar to discuss with JHC on-call Cardiologist (NOT SCGH Cardiologist or Cardiology Registrar)

Activate JHC Code STEMI

Call JHC Interventional Cardiologist on #5995 (by JHC ED Consultant or SR)

If Primary PCI is appropriate:

- JHC Cardiologist discusses with SCGH on-call Cardiologist.
- JHC ED arranges SJA Priority 1 Transfer
- SCGH Cardiologist activates SCGH Code STEMI
- For intubated OHCA patients SCGH Cardiologist notifies SCGH Duty Anaesthetist

Immediate transfer to JHC Cath Lab by ED Registrar and nurse

JHCED to Activate SCGH Code STEMI

- Call SJA for Priority 1 Transfer (unless already in attendance)
- Call SCGH CCU on 6457 4711 (to activate Code STEMI)
- Transfer with JHC ED Doctor
- SJA & JHC ED staff to stay with patient until medical SCGH Cath Lab team member arrives

ED STEMI Treatment (Unless contraindicated)

1. Aspirin 300mg
2. Ticagrelor 180mg.
   Give Clopidogrel 600mg if heart rate < 50bpm
   OR History ICH/TIA/Stroke
3. Heparin 5000 IU IV
4. Transfer

Acute Coronary Syndrome Guideline

If **STEMI** then **EXIT THIS GUIDELINE** and **GO TO JHC CODE STEMI GUIDELINE**

If not then perform initial Troponin testing (0 hr) and risk stratify as below:

<<NB: If pain-free with a normal ECG and 6 hours post chest pain onset, a single spot Troponin may be performed>>

HIGH RISK CRITERIA

- ❑ Persisting/Recurrent chest pain
- ❑ Abnormal ECG*
- ❑ First Troponin (hsTnI)
  - >=11ng/L – Female
  - >=21ng/L – Male
- ❑ Heart Failure symptoms or Left Ventricular Ejection Fraction < 40%
- ❑ Ventricular Tachycardia
- ❑ Haemodynamic compromise
- ❑ Syncope
- ❑ Prior History of IHD

HIGH RISK? (ONE OR MORE high-risk criteria are met)

YES

Admit to Cardiology for age <85:
Refer to JHC Cardiology On-Call
Second ECG and Troponin taken at 3 hours.

Admit Gen Med for age >/= 85 via MAU
Advise Medical Registrar

NO

LOW RISK CRITERIA

- ❑ < 40 year-old
- ❑ ECG no ischaemic changes
- ❑ Absence of known IHD
- ❑ Symptoms atypical for angina
- ❑ First Troponin (hsTnI)
  - < 11ng/L – Female
  - < 21ng/L – Male
- ❑ No history of Diabetes Mellitus
- ❑ eGFR > 60mL/min

LOW RISK? (ALL low risk criteria need to be met)

YES

Admit to EAU:
Second ECG and Troponin taken at 3 hours

If any subsequent ECG and/or Troponin Abnormal:

- Admit to Cardiology as high risk.

If no ischaemic changes on ECG and 3-hour Troponin normal:

- Consider alternative diagnosis
- ED Registrar or Consultant supervised patient review
- Discharge and refer to GP as appropriate.

NO

INTERMEDIATE RISK CRITERIA

- ❑ **No** High Risk Criteria and
- ❑ **One or more** Low Risk Criteria are **not** satisfied

INTERMEDIATE RISK

YES

Admit to EAU:
Second ECG and Troponin taken at 3 hours

If any subsequent ECG and/or Troponin Abnormal:

- Admit to Cardiology as high risk

If no ischaemic changes on ECG and 3-hour Troponin normal:

- ED Registrar or Consultant reviews the Rapid Access Chest Pain Clinic (RACPC) Exclusion Criteria (on the RACPC referral proforma).
- If one or more RACPC Exclusion Criteria are met then refer to the Cardiology Registrar.
- If no RACPC Exclusion Criteria are met then discharge to the RACPC

*** High risk ECG changes include but are not limited to:**

- ST and T wave changes
- Pathological Q waves
- New Bundle Branch Block

Cardiac Monitoring Required: On initial presentation for all possible cardiac chest pain
Ongoing Cardiac Monitoring Not Required: On low risk patients after first normal ECG and pain free

Cardiac Monitoring Guideline:

Patients requiring cardiac monitoring in the Emergency Department (ED) or for admission to the Telemetry Care Unit or Coronary Care Unit include:

- STEMI patients (NB COVID-19 STEMI patients will have to go to Intensive Care Unit (ICU) post)
- NSTEMIs,
    - NOTE: Patients with a normal troponin need to have ECG changes and/or ongoing pain to fulfil monitoring criteria when no capacity
- Cardiogenic syncope
- Resuscitated cardiac arrest, not intubated
- Arrhythmias:
    - Rapid ventricular response (should shift out once rate/rhythm control achieved)
    - Other symptomatic dysrhythmias, eg:
        - 1st AV block – Only monitor if cardiogenic syncope or other concerning features (eg. with bifascicular block)
        - 2nd AV block
            - Symptomatic Mobitz I monitor
            - Mobitz II monitor
        - 3rd AV block – All require monitor with and without syncope
- Acute Heart failure if unstable
    - NOTE: once stable should have monitoring ceased
- Clinical Tamponade (not just CT scan showing effusion)
- Left sided infective endocarditis
    - NOTE: (only if very unwell; otherwise could go to ward)

The following patients should not go to a monitored bed. Ideally for review and discharge from the ED for outpatient workup:

- Palpitations
- Troponin negative chest pain unless marked ECG changes
- Presyncope without ECG changes/arrhythmia on monitor, and
- Non-specific shortness of breath

REFERENCES

1. National Institute for Health and Care Excellence. (2016). *Chest pain of recent onset: assessment and diagnosis.* Retrieved on the 27 January 2021 from https://www.nice.org.uk/guidance/CG95
2. Heart Foundation. (2016). *Acute coronary syndromes (ACS) clinical guidelines*. Retrieved from on the 27 January 2021 https://www.heartfoundation.org.au/conditions/fp-acs-guidelines
3. National Heart Foundation. (2016). Australian clinical *guidelines for the management of acute coronary syndromes*. Retrieved on the 27 January 2021 from

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4. Australian Commission on Safety and Quality in Health Care. (2014). *Acute coronary syndromes clinical care standard.* Retrieved on the 27 January 2021 from https://www.safetyandquality.gov.au/sites/default/files/migrated/Acute-Coronary-Syndromes-Clinical-Care-Standard.pdf

RELATED RHC AND JHC POLICIES, GUIDELINES, PROCEDURES

- Joondalup Health Campus. Medications: Administration (C13.58)
- Joondalup Health Campus: Management of the Patient with ST Elevation Myocardial Infarction (STEMI) (C105.005)

RELATED FORMS/PATIENT INFORMATION RESOURCES

- Adult Observation Chart Early Warning System (HR 549-1)
- Emergency Department Triage/Nursing Assessment (RHC 1109)
- Emergency Department Medical Assessment (RHC WA 1108)
- Integrated Progress Notes (RHC WA 290)

RELATED NATIONAL STANDARDS

- NSQHS Standard 8 Recognising and Responding to Acute Deterioration Standard

COMMITTEE/SUBCOMMITTEE REPORTING

Nil

AUTHORISATION

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VERSION CONTROL AND HISTORY

Version 1.00	Procedure implemented. Amalgamates C03.24, JEDO ED STEMI Policy and temporary COVID-19 Cardiac Monitoring Guidelines	January 2021