Health
South Eastern Sydney
Local Health District

Adult Emergency Nurse Protocol

CHEST PAIN (suspected cardiac)

SESLHDPR/385

Aim:
- Early identification and treatment of life threatening causes of chest pain, escalation of care for patients at risk.
- Early initiation of treatment / clinical care and symptom management within benchmark time.
- Consistent use of the NSW Ministry of Health Pathway for Acute Coronary Syndrome Assessment (PACSA)

Assessment Criteria: On assessment the patient should have one or more of the following signs / symptoms:

- Cardiac Sounding Chest Pain
- Syncope
- Jaw pain
- Sudden Orthoponea/ Dyspnoea
- Epigastric discomfort
- Arm pain
- Sweating

Escalation Criteria: Immediate life-threatening presentations that require escalation and referral to a Senior Medical Officer (SMO):

- Myocardial Infarction
- Cardiogenic Shock
- Traumatic Chest Injury
- Tension Pneumothorax
- Suspected Pulmonary Emboli
- Life Threatening Arrhythmia
- Coronary Dissection
- Hypotension and Tachycardia / bradycardia
- Acute confusion / agitation

Primary Survey
- Airway: patency
- Breathing: resp rate, accessory muscle use, air entry, SpO_2.
- Circulation: perfusion, BP, heart rate, temperature
- Disability: GCS, pupils, limb strength

Notify CNUM and SMO if any of the following red flags is identified from Primary Survey and Between the Flags criteria. [1]

- Airway – at risk
  - *Partial / full obstruction*
- Breathing – respiratory distress
  - *RR < 5 or >30 /min*
  - *SpO_2 < 90%*
- Circulation – shock / altered perfusion
  - *HR < 40bpm or > 140bpm*
  - *BP < 90mmHg or > 200 mmHg*
  - *Postural drop >20mmHg*
  - *Capillary return > 2 sec*
- Disability – decreased conscious level
  - *GCS ≤ 14 or a fall in GCS by 2 points*
- Exposure
  - *Temperature < 35.5°C or > 38.5°C*
  - *BGL < 3mmol/L or > 20mmol/L*

History:
- Presenting complaint
- **A**llergies
- **M**edications: Anticoagulant therapy, anti-hypertensives, diabetic medications, analgesics and non-prescription drugs. Any recent change to medications. Medications administered prior to presentation (GTN)
- **P**ast medical past surgical history relevant – Age > 65, history of hypertension or on anti-hypertensives, current cigarette smoker, hypercholesterolemia, diabetes mellitus, family history of Coronary Artery Disease (CAD), female, heart failure, peripheral vascular disease (PVD), mental health, culturally and linguistically diverse (CALD) populations
- **L**ast ate / drank
- **E**vents and environment leading to presentation
- Pain Assessment / Score: **PQRST** (Palliating/ provoking factors, Quality, Region/radiation, Severity, Time onset)
- Associated signs / symptoms: epigastric, back or throat pain, radiation to back / neck / arm, nausea, syncope, pale, diaphoresis.

Systems Assessment:

Focused cardiovascular assessment:
- *Inspection:* trachea midline; general appearance – skin colour / capillary return < 2 sec; chest wall abnormalities; equal expansion of the chest during inspiration.
- *Auscultation:* equal breath sounds
- *Palpation:* central and peripheral pulses; localised chest wall tenderness
- *(+/-) Percussion over the chest wall:* Tympani over air filled organs; Dullness over fluid filled organs and bone
- Presence of hypertension or hypotension, abnormalities in pulse or signs of heart failure

Notify CNUM and SMO if any of the following red flags is identified from History or Systems Assessment. [6]

- Ischemic ECG changes
- Chest pain relieved by GTN
- Chest pain onset at rest
- Arrhythmia or changes in pulse
- Signs of heart failure
- Diaphoresis / Pallor
- Cardiac History
- Current cigarette smoker
- Diabetes Mellitus
- Hyper/Hypotension
- PVD
- Mental Health
- CALD Populations
- Abnormal breath sounds
- Age > 65 years
- Female
- Syncope / LOC

Investigations / Diagnostics:

Bedside:
- Commence patient on a chest pain pathway

Laboratory / Radiology:
- **Pathology**: Refer to local nurse initiated **STOP**

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- ECG: completed and reviewed within 10 min of arrival - ST elevation or ST depression, QRS abnormalities, arrhythmias, or tachycardia or bradycardia
- BGL: If < 3mmol/L or >20mmol/L notify SMO

Troponin, FBC, EUC, Coags *(anticoagulant therapy)*
Radiology: Chest X-ray *(discuss with SMO)*

Nursing Interventions / Management Plan:

Resuscitation / Stabilisation:

- Oxygen therapy (SpO_2< 93%)
- Continuous cardiac monitoring [as indicated]
- IV Cannulation (consider large bore i.e. 16-18gauge)
- IV Fluids: Sodium Chloride 0.9% 1 L IV stat versus over 8 hours *(discuss with SMO)*

Symptomatic Treatment:

- **Antiemetic:** as per district standing order
- **Analgesia:** as per district standing order
- **Glyceryl Trinitrate:** 600microg sublingually (as per nurse initiated medications)

Supportive Treatment:

- Nil By Mouth (NBM)
- Continuous cardiac monitoring
- Monitor vital signs as clinically indicated (BP, HR, T, RR, SpO_2)
- Monitor pain assessment / score
- Fluid Balance Chart (FBC)
- Serial ECGs (30min) until patient is pain free
- Repeat ECG with return of chest pain
- Serial Troponin (as per local policy)

Practice Tips / Hints:

- Pain that lasts over 15 minutes and is dull, central, and crushing is a feature of ACS(7)
- Cardiac pain is more likely to be brought on by exercise or emotion and is typically relieved with rest or nitrates(7)
- Atypical signs and symptoms women, people with diabetes, and those aged > 65 years(7)
- Sharp pleuritic pain that catches on inspiration may originate from the pleura or pericardium and suggests pneumonia, pulmonary embolus, or pericarditis(7)
- ECG attended within 10 minutes of arrival. ST changes such as ST elevation or ST depression, QRS abnormalities, arrhythmias, or tachycardia or bradycardia are characteristic findings in cardiac causes(7)
- Cardiac monitoring is required for all patients with ACS features and can only be discontinued if documented by an SMO(3)
- Patient transfers require an appropriately trained escort and cardiac monitoring equipment(3)

Further Reading / References:

1. SESLHDPR/283 Deteriorating patients – Clinical Emergency Response system for the Management of Adult and Maternity Patients
2. National Heart Foundation of Australia & Cardiac Society of Australia and New Zealand: Australian Clinical Guidelines for the management of Acute Coronary Syndromes 2016
3. NSW Ministry of Health Guideline - GL2016_019 Cardiac Monitoring of Adult Cardiac Patients in NSW Public Hospitals
4. NSW Ministry of Health Policy – GL2019_014 Pathway for Acute Coronary Syndrome Assessment (PACSA)
5. NSW Ministry of Health Policy - PD2013_043 Medication Handling in NSW Public Hospitals
6. SESLHD PR/455 Glyceryl trinitrate tablets for angina / chest pain in adults
7. BMJ Best Practice: Assessment of Chest Pain

Acknowledgements: *SESLHD Adult Emergency Nurse Protocols were developed and adapted with permission from:*

- Murphy, M (2007) Emergency Department Toolkits. Westmead Hospital, SWAHS
- Hodge, A (2011) Emergency Department, Clinical Pathways. Prince of Wales Hospital SESLHD.

Revision and Approval History

Date	Revision No.	Author and Approval
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January 2018	5	Processed by Executive Services prior to progression to SESLHD DQUM.
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April 2021	6	Reviewed by Kate Jarrett- Clinical Nurse Consultant, Emergency St George Hospital

May 2021	6	Approved by Executive Sponsor.
June 2021	6	Endorsed by: SESLHD Quality Use of Medicine Committee