



Clinical Practice Guidelines: Cardiac/Acute coronary syndrome

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Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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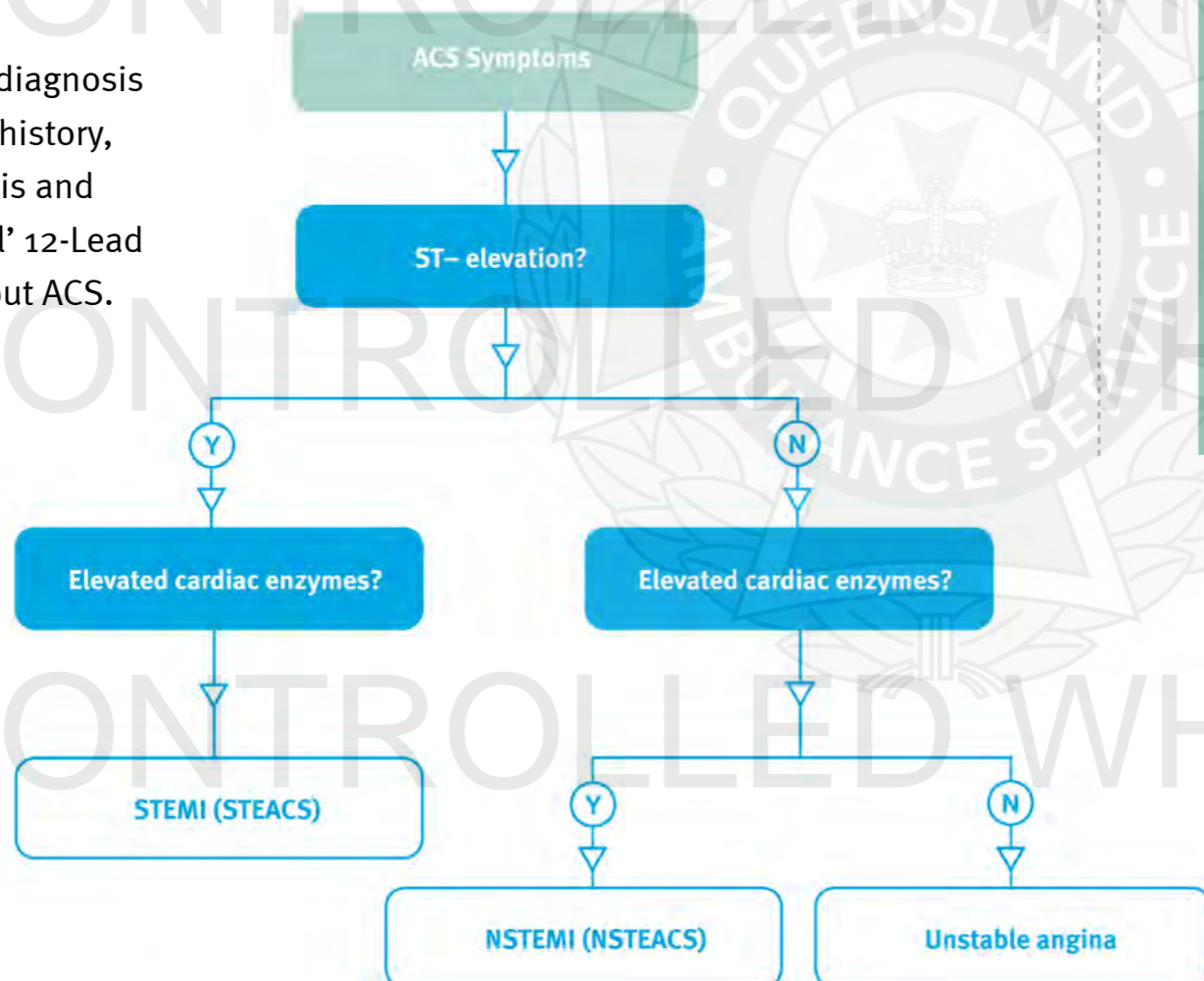
Acute coronary syndrome

September, 2022

Acute Coronary Syndrome (ACS) refers to the spectrum of conditions resulting from myocardial ischaemia. It encompasses ST-elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (NSTEMI) and unstable angina (UA). ACS should be clearly distinguished from stable angina that is typically aggravated by exertion or emotional stress and is relieved quickly with rest and/or sublingual glyceryl trinitrate (GTN) administration.^[1]

ACS will usually present with chest pain and/or discomfort however, certain groups of patients may present with atypical symptoms, for example, women, older people and patients with diabetes mellitus, congestive cardiac disease or renal failure.^[2,3]

Definitive hospital diagnosis of ACS is based on history, 12-Lead ECG analysis and enzymes. A 'normal' 12-Lead ECG does not rule out ACS.



Complications of ACS include arrhythmia, cardiac failure, acute valvular or septal rupture, cardiogenic shock and death. Early diagnosis and aggressive care is vital, including time-critical reperfusion therapy for patients with STEMI.^[4,5]

Clinical features



- Chest pain and/or discomfort (described as burning, pressure or tightness)
- Referred pain (e.g. arms or jaw/teeth)
- Dyspnoea
- Diaphoresis
- Nausea and/or vomiting
- Feeling of impending doom



Risk Assessment

High risk features on assessment include:^[4]

- Repetitive or prolonged (> 10 minutes) ongoing chest pain and/or discomfort
- Persistent or dynamic ST-depression (≥ 0.5 mm) or new T-wave inversion (≥ 2 mm)
- Transient ST-segment elevation (≥ 0.5 mm) in 2 or more contiguous leads
- Hypotension (< 90 mmHg systolic)
- Sustained VT
- Syncope
- Left ventricular dysfunction
- Prior PCI (within 6 months) or history of coronary artery bypass graft
- Presence of known diabetes mellitus or renal impairment.

Risk factors for ACS include:

- Male
- Advancing age
- Smoking
- Hypertension
- Hyperlipidaemia
- History of prior ischaemic heart disease
- Family history of ACS

Right ventricular myocardial infarction (RVMI)

Approximately one third of patients with inferior STEMI will have a concurrent RVMI.^[6,7] Patients with haemodynamically significant RVMI will typically present with hypotension, jugular vein distension and clear lung fields. ST-elevation in V_{4R}, is indicative of RVMI and correlates closely with occlusion of the proximal right coronary artery.

In RVMI the maintenance of preload is vital and appropriate volume loading to maintain cerebral perfusion is indicated if haemodynamic compromise occurs. Similarly, pharmacological agents which reduce preload (e.g. GTN) should be used with extreme caution to prevent detrimental side effects.

+ Additional information

- The terminology used to describe ACS continues to evolve with STEMI also being known as 'ST-segment-elevation acute coronary syndrome' (STEACS) and NSTEMI also being known as 'non-ST-elevation acute coronary syndrome' (NSTEMACS).
- All STEMI cases mandate CCP or ACP2 involvement where available and facilitation of early reperfusion therapy.

A normal 12-Lead ECG, clinical assessment and vital signs, does not rule out ACS.

All patients with chest discomfort or pain (typical or atypical) MUST be transported to hospital for further assessment.

Additional information (cont.)

- Very high risk NSTEMI (NSTEMACS) patients can benefit from early pPCI^[8]. Where possible, patients presenting with **recurrent dynamic or widespread ST-segment and/or T-wave changes** associated with any of the following high risk criteria should be transported to an Emergency Department of a hospital with pPCI capabilities:
 - ongoing ischaemia;
 - haemodynamic compromise;
 - arrhythmias; and/or
 - acute heart failure.
- All cases where a STEMI has been identified or suspected by a paramedic with a clinical level of ACP2 or above (including those not trained in reperfusion) are subject to specific data collection. This should be facilitated by the completion of a *STEMI Data Capture Form* by the treating paramedic and adherence to the following process:
 - On the eARF select final assessment as 'Acute Myocardial Infarction' and complete documentation in accordance with current standards.
 - Forward the appropriate *pPCI Referral Checklist*, *eARF*, *STEMI Data Capture Form* and *12-Lead ECG* to:

Manager, Cardiac Outcomes Program
 Information Support, Research & Evaluation Unit
 Mail Cluster 10.1
 Queensland Ambulance Service
 PO Box 1425
 BRISBANE, QLD 4001

