



# Clinical Practice Procedures: Cardiac/Decision supported pPCI referral

<b>Policy code</b>	CPP_CA_DPR_1221
<b>Date</b>	December, 2021
<b>Purpose</b>	To ensure a consistent procedural approach to decision supported pPCI referral.
<b>Scope</b>	Applies to Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless stated otherwise.
<b>Source of funding</b>	Internal – 100%
<b>Author</b>	Clinical Quality & Patient Safety Unit, QAS
<b>Review date</b>	December, 2024
<b>Information security</b>	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
<b>URL</b>	<a href="https://ambulance.qld.gov.au/clinical.html">https://ambulance.qld.gov.au/clinical.html</a>

While the QAS has attempted to contact all copyright owners, this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome. Please forward to: [Clinical.Guidelines@ambulance.qld.gov.au](mailto:Clinical.Guidelines@ambulance.qld.gov.au)

## Disclaimer

The Digital Clinical Practice Manual is expressly intended for use by appropriately qualified QAS clinicians when performing duties and delivering ambulance services for, and on behalf of, the QAS.

The QAS disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this manual, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.

© State of Queensland (Queensland Ambulance Service) 2021.



This work is licensed under the **Creative Commons Attribution-NonCommercial-NoDerivatives V4.0 International License**

You are free to copy and communicate the work in its current form for non-commercial purposes, as long as you attribute the State of Queensland, Queensland Ambulance Service and comply with the licence terms. If you alter the work, you may not share or distribute the modified work. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/deed.en>

For copyright permissions beyond the scope of this license please contact: [Clinical.Guidelines@ambulance.qld.gov.au](mailto:Clinical.Guidelines@ambulance.qld.gov.au)

# Decision supported pPCI referral

December, 2021

Rapid recognition of STEMI with prompt restoration of coronary artery perfusion is the key to myocardial salvage and decreased mortality. The triage of STEMI patients by paramedics, direct to a primary percutaneous coronary intervention (pPCI) has been demonstrated to reduce mortality.<sup>[1-6]</sup>

## Indications

Decision supported pPCI referral must be considered for all adult patients (*irrespective of age*) who meet the following criteria:

- **Proximity to a pPCI facility:**
  - Patient is located less than 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a QAS approved Decision Supported pPCI hospital.
- **Patient assessment:**
  - GCS = 15; **AND**
  - Classic ongoing ischaemic chest pain less than 12 hrs in duration. **Note: Atypical chest pain is excluded.**
- **12-Lead ECG consistent with STEMI:**
  - Persistent ST-segment elevation of 1 mm or greater in at least two contiguous limb leads; **AND/OR** ST-segment elevation of 2 mm or greater in at least two contiguous chest leads (V1 – V6); **AND**
  - Normal QRS width (less than 0.12 seconds); **OR** right bundle branch block (RBBB) identified on the 12-Lead ECG.

## Indications (cont.)

- **Decision supported:**
  - Corpuls<sup>3</sup> prints **acute [xx] myocardial infarction** on the 12-Lead ECG.

## Contraindications

- History of serious systemic disease (e.g. advanced/ terminal cancer, severe liver or kidney disease)
- Suspected aortic dissection (including new neurological symptoms)
- Resident of an aged care facility requiring significant assistance with activities of daily living
- Myocardial infarction in the setting of acute trauma

## Complications

- Haemorrhage

## QAS Approved Decision Supported pPCI Hospitals

REGION	PUBLIC HOSPITAL	PRIVATE HOSPITAL
Far Northern	<b>Cairns Hospital</b> <sup>a</sup> (24/7)	
Northern	<b>The Townsville University Hospital</b> <sup>a</sup> (24/7)	<b>Mater Private Pilmico Hospital</b> <sup>a</sup> (Mon–Fri 0800–1600 hrs)
Central	<b>Mackay Hospital</b> <sup>a</sup> (24/7)	
Darling Downs & South West		<b>St Andrew’s Toowoomba Hospital</b> <sup>a,b</sup> (24/7)
Sunshine Coast & Wide Bay	<b>Sunshine Coast University Hospital</b> <sup>a</sup> (24/7)	<b>Buderim Private Hospital</b> <sup>a</sup> (24/7) <b>Sunshine Coast University Private Hospital (Birtinya)</b> <sup>a</sup> (24/7)
Metro North	<b>The Prince Charles Hospital</b> <sup>a</sup> (24/7) <b>The Royal Brisbane &amp; Women’s Hospital</b> <sup>a</sup> (24/7)	<b>St Vincent’s Private Hospital Northside</b> (24/7) <b>The Wesley Hospital</b> <sup>a</sup> (24/7)
Metro South	<b>Princess Alexandra Hospital</b> <sup>a</sup> (24/7)	<b>Greenslopes Private Hospital</b> <sup>a</sup> (24/7) <b>Mater Private Hospital Brisbane</b> <sup>a</sup> (24/7)
Gold Coast	<b>Gold Coast University Hospital</b> <sup>a</sup> (24/7)	<b>Gold Coast Private Hospital</b> <sup>a</sup> (24/7) <b>John Flynn Private Hospital</b> <sup>a</sup> (24/7) <b>Pindara Private Hospital</b> <sup>a</sup> (24/7)

**Note:** <sup>a</sup> Identifies hospitals facilitating direct ACPII to interventional cardiologist referral.

<sup>b</sup> Will also be accepting PUBLIC patients until further notice.



## Procedure – Decision supported pPCI referral

1. Request 'Code 1' CCP attendance, where available – do not delay treatment **AND/OR** transport.
2. Confirm the patient is indicated for Decision Supported pPCI referral, specifically:
  - Patient is located less than 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a QAS approved Decision Supported pPCI hospital;
  - GCS = 15;
  - Classic ongoing ischaemic chest pain less than 12 hours in duration;
  - Persistent ST-segment elevation of 1 mm or greater in at least two contiguous limb leads; **AND/OR** ST-segment elevation of 2 mm or greater in at least two contiguous chest leads (V1 – V6);
  - Normal QRS width (less than 0.12 seconds) **OR** RBBB identified on the 12-Lead ECG; **AND**
  - Decision supported 12-Lead ECG interpretation confirmation that:
    - When using the corpuls<sup>3</sup> **acute [xx] myocardial infarction** is printed on the 12-Lead ECG.
3. Complete the *Decision Supported pPCI Referral Checklist (January, 2020)*.
4. Obtain informed consent from the patient and request the patient sign the *Decision Supported pPCI Referral Checklist* prior to any further action.

**NOTE:** *If the paramedic identifies a STEMI and does not have decision support from the 12-Lead ECG interpretation, decision support **must** be obtained from the QAS Clinical Consultation and Advice Line.*

5. **At the earliest opportunity**, contact the appropriate pPCI facility using the dedicated **QAS pPCI referral line** ( ) and ask to speak to the interventional cardiologist. The following narrative is suggested:

***“Can I confirm I have contacted [hospital]? I am an Advanced Care Paramedic with the QAS. I have a [XX] year old [gender] located at [suburb] who has had an onset of chest pain at [time]. The corpuls<sup>3</sup> indicates ‘acute [XX] myocardial infarction’ and the 12-Lead ECG is consistent with a(n) [XX] STEMI. The estimated arrival time at your facility is [HH:MM], are you willing to accept this patient for primary PCI?”***

- **If the patient is accepted for pPCI**, confirm with the interventional cardiologist their preferred antiplatelet agent (180 mg ticagrelor **OR** alternative) then administer medications (heparin **AND EITHER** ticagrelor **OR** alternative) in accordance with the *Decision Supported pPCI Referral Checklist* and the appropriate QAS DTP.
  - **If the patient is unable to be accepted for pPCI** continue treatment in accordance with the relevant QAS Clinical Practice Guideline (CPG).
6. Transport the patient 'Code 1' to hospital ensuring early pre-notification. **Should the patient's condition deteriorate or if there is any delay in the estimated arrival time at the pPCI facility, the paramedic must contact the interventional cardiologist via the pPCI Referral Line and provide an update.**

### Audit

- All cases involving coronary artery reperfusion are subject to clinical audit and review. In situations where there are complications or concerns, officers must immediately contact the *QAS Clinical Consultation and Advice Line*.

### Data collection and research

- 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 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 *Decision Supported pPCI Referral Checklist*, *eARF*, *STEMI Capture Form* and *12-Lead ECG* to:

**Manager, Cardiac Outcomes Program**  
Information Support, Research & Evaluation Unit

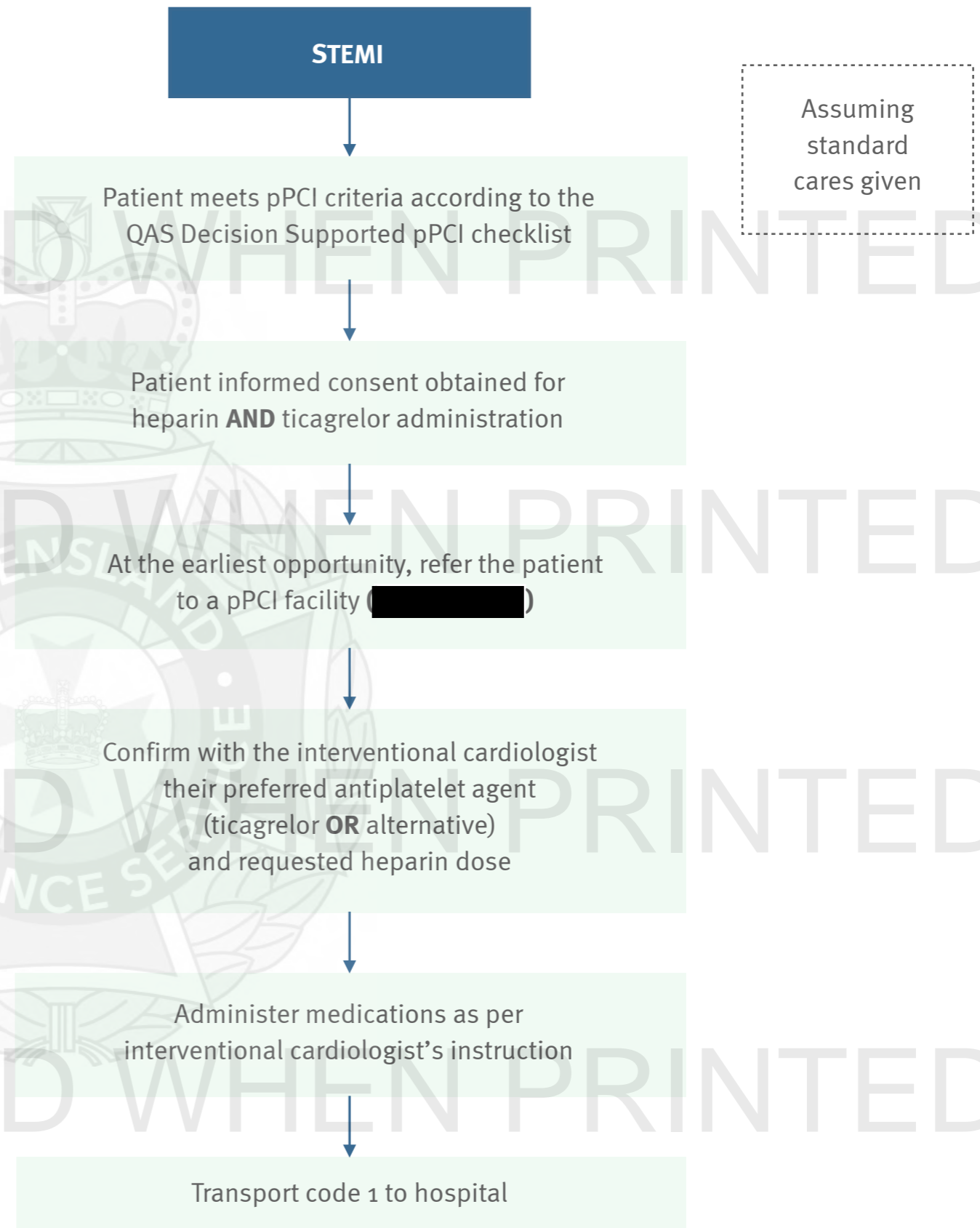
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

### + Additional information

- Increased scrutiny and threshold must be applied to patients less than 35 years due to the higher likelihood of STEMI mimics such as pericarditis, in this age group. If doubt exists regarding the suitability of pPCI referral the Paramedic must exercise extreme caution. If required, the case may be discussed with the appropriate Interventional Cardiologist to determine suitability for pPCI referral.
- Should the **QAS pPCI referral line** be diverted to a message bank, paramedics are required to leave a brief message regarding an *urgent QAS pPCI referral* and must leave an appropriate return contact phone number. If the call is not returned promptly, paramedics should make a further attempt to recontact the pPCI facility.
- If contact with the duty interventional cardiologist is unable to be established, for whatever reason, paramedics are required to contact the relevant Emergency Department and advise of a potential pPCI referral.
- If there is any concern regarding the clinical management advice provided by the hospital the *QAS Clinical Consultation and Advice Line* must be contacted immediately.
- Where possible, Paramedics should avoid IV cannulation in the region of the right wrist for those patients accepted for pPCI, to prevent delaying a radial pPCI approach.

## Additional information *(cont.)*

- Private patients with acute STEMI must be transported in accordance with the CPP, but every attempt should be made to refer the patient to a private hospital of their choice that has 24/7 pPCI capability. The private hospitals have no fixed geographical boundaries, but time to reperfusion must be a priority. Therefore, the closest private pPCI facility should be chosen where possible.
- Private patients with a history of previous cardiac investigations or interventions should be transported to the hospital of their treating cardiologist where possible.
- Patients must be regularly reassessed and transported with continuous comprehensive monitoring. All ongoing treatment must be in accordance with the relevant CPG.
- Copies of the patient's 12-Lead ECG (annotated with the patient's name, date of birth and symptoms) and e-ARF **MUST** be left with the patient.
- All faults/difficulties associated with the QAS pPCI Referral Line must be reported via the **QAS Portal**.
- The collection of clinical image for the purpose of clinical consultation AND/OR quality assurance forms part of the patient's health care record and their existence must be documented on the patient's eARF. This can be done by selecting the image tick box in the eARF app at the following location: *Care/Procedure/Consult/Clinical Consultation and Advice Line*.







## Decision Supported pPCI Referral Checklist (January, 2020)

PATIENT / CASE DETAILS			
Surname		Given Name	
Age		Weight	
Case Date		Case Number	

INDICATIONS FOR pPCI REFERRAL – if the answer is NO or UNSURE to ANY of the following, do NOT refer the patient for pPCI and do NOT administer the patient any heparin, ticagrelor or clopidogrel.	Yes	No	Unsure
Located < 60 minutes transport time (from time of first STEMI 12-Lead ECG) to a QAS approved Decision Supported pPCI hospital?			
GCS = 15?			
Classic ongoing ischaemic chest pain < 12 hours in duration? <b>Note: Atypical chest pain is excluded.</b>			
12-Lead ECG with persistent ST-elevation $\geq 1$ mm in at least two contiguous limb leads <b>AND/OR</b> $\geq 2$ mm in at least two contiguous chest leads V <sub>1</sub> –V <sub>6</sub> ?			
Normal QRS width (< 0.12 seconds) <b>OR</b> right bundle branch block identified on the 12-Lead ECG?			
LIFEPAK®12 interpretation prints <b>***ACUTE MI SUSPECTED***</b> <b>OR</b> corpuls <sup>3</sup> prints <b>acute [xx] myocardial infarction</b> on the 12-Lead ECG.			
CONTRAINDICATIONS FOR pPCI REFERRAL – if the answer is YES or UNSURE to ANY of the following questions, do NOT refer the patient for pPCI and do NOT administer the patient any heparin, ticagrelor or clopidogrel.	Yes	No	Unsure
History of serious systemic disease (e.g. advanced/terminal cancer, severe liver or kidney disease)?			
Suspected aortic dissection (including new neurological symptoms)?			
Resident of an aged care facility requiring significant assistance with activities of daily living?			
Acute myocardial infarction in the setting of trauma?			
ABSOLUTE CONTRAINDICATIONS FOR HEPARIN ADMINISTRATION – if the answer is YES or UNSURE to ANY of the following the patient may still be referred for pPCI however, do NOT administer the patient heparin.	Yes	No	Unsure
Known severe adverse reaction to heparin?			
Patient < 18 years?			
Active bleeding (excluding menses) <b>OR</b> clotting disorder (e.g. haemophilia)?			
Prior intracranial haemorrhage?			
Current use of anticoagulants (e.g. apixaban, dabigatran, rivaroxaban, warfarin)?			
RELATIVE CONTRAINDICATIONS FOR HEPARIN ADMINISTRATION – if the answer is YES or UNSURE to ANY of the following the paramedic must obtain decision support from the receiving interventional cardiologist prior to heparin administration.	Yes	No	Unsure
Uncontrolled hypertension (systolic BP > 180 mmHg <b>AND/OR</b> diastolic BP > 110 mmHg at any stage during current acute episode)?			
Known cerebral disease, in particular a malignant intracranial neoplasm <b>OR</b> arteriovenous malformation?			
Ischaemic stroke <b>OR</b> Transient Ischaemic Attack (TIA) within last 3 months?			
History of significant closed head / facial trauma within last 3 months?			
History of major trauma or surgery (including laser eye surgery) within last 6 weeks?			

## Decision Supported pPCI Referral Checklist *(continued)*

CONTRAINDICATIONS FOR TICAGRELOR ADMINISTRATION – if the answer is YES or UNSURE to ANY of the following the patient may still be referred for pPCI however, do <b>NOT</b> administer the patient ticagrelor.	Yes	No	Unsure
Known severe adverse reaction to ticagrelor?			
Patient currently taking ticagrelor <b>OR</b> clopidogrel?			
Patient < 18 years?			
Active bleeding (excluding menses)?			
Prior intracranial haemorrhage?			
History of hepatic impairment?			
CONTRAINDICATIONS FOR CLOPIDOGREL ADMINISTRATION – if the answer is YES or UNSURE to ANY of the following the patient may still be referred for pPCI however, do <b>NOT</b> administer the patient clopidogrel.	Yes	No	Unsure
Known severe adverse reaction to clopidogrel?			
Patient currently taking clopidogrel <b>OR</b> ticagrelor?			
Patient < 18 years?			
Active bleeding (excluding menses)?			
Prior intracranial haemorrhage?			

CONSENT	
All patients eligible for Decision Supported pPCI referral <b>MUST</b> read (or have read to them) the following information and if consent is given the patient must sign the bottom section of this form.	
<p>It is likely that you are suffering a heart attack. I would like to refer you to an interventional cardiologist for a procedure to restore cardiac blood flow. If this procedure is able to be performed the interventional cardiologist may request the following medications be administered with your consent:</p> <ul style="list-style-type: none"> <li>• a drug which reduces new clot formation called heparin; <b>AND</b></li> <li>• <b>either</b> a drug called ticagrelor <b>OR</b> clopidogrel which will assist in maintaining cardiac blood flow.</li> </ul> <p>Heparin <b>AND</b> either ticagrelor <b>OR</b> clopidogrel can cause significant bleeding in a small number of patients however, the use of these drugs is supported by national and international cardiology guidelines.</p> <p><b>Medical Records:</b> I give permission for the QAS to access my hospital record for information relating to the outcome of my care.</p>	
Patient signature	X .....
PARAMEDIC DETAILS	
I certify that I have completed the <i>Decision Supported pPCI Checklist</i> and the patient <b>has given / has not given</b> ( <i>circle appropriate response</i> ) consent for the administration of ticagrelor / clopidogrel ( <i>circle appropriate response</i> ) and heparin.	
Number	Signature