Indicator Specification Acute Coronary Syndromes Clinical Care Standard

December 2015

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE



© Commonwealth of Australia 2015

This work is copyright. It may be reproduced in whole or in part for study or training purposes subject to the inclusion of an acknowledgment of the source. Requests and inquiries concerning reproduction and rights for purposes other than those indicated above require the written permission of the Australian Commission on Safety and Quality in Health Care, GPO Box 5480 Sydney NSW 2001 or **mail@safetyandquality.gov.au**.

ISBN 978-1-925224-34-4

Suggested citation

Australian Commission on Safety and Quality in Health Care. Indicator Specification: Acute Coronary Syndromes Clinical Care Standard. Sydney: ACSQHC, 2015.

Acknowledgments

This document has been prepared by the Australian Commission on Safety and Quality in Health Care. Technical input was provided by Professor David Brieger, Professor Derek Chew and Associate Professor Tom Briffa. The Commission gratefully acknowledges the contributions of these experts, members of the Acute Coronary Syndromes Clinical Care Standard Topic Working Group and other key experts in the development of this document.

Disclaimer

The Australian Commission on Safety and Quality in Health Care has produced this Clinical Care Standard to support the delivery of appropriate care for a defined condition and is based on the best evidence available at the time of development. Health care professionals are advised to use clinical discretion and consideration of the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian when applying information contained within the Clinical Care Standard. Consumers should use the information in the Clinical Care Standard as a guide to inform discussions with their health care professional about the applicability of the Clinical Care Standard to their individual condition.

Contents

Acute Coronary Syndromes	2
	<u> </u>
Introduction	3
Quality statement 1 – Immediate management Indicator 1a: Patients whose care	5
is guided by a documented chest pain assessment pathway	5
Quality statement 2 – Early assessment	6
Indicator 2a: Ambulances equipped with 12-lead ECG	6
Indicator 2b: ECG performed within 10 minutes of arrival of ambulance	7
Indicator 2c: ECG performed and interpreted within 10 minutes of arrival to emergency department	8
Quality statement 3 - Timely reperfusion	9
Indicator 3a: STEMI patients receiving fibrinolysis or PCI	9
Indicator 3b: STEMI patients receiving fibrinolysis within 30 minutes of hospital arrival	11
Indicator 3c: PCI patients with STEMI with door-to-device within 90 minutes	13
Quality statement 4 – Risk stratification	15
 Indicator 4a: NSTEACS patients with documented assessment and risk stratification 	15
Indicator 4b: NSTEACS transfer to hospital with angiography facilities	17

Quality statement 5 – Coronary angiography	18
Indicator 5a: NSTEACS patients informed of the risks and benefits of coronary angiography	18
Quality statement 6 – Individualised care plan	20
Indicator 6a: ACS patients with an individualised care plan	20
Indicator 6b: Patients discharged on aspirin or dual antiplatelet therapy	22
Indicator 6c: Patients discharged on lipid lowering therapy	24
Indicator 6d: Patients referred to cardiac rehabilitation or other secondary prevention program	25
Indicator 6e: Discharge summary provided to general practitioner or ongoing clinical provider within 48 hours of discharge	27
Indicators of effectiveness	28



1

Acute Coronary Syndromes Clinical Care Standard



A patient presenting with acute chest pain or other symptoms suggestive of an acute coronary syndrome receives care guided by a documented chest pain assessment pathway.



2 A patient with acute chest pain or other symptoms suggestive of an acute coronary syndrome receives a 12-lead electrocardiogram (ECG) and the results are analysed by a clinician experienced in interpreting an ECG within 10 minutes of the first emergency clinical contact.



3 A patient with an acute ST-segment-elevation myocardial infarction (STEMI), for whom emergency reperfusion is clinically appropriate, is offered timely percutaneous coronary intervention (PCI) or fibrinolysis in accordance with the time frames recommended in the current National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand *Guidelines for the Management of Acute Coronary Syndromes.*^a

In general, primary PCI is recommended if the time from first medical contact to balloon inflation is anticipated to be less than 90 minutes, otherwise the patient is offered fibrinolysis.



4 A patient with a non-ST-segment-elevation acute coronary syndrome (NSTEACS) is managed based on a documented, evidence-based assessment of their risk of an adverse event.



2

6

5 The role of coronary angiography, with a view to timely and appropriate coronary revascularisation, is discussed with a patient with a non-ST-segment-elevation acute coronary syndrome (NSTEACS) who is assessed to be at intermediate or high risk of an adverse cardiac event.

Before a patient with an acute coronary syndrome leaves the hospital, they are involved in the development of an individualised care plan. This plan identifies the lifestyle modifications and medicines needed to manage their risk factors, addresses their psychosocial needs and includes a referral to an appropriate cardiac rehabilitation or another secondary prevention program. This plan is provided to the patient and their general practitioner or ongoing clinical provider within 48 hours of discharge.

 Acute Coronary Syndromes Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006; 184(8):S1-S30.

Introduction

An acute coronary syndrome results from a sudden blockage of a blood vessel in the heart, typically by a blood clot (thrombosis) that reduces blood supply to a portion of heart muscle. Where the blockage is severe enough to lead to injury or death of the heart muscle, the event is called an acute myocardial infarction (or 'heart attack'). Acute coronary syndromes also include unstable angina (chest pain usually due to restricted blood flow to the heart muscles), which can lead to a heart attack. The most common cause of an acute coronary syndrome is atherosclerosis (or 'coronary heart disease') where an artery wall thickens due to a build-up of fatty materials such as cholesterol.

Acute coronary syndromes affect thousands of Australians. It is estimated that 69,900 people aged 25 and over had a heart attack in 2011, which equates to around 190 heart attacks a day. Further, coronary heart disease contributed to 15% of all deaths in Australia in 2011.^a

Despite well-developed guidelines for managing acute coronary syndromes, recent research found that not all patients receive appropriate treatments, particularly for invasive management of this condition.^b The logistical challenges regarding the provision of timely invasive management to patients in regional, remote and outer metropolitan areas were also highlighted.^b

The Acute Coronary Syndromes Clinical Care Standard aims to ensure that a patient with an acute coronary syndrome receives optimal treatment from the onset of symptoms through to discharge from hospital. This includes recognition of an acute coronary syndrome, rapid assessment, early management and early initiation of a tailored rehabilitation plan. A set of suggested indicators have been developed to assist with local implementation of this Clinical Care Standard. They can be used by health services to monitor the implementation of the quality statements, and support improvement as needed.

The process to develop these indicators comprised:

- an environmental scan of existing local and international indicators
- a prioritisation review and refinement of the indicators with a dedicated sub-committee of the Topic Working Group, and review by the Topic Working Group and Clinical Care Standards Advisory Committee.

Where no indicator was identified for a given quality statement, the sub-committee drafted new indicators based on their experience with audits in relevant sectors.

The specification of the indicators aims to support the consistent local collection of data related to the implementation of this Clinical Care Standard. It sets out the name for each indicator along with the rationale, computation, numerator, denominator, relevant inclusion and exclusions criteria, and associated references.

a Australian Institute of Health and Welfare. Australia's health 2014. Canberra: AIHW, 2014.

b Chew DP, French J, Briffa TG, Hammett CJ, Ellis CJ, Ranasinghe I, et al. Acute coronary syndrome care across Australia and New Zealand: the SNAPSHOP ACS study. Medical Journal of Australia. 2013; 199(3): 185-91.



Role of the Commission in developing indicators

Responsibilities of the Australian Commission on Safety and Quality in Health Care (the Commission) are specified in the *National Health Reform Act 2011* and the *National Health Reform Agreement 2011*.

The National Health Reform Act requires the Commission to 'formulate, in writing, indicators relating to health care safety and quality matters' (9)(1)(g), and to 'promote, support and encourage the use of indicators formulated ...'(9)(1)(i).

The National Health Reform Agreement specifies the Commission's responsibility to 'recommend national datasets for safety and quality...' (clause B80d).

The Commission's work program is driven by the Australian Safety and Quality Framework for Health Care principles, which state that health care delivery should be consumer centred, driven by information, and organised for safety.

Notes

METEOR is the national metadata registry^a. Where a data element is part of the National Health Data Dictionary, the METeOR identifier is referenced.

International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM, 9th edition) codes, applied to admitted patient records, do not always align with the most current clinical classifications of a condition, in this case acute coronary syndromes. The intent of appending ICD-10-AM codes for pertinent cardiac conditions and procedures is to assist hospitals in generating 'first pass' lists of eligible patients for inclusion in the cohort for whom to generate the indicators.

The indicators are intended for local use by ambulance services, hospitals and local hospital networks (LHNs) where relevant.

For more information about this Clinical Care Standard, visit www.safetyandquality.gov.au/ccs.

Quality statement 1 - Immediate management

A patient presenting with acute chest pain or other symptoms suggestive of an acute coronary syndrome receives care guided by a documented chest pain assessment pathway.

Indicator 1a: Patients whose care is guided by a documented chest pain assessment pathway

Definitional attributes

- Name: Proportion of patients presenting with acute chest pain, or other symptoms suggestive of an acute coronary syndrome (ACS), whose care is guided by a documented chest pain assessment pathway.
- Rationale: Adherence to using and documenting the chest pain assessment pathway optimises patient outcomes in the management of ACS.

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients presenting to hospital with acute chest pain, or other symptoms suggestive of ACS, whose care is guided by a documented chest pain assessment pathway.

Numerator

- criteria: <u>Inclusions</u>
 - Patients with a final diagnosis of unstable angina (UA) (I20.x) or acute myocardial infarction (I21.x).^a

Care type = '1' (acute care).^b

<u>Exclusions</u> N/A. **Denominator:** Total number of patients presenting to hospital with acute chest pain or other symptoms suggestive of ACS.

Denominator

criteria:	<u>Inclusions</u> Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x). ^a
	Care type = '1' (acute care). ^b
	<u>Exclusions</u> N/A.
Setting:	Acute/hospital.
Comments:	Assessment is still indicated for patients with advanced care directives, on a palliative care pathway, subject to discussion with

Reference

Supplementary source:

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

patients, family and carers.

a ICD-10AM (9th edition).

b METeOR identifier: 491557.



Quality statement 2 – Early assessment

A patient with acute chest pain or other symptoms suggestive of an acute coronary syndrome receives a 12-lead electrocardiogram (ECG) and the results are analysed by a clinician experienced in interpreting an ECG within 10 minutes of the first emergency clinical contact.

Indicators 2a: Ambulances equipped with 12-lead ECG

Definitional attributes

- Name: Proportion of ambulances that respond to acute chest pain calls that are equipped with a 12-lead ECG in the reference ambulance service.
- Rationale: Early diagnosis allows the ambulance to initiate treatment and alert the emergency department (ED) with the diagnostic information to optimise door-to-needle time and time to other interventions. The Guidelines for the management of acute coronary syndromes (The Guidelines) recommend that 'a 12-lead ECG should be taken en route and transmitted to a medical facility.'¹

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- Numerator: Total number of eligible ambulances (those that respond to acute chest pain calls) equipped with 12-lead ECG.

Numerator criteria:	Inclusions Eligible ambulances equipped with 12-lead ECG in the reference ambulance service or Local Hospital Network (LHN).
Denominator:	Total number of eligible ambulances in the reference service or LHN.
Denominator criteria:	Inclusions Eligible ambulances (those attending to chest pain calls) in the reference ambulance service or LHN. Exclusions Ambulances not eligible to attend chest pain calls.
Setting:	Ambulance.
Comments:	This indicator has not previously been used in Australia. It was developed through clinical consensus by the Acute Coronary Syndromes Clinical Care Standard Topic Working Group to support this quality statement. ¹

Reference

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

Quality statement 2 - Early assessment

Indicator 2b: ECG performed within 10 minutes of arrival of ambulance

Definitional attributes

- Name: Proportion of patients with chest pain with ECG performed within 10 minutes of first clinical contact, after arrival of ambulance.
- Rationale: Early diagnosis optimises doorto-needle time and time to other interventions. The time taken to record the first ECG is a good index of quality care. The European Society of Cardiology guidelines identify that ECG should be performed within ten minutes or less after the first clinical contact (either on arrival of the patient in ED or at first contact with emergency medical services in the pre-hospital setting) and immediately interpreted by a qualified physician.1,2

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- **Numerator:** Total number of patients with chest pain who receive an ECG within 10 minutes of an ambulance arrival.

Numerator

criteria: <u>Inclusions</u> All patients with chest pain attended by ambulance, where a 12-lead ECG was performed within 10 minutes of first clinical contact by ambulance officers.

Exclusions

Ambulance patients where ECG is performed in the absence of chest pain.

Denominator:	Total number of patients with chest pain attended to by ambulances.
Denominator	
criteria:	Inclusions
	All patients with chest pain
	attended by ambulance, where a
	12-lead ECG was performed by
	ambulance officers.

All patients with chest pain attended by ambulance, where a 12-lead ECG was not performed by ambulance officers.

<u>Exclusions</u>

Patients where an ECG is performed in the absence of chest pain.

- Setting: Ambulance.
- **Comments:** 'First clinical contact' is defined as the time that emergency medical services personnel arrive at the patient.³

References

- 1. Steg P, James SK, Atar D, et al. ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment-elevation. European Heart Journal. 2012;33:2569–2619.
- 2. Hamm C, Bassand JP, Agewall S, et al. ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment-elevation. European Heart Journal 2011;32:2999–3054.
- 3. Fosbol EL, Granger CB, Jollis JG, et al. The impact of a statewide pre-hospital STEMI strategy to bypass hospitals without percutaneous coronary intervention capability on treatment times. Circulation. 2013;127(5):604–612.



Quality statement 2 – Early assessment

Numerator

Indicator 2c: ECG performed and interpreted within 10 minutes of arrival to ED

Definitional attributes

- Name: Proportion of patients, including patients presenting to ED via ambulance, with acute chest pain or other symptoms suggestive of ACS, with ECG performed and analysed before or within 10 minutes of arrival to ED.
- Rationale: Early diagnosis optimises door-to-needle time and time to other interventions. The time taken to record the first ECG is a good index of quality care. The *European Society of Cardiology* guidelines identify that the ECG should be performed within 10 minutes or less after the first medical contact (either on arrival of the patient in ED or at first contact with emergency medical services in the pre-hospital setting) and immediately interpreted by a qualified physician.^{1,2}

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients, including patients presenting to ED via ambulance, with acute chest pain or other symptoms suggestive of ACS, with ECG performed and analysed before or within 10 minutes of arrival to ED.

with oms lead ed
ing in or CS.
n or NCS
ſS

- 1. Steg P, James SK, Atar D, et al. ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment-elevation. European Heart Journal. 2012;33:2569–2619.
- Hamm C, Bassand JP, Agewall S, et al. ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment-elevation. European Heart Journal. 2011;32:2999–3054.

Quality statement 3 – Timely reperfusion

A patient with an acute ST-segment-elevation myocardial infarction (STEMI), for whom emergency reperfusion is clinically appropriate, is offered timely percutaneous coronary intervention (PCI) or fibrinolysis in accordance with the time frames recommended in the current National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand *Guidelines for the Management of Acute Coronary Syndromes*.

In general, primary PCI is recommended if the time from first medical contact to balloon inflation is anticipated to be less than 90 minutes, otherwise the patient is offered fibrinolysis.

Indicator 3a: STEMI patients receiving fibrinolysis or PCI

Definitional attributes

- Name: Proportion of patients with STEMI at first emergency contact presenting within 12 hours of symptom onset and receiving fibrinolysis or percutaneous coronary intervention (PCI).
- Rationale: The *Guidelines* recommend that 'patients with STEMI who present within 12 hours of the onset of ischaemic symptoms should have a reperfusion strategy implemented promptly.'1

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- Numerator: Total number of patients with STEMI presenting to hospital within 12 hours of symptom onset, who receive fibrinolysis or PCI.

Numerator

criteria:

Inclusions

STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21.3).^a

Care type = '1' (acute care)^b

AND

Patients undergoing percutaneous coronary intervention. That is, patients undergoing one of the following procedures:

- percutaneous transluminal balloon angioplasty of 1 coronary artery (38300-00, [block 670])
- percutaneous transluminal balloon angioplasty of >=2 coronary arteries (38303-00, [block 670])
- percutaneous insertion of 1 transluminal stent into single coronary artery (38306-00 [block 671]

a ICD-10-AM (9th edition).



Quality statement 3 - Timely reperfusion

- percutaneous insertion of >= 2 transluminal stents into single coronary artery (38306-01 [block 671])
- percutaneous insertion of >= 2 transluminal stents into multiple coronary arteries (38306-02 [block 671])

OR

administration of fibrinolytic drugs.

Exclusions

Patients with STEMI who receive fibrinolysis or PCI, where presentation is more than 12 hours after symptom onset.

Patients with left bundle branch block (LBBB)(I44.x).^a

Denominator: Total number of patients with STEMI presenting to hospital within 12 hours of symptom onset.

Denominator

criteria:

Inclusions STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21,3).^a
- Care type = '1' (acute care).^b

Exclusions

Patients with STEMI who present more than 12 hours after symptom onset.

Patients with LBBB (144.x).ª

Patients for whom PCI and fibrinolysis are contraindicated, and for whom the contraindication is documented.

Setting: Acute/hospital.

Comments: Contraindications for PCI and fibrinolysis may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

References

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

Supplementary source:

 Aliprandi-Costa BJ, Ranasinghe I, Chow V, et al. Management and outcomes of patients with acute coronary syndromes in Australia and New Zealand 2000–2007. Medical Journal of Australia. 2011;195(3):116–121.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.

Quality statement 3 – Timely reperfusion

Indicator 3b: STEMI patients receiving fibrinolysis within 30 minutes of hospital arrival

Definitional attributes

- Name: Proportion of patients with STEMI, whose first emergency clinical contact is within 12 hours of symptom onset, treated with fibrinolysis before or within 30 minutes of hospital arrival.
- Rationale: Early administration of fibrinolytic therapy given soon after symptom onset has been shown to reduce mortality by up to 50 per cent.¹

The American Heart Association Task Force recommends fibrinolysis within 30 minutes of arrival where a door-to-device time is anticipated to exceed 120 minutes.²

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients with STEMI arriving at the emergency department or being attended to by ambulance officers within 12 hours of symptom onset, receiving fibrinolysis before or within 30 minutes of hospital arrival.

Numerator criteria:

Inclusions

STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21.3).^a
- Care type = '1' (acute care).^b

<u>Exclusions</u> Nil.

Denominator: Total number of patients with STEMI arriving at the emergency department or being attended to by ambulance officers within 12 hours of symptom onset.

criteria: Inclusions

STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21.3).^a

Care type = '1' (acute care).^b

Exclusions

Patients for whom fibrinolysis is contraindicated and for whom the contraindication is documented.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.



Quality statement 3 - Timely reperfusion

Setting: Acute/hospital.

Comments: Contraindications for fibrinolysis may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

> The *Guidelines* reference both absolute and relative contraindications to the administration of fibrinolysis.³

References

- 1. Boersma E, Maas AC, Deckers JW, et al. Early thrombolytic treatment in acute myocardial infarction: reappraisal of the golden hour. Lancet. 1996;348(9030):771–775.
- 2. O'Gara P, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA Guideline for the management of ST-elevation myocardial infarction: A report of the American College of Cardiology Foundation/ American Heart Association Task Force on Practice Guidelines. Circulation. 2013;127:e362–e425.
- Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

Supplementary source:

 Chassin MR, Loeb JM, Schmaltz SP, et al. Accountability measures – using measurement to promote quality improvement. New England Journal of Medicine. 2010;363(7):683–688.

Quality statement 3 – Timely reperfusion

Indicator 3c: PCI patients with STEMI with door-to-device within 90 minutes

Definitional attributes

- Name: Proportion of patients with STEMI, treated with PCI, who have a door-to-device time of 90 minutes or less, after arrival at a PCI-capable hospital, or 120 minutes or less if transferred from a non PCI-capable hospital.
- Rationale: Timely PCI has been shown to improve short-term and long-term outcomes such as a reduction in mortality, myocardial infarctions and strokes in patients with STEMI who present to hospital within 12 hours of symptom onset.^{1,2} The *Guidelines* state that 'a time delay of 90 minutes from first medical contact to balloon inflation is the maximum desirable.³

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- Numerator: Total number of patients with STEMI, treated with PCI, who have a doorto-device time of 90 minutes or less, after arrival at a PCI-capable hospital, or 120 minutes or less if transferred from a non PCI-capable hospital.

Numerator criteria:

Inclusions

STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21.3).^a

Care type = '1' (acute care).^b

AND Patients undergoing PCI. That is, patients undergoing one of the following procedures:

- percutaneous transluminal balloon angioplasty of 1 coronary artery (38300-00, [block 670])
- percutaneous transluminal balloon angioplasty of >=2 coronary arteries (38303-00, [block 670])
- percutaneous insertion of 1 transluminal stent into single coronary artery (38306-00 [block 671]
- percutaneous insertion of >= 2 transluminal stents into single coronary artery (38306-01 [block 671])
- percutaneous insertion of >= 2 transluminal stents into multiple coronary arteries (38306-02 [block 671]).

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.



Quality statement 3 - Timely reperfusion

<u>Exclusions</u> Nil.

Denominator: Total number of patients with STEMI who arrive at a PCI-capable hospital or are transferred from a non PCI-capable hospital.

Denominator

criteria:

Inclusions

STEMI patients. That is, patients with a diagnosis of one of the following:

- acute transmural myocardial infarction of anterior wall (I21.0)
- acute transmural myocardial infarction of inferior wall (I21.1)
- acute transmural myocardial infarction of other sites (I21.2)
- acute transmural myocardial infarction of unspecified site (I21.3).^a

Care type = '1' (acute care).^b

Exclusions

Patients for whom PCI is contraindicated, and for whom the contraindication is documented.

Setting: Acute/hospital.

Comments:

Contraindications for PCI may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

It is recognised that this target of 90 minutes is difficult to achieve in the management of patients with STEMI who suffer a cardiac arrest, and for whom advanced resuscitation is effected prior to PCI.

References

- 1. GUSTO IIb Angioplasty Substudy Investigators. A clinical trial comparing primary coronary angioplasty with tissue plasminogen activator for acute myocardial infarction. New England Journal of Medicine. 1997;336(23):1621–1628.
- Keeley EC, Boura JA, Grines CL. Primary angioplasty versus intravenous thrombolytic therapy for acute myocardial infarction: a quantitative review of 23 randomised trials. Lancet. 2003;361(9351):13–20.
- Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

Supplementary sources:

- Wang TY, Nallamothu BK, Krumholz HM, et al. Association of door-in door-out time with reperfusion delays and outcomes among patients transferred for primary percutaneous coronary intervention. Journal of the American Medical Association. 2011;305(24):2540–2547.
- Chassin MR, Loeb JM, Schmaltz SP, et al. Accountability measures – using measurement to promote quality improvement. New England Journal of Medicine. 2010;363(7):683–688.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.

Quality statement 4 – Risk stratification

A patient with a non-ST-segment-elevation acute coronary syndrome (NSTEACS) is managed based on a documented, evidence-based assessment of their risk of an adverse event.

Indicator 4a: NSTEACS patients with documented assessment and risk stratification

Definitional attributes

- Name: Proportion of patients hospitalised with NSTEACS who have a documented assessment and risk stratification, using a guideline-recommended tool.
- Rationale: Appropriate assessment is needed to determine the likelihood of a cardiac adverse event among NSTEACS patients. Risk stratification of NSTEACS patients is used to determine the likelihood of short-term adverse outcomes, which will direct the treatment management strategy.¹

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients hospitalised with NSTEACS who have a documented assessment and risk stratification, using a guideline-recommended tool.

Numerator

criteria: **Inclusions** Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR patients with a final diagnosis of unstable angina (UA) (I20.0).ª Care type = '1' (acute care).^b Exclusions Nil. Denominator: Total number of patients hospitalised with NSTEACS. Denominator criteria: Inclusions Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR patients with a final diagnosis of unstable angina (UA) (I20.0).ª Care type = '1' (acute care).^b Exclusions Nil. Setting: Acute/hospital. Comments: Assessment and risk stratification is indicated for patients with advanced care directives, on a palliative care pathway, subject to discussion with patients, family and carers. Risk assessment tools for consideration include: i. GRACE ACS Risk Calculator²

- ii. TIMI Risk Score for UA/NSTEMI³
- iii. Acute Coronary Syndromes Treatment Algorithm.⁴

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.



References

- Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.
- 2. GRACE. Centre for Outcomes Research, University of Massachusetts Medical School: [cited May 2014]; Available from: www.outcomes-umassmed.org/grace.
- MD Calc. TIMI Risk Score for UA/NSTEMI. [cited May 2014]; Available from: http://www.mdcalc.com/timi-risk-score-foruanstemi/.
- National Heart Foundation of Australia and The Cardiac Society of Australia and New Zealand. Acute coronary syndromes treatment algorithm. NHFA & CSANZ; 2011 [cited May 2014]; Available from: http://www.heartfoundation. org.au/SiteCollectionDocuments/ACS%20therapy%20 algorithm-WEB-secure.pdf.

Quality statement 4 – Risk stratification

Indicator 4b: NSTEACS transfer to hospital with angiography facilities

Definitional attributes

- Name: Proportion of patients with NSTEACS in a hospital without angiography facilities, assessed as being at high-risk for a recurrent adverse cardiac event and transferred for angiography elsewhere.
- Rationale: The *Guidelines* recommend that arrangements should be made for coronary angiography and revascularisation for high-risk patients, except for those with severe comorbidities, including general frailty.¹

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients with NSTEACS in a hospital without angiography facilities, assessed as being at high-risk for a recurrent adverse cardiac event who are transferred for angiography elsewhere.

Numerator

criteria: <u>Inclusions</u> Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR

patients with a final diagnosis of unstable angina (UA) (I20.0).ª

Care type = '1' (acute care).^b <u>Exclusions</u> Nil.

- Denominator: Total number of patients with NSTEACS in a hospital without angiography facilities, assessed as being at highrisk for a recurrent adverse cardiac event.
 Denominator Inclusions
 - criteria: Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR patients with a final diagnosis of unstable angina (UA) (I20.0).^a

Care type = '1' (acute care).^b

Exclusions

Patients for whom angiography is contraindicated, and for whom the contraindication is documented.

- Setting: Acute/hospital.
- Comments: Contraindications for angiography
 - may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers. Refer to the *Guidelines* for features associated with high-risk, intermediate-risk and low-risk NSTEACS.¹

Reference

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

- a ICD-10-AM (9th edition).
- b METeOR identifier: 491557.



Quality statement 5 – Coronary angiography

The role of coronary angiography, with a view to timely and appropriate coronary revascularisation, is discussed with a patient with a non-ST-segment-elevation acute coronary syndrome (NSTEACS) who is assessed to be at intermediate or high risk of an adverse cardiac event.

Indicator 5a: NSTEACS patients informed of the risks and benefits of coronary angiography

Definitional attributes

- Name: Proportion of patients with NSTEACS who, having been assessed as intermediate or highrisk using a guideline-recommended tool, are informed of the risks and benefits of coronary angiography.
- Rationale: High-risk patients should be treated aggressively with medical management and arrangements should be made for coronary angiography and revascularisation where appropriate, except in those with severe comorbidities, including general frailty.^{1,2} Informing patients of the risks and benefits of a procedure ensures that the delivery of care is consumer-centred and aligns with the *Australian Safety and Quality Framework for Health Care.*³

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of NSTEACS patients, who, having been assessed as intermediate or high-risk using a guideline-recommended tool, whose records have documented evidence that they were informed of the risks and benefits of coronary angiography, based upon their clinical situation.

Numerator criteria:

<u>Inclusions</u> Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR

patients with a final diagnosis of unstable angina (UA) (I20.0).^a

Care type = '1' (acute care).^b

<u>Exclusions</u> Nil.

Denominator: Total number of NSTEACS patients assessed as intermediate or high risk using a guideline-recommended tool.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.

Quality statement 5 - Coronary angiography

Denominator

criteria:

Inclusions

Patients with a final diagnosis of acute subendocardial myocardial infarction (NSTEMI) (I21.4) OR

patients with a final diagnosis of unstable angina (UA) (I20.0).^a

Care type = '1' (acute care).^b

Exclusions

Patients for whom angiography is contraindicated, and for whom the contraindication is documented.

Setting: Acute/hospital.

Comments: Refer to the *Guidelines* for features associated with high-risk, intermediate-risk and low-risk NSTEACS.¹

> Contraindications for angiography may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

References

- Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.
- 2. Australian Health Ministers' Advisory Council. Better cardiac care for Aboriginal and Torres Strait Islander people: postforum report. Sydney: AHMAC, May 2014.
- Australian Commission on Safety and Quality in Health Care. Australian Safety and Quality Framework for Health Care. Sydney: ACSQHC, 2010. [cited May 2014]; Available from www.safetyandquality.gov.au/wp-content/ uploads/2012/04/Australian-SandQ-Framework1.pdf.

a ICD-10-AM (9h edition).

b METeOR identifier: 491557.



Before a patient with an acute coronary syndrome leaves the hospital, they are involved in the development of an individualised care plan. This plan identifies the lifestyle modifications and medicines needed to manage their risk factors, addresses their psychosocial needs and includes a referral to an appropriate cardiac rehabilitation or another secondary prevention program. This plan is provided to the patient and their general practitioner or ongoing clinical provider within 48 hours of discharge.

Indicator 6a: ACS patients with an individualised care plan

Definitional attributes

- Name: Proportion of ACS patients provided with a written, individualised care plan (addressing factors such as gradual physical activity,^a smoking cessation and therapies addressing psychosocial needs).
- Rationale: ACS patients can successfully contribute to managing their own condition. As such, all patients should be provided with a written care plan for chest pain which includes quitting smoking, good nutrition, moderating alcohol intake, regular physical activity and weight management, as appropriate.

Additionally the care plan should include:

- rest and self-administration of short-acting nitrates
- self-administration of aspirin unless contraindicated (most patients should already be taking aspirin)

- calling an ambulance (e.g. dialing 000) if chest pain or discomfort is not completely relieved within 10 minutes
- individualised clinician notification and care plan for those living in areas where an ambulance is not readily available.¹

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of ACS patients provided with a written, individualised care plan (addressing factors such as gradual physical activity^a, smoking cessation and therapies addressing psychosocial needs).

Numerator

criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^b

Care type = '1' (acute care).°

Exclusions

Discharge on palliative care pathway, or where adherence to a secondary prevention plan is not indicated.

- Except for patients who are very debilitated.
- b ICD-10-AM (9th edition).
- c METeOR identifier: 491557.

Denominator: Total number of ACS patients discharged from hospital.

Denominator

criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).ª

Care type = '1' (acute care).^b

Exclusions

Discharge on palliative care pathway, or where adherence to a secondary prevention plan is not indicated.

Setting: Acute/hospital.

Comments: Resources provided to patients who do not speak English may require translation into other languages.

Reference

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.



Indicator 6b: Patients discharged on aspirin or dual antiplatelet therapy

Definitional attributes

- Name: Proportion of patients with a final diagnosis of an ACS who are prescribed aspirin or dual antiplatelet therapy at hospital discharge.
- Rationale: ACS patients on aspirin and dual antiplatelet therapies have a reduced risk of secondary cardiac events. The *Guidelines* recommend that, before discharge, patients with an ACS should be initiated on a medication regimen, including antiplatelet agent(s), beta-blocker, angiotensin-converting enzyme inhibitor, statin and other therapies as appropriate.¹

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients with a final diagnosis of ACS who are prescribed aspirin or other dual antiplatelet therapy at hospital discharge.

Numerator criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a Care type = '1' (acute care).^b Exclusions

Nil.

Denominator: Total number of patients with a final diagnosis of ACS who are discharged from hospital.

Denominator

criteria:

Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a

Care type = '1' (acute care).^b

<u>Exclusions</u>

ACS patients for whom aspirin and other antiplatelet therapies are contraindicated, and for whom the contraindication is documented.

Setting: Acute/hospital.

Comments: Contraindications for aspirin and other antiplatelet therapies may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.

References

 Acute Coronary Syndrome Guidelines Working Group. Guidelines for the management of acute coronary syndromes 2006. Medical Journal of Australia. 2006;184(8):S1–S30.

Supplementary sources:

- Chew DP, Aroney CN, Aylward P, et al. 2011 addendum to the National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand guidelines for the management of acute coronary syndromes (ACS) 2006. Heart, Lung and Circulation. 2011;20:487–502.
- Aroney CN, Aylward P, Chew DP, et al. 2007 Addendum to the National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand Guidelines for the management of acute coronary syndromes. Medical Journal of Australia. 2008;188(5):302–3.
- Chew DP, Amerena JV, Coverdale SG, et al. Invasive management and late clinical outcomes in contemporary Australian management of acute coronary syndromes: observations from the ACACIA registry. Medical Journal of Australia. 2008;188(12):691–697.
- Chassin MR, Loeb JM, Schmaltz SP, et al. Accountability measures – using measurement to promote quality improvement. New England Journal of Medicine. 2010;363(7):683–688.



Indicator 6c: Patients discharged on lipid lowering therapy

Definitional attributes

- Name: Proportion of patients with a final diagnosis of an ACS who are prescribed lipid lowering therapy at hospital discharge.
- Rationale: Lowering lipid levels (using statin) is an effective primary and secondary prevention treatment for vascular events, including stroke.¹

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- Numerator: Total number of patients with a final diagnosis of ACS who are prescribed a statin or other lipid lowering therapy at hospital discharge.

Numerator

criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a

Care type = '1' (acute care).^b

<u>Exclusions</u> Nil.

Denominator: Total number of patients with a final diagnosis of ACS who are discharged from hospital.

Denominator

criteria:

Inclusions

Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a

Care type = '1' (acute care).^b

Exclusions

Statin-intolerant ACS patients, and other ACS patients for whom statins or other lipid-lowering therapies are contraindicated and for whom the contraindication is documented.

Setting: Acute/hospital.

Comments: Contraindications for statins may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

References

 Amarenco P, Bogousslavsky J, Callahan III A, et al. High-dose atorvastatin after stroke or transient ischemic attack. New England Journal of Medicine. 2006;355(6):549–559.

Supplementary sources:

- Aliprandi-Costa BJ, Ranasinghe I, Chow V, et al. Management and outcomes of patients with acute coronary syndromes in Australia and New Zealand 2000–2007. Medical Journal of Australia. 2011;195(3):116–121.
- Chew DP, Amerena JV, Coverdale SG, et al. Invasive management and late clinical outcomes in contemporary Australian management of acute coronary syndromes: observations from the ACACIA registry. Medical Journal of Australia. 2008;188(12):691–697.
- Krumholz HM, Anderson JL, Bachelder BL, et al. 2008 performance measures for adults with ST-elevation and non-ST elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures. Circulation. 2008;118(24):2596–2648.
- Chew DP, Aroney CN, Aylward P, et al. 2011 addendum to the National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand guidelines for the management of acute coronary syndromes (ACS) 2006. Heart, Lung and Circulation. 2011;20:487–502.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.

Numerator

Indicator 6d: Patients referred to cardiac rehabilitation or other secondary prevention program

Definitional attributes

- Name: Proportion of patients with documented referral prior to discharge to a cardiac rehabilitation or an alternative secondary prevention program.
- Rationale: Cardiac rehabilitation or other secondary prevention programs are recommended to reduce risk of subsequent cardiac events.

All patients with cardiovascular disease should have access, and be actively referred, to comprehensive ongoing prevention and cardiac rehabilitation services. Specific guidelines are available for Indigenous populations.¹

Collection and usage attributes

- **Computation:** (Numerator ÷ denominator) x 100
- Numerator: Total number of patients with a final diagnosis of ACS with a documented referral prior to discharge to a cardiac rehabilitation or an alternative secondary prevention program.

criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a Care type = '1' (acute care).^b Exclusions Patients for whom cardiac rehabilitation or other secondary prevention program are contraindicated, and for whom the contraindication is documented. Denominator: Total number of patients with a final diagnosis of ACS discharged from hospital. Denominator criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a

Care type = '1' (acute care).^b

<u>Exclusions</u> Patients for whom cardiac rehabilitation or other secondary prevention programs are contraindicated, and for whom the contraindication is documented.

Setting: Acute/hospital.

a ICD-10-AM (9th edition).

b METeOR identifier: 491557.



Comments: Contraindications for cardiac rehabilitation and other secondary prevention programs may include advanced care directives, being on a palliative care pathway, and clinical judgement, subject to discussion with patients, family and carers.

The World Health Organization has defined cardiac rehabilitation as:

'the sum of activities required to influence favourably the underlying cause of the disease, as well as the best possible, physical, mental and social conditions, so that they (people) may, by their own efforts preserve or resume when lost, as normal a place as possible in the community. Rehabilitation cannot be regarded as an isolated form or stage of therapy but must be integrated within secondary prevention services of which it forms only one face."² For additional information on cardiac rehabilitation, see the *Recommended Framework for Cardiac Rehabilitation.*³

References

- National Health and Medical Research Council. Strengthening cardiac rehabilitation and secondary prevention for Aboriginal and Torres Strait Islander peoples. Canberra: NHMRC, 2005.
- 2. World Health Organization. Needs and action priorities in cardiac rehabilitation and secondary prevention in patients with CHD. Geneva: WHO, 1993.
- 3. National Heart Foundation of Australia and Australian Cardiac Rehabilitation Association. Recommended framework for cardiac rehabilitation '04. Canberra: NHFA and ACRA, 2004.

Indicator 6e: Discharge summary provided to general practitioner or ongoing clinical provider within 48 hours of discharge

Definitional attributes

- Name: Proportion of patients whose discharge summary is provided to their general practitioner (GP) or ongoing clinical provider within 48 hours of discharge.
- Rationale: The provision of a discharge summary to a GP or ongoing clinical provider demonstrates appropriate clinical handover.1

Collection and usage attributes

Computation: (Numerator ÷ denominator) x 100

Numerator: Total number of patients with a final diagnosis of ACS whose discharge summary has been provided to their GP or relevant health service within 48 hours of discharge.

Numerator

criteria: Inclusions Patients with a final diagnosis of UA (I20.x) or acute myocardial infarction (I21.x).^a

> Care type = '1' (acute care).^b Exclusions Nil.

Denominator: Total number of patients with a final diagnosis of ACS discharged from hospital.

Denominator criteria:	<i>Inclusions</i> Patients with a final diagnosis of
	UA (I20.x) or acute myocardial infarction (I21.x). ^a
	Care type = '1' (acute care). ^b
	<u>Exclusions</u> Nil.
Setting:	Acute/hospital.
Comments:	Nil.

Reference

1. Australian Commission on Safety and Quality in Health Care. Accreditation evidence of implementation of the National Safety and Quality Health Service (NSQHS) Standards. Sydney: ACSQHC, 2013.

ICD-10-AM (9th edition). а

METeOR identifier: 491557. b



Indicators of effectiveness

Indicators of effectiveness, also known as outcome indicators, provide markers of how close care is to recommended care, allow healthcare services to monitor outcomes, and provide signals to patients and clinicians on quality of care.

In 2009, Australian health ministers endorsed the recommendation by the Commission that hospitals routinely review a set of *core hospital-level outcome indicators*. The indicator set includes:

- in-hospital mortality for acute myocardial infarction
- unplanned readmission within 30 days following management of acute myocardial infarction.

These indicators were subsequently included in the national health *Performance and Accountability Framework* (PAF).^a The PAF specifies indicators that are intended to be publicly reported by the National Health Performance Authority at hospital and Local Hospital Network level. The specification for these indicators is published on the Commission's web site,^b and the public and private hospital sector have been provided with a toolkit which enables local generation of these indicators.

Ongoing monitoring and review of a set of outcome-based indicators can detect significant variance and highlight issues of data quality and consistency, or quality of care. High outlier rates should be seen as a prompt to further investigation. Several jurisdictions and private hospital ownership groups generate these indicators, and provide them to hospitals for routine review and investigation of high outlier rates. Where routine access to linked data sets is available, or where individual patient follow-up is authorised for studies and registries, the following endpoints are sometimes used in monitoring acute myocardial infarction patient outcomes:

- 30-day mortality following acute myocardial infarction (the NSW Bureau of Health Information reports risk-adjusted, linked 30-day acute myocardial infarction mortality rates for NSW)^c
- One-year mortality following hospital management of patients with acute myocardial infarction.

By measuring one-year mortality for acute myocardial infarction patients, the Australian Acute Coronary Syndrome Prospective Audit (ACACIA) revealed a substantial burden of late morbidity and mortality among patients with ACS.^d

- a Available at www.nhpa.gov.au/internet/nhpa/publishing.nsf/Content/PAF.
- b See www.safetyandquality.gov.au/our-work/information-strategy/indicators/core-hospital-based-outcome-indicators/.
- c See bhi.nsw.gov.au/__data/assets/pdf_file/0004/177205/APR_HealthcareInFocus2012_effectiveness-appropriateness.pdf.
 d Chew DP, et al. Invasive management and late clinical outcomes in contemporary Australian management of acute coronary
- syndromes: observations from the ACACIA registry. Medical Journal of Australia, 2008;88(12):691–697.





Australian Commission on Safety and Quality in Health Care

Level 5, 255 Elizabeth Street, SYDNEY NSW 2000 GPO Box 5480, SYDNEY NSW 2001

Telephone: (02) 9126 3600 Fax: (02) 9126 3613 ccs@safetyandquality.gov.au www.safetyandquality.gov.au