

# Acute coronary syndromes in adults

Quality standard

Published: 5 September 2014

[nice.org.uk/guidance/qs68](https://www.nice.org.uk/guidance/qs68)

## Contents

Introduction .....	5
Why this quality standard is needed .....	5
How this quality standard supports delivery of outcome frameworks .....	6
Coordinated services.....	7
List of quality statements.....	9
Quality statement 1: Diagnosis of acute myocardial infarction .....	10
Quality statement.....	10
Rationale .....	10
Quality measures .....	10
What the quality statement means for service providers, healthcare professionals, and commissioners..	11
What the quality statement means for patients, service users and carers.....	11
Source guidance.....	11
Definitions of terms used in this quality statement .....	11
Equality and diversity considerations.....	12
Quality statement 2: Risk assessment for adults with NSTEMI or unstable angina .....	13
Quality statement.....	13
Rationale .....	13
Quality measures .....	13
What the quality statement means for service providers, healthcare professionals, and commissioners..	14
What the quality statement means for patients, service users and carers.....	14
Source guidance.....	14
Definitions of terms used in this quality statement .....	14
Quality statement 3: Coronary angiography and PCI within 72 hours for NSTEMI or unstable angina .....	16
Quality statement.....	16
Rationale .....	16
Quality measures .....	16

---

What the quality statement means for service providers, healthcare professionals, and commissioners..	17
What the quality statement means for patients, service users and carers.....	18
Source guidance.....	18
Definitions of terms used in this quality statement .....	18
<b>Quality statement 4: Coronary angiography and PCI for adults with NSTEMI or unstable angina who are clinically unstable .....</b>	<b>19</b>
Quality statement.....	19
Rationale .....	19
Quality measures .....	19
What the quality statement means for service providers, healthcare professionals, and commissioners..	20
What the quality statement means for patients, service users and carers.....	21
Source guidance.....	21
Definitions of terms used in this quality statement .....	21
<b>Quality statement 5: Level of consciousness and eligibility for coronary angiography and primary PCI.....</b>	<b>22</b>
Quality statement.....	22
Rationale .....	22
Quality measures .....	22
What the quality statement means for service providers, healthcare professionals, and commissioners..	23
What the quality statement means for patients, service users and carers.....	23
Source guidance.....	23
<b>Quality statement 6: Primary PCI for acute STEMI .....</b>	<b>24</b>
Quality statement.....	24
Rationale .....	24
Quality measures .....	24
What the quality statement means for service providers, healthcare professionals, and commissioners .	26
What the quality statement means for patients, service users and carers.....	26
Source guidance.....	26
Definitions of terms used in this quality statement .....	26

Using the quality standard.....	27
Quality measures .....	27
Levels of achievement .....	27
Using other national guidance and policy documents.....	27
Information for commissioners .....	27
Information for the public .....	28
Diversity, equality and language .....	29
Development sources.....	30
Evidence sources.....	30
Policy context .....	30
Definitions and data sources for the quality measures .....	30
Related NICE quality standards .....	31
Published .....	31
Future quality standards.....	31
Quality Standards Advisory Committee and NICE project team .....	32
Quality Standards Advisory Committee.....	32
NICE project team .....	34
Update information.....	35
About this quality standard.....	36

This standard is based on CG94, CG95, CG130 and CG167.

This standard should be read in conjunction with QS21, QS15, QS28, QS43, QS84, QS71, QS100 and QS9.

## Introduction

This quality standard covers the diagnosis and management of acute coronary syndromes (including myocardial infarction) in adults aged 18 years and over.

It does not cover the secondary prevention of myocardial infarction, including rehabilitation; this will be covered by a separate quality standard.

For more information see the [topic overview](#).

### *Why this quality standard is needed*

The term 'acute coronary syndromes' encompasses a range of conditions including unstable angina, non-ST-segment-elevation myocardial infarction (NSTEMI) and ST-segment-elevation myocardial infarction (STEMI). All are due to a sudden reduction of blood flow to the heart, usually caused by the rupture of an atherosclerotic plaque within the wall of a coronary artery, and may cause the formation of a blood clot.

The most common symptom of acute coronary syndromes is severe pain in the chest and/or in other areas (for example, the arms, back or jaw), which can last for several hours. Other symptoms include sweating, nausea and vomiting, breathlessness and feeling faint.

People with acute coronary syndromes may have a poor prognosis without prompt and accurate diagnosis. Treatments are available to help ease the pain, improve the blood flow and to prevent any future complications.

The highest priority in managing STEMI is to restore an adequate coronary blood flow as quickly as possible using drug treatment and/or revascularisation. This applies to all people with STEMI, including those who have been resuscitated after cardiac arrest. The time taken to restore coronary blood flow is very important because heart muscle starts to be lost as soon as the coronary artery is blocked.

In people with NSTEMI and unstable angina, the aim of treatment is to alleviate pain and anxiety and prevent recurrence of ischaemia. For people with unstable angina, treatment also aims to prevent or limit progression to acute myocardial infarction. The type of treatment is determined by the person's individual risk of future adverse cardiovascular events (heart attack and stroke, repeat treatment or death).

The quality standard is expected to contribute to improvements in the following outcomes:

- deaths from cardiovascular diseases
- length of hospital stay
- adverse effects of interventions (for example, bleeding and stroke)
- incidence of further heart attacks.

### *How this quality standard supports delivery of outcome frameworks*

NICE quality standards are a concise set of prioritised statements designed to drive measurable quality improvements within a particular area of health or care. They are derived from high-quality guidance, such as that from NICE or other sources accredited by NICE. This quality standard, in conjunction with the guidance on which it is based, should contribute to the improvements outlined in the following 2 outcomes frameworks published by the Department of Health:

- [NHS Outcomes Framework 2014–15](#) (Department of Health, November 2013)
- [Improving outcomes and supporting transparency: a public health outcomes framework for England 2013–2016, Parts 1A, 1B and 2.](#)

Tables 1 and 2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

**Table 1 [NHS Outcomes Framework 2014–15](#)**

Domain	Overarching indicators and improvement areas
--------	--

<p>1 Preventing people from dying prematurely</p>	<p><i>Improvement areas</i></p> <p>Reducing premature mortality from the major causes of death</p> <p>1.1 Under 75 mortality rate from cardiovascular disease*</p>
<p>4 Ensuring that people have a positive experience of care</p>	<p><i>Overarching indicator</i></p> <p>4b Patient experience of hospital care</p> <p><i>Improvement areas</i></p> <p>Improving people's experience of accident and emergency services</p> <p>4.3 Patient experience of A&amp;E services</p>
<p><b>Aligning across the health and care system</b></p> <p>* Indicator shared with public health outcomes framework</p>	

**Table 2 Public health outcomes framework for England, 2013–2016**

Domain	Objectives and indicators
<p>4 Healthcare public health and preventing premature mortality</p>	<p><i>Objective</i></p> <p>Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities</p> <p><i>Indicators</i></p> <p>4.3 Mortality rate from causes considered preventable</p> <p>4.4 Under 75 mortality rate from all cardiovascular diseases (including heart disease and stroke)*</p>
<p><b>Alignment across the health and care system</b></p> <p>* Indicator shared with the NHS Outcomes Framework</p>	

### Coordinated services

The quality standard for acute coronary syndromes (including myocardial infarction) specifies that services should be commissioned from and coordinated across all relevant agencies encompassing the whole acute coronary syndromes (including myocardial infarction) care pathway. A person-

centred, integrated approach to providing services is fundamental to delivering high-quality care to adults with acute coronary syndromes (including myocardial infarction).

The Health and Social Care Act 2012 sets out a clear expectation that the care system should consider NICE quality standards in planning and delivering services, as part of a general duty to secure continuous improvement in quality. Commissioners and providers of health and social care should refer to the library of NICE quality standards when designing high-quality services. Other quality standards that should also be considered when choosing, commissioning or providing a high-quality acute coronary syndromes service are listed in [related quality standards](#).

## Training and competencies

The quality standard should be read in the context of national and local guidelines on training and competencies. All healthcare professionals involved in assessing, caring for and treating adults with acute coronary syndromes (including myocardial infarction) should have sufficient and appropriate training and competencies to deliver the actions and interventions described in the quality standard.

## Role of families and carers

Quality standards recognise the important role families and carers have in supporting adults with acute coronary syndromes (including myocardial infarction). If appropriate, healthcare professionals should ensure that family members and carers are involved in the decision-making process about investigations, treatment and care.



## List of quality statements

Statement 1. Adults with a suspected acute coronary syndrome are assessed for acute myocardial infarction using the criteria in the universal definition of myocardial infarction.

Statement 2. Adults with non-ST-segment-elevation myocardial infarction (NSTEMI) or unstable angina are assessed for their risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality to guide clinical management.

Statement 3. Adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events are offered coronary angiography (with follow-on percutaneous coronary intervention [PCI] if indicated) within 72 hours of first admission to hospital.

Statement 4. Adults with NSTEMI or unstable angina who are clinically unstable have coronary angiography (with follow-on PCI if indicated) as soon as possible, but within 24 hours of becoming clinically unstable.

Statement 5. Adults who are unconscious after cardiac arrest caused by suspected acute ST-segment-elevation myocardial infarction (STEMI) are not excluded from having coronary angiography (with follow-on primary PCI if indicated).

Statement 6. Adults with acute STEMI who present within 12 hours of onset of symptoms have primary PCI, as the preferred coronary reperfusion strategy, as soon as possible but within 120 minutes of the time when fibrinolysis could have been given.

## Quality statement 1: Diagnosis of acute myocardial infarction

### *Quality statement*

Adults with a suspected acute coronary syndrome are assessed for acute myocardial infarction using the criteria in the universal definition of myocardial infarction.

### *Rationale*

Acute myocardial infarction can have a poor prognosis so prompt and accurate diagnosis is important to ensure that appropriate treatment and care is offered as soon as possible. Treatment for adults with suspected acute coronary syndrome is often started before a diagnosis is confirmed. Confirming the diagnosis using the criteria in the universal definition of myocardial infarction is important to ensure that any ongoing treatment is appropriate and any inappropriate treatment is stopped.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that adults with a suspected acute coronary syndrome are assessed for the presence of acute myocardial infarction using the criteria in the universal definition of myocardial infarction.

*Data source:* Local data collection.

#### **Process**

Proportion of adults with a diagnosis of acute myocardial infarction who had their diagnosis made using the criteria in the universal definition of myocardial infarction.

Numerator – the number in the denominator who had their diagnosis made using the criteria in the universal definition of myocardial infarction.

Denominator – the number of adults with a diagnosis of acute myocardial infarction.

*Data source:* Local data collection.

## *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (cardiac service providers) ensure that adults with a suspected acute coronary syndrome are assessed for the presence of acute myocardial infarction using the criteria in the universal definition of myocardial infarction.

**Healthcare professionals** ensure that they are aware of the universal definition of myocardial infarction and assess adults with a suspected acute coronary syndrome for the presence of acute myocardial infarction using the criteria in the universal definition.

**Commissioners** (clinical commissioning groups) ensure that they commission services with staff with expertise in using the criteria in the universal definition of myocardial infarction to diagnose acute myocardial infarction in adults with a suspected acute coronary syndrome.

## *What the quality statement means for patients, service users and carers*

Adults with severe pain in the chest and/or in other areas (for example, the arms, back or jaw) that might be a heart attack (a suspected acute coronary syndrome) are only given a diagnosis of heart attack if their signs and symptoms meet an agreed definition.

## *Source guidance*

- [Chest pain of recent onset](#) (NICE clinical guideline 95) recommendation 1.2.6.1.

## *Definitions of terms used in this quality statement*

### **Universal definition of myocardial infarction**

A rise in cardiac biomarkers (preferably cardiac troponin) with at least 1 value above the 99th percentile of the upper reference limit and/or a fall in cardiac biomarkers, together with at least 1 of the following:

- symptoms of ischaemia
- new or presumed new significant ST-segment-T wave changes or new left bundle branch block
- pathological Q wave changes in the ECG
- imaging evidence of new loss of viable myocardium or new regional wall motion abnormality

- identification of an intracoronary thrombus by angiography.

[[NICE clinical guideline 95](#), recommendation 1.2.6.1]

### *Equality and diversity considerations*

Symptoms of acute coronary syndromes should be assessed in the same way in men and women and among people from different ethnic groups.

## Quality statement 2: Risk assessment for adults with NSTEMI or unstable angina

### *Quality statement*

Adults with non-ST-segment-elevation myocardial infarction (NSTEMI) or unstable angina are assessed for their risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality to guide clinical management.

### *Rationale*

Assessing and categorising risk of future adverse cardiovascular events by formal risk assessment (for example, using the GRACE scoring system) in people who have been diagnosed with NSTEMI or unstable angina is important for determining early management strategies. It also allows the benefits of treatment to be balanced against the risks of treatment-related adverse events. Failure to categorise future risk can lead to people being given inappropriate treatment.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that adults with NSTEMI or unstable angina are assessed for their risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality to guide clinical management.

*Data source:* Local data collection.

#### **Process**

Proportion of presentations for NSTEMI or unstable angina that had an assessment of the risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality.

Numerator – the number in the denominator that had an assessment of the risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality.

Denominator – the number of presentations because of NSTEMI or unstable angina.

**Data source:** Local data collection. Contained within [NICE clinical guideline 94 audit support](#), criterion 1.

### *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (cardiac service providers) ensure that local pathways are in place for adults with NSTEMI or unstable angina to be assessed for their risk of future adverse cardiovascular events using an established risk scoring system that predicts 6-month mortality. Providers should also raise awareness among healthcare professionals of the importance of risk assessment in guiding clinical management.

**Healthcare professionals** ensure that they assess the risk of future adverse cardiovascular events in adults with NSTEMI or unstable angina using an established risk scoring system that predicts 6-month mortality to guide clinical management.

**Commissioners** (clinical commissioning groups) ensure that they commission services with staff with the expertise to assess the risk of future adverse cardiovascular events in adults with NSTEMI or unstable angina using established risk scoring systems that predict 6-month mortality to guide clinical management.

### *What the quality statement means for patients, service users and carers*

**Adults with heart conditions called NSTEMI and unstable angina** have their risk of another heart attack estimated to guide their treatment.

### *Source guidance*

- [Unstable angina and NSTEMI](#) (NICE clinical guideline 94) recommendations 1.2.1 and 1.2.4.

### *Definitions of terms used in this quality statement*

#### **Assessment for risk of future adverse cardiovascular events**

Individual risk of future adverse cardiovascular events should be formally assessed using an established risk scoring system that predicts 6-month mortality (for example, Global Registry of Acute Cardiac Events [GRACE]).

The formal risk assessment should include:

- a full clinical history (including age, previous myocardial infarction and previous percutaneous coronary intervention or coronary artery bypass grafting)
- a physical examination (including measurement of blood pressure and heart rate)
- resting 12-lead ECG (looking particularly for dynamic or unstable patterns that indicate myocardial ischaemia)
- blood tests (such as troponin I or T, creatinine, glucose and haemoglobin).

[NICE clinical guideline 94, recommendations 1.2.1 and 1.2.2]

### Categories for risk of future adverse cardiovascular events

Using 6-month mortality, the categories for the risk of future adverse cardiovascular events are:

Predicted 6-month mortality	Risk of future adverse cardiovascular events
1.5% or below	Lowest
>1.5 to 3.0%	Low
>3.0 to 6.0%	Intermediate
>6.0 to 9.0%	High
Over 9.0%	Highest

[NICE clinical guideline 94, recommendation 1.2.5]

## Quality statement 3: Coronary angiography and PCI within 72 hours for NSTEMI or unstable angina

### *Quality statement*

Adults with non-ST-segment-elevation myocardial infarction (NSTEMI) or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events are offered coronary angiography (with follow-on percutaneous coronary intervention [PCI] if indicated) within 72 hours of first admission to hospital.

### *Rationale*

Coronary angiography is important to define the extent and severity of coronary disease. In people with an intermediate or higher risk of future adverse cardiovascular events, coronary angiography within 72 hours of admission to hospital offers advantages over an initial conservative strategy, provided there are no contraindications to angiography (such as active bleeding or comorbidity). Services should provide coronary angiography (with follow-on PCI if indicated) as soon as it offers net clinical benefits; they should not wait until 72 hours if this is sooner.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events are offered coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission to hospital.

*Data source:* Local data collection.

#### **Process**

a) Length of time taken for adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events to receive coronary angiography (with follow-on PCI if indicated).

Local areas should collaborate with healthcare professionals to determine if the timeframe was appropriate for the patient.



b) Proportion of adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events who receive coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission to hospital.

Numerator – the number of people in the denominator receiving coronary angiography (with follow-on PCI if indicated) within 72 hours of admission.

Denominator – the number of adults with NSTEMI or unstable angina with an intermediate or higher risk of future adverse cardiovascular events on admission to hospital.

**Data source:** Local data collection. Contained within [NICE clinical guideline 94 audit support, criterion 9](#).

## Outcome

Incidence of cardiovascular events.

**Data source:** Local data collection.

## *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (cardiac service providers) ensure that local pathways are in place for adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events to be seen by cardiac specialists and offered coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission to hospital.

**Healthcare professionals** ensure that they offer adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events, coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission to hospital.

**Commissioners** (clinical commissioning groups) ensure that they commission services with the capacity and expertise to offer adults with NSTEMI or unstable angina who have an intermediate or higher risk of future adverse cardiovascular events, coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission to hospital.

## *What the quality statement means for patients, service users and carers*

Adults with heart conditions called NSTEMI and unstable angina who have a medium or higher risk of another heart attack are offered a test called coronary angiography, and treatment to improve blood flow to the heart if needed, within 72 hours of first being admitted to hospital.

### *Source guidance*

- [Unstable angina and NSTEMI](#) (NICE clinical guideline 94) recommendation 1.5.1 [the timeframe of 72 hours, rather than 96 hours as stated in the recommendation, is based on consensus of expert opinion].

### *Definitions of terms used in this quality statement*

#### **Intermediate or higher risk of future adverse cardiovascular events**

A predicted 6-month mortality above 3.0%. [[NICE clinical guideline 94](#), recommendation 1.5.1]

## Quality statement 4: Coronary angiography and PCI for adults with NSTEMI or unstable angina who are clinically unstable

### *Quality statement*

Adults with non-ST-segment-elevation myocardial infarction (NSTEMI) or unstable angina who are clinically unstable have coronary angiography (with follow-on percutaneous coronary intervention [PCI] if indicated) as soon as possible, but within 24 hours of becoming clinically unstable.

### *Rationale*

Coronary angiography is important to define the extent and severity of coronary disease. The benefits of an early invasive strategy appear to be greatest in people at higher risk of future adverse cardiovascular events. In people with NSTEMI or unstable angina who are clinically unstable, coronary angiography (with follow-on PCI if indicated) should be done as soon as possible so that appropriate treatment can be given. It may reduce lengthy hospital stays and prevent further cardiovascular events in both the short and long term. The timing of coronary angiography will be different for each person, but should be within 24 hours of becoming clinically unstable.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that adults with NSTEMI or unstable angina who are clinically unstable have coronary angiography (with follow-on PCI if indicated) as soon as possible, but within 24 hours of becoming clinically unstable.

*Data source:* Local data collection.

#### **Process**

a) Length of time taken for adults with NSTEMI or unstable angina who are clinically unstable (on admission or during their hospital stay) to receive coronary angiography (with follow-on PCI if indicated).

Local areas should collaborate with healthcare professionals to determine if the timeframe was appropriate for the patient.

**Data source:** Local data collection.

b) Proportion of adults with NSTEMI or unstable angina who are clinically unstable who receive coronary angiography (with follow-on PCI if indicated) within 24 hours of becoming clinically unstable.

Numerator – the number in the denominator receiving coronary angiography (with follow-on PCI if indicated) within 24 hours of becoming clinically unstable.

Denominator – the number of adults with NSTEMI or unstable angina who are clinically unstable.

## Outcome

Incidence of cardiovascular events.

**Data source:** Local data collection.

### *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (secondary care and cardiac service providers) ensure that local pathways are in place for adults with NSTEMI or unstable angina who are clinically unstable to be offered coronary angiography (with follow-on PCI if indicated) as soon as possible but within 24 hours of becoming clinically unstable.

**Healthcare professionals** ensure that they offer adults with NSTEMI or unstable angina who are clinically unstable, coronary angiography (with follow-on PCI if indicated) as soon as possible but within 24 hours of becoming clinically unstable.

**Commissioners** (clinical commissioning groups) ensure that they commission services with the capacity and expertise for adults with NSTEMI or unstable angina who are clinically unstable to be offered coronary angiography (with follow-on PCI if indicated) as soon as possible but within 24 hours of becoming clinically unstable.

## *What the quality statement means for patients, service users and carers*

Adults with heart conditions called NSTEMI and unstable angina and whose condition is unstable are offered a test called coronary angiography and treatment to improve blood flow to the heart if needed, as soon as possible but within 24 hours of their condition becoming unstable.

### *Source guidance*

- [Unstable angina and NSTEMI](#) (NICE clinical guideline 94) recommendation 1.5.1 [the timeframe of 24 hours is based on consensus of expert opinion].

## *Definitions of terms used in this quality statement*

### **Clinically unstable**

People who are clinically unstable are defined as those with:

- ongoing or recurring pain despite treatment
- haemodynamic instability (low blood pressure, shock)
- dynamic ECG changes
- left ventricular failure.

[Expert opinion]

### **As soon as possible**

Local areas should collaborate with healthcare professionals to determine the appropriate timeframes for patients. [Expert opinion]

## Quality statement 5: Level of consciousness and eligibility for coronary angiography and primary PCI

### *Quality statement*

Adults who are unconscious after cardiac arrest caused by suspected acute ST-segment-elevation myocardial infarction (STEMI) are not excluded from having coronary angiography (with follow-on primary percutaneous coronary intervention [PCI] if indicated).

### *Rationale*

People who remain unconscious after cardiac arrest should not be treated differently from people who are conscious. They should be able to have the same treatments within the same timescales and should be admitted to centres capable of undertaking primary PCI. Carrying out immediate primary PCI, if successful, could stabilise the person's heart and may reduce the risk of further complications.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that adults who are unconscious after cardiac arrest caused by suspected acute STEMI are not excluded from having coronary angiography (with follow-on primary PCI if indicated) because they are unconscious.

*Data source:* Local data collection.

#### **Process**

Proportion of adults who were unconscious after cardiac arrest caused by suspected acute STEMI who receive coronary angiography (with follow-on primary PCI if indicated).

Numerator – the number in the denominator receiving coronary angiography (with follow-on primary PCI if indicated).

Denominator – the number of adults who were unconscious after cardiac arrest caused by suspected acute STEMI.

*Data source:* Local data collection.

### *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (ambulance services and cardiac service providers) ensure that adults who are unconscious after cardiac arrest caused by suspected acute STEMI are not excluded from having coronary angiography (with follow-on primary PCI if indicated). Providers should also raise awareness among healthcare professionals of the importance of not using level of consciousness to exclude adults from having coronary angiography (with follow-on primary PCI if indicated).

**Healthcare professionals** ensure that they do not use level of consciousness after cardiac arrest caused by suspected acute STEMI to exclude adults from having coronary angiography (with follow-on primary PCI if indicated).

**Commissioners** (clinical commissioning groups and NHS England) ensure that they commission services that can carry out coronary angiography (with follow-on primary PCI if indicated) in adults who are unconscious after cardiac arrest caused by suspected acute STEMI.

### *What the quality statement means for patients, service users and carers*

Adults who are unconscious after a type of heart attack called STEMI can have a test called coronary angiography, and treatment to improve blood flow to the heart if needed, even though they are unconscious.

### *Source guidance*

- [Myocardial infarction with ST-segment elevation](#) (NICE clinical guideline 167), recommendation 1.1.2.

## Quality statement 6: Primary PCI for acute STEMI

### *Quality statement*

Adults with acute ST-segment-elevation myocardial infarction (STEMI) who present within 12 hours of onset of symptoms have primary percutaneous coronary intervention (PCI), as the preferred coronary reperfusion strategy, as soon as possible but within 120 minutes of the time when fibrinolysis could have been given.

### *Rationale*

Primary PCI is a form of reperfusion therapy which should be done as soon as possible. This is because heart muscle starts to be lost once a coronary artery is blocked and the sooner reperfusion therapy is delivered the better the outcome for the patient. If too much time elapses the benefits of primary PCI may be lost. Because of the difficulty in timely delivery, in some areas primary PCI is no longer the preferred coronary reperfusion strategy over fibrinolysis. However, when performed early, primary PCI is more effective. To ensure the best outcomes for adults with STEMI, the ambulance service and hospitals delivering primary PCI should work together to minimise delays in treatment.

### *Quality measures*

#### **Structure**

a) Evidence of local arrangements to ensure that adults with acute STEMI who present within 12 hours of onset of symptoms have primary PCI, as the preferred coronary reperfusion strategy, within 120 minutes of the time when fibrinolysis could have been given.

**Data source:** Local data collection.

b) Evidence of local arrangements to ensure that adults with acute STEMI have access to primary PCI 24 hours a day.

**Data source:** Local data collection.

c) Evidence that commissioners with their services providers have developed a single care pathway for coronary reperfusion.



**Data source:** Local data collection.

## Process

a) Proportion of adults with acute STEMI who present within 12 hours of onset of symptoms who receive primary PCI within 120 minutes of when fibrinolysis could have been given.

Numerator – the number in the denominator receiving primary PCI within 120 minutes of when fibrinolysis could have been given.

Denominator – the number of adults with acute STEMI who present within 12 hours of onset of symptoms.

**Data source:** Local data collection. Some fields on time to primary PCI collected in Myocardial Ischaemia National Audit Project (MINAP) and National audit of percutaneous coronary interventional procedures (BCIS).

b) Proportion of adults with acute STEMI who present within 12 hours of onset of symptoms who receive primary PCI within 150 minutes of the call for professional help.

Numerator – the number of people in the denominator receiving primary PCI within 150 minutes of the call for professional help.

Denominator – the number of adults with acute STEMI who present within 12 hours of onset of symptoms.

**Data source:** Myocardial Ischaemia National Audit Project (MINAP) and National audit of percutaneous coronary interventional procedures (BCIS) collect data on the time to primary PCI.

## Outcome

Incidence of cardiovascular events.

**Data source:** Local data collection.

## *What the quality statement means for service providers, healthcare professionals, and commissioners*

**Service providers** (ambulance services, accident and emergency service provider and cardiac service providers) ensure that local pathways and transfer protocols are in place for adults with acute STEMI who present within 12 hours of the onset of symptoms to be offered primary PCI, as the preferred coronary reperfusion strategy, as soon as possible but within 120 minutes of when fibrinolysis could have been given.

**Healthcare professionals** ensure that they offer primary PCI, as the preferred coronary reperfusion strategy, as soon as possible but within 120 minutes of when fibrinolysis could have been given to adults with acute STEMI who present within 12 hours of the onset of symptoms.

**Commissioners** (clinical commissioning groups and NHS England) ensure that they commission services that have the capacity and expertise to provide primary PCI, as the preferred coronary reperfusion strategy, as soon as possible but within 120 minutes of when fibrinolysis could have been given (and at any time of the day or night, including weekends) to adults with acute STEMI who present within 12 hours of onset of symptoms. Commissioners should work with their service providers to develop a single care pathway for coronary reperfusion.

## *What the quality statement means for patients, service users and carers*

**Adults with a type of heart attack called STEMI whose symptoms started no more than 12 hours before first contacting a healthcare professional** are offered a procedure to improve blood flow to the heart (called percutaneous coronary intervention or PCI). They should be able to have this as soon as possible, but within 120 minutes of when they could have received fibrinolysis (a 'clot-busting' drug).

## *Source guidance*

- [Myocardial infarction with ST-segment elevation](#) (NICE clinical guideline 167) recommendations 1.1.3 and 1.1.4.

## *Definitions of terms used in this quality statement*

### **As soon as possible**

Local areas should collaborate with healthcare professionals to determine the appropriate timeframes for patients. [Expert opinion]

## Using the quality standard

### *Quality measures*

The quality measures accompanying the quality statements aim to improve the structure, process and outcomes of care in areas identified as needing quality improvement. They are not a new set of targets or mandatory indicators for performance management.

We have indicated if current national indicators exist that could be used to measure the quality statements. These include indicators developed by the Health and Social Care Information Centre through its [Indicators for Quality Improvement Programme](#). If there is no national indicator that could be used to measure a quality statement, the quality measure should form the basis for audit criteria developed and used locally.

See NICE's [what makes up a NICE quality standard?](#) for further information, including advice on using quality measures.

### *Levels of achievement*

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, NICE recognises that this may not always be appropriate in practice, taking account of safety, choice and professional judgement, and therefore desired levels of achievement should be defined locally.

### *Using other national guidance and policy documents*

Other national guidance and current policy documents have been referenced during the development of this quality standard. It is important that the quality standard is considered alongside the documents listed in [development sources](#).

### *Information for commissioners*

NICE has produced [support for commissioning](#) that considers the commissioning implications and potential resource impact of this quality standard. This is available on the NICE website.

## *Information for the public*

NICE has produced [information for the public](#) about this quality standard. Patients, service users and carers can use it to find out about the quality of care they should expect to receive; as a basis for asking questions about their care, and to help make choices between providers of social care services.

## Diversity, equality and language

During the development of this quality standard, equality issues have been considered and [equality assessments](#) are available.

Good communication between health, public health and social care practitioners and adults with acute coronary syndromes is essential. Treatment, care and support, and the information given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English. Adults with acute coronary syndromes should have access to an interpreter or advocate if needed.

Commissioners and providers should aim to achieve the quality standard in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

## Development sources

Further explanation of the methodology used can be found in the quality standards [process guide](#) on the NICE website.

## Evidence sources

The documents below contain recommendations from NICE guidance or other NICE-accredited recommendations that were used by the Quality Standards Advisory Committee to develop the quality standard statements and measures.

- [Myocardial infarction with ST-segment elevation](#). NICE clinical guideline 167 (2013).
- [Hyperglycaemia in acute coronary syndromes](#). NICE clinical guideline 130 (2011).
- [Chest pain of recent onset](#). NICE clinical guideline 95 (2010 updated 2016).
- [Unstable angina and NSTEMI](#). NICE clinical guideline 94 (2010 updated 2013).

## Policy context

It is important that the quality standard is considered alongside current policy documents, including:

- [Cardiovascular disease outcomes strategy](#). Department of Health (2013).
- [Together for health – a heart disease delivery plan](#). Welsh Government (2013).
- [The cardiac disease national service framework for Wales](#). Welsh Government (2009).

## Definitions and data sources for the quality measures

- Myocardial Ischaemia National Audit Project (MINAP) (2013) [How the NHS cares for patients with heart attack. Annual public report April 2012–March 2013](#).
- National audit of percutaneous coronary interventional procedures (BCIS) (2014) [BCIS National Audit of Percutaneous Coronary Interventional Procedures Public Report](#).
- [Unstable angina and NSTEMI: audit support](#). NICE clinical guideline 94 (2010)

## Related NICE quality standards

### *Published*

- [Cardiovascular risk assessment and lipid modification](#). NICE quality standard 100 (2015).
- [Secondary prevention after a myocardial infarction](#). NICE quality standard 99 (2015).
- [Physical activity](#). NICE quality standard 84 (2015).
- [Smoking cessation: supporting people to stop smoking](#). NICE quality standard 43 (2013).
- [Familial hypercholesterolaemia](#). NICE quality standard 41 (2013).
- [Hypertension](#). NICE quality standard 28 (2013).
- [Stable angina](#). NICE quality standard 21 (2012).
- [Patient experience in adult NHS services](#). NICE quality standard 15 (2012).

### *Future quality standards*

This quality standard has been developed in the context of all quality standards referred to NICE, including the following topics scheduled for future development:

- Acute medical admissions in the first 48 hours.
- Medicines optimisation (covering medicines adherence and safe prescribing).
- Obesity (adults).
- Obesity: prevention and management in adults.
- Risk assessment of modifiable cardiovascular risk factors.
- Seven day working.
- Urgent and emergency care.

The full list of quality standard topics referred to NICE is available from the [quality standards topic library](#) on the NICE website.

## Quality Standards Advisory Committee and NICE project team

### *Quality Standards Advisory Committee*

This quality standard has been developed by Quality Standards Advisory Committee 2. Membership of this committee is as follows:

**Mr Barry Attwood**

Lay member

**Professor Gillian Baird**

Consultant Developmental Paediatrician, Guys and St Thomas NHS Foundation Trust

**Mrs Belinda Black**

Chief Executive Officer, Sheffcare, Sheffield

**Dr Ashok Bohra**

Consultant Surgeon, Dudley Group of Hospitals NHS Foundation Trust

**Mrs Julie Clatworthy**

Governing Body Nurse, Gloucester Clinical Commissioning Group

**Mr Derek Cruickshank**

Consultant Gynaecological Oncologist/Chief of Service, South Tees NHS Foundation Trust

**Miss Parul Desai**

Consultant in Public Health and Ophthalmology, Moorfields Eye Hospital NHS Foundation Trust, London

**Mrs Jean Gaffin**

Lay member

**Dr Joanne Greenhalgh**

Principal Research Fellow, University of Leeds

**Dr John Harley**

GP, Woodlands Family Medical Centre, Cleveland



**Dr Ulrike Harrower**

Consultant in Public Health Medicine, NHS Somerset

**Professor Richard Langford**

Consultant in Anaesthesia and Pain Medicine, Barts Health NHS Trust, London

**Mr Gavin Lavery**

Clinical Director, Public Health Agency

**Dr Tessa Lewis**

GP and Chair of the All Wales Prescribing Advisory Group, Carreg Wen Surgery

**Miss Ruth Liley**

Assistant Director of Quality Assurance, Marie Curie Cancer Care

**Ms Kay Mackay**

Director of Improvement, Kent Surrey and Sussex Academic Health Science Network

**Dr Michael Rudolf (Chair)**

Consultant Physician, Ealing Hospital NHS Trust

**Mr David Minto**

Adult Social Care Operations Manager, Northumbria Healthcare Foundation Trust

**Dr Lindsay Smith**

GP, West Coker, Somerset

The following specialist members joined the committee to develop this quality standard:

**Dr Robert Henderson**

Consultant Cardiologist, Nottingham University Hospitals NHS Trust

**Dr Jason Kendall**

Consultant in Emergency Medicine, North Bristol NHS Trust

**Mr Gavin Maxwell**

Lay member

**Dr Jim McLenachan**

Consultant Cardiologist, Leeds Teaching Hospitals NHS Trust

**Mr Alan Roebuck**

Consultant Nurse – Cardiology and Acute Care, United Lincolnshire Hospitals Trust

**Professor Adam Timmis**

Professor of Clinical Cardiology, London Chest Hospital

### *NICE project team*

**Dylan Jones**

Associate Director

**Shirley Crawshaw**

Consultant Clinical Adviser

**Rachel Neary-Jones**

Programme Manager

**Craig Grime**

Technical Adviser

**Nicola Greenway**

Lead Technical Analyst

**Natalie Boileau**

Project Manager

**Jenny Mills**

Coordinator

## Update information

### Minor changes since publication

**January 2017:** Definition updated for statement 1 to reflect changes to the NICE guideline on chest pain of recent onset.

## About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

The methods and processes for developing NICE quality standards are described in the [quality standards process guide](#).

This quality standard has been incorporated into the NICE pathway on [chest pain](#).

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

ISBN: 978-1-4731-0729-8

## *Endorsing organisation*

This quality standard has been endorsed by NHS England, as required by the Health and Social Care Act (2012)

## *Supporting organisations*

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- [British Heart Foundation](#)
- [Royal College of Surgeons of Edinburgh](#)