NICE National Institute for Health and Care Excellence

NICE quality standard

Acute coronary syndromes in adults

Quality standard
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www.nice.org.uk/guidance/qs68

Contents

This standard is based on CG95 and NG185.

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

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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

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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 different audiences

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 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.

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

Recent-onset chest pain of suspected cardiac origin: assessment and diagnosis. NICE guideline CG95 (2010, updated 2016), 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's guideline on recent-onset chest pain of suspected cardiac origin, 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

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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.

What the quality statement means for different audiences

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 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.

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

Source guidance

Acute coronary syndromes. NICE guideline NG185 (2020), recommendations 1.2.7 and 1.2.10

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's guideline on acute coronary syndromes, recommendations 1.2.7 and 1.2.8]

Categories for risk of future adverse cardiovascular events

Table 1 Categories for the risk of future adverse cardiovascular events using 6-month mortality

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

Predicted 6-month mortality	Risk of future adverse cardiovascular events
Over 9.0%	Highest

[NICE's guideline on acute coronary syndromes, recommendation 1.2.11]

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 who are having coronary angiography (with follow-on percutaneous coronary intervention [PCI] if indicated), have it within 72 hours of first admission to hospital.

Rationale

In people with an intermediate or higher risk of future adverse cardiovascular events, coronary angiography to define the extent and severity of coronary disease, done 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; within 72 hours and sooner if possible.

Quality measures

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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 who are having coronary angiography (with follow-on PCI if indicated), have it within 72 hours of first admission to hospital.

Data source: Local data collection.

Process

a) 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 to hospital.

Denominator – the number of adults with NSTEMI or unstable angina with an intermediate or higher risk of future adverse cardiovascular events having coronary angiography (with follow-on PCI if indicated).

Data source: Local data collection.

Outcome

Incidence of cardiovascular events.

Data source: Local data collection.

What the quality statement means for different audiences

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, who are having coronary angiography (with follow-on PCI if indicated) to have it within 72 hours of first admission to hospital.

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

Commissioners ensure that they commission services with the capacity and expertise to

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

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

Source guidance

Acute coronary syndromes. NICE guideline NG185 (2020), recommendation 1.2.13

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's guideline on acute coronary syndromes, recommendation 1.2.13]

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

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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 different audiences

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 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.

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

Acute coronary syndromes. NICE guideline NG185 (2020), recommendation 1.2.12

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

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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 different audiences

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 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.

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

Acute coronary syndromes. NICE guideline NG185 (2020), 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

The following measures can be used to assess the quality of care or service provision specified in the statement. They are examples of how the statement can be measured, and can be adapted and used flexibly.

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 the Healthcare Quality Improvement Partnership's Myocardial Ischaemia National Audit Project (MINAP) and the British Cardiovascular Intervention Society's National audit of percutaneous coronary interventional procedures.

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: Healthcare Quality Improvement Partnership's Myocardial Ischaemia National Audit Project (MINAP) and the British Cardiovascular Intervention Society's National audit of percutaneous coronary interventional procedures collect data on the time to primary PCI.

Outcome

Incidence of cardiovascular events.

Data source: Local data collection.

What the quality statement means for different audiences

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 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.

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

Acute coronary syndromes. NICE guideline NG185 (2020), recommendations 1.1.3 and 1.1.6

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]

Update information

November 2020: Changes have been made to align this quality standard with the updated NICE guideline on acute coronary syndromes. Statement 3 was amended to reflect that not all people in this group will have early invasive intervention (coronary angiography, with PCI if indicated), in line with the updated recommendations. The source guidance and references were also updated.

Minor changes since publication

January 2017: Definition updated for statement 1 to reflect changes to NICE's guideline on recent-onset chest pain of suspected cardiac origin.

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.

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, this may not always be appropriate in practice. Taking account of safety, shared decision-making, choice and professional judgement, desired levels of achievement should be defined locally.

Information about how NICE quality standards are developed is available from the NICE website.

See our webpage on quality standards advisory committees for details about our standing committees. Information about the topic experts invited to join the standing members is available from the webpage for this quality standard.

NICE has produced a quality standard service improvement template to help providers make an initial assessment of their service compared with a selection of quality statements. This tool is updated monthly to include new quality standards.

NICE guidance and quality standards apply in England and Wales. Decisions on how they apply in Scotland and Northern Ireland are made by the Scottish government and Northern Ireland Executive. NICE quality standards may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Resource impact

NICE quality standards should be achievable by local services. The potential resource impact is considered by the quality standards advisory committee, drawing on resource

impact work for the source guidance. Organisations are encouraged to use the resource impact products for NICE's guideline acute coronary syndromes to help estimate local costs.

Diversity, equality and language

Equality issues were considered during development and equality assessments for this quality standard are available. Any specific issues identified during development of the quality statements are highlighted in each statement.

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.

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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