NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

Centre for Clinical Practice

SCOPE

Clinical guideline title: Myocardial infarction with ST-segment-elevation: the acute management of myocardial infarction with ST-segment-elevation

Quality standard title: Management of acute coronary syndromes including myocardial infarction

1 Introduction

1.1 Clinical guidelines

Clinical guidelines are recommendations by NICE on the appropriate treatment and care of people with specific diseases and conditions within the NHS. They are based on the best available evidence.

This scope defines what the guideline will (and will not) examine, and what the guideline developers will consider. The scope is based on the referral from the Department of Health.

1.2 Quality standards

Quality standards are a set of specific, concise quality statements and measures that act as markers of high-quality, cost-effective patient care, covering the treatment and prevention of different diseases and conditions.

For this clinical guideline a NICE quality standard will be produced during the guideline development process, after the development of the clinical guideline recommendations.

This scope defines the areas of care for which specific quality statements and measures will (and will not) be developed.
The guideline and quality standard development processes are described in detail on the NICE website (see section 8).

2 Need for guidance

3 Epidemiology

a) ST-segment-elevation myocardial infarction (STEMI) is at one end of a spectrum of related conditions called acute coronary syndromes. The underlying common pathophysiology involves either the erosion or sudden rupture of an atheromatous plaque (cholesterol-rich material) within the wall of a coronary artery. This plaque erosion or rupture then stimulates blood clotting (thrombosis) within the affected coronary artery. Complete obstruction to blood flow is usually associated with the appearance of ‘ST-segment-elevation’ on the electrocardiograph – the defining feature of STEMI. Occlusion of blood flow leads to heart muscle (myocardium) cell death that, without intervention, progressively worsens with time.

b) Typically STEMI causes the onset of acute chest pain, although symptoms may include sweating, nausea and breathlessness. Symptoms may be atypical, particularly in women and people with diabetes. Cardiac arrhythmias may occur early in the onset of STEMI and may cause sudden death before the person is able to access emergency medical care. Certain groups of people, including women and those from ethnic minorities, may be slow to call for medical help.

c) Although the incidence of STEMI has been declining over the past 20 years, it varies between regions of the UK and still averages around 750 cases per million people each year. Over the past 30 years in-hospital mortality following STEMI has fallen from around 20% to less than 5%, this has been attributed to various factors, including improved drug therapy and speed of access to effective treatments.

4 Current practice

a) The overriding concern in the management of STEMI is to rapidly and effectively restore coronary blood flow (reperfusion) because this limits the
extent of heart muscle (myocardium) damage and reduces the likelihood of death or future heart failure. In the past, fibrinolysis (that is, reperfusion with fibrinolytic – or ‘clot buster’ – drugs) was the most common treatment. The treatment of choice now is mechanical reopening of the occluded artery by angioplasty and stent insertion (primary percutaneous coronary intervention [PPCI]).

b) The Department of Health undertook a feasibility study (National Infarct Angioplasty Project) that reported in October 2008 and concluded that PPCI was both feasible and cost effective, and should become the treatment of choice for STEMI in England, although PPCI is more expensive than fibrinolytic therapy. Since 2009, cardiac networks have successfully implemented the new PPCI policy and by the end of 2011 it is estimated that 95% of the population in England and Wales will be covered by a PPCI care pathway. This PPCI strategy needs emergency access to specialist cardiac catheter laboratories and staff at all times.

c) Fibrinolytic therapy is still offered a few people (5%) who live in remote rural surroundings and cannot access PPCI services within current recommended time frames.

d) People may develop symptoms of STEMI and then call the emergency services or self-present to an emergency department. STEMI may also occur in someone already in hospital for a different reason, such as a surgical operation. Whatever the circumstances, care pathways should exist to ensure that PPCI is offered to all who may benefit, in a timely and efficient manner.

e) The prime determinant of clinical benefit following reperfusion therapy for STEMI is the degree of myocardial salvage (a function of timeliness, effectiveness and maintenance of coronary reperfusion). Bleeding complications also play an important part in both morbidity and mortality if combinations of potent antiplatelet and antithrombin agents are used. After successful acute treatment, secondary prevention therapy, lifestyle modification and cardiac rehabilitation recommendations parallel those for
non-STEMI acute coronary syndromes, on which NICE recently produced guidance (‘Unstable angina and NSTEMI’, NICE clinical guideline 94, 2010).

f) This guideline will address the factors that influence the delivery of effective and timely coronary reperfusion treatment for people with STEMI.

3 Clinical guideline

.5 Population

.5.1 Groups that will be covered

a) Adults (18 years or older) believed to be having spontaneous onset of STEMI (types 1 and 3 of the ‘universal definition of myocardial infarction’ categories).

b) Adults with suggestive symptoms of spontaneous onset of STEMI, but whose electrocardiogram may be difficult to interpret because of the presence of left bundle branch block or permanent pacing.

c) Where data exist, guidance will address differences between specific populations, such as older adults, women and people from ethnic minorities.

d) Particular attention will be paid to people with STEMI who remain unconscious following resuscitation.

.5.2 Groups that will not be covered

a) Children and young people (younger than 18 years).

b) Patients initially suspected as having STEMI once this diagnosis is excluded (for example, on cardiac catheterisation).

c) Patients once a diagnosis of STEMI has been excluded (for example, as a complication of coronary revascularisation).
.6 Healthcare settings

Primary, secondary and tertiary healthcare settings, including care from ambulance teams and other paramedical staff before admission to hospital.

.7 Management

.7.1 Key issues that will be covered

The diagnosis of STEMI will be considered to have been made once a patient is identified as having a suggestive clinical presentation and either ST-segment elevation on the electrocardiograph or an electrocardiograph where interpretation is complicated by the presence of left bundle branch block or permanent pacing.

The acute aspects of the following will be addressed, from symptom onset to the point of hospital discharge:

a) Adjunctive pharmacotherapy (for example, antiplatelet and antithrombin agents).

b) Time factors in relation to acute coronary reperfusion.

c) The time interval from onset of STEMI beyond which fibrinolysis may be preferable to PPCI.

d) Drug combinations administered before PPCI (facilitated PPCI).

e) Timing and effectiveness of angiography or PCI following fibrinolytic therapy.

f) Timing and effectiveness of PCI following failed fibrinolysis (rescue PCI).

gh) Procedural aspects of PPCI (for example, thrombus extraction).

h) Guideline recommendations will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a drug’s summary of product characteristics to inform decisions made with individual patients.
7.2  **Key issues that will not be covered**

a)  Management of suspected brain injury in those with STEMI who have suffered cardiac arrest.

b)  Management of STEMI after hospital discharge, including post-myocardial infarction treatments (we will cross-refer to existing NICE guidance).

**8. Main outcomes**

a)  Major cardiovascular events.

b)  Mortality.

c)  Stroke.

d)  Myocardial re-infarction.

e)  Reintervention at various time intervals (for example, in hospital, 30 days, and 1 year).

f)  Adverse events including bleeding complications.

g)  Length of hospital stay.

h)  Quality of life.

9.  **Economic aspects**

Developers will take into account both clinical and cost effectiveness when making recommendations involving a choice between alternative interventions. A review of the economic evidence will be conducted and analyses will be carried out as appropriate. The preferred unit of effectiveness is the quality-adjusted life year (QALY), and the costs considered will usually be only from an NHS and personal social services (PSS) perspective. Further detail on the methods can be found in 'The guidelines manual' (see Section 8).
4 Quality standard

Information on the NICE quality standards development process is available on the NICE website, see section 8.

.10 Mapped areas of care

The areas of care of a patient’s journey that will inform the development of the quality statements are set out below (see 4.1.1). The content of the final quality standard statements may differ before and after consultation with stakeholders.

.10.1 Areas of care that will be considered

a) Out of hospital presentation of acute chest pain

   a. Assessment and ECG (see www.nice.org.uk/guidance/CG95)

   b. Immediate management, pain relief, aspirin, and oxygen (see www.nice.org.uk/guidance/CG95)

b) In-hospital assessment diagnosis

   a. Clinical assessment and ECG (see www.nice.org.uk/guidance/CG95)

   b. Troponin (see www.nice.org.uk/guidance/CG95)

c) Management of STEMI (this guideline)

   a. PPCI

   b. Facilitated PCI

   c. Rescue PCI

   d. Fibrinolytic therapy

   e. Angiography following fibrinolysis

   f. Antiplatelet agents

   g. Antithrombotic agents
d) Management of unstable angina and NSTEMI
   a. Antiplatelets (see www.nice.org.uk/guidance/CG94)
   b. Antithrombotic agents (see www.nice.org.uk/guidance/CG94)
   c. Angiography (see www.nice.org.uk/guidance/CG94)

e) Discharge Planning (this guideline and CG48 – currently scoping for update)
   a. Cardiac rehabilitation
   b. Initiation of secondary prevention

.10.2 **Areas of care that will not be considered**
   a) Adherence to secondary-prevention interventions after their initiation in hospital.
   b) Uptake of cardiac rehabilitation after discharge from hospital following acute coronary syndromes.

.11 **Economic aspects**

Developers will take into account both clinical and cost effectiveness when prioritising the quality statements to be included in the quality standard. The economic evidence will be considered, and the cost and commissioning impact of implementing the quality standard will be assessed.
5 Status

.12 Scope
This is the final scope.

.13 Timings
The development of the guideline recommendations and the quality standard will begin in August 2011.

6 Related NICE guidance

.13.1 NICE guidance that will be incorporated in or updated by the clinical guideline
The guideline will incorporate the following NICE guidance, subject to a technology appraisal review proposal agreement:


.14 Related NICE guidance
Published
- Smoking cessation services in primary care, pharmacies, local authorities and workplaces, particularly for manual working groups, pregnant women and hard to reach communities. NICE public health guidance 10 (2008). Available from www.nice.org.uk/guidance/PH10
• Off-pump coronary artery bypass (OPCAB). NICE interventional procedure
• Myocardial perfusion scintigraphy for the diagnosis and management of angina
and myocardial infarction. NICE technology appraisal guidance 73 (2003).
Available from www.nice.org.uk/guidance/TA73
• Guidance on the use of coronary artery stents. NICE technology appraisal
• Guidance on the use of drugs for early thrombolysis in the treatment of acute
myocardial infarction. NICE technology appraisal guidance 52 (2002). Available
from www.nice.org.uk/guidance/TA52
• Guidance on the use of glycoprotein IIb/IIIa inhibitors in the treatment of acute
coronary syndromes. NICE technology appraisal guidance 47 (2002). Available from
www.nice.org.uk/guidance/TA47

NICE guidance under development
NICE is currently developing the following related guidance (details available from the
NICE website):

• Hyperglycaemia in patients with acute coronary syndrome. NICE clinical guideline.
Publication expected October 2011.

7 Further information

Information on the guideline development process is provided in:

• ‘How NICE clinical guidelines are developed: an overview for stakeholders the
public and the NHS’
• ‘The guidelines manual
• ‘Developing NICE quality standards: interim process guide’.

These are available from the NICE website (www.nice.org.uk/GuidelinesManual and
www.nice.org.uk/aboutnice/qualitystandards). Information on the progress of the
guideline and quality standards are also available from the NICE website
(www.nice.org.uk).