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GUIDELINES

Acute coronary syndromes: summary of updated NICE guidance

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What you need to know

- Prasugrel is recommended as dual anti-platelet therapy in combination with aspirin for people with ST-elevation myocardial infarction being treated with primary percutaneous coronary intervention (PCI)
- Prasugrel or ticagrelor are recommended as dual anti-platelet therapy in combination with aspirin for people with non-ST-elevation myocardial infarction or unstable angina being treated with PCI
- In people with acute coronary syndromes treated with PCI, who have a separate indication for oral anticoagulation (eg, atrial fibrillation), use clopidogrel and oral anticoagulant for up to one year. Do not use prasugrel or ticagrelor, and avoid long-term addition of aspirin

Acute coronary syndromes (ACS), comprising ST-elevation myocardial infarction (STEMI), non-ST-elevation myocardial infarction (NSTEMI), and unstable angina, are an important cause of morbidity and mortality in the UK and worldwide.[1] The National Institute for Health and Care Excellence (NICE) previously published four guidelines to improve care for people in the UK who have had an ACS.[2-5] In 2018, NICE identified eight key areas of clinical practice across all aspects of existing ACS guidelines that should be reviewed for update on the basis of new evidence and stakeholder feedback (box 1).

Box 1: Clinical areas updated in the NICE guideline on acute coronary syndromes (NG185)

- Early invasive management in unstable angina/NSTEMI
- Anti-platelet therapy in adults with ACS
- Anti-thrombin therapy in adults with unstable angina/NSTEMI who are being considered for coronary angiography within 24 hours of admission
- Anti-thrombin therapy in adults with STEMI intended for primary PCI
- Culprit vessel-only versus complete revascularisation in adults with STEMI undergoing primary PCI
- Drug-eluting stents in adults with ACS
- Anti-platelet and anticoagulant therapies for people who have had an ACS and a separate indication for anticoagulation
- Duration of β-blocker therapy after myocardial infarction in adults without left ventricular dysfunction

Rather than individually updating the four existing ACS guidelines, all four guidelines have been incorporated into one overarching updated guideline covering all aspects of ACS management, which has now been published as NICE Guideline 185.[6]

This article summarises the most recent recommendations from NICE, and includes information considered to be most relevant to clinicians in emergency departments and primary care.

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Committee (GC)'s experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in italic in square brackets.

STEMI—early management

The infographic summarises the early management of people with STEMI from diagnosis to hospital discharge. Primary PCI from the radial route remains the preferred reperfusion treatment for STEMI, but evidence from randomised trials and health economic modelling has led to new recommendations on the choice of anti-platelet and anti-thrombin therapy in primary PCI, the use of drug-eluting stents, and complete revascularisation in STEMI patients with multivessel coronary artery disease.

- For people with acute STEMI who are having primary PCI, offer
  - prasugrel as part of dual anti-platelet therapy with aspirin if they are not already taking an oral anticoagulant (use the maintenance dose in the summary of product characteristics. For people aged 75 and over, think about whether the person's risk of bleeding with prasugrel outweighs its effectiveness, in which case offer ticagrelor or clopidogrel as alternatives). *[Based on moderate to very low quality randomised trial data and original economic modelling]*
  - clopidogrel, as part of dual antiplatelet therapy with aspirin, if they are already taking an oral anticoagulant *[Based on high to very low quality randomised trial data and the experience and opinion of the GC]*
- If stenting is indicated, offer a drug-eluting stent to people with acute STEMI undergoing revascularisation by primary PCI. *[Based on high to very low quality randomised trial data and cost effectiveness evidence]*
- Offer complete revascularisation with PCI for people with acute STEMI and multivessel coronary artery disease without cardiogenic shock. Consider doing this during the index hospital admission.

[Based on low and very low quality randomised trial data and cost-effectiveness evidence]

- Consider culprit vessel only revascularisation with PCI rather than complete revascularisation during the index procedure for people with acute STEMI and multivessel coronary artery disease with cardiogenic shock. *[Based on the experience and opinion of the GC]*

NSTEMI and unstable angina—early management

The infographic summarises the early management of people with NSTEMI or unstable angina from diagnosis to hospital discharge. Table 1 summarises the relative benefits and risks of early invasive versus initial conservative management, which can be tailored for discussion with people with unstable angina or NSTEMI according to their individualised 6-month risk of mortality or repeat cardiovascular event. As for STEMI, recommendations on anti-platelet therapy and drug-eluting stents have been updated in light of new evidence from randomised trials and original health economic modelling.

Table 1 | Benefits and risks of early invasive treatment (coronary angiography with PCI if needed) compared with conservative management for people with unstable angina or NSTEMI

Benefits/risks/other factors	Coronary angiography and possible PCI within 72 hours	Conservative management with later coronary angiography if problems continue or develop
Benefits (advantages)	• Reduced deaths from all causes at 6 to 12 months and at 2 years • Reduced deaths from heart problems at 1 and 2 years • Reduced incidence of myocardial infarction at 30 days, 6 to 12 months, and 2 years • Reduced incidence of stroke at 1 year, particularly in people at high risk of future adverse events • Reduced readmission to hospital and difficult-to-treat angina in the medium term, particularly in people at high risk of future adverse events • Psychological benefits—people are not anxious about delaying angiography	• Avoid the immediate risks of invasive treatment, including: - death within 4 months related to the procedure from causes other than myocardial infarction - procedure-related myocardial infarction - major bleeding in hospital and up to 2 years after the procedure • These are particularly relevant for people at low risk of future adverse events • Psychological benefits—people are not anxious about having an invasive procedure
Risks (disadvantages)	• Increased risk of death during the first 4 months, particularly for people at low risk of future adverse events • Risk of procedure-related myocardial infarction • Increased risk of major bleeding during the index admission, at 30 days and 2 years • Emergency treatment leaves little time for shared decision making	• Increased risk of heart attack after 6 months • Increased risk of stroke at 1 year, particularly in the people at high risk of future adverse events • Psychological factors—people may be anxious about delaying angiography
Other factors	• Recent advances in PCI might increase early benefit, particularly reducing bleeding • Coronary angiography within 72 hours ensures speedy intervention while allowing time for the correct diagnosis, identifying other conditions and treating symptoms	

- As soon as the diagnosis of unstable angina or NSTEMI is made, and aspirin and anti-thrombin therapy have been offered, formally assess individual risk of future adverse cardiovascular events using an established risk scoring system that predicts 6 month mortality (for example, Global Registry of Acute Cardiac Events). *[Existing recommendation]*
- Offer immediate coronary angiography to people with unstable angina or NSTEMI if their clinical condition is unstable. *[Based on the experience and opinion of the GC]*
- Consider coronary angiography (with follow-on PCI if indicated) within 72 hours of first admission for people with unstable angina or NSTEMI who have an intermediate or higher risk of adverse cardiovascular events (predicted 6 month mortality above 3.0%) and no contraindications to angiography (such as active bleeding or comorbidity). *[Based on high to very low quality randomised trial data and cost effectiveness evidence]*
- Consider coronary angiography (with follow-on PCI if indicated) for people with unstable angina or NSTEMI who are initially assessed to be at low risk of adverse cardiovascular events (predicted 6 month mortality 3.0% or less) if ischaemia is subsequently experienced or is demonstrated by ischaemia testing. *[Based on high to very low quality randomised trial data and cost-effectiveness evidence]*
- Be aware that some younger people with low risk scores for mortality at 6 months may still be at high risk of adverse cardiovascular events and may benefit from early angiography. *[Based on the experience and opinion of the GC]*
- Do not offer dual anti-platelet therapy to people with chest pain before a diagnosis of unstable angina or NSTEMI is made. *[Based on the experience and opinion of the GC]*
- For people with unstable angina or NSTEMI who are having coronary angiography, offer
  - prasugrel or ticagrelor, as part of dual anti-platelet therapy with aspirin, if they have no separate indication for ongoing oral anticoagulation (if using prasugrel, only give it once coronary anatomy has been defined and PCI is intended, and use the maintenance dose in the summary of product characteristics. For people aged 75 and over, think about whether the person's risk of bleeding with prasugrel outweighs its effectiveness)

- clopidogrel, as part of dual anti-platelet therapy with aspirin, if they have a separate indication for ongoing oral anticoagulation. [*Based on moderate to very low quality randomised trial data and original economic modelling]*

- If stenting is indicated, offer a drug-eluting stent to people with unstable angina or NSTEMI undergoing revascularisation by PCI. *[Based on high to very low quality randomised trial data and cost-effectiveness evidence]*

Cardiac rehabilitation and secondary prevention

The infographic summarises the recommendations for cardiac rehabilitation and secondary prevention following ACS. Most of these recommendations are unchanged from those in guideline CG172,[5] but new evidence from randomised trials has allowed guidance to be written regarding the treatment options for people with ACS who have a separate indication for oral anticoagulation, such as atrial fibrillation or venous thromboembolism. No relevant clinical studies were identified for the GC to answer the question of, "What is the optimal duration of β-blocker therapy to improve outcomes for adults without left ventricular dysfunction after myocardial infarction?" as set out in the scope of the guideline update.

- For people who have a separate indication for anticoagulation, take into account all of the following when thinking about the duration and type (dual or single) of anti-platelet therapy in the 12 months after an acute coronary syndrome:
  - bleeding risk
  - thromboembolic risk
  - cardiovascular risk
  - person's wishes.
- Be aware that the optimal duration of aspirin therapy has not been established, and that long term continuation of aspirin, clopidogrel, and oral anticoagulation (triple therapy) significantly increases bleeding risk. *[Based on high to very low quality randomised trial data and the experience and opinion of the GC]*
- For people already on anticoagulation who have had PCI, continue anticoagulation and clopidogrel for up to 12 months. If the person is taking a direct oral anticoagulant, adjust the dose according to bleeding risk, thromboembolic risk, and cardiovascular risk. *[Based on high to very low quality randomised trial data and the experience and opinion of the GC]*
- For people with a new indication for anticoagulation who have had PCI, offer clopidogrel (to replace prasugrel or ticagrelor) for up to 12 months and an oral anticoagulant licensed for the indication which best matches the person's
  - bleeding risk
  - thromboembolic risk
  - cardiovascular risk
  - wishes. *[Based on high to very low quality randomised trial data and the experience and opinion of the GC]*
- Do not routinely offer prasugrel or ticagrelor in combination with an anticoagulant that is needed for an ongoing separate indication for anticoagulation. *[Based on the experience and opinion of the GC]*
- For people with an ongoing indication for anticoagulation 12 months after a myocardial infarction, take into consideration all of the following when thinking about the need for continuing antiplatelet therapy:
  - the indication for anticoagulation
  - bleeding risk
  - thromboembolic risk
  - cardiovascular risk
  - the person's wishes. *[Existing recommendation]*
- Consider continuing a β-blocker for 12 months after a myocardial infarction for people without reduced left ventricular ejection fraction. *[Based on the experience and opinion of the GC]*
- Discuss the potential benefits and risks of stopping or continuing β-blockers beyond 12 months after a myocardial infarction for people without reduced left ventricular ejection fraction. Include in the discussion
  - the lack of evidence on the relative benefits and harms of continuing beyond 12 months
  - the person's experience of adverse effects. *[Based on the experience and opinion of the GC]*

Implementation

The biggest challenges to implementation of the guideline will likely be

—Alteration to existing dual anti-platelet therapy pathways using clopidogrel or ticagrelor, for people with ACS being treated with PCI, who should now be considered for treatment with prasugrel. As prasugrel is restricted to use in people with ACS treated by PCI once coronary anatomy is known, and has additional cautions and contraindications such as previous stroke, low body weight, and age 75 or over, clinicians will need to ensure that only those patients most likely to benefit from prasugrel get offered it at the appropriate time. Based on review of randomised controlled trial evidence and health economic modelling undertaken for the guideline, the committee concluded it was likely prasugrel was the most clinically effective option for patients, and the most cost effective for the NHS, albeit with some uncertainty between prasugrel and ticagrelor in particular in people with unstable angina or NSTEMI.

–Another challenge will be how primary PCI centres can offer complete revascularisation to STEMI patients with multivessel coronary artery disease. Evidence from the randomised trials reviewed in the guideline suggests that the clinical benefits of this approach are acquired if done as part of the index primary PCI procedure, during the index hospital admission, or electively up to six weeks after STEMI. The GC felt that complete revascularisation during the index admission is likely to be cost-saving compared with elective readmission, but acknowledged that valid clinical and logistical reasons may delay complete revascularisation for up to six weeks.

Further information on the guidance

Methods

- This guidance was developed by the National Guideline Centre in accordance with NICE guideline development methods (https://www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf)

- A guideline committee was established, which incorporated healthcare professionals and two lay members
- Review questions were developed based on key clinical areas of the scope. Systematic literature searches, critical appraisals, evidence reviews, and evaluations of cost effectiveness, where appropriate, were completed for all review questions
- Quality ratings were based on GRADE methodology (www.gradeworkinggroup.org/). These relate to the quality of the available evidence for assessed outcomes or themes rather than the quality of the study
- Original economic modelling was undertaken in priority areas not sufficiently addressed by the published cost effectiveness literature
- The scope and draft of the guideline went through a rigorous reviewing process, in which stakeholder organisations were invited to comment; the committee took all comments into consideration when producing the final version of the guideline.

Future research

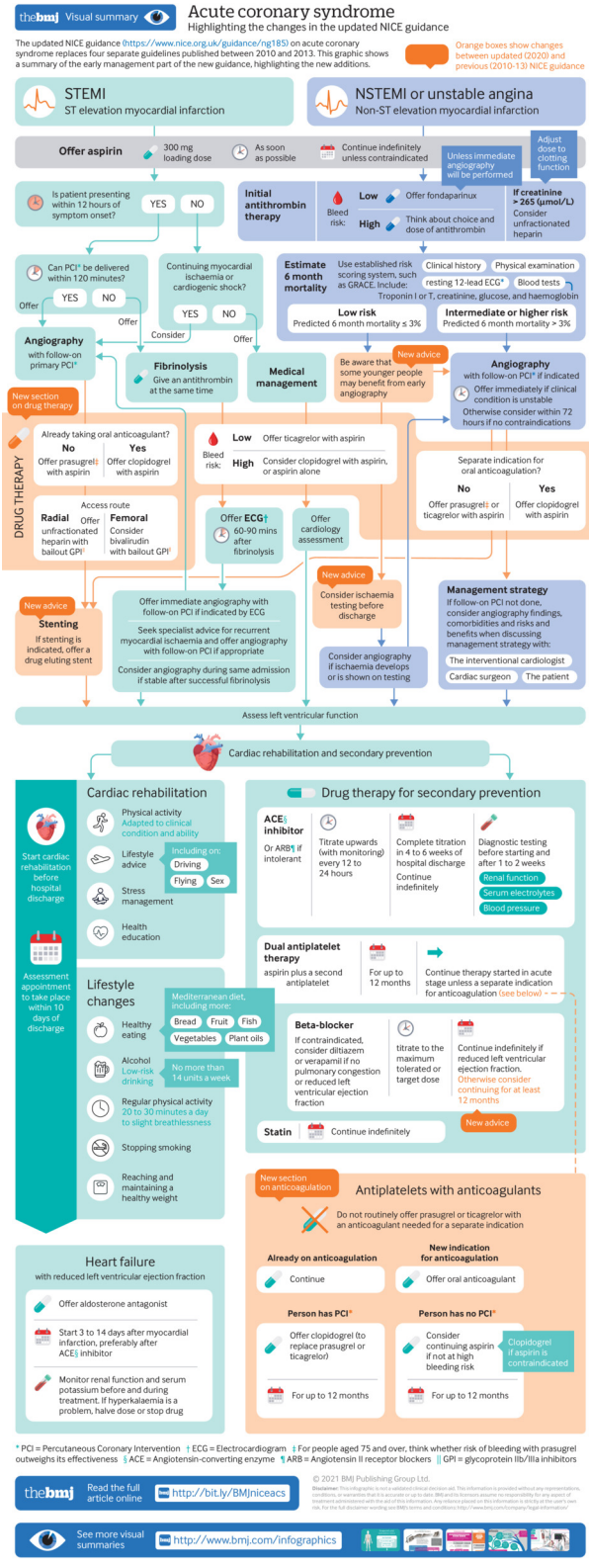
- The following new area was identified where more evidence was required. Further evidence could help to inform future recommendations and ensure people are receiving the best possible treatment:
- What is the most clinically and cost effective dual anti-platelet therapy for people aged 75 and over with ACS, who are having PCI?

Guidelines into practice

- How do treatment pathways in my hospital need to change so that I can offer patients with ACS optimal dual anti-platelet therapy?
- How should I ensure in primary care that people with ACS treated with PCI who have a separate indication for oral anticoagulation (eg, atrial fibrillation) are on a recommended combination of anticoagulant and anti-platelet therapy?

How patients were involved in the creation of this article

- Committee members involved in this guideline update included lay members (EG and LG) who contributed to the formulation of the recommendations summarised here.



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The guideline is available from the NICE website (https://www.nice.org.uk/guidance/ng185)

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