About programme updates
The Centre for Pharmacy Postgraduate Education (CPPE) has a quality assurance process called programme guardians. A programme guardian is a recognised expert in an area relevant to the content of a learning programme who reviews the programme every six to eight months. Following the regular programme guardian review we have developed this update to inform you of any necessary corrections, additions, deletions or further supporting materials. We recommend that you check you have the most recent update if you are using a programme more than six months after its initial publication date.

This update has been prepared by Janet Lock and should be read in conjunction with the Acute coronary syndromes learning@lunch programme. We have indicated the relevant section and page number of the original document wherever we provide updated information.

A note about web links
Where we think it will be helpful we have provided web links to take you directly to an article or specific part of a website. However, we are aware that web links can change. If you have difficulty accessing any web links we provide, please go to the organisation’s home page or your preferred internet search engine and use appropriate key words to search for the relevant item.

All web links were accessed on 6 January 2016.

Access to the BNF online
You can access the BNF online through MedicinesComplete. If you are not already registered, you will need to do so. UK-based individuals working for or on behalf of the NHS can register for free and access the BNF and BNF for children. To register, go to: www.medicinescomplete.com/about/subscribe.htm

Assessment
As part of your learning for this programme, you may wish to undertake the associated e-assessment. To access the assessment, go to: www.cppe.ac.uk/assessment

CPPE acknowledges the following brand names and registered trademarks mentioned throughout this update: Kengrexal®.

References in the programme to competency frameworks
In this programme we may map our learning objectives against the Royal Pharmaceutical Society of Great Britain’s competency framework, the General level framework or the Knowledge and skills framework. You can easily map the learning objectives against a competency framework that is relevant to your practice.
Acute coronary syndromes
A CPPE learning@lunch programme
Update January 2016

Book 1

About this learning@lunch programme
(page 4 – additional text)
Since publication of this programme the National Institute for Health and Care Excellence (NICE) have published the following quality standards:
Quality standard 68: Acute coronary syndromes in adults (2014).1
Quality standard 100: Cardiovascular risk assessment and lipid modification (2015).3

(page 4 – amendments)
Replace the European Society of Cardiology (ESC): Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation (2011) with:

Replace the web address for the ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation (2012) with:
http://dx.doi.org/10.1093/eurheartj/ehs215

Section 2 Clinical pathways, quality standards and patient outcomes
Section 2.2 Quality standards
Practice point 2 (page 18 – amendment)
Replace the text for practice point 2 with:
Read the following NICE quality standards:

Section 3 Presentation and immediate assessment and management of acute coronary syndromes
3.2 Immediate management of a suspected acute coronary syndrome (ACS)
Glyceryl trinitrate (GTN) (page 23 – additional text)
Add the following text to the bottom of this section:
In patients with recent intake of a phosphodiesterase type 5 inhibitor (ie, within 24 hours for sildenafil or vardenafil and 48 hours for tadalafil), nitrates should not be administered due to the risk of severe hypotension.4,5,6
Section 4 Differential diagnosis of acute coronary syndrome

4.1 Electrocardiogram (page 29 – amendment)
Replace the title and web link for The 12-lead ECG in acute coronary syndrome with:
12-lead ECG recording at: http://cb-training.com/index.php/onlinetraining/course/12-lead-ecg-recording#anchor_coursetitle

Section 5 Risk assessment

5.1 Risk assessment in NSTE-ACS (page 32 – additional text)
Add the following text to the bottom of this section:
An updated GRACE risk score (GRACE 2.0) has been published. The GRACE 2.0 risk score has better discrimination and is easier to use than the previous score.7 The score can be calculated online or via downloadable apps: www.gracescore.org.
At the time of writing this update, NICE guidelines recommend the GRACE score for risk stratification of patients with ACS.

5.3 Assessment of bleeding risk (page 36 – additional text)
Add the following text to the bottom of this section:
Major bleeding events are associated with increased mortality in NSTE-ACS. Changes in interventional practice have reduced this risk 4:
- Use of radial approach over femoral
- Reduction in the use of GPIIb/IIIa inhibitors
- Administration of more effective ADP receptor PY12 inhibitors.

Section 6 Management of acute coronary syndromes

6.1 Management of NSTE-ACS (unstable angina and NSTEMI)
Bivalirudin (page 41 – additional text)
Add the following text after the first sentence of the first paragraph of this section:
Bivalirudin has a more predictable anticoagulant effect than unfractionated heparin (UFH).4

Thienopyridines: clopidogrel and prasugrel (page 42 – amendment)
Replace the final sentence of this section with:
(See Section 6.2 for details of NICE technology appraisal 317: Prasugrel with percutaneous coronary intervention for treating acute coronary syndromes).
Ticagrelor (page 43 – additional text)
Add the following text to the bottom of this section:
The intravenous P2Y12 inhibitor cangrelor was launched in the UK in July 2015. It is licensed for use in combination with aspirin for the reduction of thrombotic cardiovascular events in adult patients with coronary artery disease undergoing percutaneous coronary intervention (PCI) who have not received an oral P2Y12 inhibitor prior to the PCI procedure and in whom oral therapy with P2Y12 inhibitors is not feasible or desirable.8

A NICE technology appraisal – Cangrelor for reducing atherothrombotic events in people undergoing percutaneous coronary intervention or awaiting surgery requiring interruption of anti-platelet therapy – was terminated in July 2015 because no evidence submission was received from the manufacturer.

In November 2015 NICE published an evidence summary – Coronary revascularisation: Cangrelor: www.nice.org.uk/advice/esnm63/chapter/key-points-from-the-evidence

6.2 Management of ST elevation myocardial infarction (STEMI)
Primary percutaneous coronary intervention (primary PCI) (page 44 – amendment)
Replace the first sentence of the second paragraph with:
The use of primary PCI has grown steadily; in 2003/2004 primary PCI accounted for less than two percent of reperfusion treatment in England, compared with 97 percent in 2012/2013 and 98.5 percent in 2013/2014.9

Drug-eluting stents (DES) (page 47 – additional text)
Add the following text after the first paragraph of this section:
Sirolimus coated stents are now referred to as first generation DES and sirolimus and paclitaxel DES are infrequently used now due to the superiority of second generation stents such as everolimus coated stents. Second generation drug eluting stents are thinner, more easy to deliver and more biocompatible than first generation stents. They generate less of an inflammatory response and more rapid vessel endothelisation. This is mainly due to improvements in polymer technology and may mean reduced risk of MI and stent thrombosis. Present recommendation of DAPT with all DES remains at 12 months.10, 11

Practice point 7 (page 48 – amendment)
Replace the web address for the British Heart Foundation video Your guide to angioplasty and stents – heart disease treatment in the first paragraph with: www.bhf.org.uk/heart-health/treatments/coronary-angioplasty-and-stents

Delete the NHS Choices Coronary angioplasty video.
Prasugrel for the treatment of ACS with PCI (page 51 – amendment)
Replace the text in the shaded box with:
In July 2014 NICE published technology appraisal 317: Prasugrel with percutaneous coronary intervention for treating acute coronary syndromes that recommends prasugrel as a possible treatment for adults with acute coronary syndrome who are having percutaneous coronary intervention.12

Section 7 Secondary prevention: long-term management and medicines optimisation
7.1 Cardiac rehabilitation (page 56 – amendment)
Replace the web address for the British Heart Foundation video The top 10 reasons to join a heart support group in the second paragraph with: www.bhf.org.uk/heart-health/how-we-can-help/heart-support-groups

7.3 Pharmacological therapy
Anticoagulation (page 58 – additional text)
Add the following text to the bottom of this section:
In August 2014 the European Society of Cardiology working group on thrombosis, European Heart Rhythm Association (EHRA), European Association of Percutaneous Cardiovascular Interventions (EAPCI) and European Association of Acute Cardiac Care (ACCA) published a joint consensus statement: The Management of antithrombotic therapy in atrial fibrillation patients presenting with acute coronary syndrome and/or undergoing percutaneous coronary or valve interventions that was endorsed by the Heart Rhythm Society (HRS) and Asia-Pacific Heart Rhythm Society (APHRS).13

In March 2015 NICE published technology appraisal 335: Rivaroxaban for preventing adverse outcomes after acute management of acute coronary syndrome.14

Users should refer to these new guidelines for changes to the previous advice to use warfarin in preference to newer oral anticoagulants (NOACs), dose of NOACs in triple therapy and choice of drug-eluting stents.

Statins (page 61 – additional text)
Add the following text to the bottom of this section:
NICE clinical guideline 181: Cardiovascular disease: risk assessment and reduction, including lipid modification was published in July 201415 and contains the following advice about statins (for full details consult the guideline):

- Start statin treatment in people with CVD with atorvastatin 80 mg. Use a lower dose of atorvastatin if any of the following apply:
  - potential drug interactions
  - high risk of adverse effects
  - patient preference.
- Do not delay statin treatment in secondary prevention to manage modifiable risk factors.
- If a person has acute coronary syndrome, do not delay statin treatment. Take a lipid sample on admission and about three months after the start of treatment.

Patients with concurrent chronic kidney disease (CKD):
Offer atorvastatin 20 mg for the primary or secondary prevention of CVD to people with chronic kidney disease (CKD).

- Increase the dose if a greater than 40 percent reduction in non-HDL cholesterol is not achieved and eGFR is 30 mL/min/1.73 m² or more.
- Agree the use of higher doses with a renal specialist if eGFR is less than 30 mL/min/1.73 m².

**Monitoring of statin treatment (page 61 – additional text)**
Replace the third bullet point of this section with the following text:
- consider increasing dose if the patient is prescribed less than atorvastatin 80 mg daily but do not increase the dose above 20 mg daily if their eGFR is less than 30 mL/min/1.73 m² before seeking advice from a renal specialist.15

Add a new fourth bullet point to this section:
- consider adding ezetimibe to the maximum tolerated dose of statin if a greater than 40 percent reduction in non-HDL cholesterol is not achieved, or if LDL remains equal to or greater than 1.8 mmol/litre.4,16

Add the following text after the second paragraph of this section:
Provide annual medication reviews for people taking statins.15
- use these reviews to discuss medicines adherence and lifestyle modification and address CVD risk factors.
- consider an annual non-fasting blood test for non-HDL cholesterol to inform the discussion.

**7.4 Communication of diagnosis and advice (page 62 – amendment)**
Replace bullet point 4 with:
- information and advice about driving should be provided in line with the latest Driver and Vehicle Licensing Agency (DVLA) guidelines at: [www.gov.uk/guidance/current-medical-guidelines-dvla-guidance-for-professionals](http://www.gov.uk/guidance/current-medical-guidelines-dvla-guidance-for-professionals).

**7.5 Concurrent conditions**
**Angina (page 67 – additional text)**
Ivabradine is an option if beta-blockers and calcium antagonists are not tolerated, eg, if the patient has low blood pressure.17
Further reading

Support for healthcare professionals (page 84 – amendment)
Delete the Northern Ireland Centre for Pharmacy Learning and Development. Cardiovascular disease: acute coronary syndromes e-learning programme 2012.

Book 2

Suggested answers to case studies

Case study 1 – Nilesh

Question 7 (page 46 – amendment)
Replace the final paragraph on page 46 with:
NICE clinical guideline 181: Cardiovascular disease: risk assessment and reduction, including lipid modification was published in July 2014.¹⁵
The recommendations for statins for the secondary prevention of cardiovascular events are:

- Start statin treatment in people with cardiovascular disease (CVD) with atorvastatin 80 mg. Use a lower dose of atorvastatin if any of the following apply:
  - potential drug interactions
  - high risk of adverse effects
  - patient preference.

- Do not delay statin treatment in secondary prevention to manage modifiable risk factors.
- If a person has acute coronary syndrome, do not delay statin treatment. Take a lipid sample on admission and about three months after the start of treatment.

Discussion points (page 47 – additional text)
Add the following bullet point to the discussion points:
- Nilesh should have had his lipids checked on admission
- Rosuvastatin is due to come off patent in January 2016.

Question 10 (page 52 – amendment)
Replace first paragraph with:
Information and advice about driving should be provided to Nilesh in line with the latest Driver and Vehicle Licensing Agency (DVLA) guidelines at: www.gov.uk/guidance/current-medical-guidelines-dvla-guidance-for-professionals.
Case study 2 – Carol

Question 3 (page 61 – additional text)

Add the following bullet point to the discussion points:

- An updated GRACE risk score (GRACE 2.0) has been published. The GRACE 2.0 risk score has better discrimination and is easier to use than the previous score. The score can be calculated online or via downloadable apps: www.gracescore.org. At the time of preparing this update, NICE guidelines recommend the GRACE score for risk stratification of patients with ACS.

Question 5 (page 64 – amendment)

Replace the final two sentences on page 64 with:

NICE clinical guideline 181: Cardiovascular disease: risk assessment and reduction, including lipid modification\textsuperscript{15} makes the following recommendations for the secondary prevention of cardiovascular events:

Start statin treatment in people with cardiovascular disease (CVD) with atorvastatin 80 mg. Use a lower dose of atorvastatin if any of the following apply:

- potential drug interactions
- high risk of adverse effects
- patient preference.

- Do not delay statin treatment in secondary prevention to manage modifiable risk factors.
- If a person has acute coronary syndrome, do not delay statin treatment. Take a lipid sample on admission and about three months after the start of treatment.

References for this update


13. European Society of Cardiology Working Group on Thrombosis, European Heart Rhythm Association (EHRA), European Association of Percutaneous Cardiovascular Interventions (EAPCI) and European Association of Acute Cardiac Care (ACCA) joint consensus statement: The Management of antithrombotic therapy in atrial fibrillation patients presenting with acute coronary syndrome and/or undergoing percutaneous coronary or valve interventions. http://dx.doi.org/10.1093/eurheartj/ehu298


Feedback
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Alternatively, please email us at: feedback@cppe.ac.uk

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