NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topics: Cardiovascular risk assessment
Lipid modification
Secondary prevention following a myocardial infarction

Output: Prioritised quality improvement areas for development.

Date of Quality Standards Advisory Committee meeting: 11 December 2014

Contents

1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for three new quality standards on:

- cardiovascular risk assessment
- lipid modification
- secondary prevention following a myocardial infarction.

It provides the Committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topics, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the Committee in considering potential statements and measures.

1.2 Development source

The key development source(s) referenced in this briefing paper are:

For the quality standard on cardiovascular risk assessment and quality standard on lipid modification:

Lipid Modification: cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. NICE guideline CG181 (2014). (Next review date September 2016).

For the quality standard on secondary prevention following a myocardial infarction:

Myocardial infarction - secondary prevention: secondary prevention in primary and secondary care for patients following a myocardial infarction. NICE guideline CG172 (2013). (Next review date December 2015).

2 Overview

Cardiovascular disease (CVD) describes disease of the heart and blood vessels caused by the process of atherosclerosis. It is the leading cause of death in England

and Wales, accounting for almost one-third of deaths. In 2010, 180,000 people died from CVD – around 80,000 of these deaths were caused by coronary heart disease (CHD) and 49,000 were caused by strokes. Of the 180,000 deaths, 46,000 occurred before people were aged 75 years, and 70% of those were in men. Death rates from CVD peaked in the 1970s and 1980s but have more than halved since then. Rates have fallen more rapidly in older age groups compared with younger ones, with an approximately 50% reduction in the 55–64 year age group compared with a 20% reduction in men aged 35–44 years. In spite of evidence that mortality from CVD is falling, morbidity appears to be rising. CVD has significant cost implications and was estimated to cost the NHS in England almost £6,940 million in 2003, rising to £7,880 million in 2010.

2.1 Cardiovascular risk assessment

2.1.1 Focus of the quality standard

This quality standard will cover the identification and assessment of cardiovascular risk in adults (aged 18 years and over).

2.1.2 Definition

Cardiovascular disease (CVD) shows strong age dependence and predominantly affects people older than 50 years. Risk factors for CVD include non‑modifiable factors such as age, sex, family history of CVD, ethnic background and modifiable risk factors such as smoking, raised blood pressure and cholesterol. CVD is strongly associated with low income and social deprivation and shows a North–South divide, with higher rates in the north of England.

Cardiovascular risk assessment aims to identify individual people who do not already have CVD but who may be at high risk of developing it. This may be carried out as part of an NHS Health Check. A full cardiovascular risk assessment usually takes place in primary care and takes into account both non-modifiable and modifiable risk factors. Those people identified at greatest risk can then receive focused interventions including smoking cessation and appropriate advice on diet, physical activity and if necessary treatment for high blood pressure and cholesterol to target individual risk factors and reduce the risk of developing CVD.

2.2 Lipid modification

2.2.1 Focus of the quality standard

This quality standard will cover lipid modification for the primary and secondary prevention of cardiovascular disease in adults (aged 18 years and over).

2.2.2 Definition

A range of interventions are offered to prevent CVD, both for people who have been identified as having a high risk of developing CVD (primary prevention) and for people with established CVD (secondary prevention). These include lifestyle interventions, such as smoking cessation and appropriate advice on diet, physical activity and drinking. If appropriate, treatment for high blood pressure and cholesterol may be offered to target individual risk factors to reduce the risk of developing CVD or to prevent the worsening of CVD.

One of the main strategies for CVD risk management is the use of lipid-lowering therapies especially the use of statin therapy. Statin therapy requires long-term treatment to achieve its benefits. One of the key challenges in the field of CVD prevention is to improve adherence in patients who have experienced CVD events, and how to convince people who feel well that they need to make substantial lifestyle changes or that they may require lifelong drug treatment. This requires high quality information and communication on the benefits and risks associated with these therapies.

2.3 Secondary prevention following a myocardial infarction

2.3.1 Focus of the quality standard

This quality standard will cover secondary prevention following a myocardial infarction, including cardiac rehabilitation in adults (aged 18 years and over).

2.3.2 Definition

Myocardial infarction (MI) is one of the most dramatic presentations of coronary artery disease. It is usually caused by blockage of a coronary artery that produces tissue death and is commonly referred to as a heart attack.

People who have had an MI benefit from treatment to reduce the risk of further MI and progression of vascular disease. This is known as secondary prevention.

Secondary prevention for people who have had an MI includes various techniques to improve outcomes:

- drug therapy such as aspirin, clopidogrel, beta-blockers, ACE inhibitors and statins
- changes in lifestyle for example healthy eating, regular exercise and smoking cessation

- cardiac rehabilitation programmes which have consistently been shown to reduce mortality rates in CHD patients. Cardiac rehabilitation is the coordinated sum of interventions required to ensure the best possible physical, psychological and social conditions to enable the CHD patients to preserve or resume optimal functioning in society.

2.3.3 Incidence and prevalence

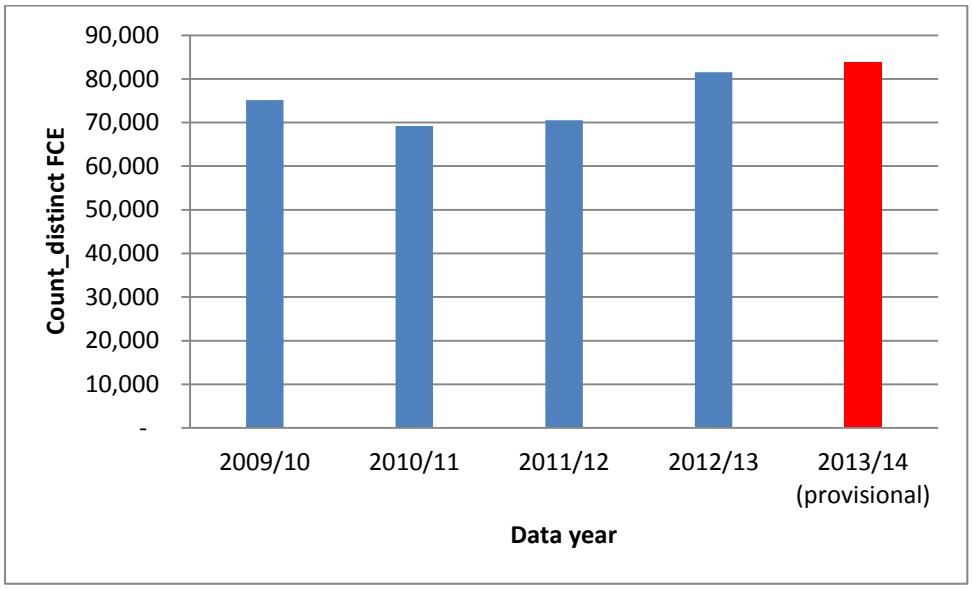
MI is a preventable complication of CHD. The death rate from CHD has been falling since the early 1970s; for people aged below 75, rates have fallen by almost 25% since 1996 (Department of Health, 2004). CHD death rates vary with age, gender, socio-economic status, ethnicity and UK geographic location. Death rates in men aged less than 75 years are three times as high as those in women, and death rates in affluent areas in the UK are half of those in deprived areas (Department of Health, 2003). People of South Asian origin have almost a 50% higher death rate compared with the general population.

In England and Wales in 2011/12 more than 79,000 hospital admissions were caused by MI according to the Myocardial Ischaemia National Audit Project (MINAP). Twice as many men had MIs as women. The data also showed 30-day mortality decreased between 2003/04 and 2011/12 through improved treatment.

In 2012 the Office for National Statistics reported just over 23,000 deaths with underlying cause of acute myocardial infarction.

In 2012/13 hospital episode statistics shows there were around 81,500 finished consultant episodes for myocardial infarction in England. The trend in hospital activity for myocardial infarction for the last five years is shown in figure 1.

Figure 1: Number of finished consultant episode for myocardial infarction in England 2009/10 to 2013/14 (Source of figure: Hospital Episode Statistics)



2.4 National audits

Myocardial Ischaemia National Audit Project (MINAP) April 2012-March 2013

The Myocardial Ischaemia National Audit Project (MINAP) is a national cardiac clinical audit which collects data on the management of heart attacks from participating hospital and ambulance services from across England, Wales and Northern Ireland. The audit collects data from across the patient pathway and covers diagnosis and treatment to discharge. Initially the audit focussed on the early provision of reperfusion treatment for people presenting with STEMI. Recently the audit has been extended to include people with NSTEMI however the number of NSTEMI reported in MINAP are incomplete.

National Audit of Cardiac Rehabilitation (NACR) April 2011 – March 2012.

The National Audit of Cardiac Rehabilitation (NACR) maps the provision of cardiac rehabilitation services across the UK, reporting on uptake and clinical outcomes for over 300 programmes. It provides data which highlights inequalities in uptake and outcomes.

2.5 National Outcome Frameworks

Tables 1–3 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 NHS Outcomes Framework 2015–16

Domain	Overarching indicators and improvement areas
1 Preventing people from dying prematurely	***Overarching indicator*** 1b Life expectancy at 75 i Males ii Females ***Improvement areas*** **Reducing premature mortality from the major causes of death** 1.1 Under 75 mortality rate from cardiovascular disease* **Reducing premature death in people with serious mental illness** 1.5 Excess under 75 mortality rate in adults with serious mental illness*
2 Enhancing quality of life for people with long-term conditions	***Overarching indicator*** 2 Health-related quality of life for people with long-term conditions** ***Improvement areas*** **Ensuring people feel supported to manage their condition** 2.1 Proportion of people feeling supported to manage their condition** **Improving functional ability in people with long-term conditions** 2.2 Employment of people with long-term conditions*/** **Reducing time spent in hospital by people with long-term conditions** 2.3i Unplanned hospitalisation for chronic ambulatory care sensitive conditions (adults)
3 Helping people to recover from episodes of ill health or following injury	***Overarching indicator*** 3b Emergency readmissions within 30 days of discharge from hospital* ***Improvement areas*** **Helping older people to recover their independence after illness or injury** 3.6 i Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation service*** ii Proportion offered rehabilitation following discharge from acute or community hospital***
4 Ensuring that people have a positive experience of care	***Overarching indicator*** 4a Patient experience of primary care i GP services 4b Patient experience of hospital care ***Improvement areas*** **Improving access to primary care** 4.4 Access to i GP services **Improving people's experience of integrated care** 4.9 People's experience of integrated care**

Alignment across the health and social care system
* Indicator shared with Public Health Outcomes Framework (PHOF)
** Indicator complementary with Adult Social Care Outcomes Framework (ASCOF)
*** Indicator shared with Adult Social Care Outcomes Framework

Table 2 The Adult Social Care Outcomes Framework 2015-16

Domain	**Overarching and outcome measures**
2 Delaying and reducing the need for care and support	***Outcome measure*** **Everybody has the opportunity to have the best health and wellbeing throughout their life, and can access support and information to help manage their care needs.** 2b Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation services**.
Aligning across the health and care system * Indicator complementary ** Indicator shared	

Table 3 Public health outcomes framework for England, 2013–2016

Domain	**Objectives and indicators**
1 Improving the wider determinants of health	***Objective*** Improvements against wider factors which affect health and wellbeing and health inequalities ***Indicators*** 1.8 Employment for those with long-term health conditions including adults with a learning disability or who are in contact with secondary mental health services*
2 Health improvement	***Objective*** People are helped to live healthy lifestyles, make healthy choices and reduce health inequalities
4 Healthcare public health and preventing premature mortality	***Objective*** Reduced numbers of people living with preventable ill health and people dying prematurely, while reducing the gap between communities ***Indicators*** 4.4 Under 75 mortality rate from cardiovascular diseases (including heart disease and stroke)** 4.9 Excess under 75 mortality in adults with serious mental illness** 4.11 Emergency readmissions within 30 days of discharge from hospital**
Aligning across the health and care system * Indicator complementary ** Indicator shared	

3 Summary of suggestions

3.1 Responses

In total 14 stakeholders responded to the 2-week engagement exercise 17/10/14 – 31/10/14. Two stakeholders responded as 'no comment'.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in table 4 for further consideration by the Committee.

NHS England's patient safety division did not submit any data for this topic.

Full details of all the suggestions provided are given in appendix 3 for information.

Table 4 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders

Risk assessment
• **Systematic approach to identification**
• **Formal risk assessment**
  ○ Full formal risk assessment for primary prevention of CVD
  ○ Risk assessment for people with diabetes
  ○ Research on risk assessment tools in the elderly
  ○ Use of imaging for risk assessment
  ○ Use of regular waist measurement and weight recording to identify those at risk
  ○ Monitoring blood pressure and kidney function
	SCM, MSD, KRUK, HD, ABCD, HUK, BNCS, BNMS

Lipid Modification
• **Lifestyle interventions**
• **Statins**
  ○ Statin treatment for primary prevention
  ○ Statin treatment for secondary prevention
  ○ Subgroups
  ○ Assessment and treatment of people intolerant of statins
• **Follow-up and monitoring**
  ○ Regular follow-up of lipid-modifying therapy
  ○ Drug therapy monitoring in people with mental health conditions
  ○ Improved method of recording of serum lipids
	SCM, RCP, HUK, RCP, MSD, ABCD

Secondary prevention following a myocardial infarction
• **Cardiac rehabilitation**
  ○ Equal access and uptake of programmes
  ○ Prompt access
  ○ Content and setting of programmes
	SCM, FSEM, HUK, BDA, BH, DOMUK, KRUK

Suggested area for improvement	Stakeholders

• **Lifestyle changes after an MI**
  ○ Assessment for and advice on physical activity
  ○ Use of motivational interviewing to increase uptake of physical activity
• **Drug therapy**
  ○ Use of drug therapy for people who have had an acute MI
  ○ High-dose high-intensity statin at discharge
• **Communication of diagnosis and advice**
  ○ Discharge advice and education for the patient
  ○ Discharge letters to include titration plans and monitoring advice for the GP
• **Follow-up**
  ○ Assessment of bleeding risk
  ○ Assessment of kidney function
  ○ Revascularisation	

Additional areas • Participation in the Public Health Responsibility Deal for food reformulation as mandatory • Development of strategies to reduce unintended purchases of unhealthy foods and drinks and ensure that publically funded food and drink provision is in line with the principles of healthy eating	SCM, DOMUK

ABCD, Association of British Clinical Diabetologists
BDA, British Dietetic Association
BH, Bayer Healthcare
BNCS, British Nuclear Cardiology Society
BNMS, British Nuclear Medicine Society
DOMUK, Dietitians in Obesity Management UK
FSEM, Faculty of Sports and Exercise Medicine
HD, HQT Diagnostics
HUK, Heart UK
KRUK, Kidney Research UK
MSD, Merck Sharp and Dohme
RCP, Royal College of Psychiatrists
SCM, Specialist Committee Member

4 Suggested improvement areas

4.1 Risk assessment – systematic approach to identification

4.1.1 Summary of suggestion

Stakeholders suggested that all primary care settings should have a systematic approach to identification of people at increased risk of developing cardiovascular disease. Responses identified the need for a full formal risk assessment if the estimated 10-year risk of CVD is 10% or more. It was highlighted that intervention is often based on an isolated risk factor level or opportunistic screening. It was also suggested that improvements to risk assessment should include population level approaches, as well as individual approaches. This could be achieved through collaborative working between Public Health and Local Authority to support the reduction of health inequalities.

4.1.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 5 to help inform the Committee's discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Systematic approach to identification	NICE CG181 Recommendations 1.1.1, 1.1.2 and 1.1.4.

NICE CG181 Recommendation 1.1.1

For the primary prevention of CVD in primary care, use a systematic strategy to identify people who are likely to be at high risk.

NICE CG181 Recommendation 1.1.2

Prioritise people on the basis of an estimate of their CVD risk before a full formal risk assessment. Estimate their CVD risk using CVD risk factors already recorded in primary care electronic medical records.

NICE CG181 Recommendation 1.1.4

Prioritise people for a full formal risk assessment if their estimated 10-year risk of CVD is 10% or more.

4.1.3 Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience from local audit data.

4.2 Risk assessment – Formal risk assessment

4.2.1 Summary of suggestions

Full formal risk assessment for primary prevention of CVD

Stakeholders highlighted it was important for clinicians to assess the risk of CVD in people identified as being at an estimated high risk. Identification and management of risk factors can reduce the risk of later developing CVD.

Risk assessment for people with diabetes

Stakeholders raised specific issues around formal risk assessment for people with diabetes. Some responses suggested that risk assessment should occur for both people with type 2 diabetes and those with type 1. In contrast, other responses stated that people with diabetes and CKD do not need to have a risk assessment before starting statins. Several responses suggested that the high risk status of people with type 2 diabetes should be clarified, as the risk in this population is often underestimated. In addition, people with type 2 diabetes who are not yet at the 10% threshold assessment should have an annual risk assessment. It was also suggested that people with type 2 group should be regarded as at sufficient vascular risk to justify statin treatment after 8 years, regardless of QRISK2 10 year risk assessment. A further area for quality improvement highlighted was effective lipid control on drug therapy for diabetes patients with proteinuria. It was stated that these cases require attained non HDL cholesterol targets (< 2.5 mmol/l) for effective CVD risk reduction.

Research on risk assessment tools in the elderly

Risk assessment in the elderly was raised with one stakeholder highlighting the absence of data on the optimal method of cardiovascular risk assessment in this population. It was suggested that research recommendations be developed around the predictive capacity of life-time risk assessment tools in the elderly population.

Use of imaging for risk assessment

Approaches to risk assessment using imaging emerged from comments recommending particular methods of assessment. The use of Myocardial Perfusion Scintigraphy (MPS) was suggested for the elderly and women and for those with diabetes and renal failure. The use of Position Emission Tomography (PET) was recommended for patient centred benefits. This suggestion highlighted that the latter method is a relatively new technique currently used in only two centres in the UK.

Use of regular waist measurement and weight recording to identify those at risk

Comments included suggestions for regular measurement and recording of weight and waist circumference to identify high risk individuals.

Monitoring blood pressure and kidney function

Three further areas for quality improvement in risk assessment concerned specific tests. Testing for Vitamin D and Fatty Acids and the use of Vitamin D and Omega 3 supplements were recommended. The correct procedure for blood pressure monitoring was raised and it was suggested that this should be conducted in both arms routinely to allow for inter-arm differences. One final comment called for the measurement and recording of kidney function and albuminuria /proteinuria as part of a cardiovascular risk assessment.

4.2.2 Selected recommendations from development source

Table 6 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 6 to help inform the Committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Full formal risk assessment for primary prevention of CVD	NICE CG181 Recommendation 1.1.8
Risk assessment for people with diabetes	NICE CG181 Recommendations 1.1.9 and 1.1.10
Research on risk assessment tools in the elderly	No recommendations in the source guidance.
Use of imaging for risk assessment	No recommendations in the source guidance.
Use of regular waist measurement and weight recording to identify those at risk	No recommendations in the source guidance.
Monitoring blood pressure and kidney function	No recommendations in the source guidance.

Full formal risk assessment for primary prevention of CVD

NICE CG181 Recommendation 1.1.8

Use the QRISK2 risk assessment tool to assess CVD risk for the primary prevention of CVD in people up to and including age 84 years. [new 2014]

Risk assessment for people with diabetes

NICE CG181 Recommendation 1.1.9

Do not use a risk assessment tool to assess CVD risk in people with type 1 diabetes. See recommendations 1.3.23, 1.3.24 and 1.3.25 for advice on treatment with statins for people with type 1 diabetes. [new 2014]] [This recommendation updates and replaces recommendation 1.10.1.2 from Type 1 diabetes (NICE clinical guideline 15).]

NICE CG181 Recommendation 1.1.10

Use the QRISK2 risk assessment tool to assess CVD risk in people with type 2 diabetes. [new 2014] [This recommendation updates and replaces recommendations 1.9.1, 1.9.2 and 1.9.3 from Type 2 diabetes (NICE clinical guideline 87).]

4.2.3 Current UK practice

No published studies on current practice were highlighted for these suggested areas for quality improvement; these areas are based on stakeholder's knowledge and experience from local audit data.

4.3 Lipid Modification – Lifestyle interventions

4.3.1 Summary of suggestion

Stakeholders suggested interventions on lifestyle including smoking cessation, diet and weight optimisation and where necessary prescription of statins to high-risk individuals (primary prevention) are likely to result in reductions in cardiovascular events. Stakeholders highlighted changes to the thresholds from 20% to 10% means more people will be classed as high risk.

4.3.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 7 to help inform the Committee's discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Lifestyle interventions	NICE CG181 Recommendations 1.3.14 and 1.3.15

NICE CG181 Recommendation 1.3.14

Before offering statin treatment for primary prevention, discuss the benefits of lifestyle modification and optimise the management of all other modifiable CVD risk factors if possible. [new 2014]

NICE CG181 Recommendation 1.3.15

Recognise that people may need support to change their lifestyle. To help them do this, refer them to programmes such as exercise referral schemes. (See Behaviour change: individual approaches [NICE public health guidance 49].) [new 2014]

4.3.3 Current UK practice

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience from local audit data.

4.4 Lipid Modification – Statins

4.4.1 Summary of suggestions

Statin treatment for primary prevention

Stakeholders suggested that following interventions on lifestyle including smoking cessation, diet and weight optimisation, statins should be prescribed where necessary to high-risk individuals as this is likely to result in reductions in cardiovascular events.

Stakeholders report that prescription of preventive therapies even at the 20% threshold has been variable. Further data and changes in cost-efficacy relationships mean that it is now possible to treat more patients with statins and that statins can reduce the risk of coronary disease events in relatively low risk groups.

Statin treatment for secondary prevention

It was stated that people with myocardial infarction constitute a particularly high-risk group that would gain most from aggressive statin therapy. Stakeholders suggested the recommendation that patients are offered 80 mg Atorvastatin, unless contraindicated as a potential quality statement.

Subgroups

Stakeholders suggested that there is a need to prioritise people taking Simvastatin 10mg or 20mg daily for a switch to a high intensity statin, particularly if they are at high CVD risk, for example people with diabetes. It was highlighted that previous guidance had recommended Simvastatin 40mg for all primary and most secondary prevention. However, it was reported that an MHRA alert regarding potential interaction with calcium blockers may have led to patients having their dose reduced to 10 or 20mg. This lower level was described as less effective than currently recommended agents.

The use of statins for people with diabetes was identified as a specific area for quality improvement, with responses emphasising that optimisation of drug therapy contributes to cardiovascular event reduction in patients with diabetes. Concerns around the potential impact of statins were also identified in relation to the effect on glycaemia and it was suggested that this may lead to a reduction in uptake and adherence to lipid-lowering therapies in people with diabetes.

Comments on the use of statins also raised equality issues with regard to the use of optimal lipid-lowering and other cardioprotective therapies in women, ethnic minorities and the elderly.

Drug therapy responses also included use of non-statin hypolipidaemic drugs. It was reported that many high CVD risk cases are not optimally managed with current guidance, as residual lipid abnormalities persist despite a high intensity statin. The next steps for residual dyslipidaemia and the potential role of ezetimibe were viewed as gaps in current guidance.

Assessment and treatment of people intolerant of statins

Stakeholders raised the need to consider people who are intolerant of statins. Stakeholders suggested that there is a variable response by health care professionals to people who do not tolerate statins and a standardised approach would benefit patients.

4.4.2 Selected recommendations from development source

Table 8 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 8 to help inform the Committee's discussion.

Table 8 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Statin treatment for primary prevention	NICE CG181 Recommendations 1.3.17 and 1.3.18
Statin treatment for secondary prevention	NICE CG181 Recommendation 1.3.20
Subgroups	NICE CG181 Recommendation 1.3.30
Assessment and treatment of people intolerant of statins	NICE CG181 Recommendations 1.3.41, 1.3.42 and 1.3.43

Statin treatment for primary prevention

NICE CG181 Recommendation 1.3.17

If lifestyle modification is ineffective or inappropriate offer statin treatment after risk assessment. [new 2014]

NICE CG181 Recommendation 1.3.18

Offer atorvastatin 20 mg for the primary prevention of CVD to people who have a 10% or greater 10-year risk of developing CVD. Estimate the level of risk using the QRISK2 assessment tool. [new 2014]

Statin treatment for secondary prevention

NICE CG181 Recommendation 1.3.20

Start statin treatment in people with CVD with atorvastatin 80 mg[6]. Use a lower dose of atorvastatin if any of the following apply:

• potential drug interactions

• high risk of adverse effects

• patient preference.

Subgroups

NICE CG181 Recommendation 1.3.30

Discuss with people who are stable on a low- or middle-intensity statin the likely benefits and potential risks of changing to a high-intensity statin when they have a medication review and agree with the person whether a change is needed. [new 2014]

Assessment and treatment of people intolerant of statins

NICE CG181 Recommendation 1.3.41

If a person is not able to tolerate a high-intensity statin aim to treat with the maximum tolerated dose. [new 2014]

NICE CG181 Recommendation 1.3.42

Tell the person that any statin at any dose reduces CVD risk. If someone reports adverse effects when taking high-intensity statins discuss the following possible strategies with them:

- stopping the statin and trying again when the symptoms have resolved to check if the symptoms are related to the statin
- reducing the dose within the same intensity group
- changing the statin to a lower intensity group. [new 2014]

NICE CG181 Recommendation 1.3.43

Seek specialist advice about options for treating people at high risk of CVD such as those with CKD, type 1diabetes, type 2 diabetes or genetic dyslipidaemias, and those with CVD, who are intolerant to 3 different statins. Advice can be sought for example, by telephone, virtual clinic or referral. [new 2014]

4.4.3 Current UK practice

Statin treatment for primary prevention

The results from QOF 2013/14 show that for the indicator CVD-PP001 'In those patients with a new diagnosis of hypertension aged 30 or over and who have not attained the age of 75, recorded between the preceding 1 April to 31 March (excluding those with pre-existing CHD, diabetes, stroke and/or TIA), who have a recorded CVD risk assessment score (using an assessment tool agreed with the NHS CB) of ≥20% in the preceding 12 months: the percentage who are currently treated with statins' 2012/13 = 93.67% and 2013/14 = 88.03% (lower exception rate)

A study[1] looking at cardiovascular risk factors for 365,718 GP registered people found that over half of patients started on lipid lowering therapy were ineligible for treatment and many eligible patients were not started on treatment. Most ineligible people started on treatment were >55 years old but were not at high risk (20%). GP prescribing was systematically influenced by cardiovascular risk factors and most strongly by older age, diabetic status and a total cholesterol >=7mmol/L. There was no evidence of the threshold of 20% being used.

Statin treatment for secondary prevention

A study[2] linking data from the Myocardial Ischaemia National Audit Project (MINAP) with hospital data from the General Practice Research Database (GPRD) investigated the prescribing of statins for the secondary prevention of people with ACS. The study found that in 2009 only 30.1% (1,535 of 5,102) of the ACS cases prescribed a statin by their GP received a high-intensity statin dose. Elderly populations (aged 80 and over) were less likely to be prescribed a high dose statin. It was also found that the proportion of people prescribed a higher-intensity statin had increased following the publication of the NICE CG67 guideline in 2008, increasing from 26% to 33%. The majority of ACS cases stopped statin therapy within four years of treatment. At year four, only 43% of ACS cases were still using a statin. Of the ACS cases who started on high-intensity statin therapy and persisted, 73% were still using high intensity at year four. The study found adherence to the NICE guidelines was much lower with respect to the prescribed dosage of statin therapy.

[1] Wu, J., Zhu, S.et al. Patient factors influencing the prescribing of lipid lowering drugs for primary prevention of cardiovascular disease in UK general practice: a national retrospective cohort study. PLoS ONE 2013 8 (7) PAGES e67611

[2] Boggon R., Eaton S., Timmis A. 2012. Current prescribing of statins and persistence to statins following ACS in the UK: a MINAP/GPRD study, *British Journal of Cardiology*, 19, 24.

Subgroups

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience from local audit data.

Assessment and treatment of people intolerant of statins

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience from local audit data.

4.5 Lipid Modification – follow up and monitoring

4.5.1 Summary of suggestions

Regular follow-up of lipid-modifying therapy

The follow-up of people initiated on lipid-modifying therapy (primary and secondary prevention) was described as critical. Stakeholders commented that follow-up should be at three months after starting Atorvastatin. Assessment of lipids at three months post infarction was described as variable around the country. Stakeholders highlighted that there was a need to improve practice in line with current guidance. It was also suggested that a specific quality improvement area should be the use of a non-fasting sample on admission to allow a baseline.

Regular cholesterol testing, particularly in high risk patients, was suggested as an important area for quality improvement to effectively manage and minimise cardiovascular risks over a lifetime. And it was stated that all patients should aim for at least a 40% reduction in non-HDL cholesterol.

A further comment on cholesterol measurement concerned the use of low density lipoprotein cholesterol (LDL-c). It was suggested that the use of LDL-c should continue alongside non-HDL-c to allow a period of transition to implement the new guidance in clinical practice.

Drug therapy monitoring in people with mental health conditions

The follow up of drug therapy specifically for people with chronic schizophrenia and bipolar disorder was highlighted as an area for improvement in practice. Comments suggested that measurement of compliance with cardiovascular medication should take place on an annual basis, rather than at 15 months to fit with the annual physical health check.

Improved method of recording of serum lipids

A final response on drug therapy concerned a suggested approach to improving the recording of serum lipids. The present method is to record two absolute values. The suggested approach is to calculate a ratio such as b/c or a/b for individuals using software that would perform the calculation. This would then be explored using existing data from past trials that have investigated outcomes against lipids levels to identify how far it is a better predictor of outcomes than absolute measures.

4.5.2 Selected recommendations from development source

Table 9 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 9 to help inform the Committee's discussion.

Table 9 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Regular follow-up of lipid-modifying therapy	NICE CG181 Recommendations 1.3.22, 1.3.28 and 1.3.29
Drug therapy monitoring in people with mental health conditions	NICE CG181 Recommendation 1.3.29
Improved method of recording of serum lipids	No recommendations in the source guidance

Regular follow-up of lipid-modifying therapy

NICE CG181 Recommendation 1.3.22

If a person has acute coronary syndrome, do not delay statin treatment. Take a lipid sample on admission and about 3 months after the start of treatment.

NICE CG181 Recommendation 1.3.28

Measure total cholesterol, HDL cholesterol and non-HDL cholesterol in all people who have been started on high-intensity statin treatment at 3 months of treatment and aim for a greater than 40% reduction in non-HDL cholesterol. If a greater than 40% reduction in non-HDL cholesterol is not achieved:

- discuss adherence and timing of dose
- optimise adherence to diet and lifestyle measures
- consider increasing the dose if started on less than atorvastatin 80 mg and the person is judged to be at higher risk because of comorbidities, risk score or using clinical judgement. [new 2014]

[This recommendation updates and replaces recommendation 1.10.2.7 from Type 1 diabetes (NICE clinical guideline 15) and recommendation 1.10.1.6 from Type 2 diabetes (NICE clinical guideline 87).]

NICE CG181 Recommendation 1.3.29

Provide annual medication reviews for people taking statins.

- 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.

Drug therapy monitoring in people with mental health conditions

NICE CG181 Recommendation 1.3.29

See above

4.5.3 Current UK practice

No published studies on current practice were highlighted for these suggested areas for quality improvement; these areas are based on stakeholder's knowledge and experience from local audit data.

4.6 Secondary prevention following a myocardial infarction – cardiac rehabilitation

4.6.1 Summary of suggestions

Equal access and uptake of programmes

Several responses identified the need for improved equality in access and uptake of cardiac rehabilitation programmes. Stakeholders stated that all patients with acute myocardial infarction should be offered the opportunity to participate in an activity or exercise-based programme of cardiac rehabilitation appropriate to their needs. It was suggested that there is inequitable access to cardiac rehabilitation related to:

- geographical location
- gender
- BMI
- socioeconomic status
- learning disabilities
- mental and physical health conditions.

Prompt access

It was suggested that early cardiac rehabilitation, defined as attendance at a cardiac rehabilitation orientation appointment within 10 days, significantly improves attendance and is cost-saving through reduced incidence of unplanned cardiac re-admissions.

Content and setting of programmes

Stakeholders also suggested that uptake could be increased by improving community based physical activity programmes. Reasons for a lack of uptake were described as varied and included difficulty in attending the hospital, such as transport and car parking, work, domestic commitments and a dislike of groups. It was stated that the use of home-based approaches could address these problems and improve access to, and participation in, cardiac rehabilitation programmes.

Comments on the content of programmes also concerned the need to ensure dietary advice is given. It was stated that 48% of cardiac rehabilitation programmes have no dietetic input and this should be addressed through programmes that have an emphasis on integrated lifestyle changes and access to dietitians.

4.6.2 Selected recommendations from development source

Table 10 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 10 to help inform the Committee's discussion.

Table 10 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Equal access and uptake of programmes	NICE CG172 Recommendations 1.1.1, 1.1.6, 1.1.7, 1.1.10, 1.1.11 and 1.1.17
Prompt access	NICE CG172 Recommendation 1.1.13
Content and setting of programmes	NICE CG172 Recommendations 1.1.8, 1.1.9, and 1.1.20

Equal access and uptake of programmes

NICE CG172 Recommendation 1.1.1

All patients (regardless of their age) should be given advice about and offered a cardiac rehabilitation programme with an exercise component.

NICE CG172 Recommendation 1.1.6

Establish people's health beliefs and their specific illness perceptions before offering appropriate lifestyle advice and to encourage attendance to a cardiac rehabilitation programme.

NICE CG172 Recommendation 1.1.7

Offer cardiac rehabilitation programmes designed to motivate people to attend and complete the programme. Explain the benefits of attending.

NICE CG172 Recommendation 1.1.10

Provide a range of different types of exercise, as part of the cardiac rehabilitation programme, to meet the needs of people of all ages, or those with significant comorbidity. Do not exclude people from the whole programme if they choose not to attend specific components.

NICE CG172 Recommendation 1.1.11

Offer single-sex cardiac rehabilitation programme classes if there is sufficient demand.

NICE CG172 Recommendation 1.1.17

Make cardiac rehabilitation equally accessible and relevant to all people after an MI, particularly people from groups that are less likely to access this service. These include people from black and minority ethnic groups, older people, people from lower socioeconomic groups, women, people from rural communities, people with a learning disability and people with mental and physical health conditions.

Prompt access

NICE CG172 Recommendation 1.1.13

Begin cardiac rehabilitation as soon as possible after admission and before discharge from hospital. Invite the person to a cardiac rehabilitation session which should start within 10 days of their discharge from hospital.

Content and setting of programmes

NICE CG172 Recommendation 1.1.8

Discuss with the person any factors that might stop them attending a cardiac rehabilitation programme, such as transport difficulties.

NICE CG172 Recommendation 1.1.9

Offer cardiac rehabilitation programmes in a choice of venues (including at the person's home, in hospital and in the community) and at a choice of times of day, for example, sessions outside of working hours. Explain the options available.

NICE CG172 Recommendation 1.1.20

A home-based programme validated for patients who have had an MI (such as The heart manual) that incorporates education, exercise and stress management components with follow-ups by a trained facilitator may be used to provide comprehensive cardiac rehabilitation.

4.6.3 Current UK practice

Equal access and uptake of programmes

The recent 2013 National Audit of Cardiac Rehabilitation showed that in 2011/12 the numbers attending cardiac rehabilitation in England had improved from 55,452 to 58,299. The percentage of patients with MI receiving cardiac rehabilitation remained below half, but had also increased slightly from 44% to 46% in 2011/12.

There was also a reported improvement in the proportion of patients being referred but not taking part in cardiac rehabilitation. In 2009/10 21% were referred, but did not participate and this dropped to 13% in 2011/12. However, the 2013 audit also highlights that there is a 65% uptake target set by the CVD Outcomes Strategy for England (across all three categories of CVD: MI, PCI and CABG). When taking this as a benchmark, uptake of cardiac rehab programmes in England was 21% short of the target in 2011/12.

It should be noted that 11% of programmes were unable to provide data on numbers of people seen for the 2013 National Audit. Therefore, some underestimation in the numbers on uptake of rehabilitation is likely.

Stakeholders suggested that there is also a shortfall in the numbers of women and BMI populations attending cardiac rehab programmes. The 2013 audit data suggests that attendance of women may be lower than those eligible. Women made up 30% of referrals and only 26% of Phase III participants, whereas the number of eligible patients from case rates was estimated at 39%. For ethnicity the 2013 audit data included proportions of patients referred from different ethnic groups. This suggested that the percentages attending from different ethnic groups has remained the same from 2010-2012. Moreover, the 2011 National Audit of Cardiac Rehabilitation presented figures on the numbers from black and ethnic minorities in England surviving myocardial infarction and those taking part in cardiac rehabilitation. The rates surviving and then taking part in fact showed little difference.

However, the audit highlights that ethnicity data must be treated with caution, as the numbers are small and those recording may also be those more likely to ensure equitable access.

Prompt access

Stakeholders raised the importance of prompt referral as an area for improvement. The audit indicates that the time people wait from event to first assessment (calculated as median number of days by diagnostic/treatment group) has increased slightly for MI patients. In 2010-11 the median wait time was 10 days, which is in line with NICE guidance. In 2011-12 the wait time had increased to 11 days, which is longer than the recommended 10 day wait in NICE guidance.

Content and setting of programmes

A survey of 28 English Cardiac Networks conducted in 2009 showed that the numbers of networks following the NICE guidelines for myocardial infarction, including cardiac rehabilitation remained below half. However, this had increased from 34% in 2007 to 43% in 2009[3]. This study also reported that a choice of centre

[3] Shahid M., Varghese A., Moqsith A., et al. 2011. Survey of cardiac rehabilitation across the English Cardiac Networks 2007-2009, The British Journal of Cardiology, 18, 1.

or home-based cardiac rehabilitation had increased from only 25% in 2008 to 72% in 2009. In engagement comments people cited a range of reasons for poor uptake of cardiac rehabilitation. In the 2013 audit the most frequent response was due to the patient not being interested or declining. Other reasons included travel or transport difficulties.

A further area worth noting from the 2013 audit is the reduced range of interventions reported across some cardiac rehabilitation programmes. The use of some interventions has decreased since the previous year and this is described as reflecting a drop in multi-disciplinary input. The Department of Health's Cardiovascular Disease Outcomes Strategy described the provision of cardiac rehab programmes as remaining "quite restricted and siloed". Moreover, programmes that are not tailored to individual needs were described in one UK survey of GPs and Cardiologists conducted in 2011 as potentially contributing to the under representation of particular patient groups, such as ethnic minorities and women[4].

[4] Halcox J., Lindsay S., Begg L., Griffith K., Mead A. and Barr B. (2011) Lifestyle advice and drug therapy post-myocardial infarction: a survey of UK current practice, British Journal of Cardiology, 18,4 pp.18-178.

4.7 Secondary prevention following a myocardial infarction – Lifestyle changes after an MI

4.7.1 Summary of suggestions

Assessment for and advice on physical activity

Lifestyle changes after an MI were highlighted in relation to physical exercise. It was reported that physical activity counselling is not always offered because of limitations in staff time, knowledge, confidence and reimbursement. Comments identified the need for the input of a specialist in cardiac rehabilitation in pre-assessment for exercise and the prescription of activity as secondary prevention following myocardial infarction.

Use of motivational interviewing to increase uptake of physical activity

It was suggested that increased physical activity could be encouraged through the use of motivational interviewing as an intervention. The American Heart Association has recently recommended motivational interviewing as an effective approach for low-intensity interventions to promote health-related outcomes.

4.7.2 Selected recommendations from development source

Table 11 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 11 to help inform the Committee's discussion.

Table 11 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Assessment for and advice on physical activity	NICE CG172 Recommendations 1.1.3, 1.1.27 and 1.2.11
Use of motivational interviewing to increase uptake of physical activity	No recommendations in the source guidance

Assessment for and advice on physical activity

NICE CG172 Recommendation 1.1.3

If a patient has cardiac or other clinical conditions that may worsen during exercise, these should be treated if possible before the patient is offered the exercise component of cardiac rehabilitation. For some patients, the exercise component may be adapted by an appropriately qualified healthcare professional.

NICE CG172 Recommendation 1.1.27

Advice on competitive sport may need expert assessment of function and risk, and is dependent on what sport is being discussed and the level of competitiveness.

NICE CG172 Recommendation 1.2.11

Advice on physical activity should involve a discussion about current and past activity levels and preferences. The benefit of exercise may be enhanced by tailored advice from a suitably qualified professional.

4.7.3 Current UK practice

Assessment for and advice on physical activity

The 2013 National Audit of Cardiac Rehabilitation audit identified a drop in the numbers of exercise specialists involved in cardiac rehab programmes. In 2009-10 55% of programmes involved an exercise specialist, which increased slightly to 56% in 2010-11. However, in the most recent audit only 44% of programmes involved an exercise specialist.

Use of motivational interviewing to increase uptake of physical activity

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience from local audit data.

4.8 Secondary prevention following a myocardial infarction– Drug therapy

4.8.1 Summary of suggestions

Use of drug therapy for people who have had an acute MI

Responses identified drug therapy post myocardial infarction as an area for quality improvement. Stakeholders recommended that all people who have had an acute myocardial infarction should be offered the following drugs in line with NICE guideline CG172:

- ACE (angiotensin-converting enzyme) inhibitor
- dual antiplatelet therapy (aspirin plus a second antiplatelet agent)
- beta-blocker
- statin.

High-dose high-intensity statin at discharge

Echoing comments within the section on primary prevention, stakeholders highlighted early commencement of drug therapy and plans for titration to optimal drug dosages as areas for improvement. Stakeholders recommended that all patients with a discharge diagnosis of myocardial infarction are offered treatment with a high–dose high-intensity statin.

4.8.2 Selected recommendations from development source

Table 12 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 12 to help inform the Committee's discussion.

Table 12 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Use of drug therapy for people who have had an acute MI	NICE CG172 Recommendation 1.3.1
High-dose high-intensity statin at discharge	NICE CG172 Recommendation 1.3.44

Use of drug therapy for people who have had an acute MI

NICE CG172 Recommendation 1.3.1

Offer all people who have had an acute MI treatment with the following drugs:

• ACE (angiotensin-converting enzyme) inhibitor

• dual antiplatelet therapy (aspirin plus a second antiplatelet agent)

• beta-blocker

• statin.

High-dose high-intensity statin at discharge

NICE CG171 Recommendation 1.3.44

Statin therapy is recommended for adults with clinical evidence of cardiovascular disease in line with Statins for the prevention of cardiovascular events (NICE technology appraisal guidance 94) and Lipid modification (NICE clinical guideline 67). Recommendations about statins and other lipid lowering agents have been removed from the update of the guideline. Recommendations on the use of statins and other lipid lowering agents can be found in Lipid modification (NICE clinical guideline 67) and Statins for the prevention of cardiovascular events (NICE technology appraisal guidance 94). [NICE CG67 has been updated by NICE CG181. The relevant recommendation from NICECG181 is given below]

4.8.3 Current UK practice

Use of drug therapy for people who have had an acute MI

The 2013 Myocardial Ischaemia National Audit Project (MINAP) audit states that the proportion of patients receiving all of the secondary prevention medications for which they were eligible has increased slightly from 89% in England in 2011/12 to 90% in 2012/13. The audit highlighted some variation in practice across hospitals, but linked this to the use of differing eligibility criteria. In England and Wales the proportion not eligible for secondary prevention overall is 2%, whereas some individual hospitals report those not eligible at 10%.

High compliance with guidance was also reported in a study looking at adherence to NICE guidelines on secondary prevention in the UK conducted in 2011[5]. It was found that the recommended drug treatment for secondary prevention post myocardial infarction was followed for the majority of patients.

The MINAP audit of 2013 found that provision of secondary prevention medication at discharge exceeded the national standards and it was suggested that this was not

[5] Halcox J., Lindsay S., and Begg A. 2011. Lifestyle advice and drug therapy post-myocardial infarction: a survey of UK current practice, *British Journal of Cardiology*, 18, 4.

an area where further improvement could be achieved. The following figures indicate the proportion of drugs prescribed in England at discharge in 2012/13:

- Aspirin 99%
- beta blockers 97%
- statins 98%
- ACE inhibitors 95%
- Clopidogrel/thienopyridine inhibitors 96%.

High-dose high-intensity statin at discharge

A study linking data from the Myocardial Ischaemia National Audit Project (MINAP) with hospital data from the General Practice Research Database (GPRD) found that in 2009 a statin was prescribed on discharge in 90.7% of acute coronary syndrome cases[6]. A further 1.2% of cases had contraindications. Elderly populations (aged 80 and over) were less likely to be prescribed a statin and more likely to be prescribed at a lower dose. Lower prescribing rates for this population were also identified in a national cohort study using MINAP data from 2007 to 2010[7]. The study concluded that the benefits for this population had not been shown to be less than for other groups and may even be greater. The percentages of people with a myocardial infarction prescribed either a high or low intensity statin were both just under half. 47% were prescribed a low intensity statin and 41.2% prescribed high intensity. It was also found that the proportion of people prescribed a higher-intensity statin had increased following the publication of the NICE CG67 guideline in 2008, increasing from 26% to 33%. It should be noted that the GPRD data used in this study does not indicate the reasons for discontinuation of statin therapy.

[6] Boggon R., Eaton S., Timmis A. 2012. Current prescribing of statins and persistence to statins following ACS in the UK: a MINAP/GPRD study, *British Journal of Cardiology*, 19, 24.
[7] Simms A.D., Weston C.F, West R.M. et al. 2014. Mortality and missed opportunities along the pathway of care for ST-elevation myocardial infarction: a national cohort study, *Acute Cardiovascular Care*, 16.

4.9 Secondary prevention following a myocardial infarction – Communication of diagnosis and advice

4.9.1 Summary of suggestions

Discharge advice and education for the patient

Communication and advice around discharge planning emerged strongly from responses. Several stakeholders identified the need for the provision of a comprehensive package of education and advice for all patients discharged from hospital with a diagnosis of acute myocardial infarction. It was highlighted that recent reductions in the length of stay for these patients increased the importance of clear post-discharge arrangements and ongoing access to advice.

Discharge letters to include titration plans and monitoring advice for the GP

Stakeholders suggested that there is sub-optimal transfer of information to general practice at discharge. Subsequently, there is a lack of clarity about drug optimisation and uncertainty around whether people have been referred for rehabilitation. Stakeholders identified a need for a fully completed discharge letter with a medication titration plan and monitoring advice to the patient's general practitioner.

4.9.2 Selected recommendations from development source

Table 14 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 14 to help inform the Committee's discussion.

Table 14 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Discharge advice and education for the patient	NICE CG172 Recommendation 1.6.2
Discharge letters to include titration plans and monitoring advice for the GP	NICE CG172 Recommendation 1.6.1

Discharge advice and education for the patient

NICE CG172 Recommendation 1.6.2

Offer a copy of the discharge summary to the patient.

Discharge letters to include titration plans and monitoring advice for the GP

NICE CG172 Recommendation 1.6.1

After an acute MI, ensure that the following are part of every discharge summary:

• confirmation of the diagnosis of acute MI

• results of investigations

• incomplete drug titrations

• future management plans

• advice on secondary prevention.

4.9.3 Current UK practice

No published studies on current practice were highlighted for these suggested areas for quality improvement; these areas are based on stakeholder's knowledge and experience from local audit data.

4.10 Secondary prevention following a myocardial infarction – Follow-up

4.10.1 Summary of suggestions

Assessment of bleeding risk

Stakeholders suggested that the assessment of bleeding risk should be part of regular follow up. A bleeding risk is associated with all antiplatelets and anticoagulants. Changes in clinical condition over time can have an impact on an individual's bleeding risk.

Assessment of kidney function

Stakeholders reported that reduced kidney function in patients who have had an MI indicates a higher risk of re-infarction, heart failure and death. They stated that the measurement of kidney function and albuminuria /proteinuria as part of post myocardial infarction care should be an area for quality improvement.

Revascularisation

A final comment on assessment stated that all patients should be considered for coronary revascularisation, if appropriate.

4.10.2 Selected recommendations from development source

Table 13 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 13 to help inform the Committee's discussion.

Table 13 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Assessment of bleeding risk	NICE CG172 Recommendation 1.3.3
Assessment of kidney function	NICE CG172 Recommendation 1.3.2
Revascularisation	NICE CG172 Recommendation 1.4.1

Assessment of bleeding risk

NICE CG172 Recommendation 1.3.3

Offer all people who have had an MI an assessment of bleeding risk at their follow-up appointment.

Assessment of kidney function

NICE CG172 Recommendation 1.3.2

Ensure that a clear management plan is available to the person who has had an MI and is also sent to the GP, including:

• details and timing of any further drug titration

• monitoring of blood pressure

• monitoring of renal function.

Revascularisation

NICE CG172 Recommendation 1.4.1

Offer everyone who has had an MI a cardiological assessment to consider whether coronary revascularisation is appropriate. This should take into account comorbidity.

4.10.3 Current UK practice

No published studies on current practice were highlighted for these suggested areas for quality improvement; these areas are based on stakeholder's knowledge and experience from local audit data.

4.11 Additional areas

4.11.1 Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise however they were felt to be outside the remit of quality standards or are addressed by other NICE quality standard topics.

There will be an opportunity for the QSAC to discuss these areas at the end of the session.

Participation in the Public Health Responsibility Deal for food reformulation as mandatory

It was suggested that participation in the Public Health Responsibility Deal for food reformulation should become mandatory to improve national dietary intakes.

This suggested area is outside the remit of this quality standard as it involves action around national policy.

Development of strategies to reduce unintended purchases of unhealthy foods and drinks and ensure that publically funded food and drink provision is in line with the principles of healthy eating

Stakeholders suggested improvements to intake of food and drink containing high salt, sugar and fat could be achieved by ensuring that food retailers adopt a national 'healthy till' approach to reduce unintended purchases of food and drink. It was also recommended that publically funded food and drink provision is in line with the principles of healthy eating.

This suggested area is outside the remit of this quality standard as it will be covered by the public health quality standard Obesity: prevention and management in adults.

Appendix 1: Key priorities for implementation (CG181)

Recommendations that are key priorities for implementation in the source guideline and that have been referred to in the main body of this report are highlighted in grey.

Identifying and assessing cardiovascular disease (CVD) risk

- For the primary prevention of CVD in primary care, use a systematic strategy to identify people who are likely to be at high risk. [2008, amended 2014] [recommendation 1.1.1]

- Prioritise people for a full formal risk assessment if their estimated 10-year risk of CVD is 10% or more. [2008, amended 2014] [recommendation 1.1.2]

- Use the QRISK2 risk assessment tool to assess CVD risk for the primary prevention of CVD in people up to and including age 84 years. [new 2014] [recommendation 1.1.8]

- Do not use a risk assessment tool to assess CVD risk in people with an estimated glomerular filtration rate (eGFR) less than 60 ml/min/1.73 m^2 and/or albuminuria[2]. These people are at increased risk of CVD. See recommendation 1.3.27 for advice on treatment with statins for people with chronic kidney disease. [new 2014] [recommendation 1.1.11]

Lipid modification therapy for the primary and secondary prevention of CVD

- Before starting lipid modification therapy for the primary prevention of CVD, take at least 1 lipid sample to measure a full lipid profile. This should include measurement of total cholesterol, high‑density lipoprotein (HDL) cholesterol, non‑HDL cholesterol, and triglyceride concentrations. A fasting sample is not needed. [new 2014] [recommendation 1.3.4]

- Offer atorvastatin 20 mg for the primary prevention of CVD to people who have a 10% or greater 10‑year risk of developing CVD. Estimate the level of risk using the QRISK2 assessment tool. [new 2014] [recommendation 1.3.18]

- Start statin treatment in people with CVD with atorvastatin 80 mg[3]. Use a lower dose of atorvastatin if any of the following apply:

    - potential drug interactions

    - high risk of adverse effects

    - patient preference. [new 2014] [recommendation 1.3.20]

- Measure total cholesterol, HDL cholesterol and non‑HDL cholesterol in all people who have been started on high‑intensity statin treatment at 3 months of treatment and aim for a greater than 40% reduction in non‑HDL cholesterol. If a greater than 40% reduction in non‑HDL cholesterol is not achieved:
    - discuss adherence and timing of dose
    - optimise adherence to diet and lifestyle measures
    - consider increasing dose if started on less than atorvastatin 80 mg and the person is judged to be at higher risk because of comorbidities, risk score or using clinical judgement. [new 2014] [recommendation 1.3.28]

[This recommendation updates and replaces recommendation 1.10.2.7 from Type 1 diabetes (NICE clinical guideline 15).]

Appendix 2: Key priorities for implementation (CG172)

Recommendations that are key priorities for implementation in the source guideline and that have been referred to in the main body of this report are highlighted in grey.

Cardiac rehabilitation after an acute myocardial infarction (MI)

- Offer cardiac rehabilitation programmes designed to motivate people to attend and complete the programme. Explain the benefits of attending. [new 2013] [recommendation 1.1.7]

- Begin cardiac rehabilitation as soon as possible after admission and before discharge from hospital. Invite the person to a cardiac rehabilitation session which should start within 10 days of their discharge from hospital. [new 2013] [recommendation 1.1.13]

Lifestyle changes after an MI

- Advise people to eat a Mediterranean-style diet (more bread, fruit, vegetables and fish; less meat; and replace butter and cheese with products based on plant oils). [2007] [recommendation 1.2.1]

- Advise people to be physically active for 20–30 minutes a day to the point of slight breathlessness. Advise people who are not active to this level to increase their activity in a gradual, step-by-step way, aiming to increase their exercise capacity. They should start at a level that is comfortable, and increase the duration and intensity of activity as they gain fitness. [2007] [recommendation 1.2.10]

- Advise all people who smoke to stop and offer assistance from a smoking cessation service in line with Brief interventions and referral for smoking cessation (NICE public health guidance 1). [2007] [recommendation 1.2.12]

Drug therapy

- Offer all people who have had an acute MI treatment with the following drugs:
    - ACE (angiotensin-converting enzyme) inhibitor
    - dual antiplatelet therapy (aspirin plus a second antiplatelet agent)
    - beta-blocker
    - statin. [2007, amended 2013] [recommendation 1.3.1]

- Offer an assessment of left ventricular function to all people who have had an MI. [2013] [recommendation 1.3.4]

- Titrate the ACE inhibitor dose upwards at short intervals (for example, every 12–24 hours) before the person leaves hospital until the maximum tolerated or target dose is reached. If it is not possible to complete the titration during this time, it should be completed within 4–6 weeks of hospital discharge. [new 2013] [recommendation 1.3.6]

- Communicate plans for titrating beta-blockers up to the maximum tolerated or target dose – for example, in the discharge summary. [new 2013] [recommendation 1.3.31]

Communication of diagnosis and advice

- After an acute MI, ensure that the following are part of every discharge summary:
    - confirmation of the diagnosis of acute MI
    - results of investigations
    - incomplete drug titrations
    - future management plans
    - advice on secondary prevention. [2007, amended 2013] [recommendation 1.6.1]

Appendix 3: Suggestions from stakeholder engagement exercise

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
1	SCM 2	Risk assessment • Systematic approach to identification All primary care practices should have a systematic approach to identification and appropriate risk factor modification and intervention for people without CVD but with a QRISK2 calculated 10-year CVD risk of 10% or greater	This is the area of most potential impact in the new CVD prevention and Lipid modification guidance but also the most challenging in view of the resources required for effective implementation	In practice, intervention is often based on isolated risk factor (e.g. cholesterol) level or opportunistic screening rather than a systematic approach which is admittedly more challenging but likely to be more fruitful	NICE CVD prevention and lipid modification guideline CG181

2	Heart UK	Risk assessment • Systematic approach to identification Recommend annual assessment of 10 yr CVD risk in patients with type 2 diabetes who are not yet at the 10% threshold.	Patients with Type 2 diabetes are no longer regarded as being at equivalent risk as for secondary prevention. NICE recommends risk assessment with QRISK2. This is presumably based on the QRISK data set but this may be biased by patients with recently diagnosed diabetes. However, it is recognized that patients with type 2 diabetes are on a fast track to increased risk attaining the " secondary equivalent" from about 8 years post diagnosis. As QRISK2 only has diagnosis of diabetes as a yes/no field no account is taken of severity or duration of diabetes.	CVD risk in patients with type 2 diabetes of long duration is underestimated. Risk assessment should be part of annual review and patients with type 2 diabetes should be regarded as at sufficient vascular risk to justify statin treatment after 8 years regardless of QRISK2 10 year risk assessment. This effect is embedded in the QRISK2 data set where the effect on lifetime risk is expressed. For instance, with a non-diabetic10 year risk of 2.8% in a 40 year old male with modest risk factors, total cholesterol 6.5 mmol/L, systolic BP 130, non smoker, 5 years of life are lost by factoring in diabetes. Other risk factors have to be very extreme to equal this. The 10% 10 year risk is only triggered in the late 50s: which too late to prevent atherosclerosis.	Diabetologia DOI 10.1007/s00125-012-2817-5
3	SCM 5	Risk assessment • Systematic approach to identification Risk Assessment in Primary Prevention	The NICE guideline on risk assessment states that a systematic strategy to identify people at increased risk for developing cardiovascular disease must be in place in primary care settings.	Historically there has been more opportunistic screening which fails to identify many high risk individuals	
4	SCM 7	Risk assessment • Systematic approach to identification Risk Assessment and modification of CVD Risk factors and Lipid	To support reducing health inequalities	To include population approaches to reducing CVD risk as well as individual risk assessment.	Examples of partnership/collaborative working between Public Health and Local Authority which have had an impact on local

		Modification			communities as well as legislation and policy.
5	Association of British Clinical Diabetologists (ABCD)	Risk assessment • Formal risk assessment Patients with type 1 diabetes require individualised CVD risk assessment	CVD risk in type 1 diabetes requires careful evaluation of renal and glycaemic control status with estimation of duration of diabetes and other factors that enhance CVD risk	Type 1 diabetes have increased CVD risk. many younger patients need assessment to avoid unnecessary introduction of statins	JBS3 2014 DM section NICE lipid lowering guidance National Diabetes Audit
6	SCM 8	Risk assessment • Formal risk assessment Type 2 diabetes	Clarification of high risk status	Exponential increase in prevalence	
7	SCM 4	Risk assessment • Formal risk assessment	The proportion of the elderly in demographic profile of the UK population is increasing. They form a fast increasing portion of the workload and cost burden on NHS services. Data on the optimal method of cardiovascular risk assessment in the elderly is absent. In addition the safety and efficacy of statin therapy or other lipid-lowering therapies in the elderly (age >75 years) is limited. Research recommendations exist in NICE CG181 Lipid Lowering for a trial of statin therapy in the elderly. In addition there is a need to assess the optimum risk assessment tool in the elderly e.g. life-time rather than 10-year risk measures.	The elderly from an increasing proportion of the UK population and make greater use of NHS services than other groups. Standard cardiovascular risk assessment tools used worldwide e.g. QRISK2 are primarily driven by age and gender and not by modifiable cardiovascular risk factors. In contrast life-time risk measures (e.g. QRISK-lifetime- JBS3) show a greater proportional influence of modifiable cardiovascular risk factors. However the predictive capacity of life-time as opposed to 10-year tools in the elderly is unknown. The current 10-year risk-based approaches tend to suggest universal prescribing for statins which likely predisposes to potential over-prescription.	JBS3 Board. Joint British Societies' consensus recommendations for the prevention of cardiovascular disease (JBS3). Heart. 2014 Apr;100 Suppl 2:ii1-ii67 Hippisley-Cox J, Coupland C, Robson J, Brindle P. Derivation, validation, and evaluation of a new QRISK model to estimate lifetime risk of cardiovascular disease: cohort study using QResearch database. BMJ. 2010 Dec 9;341:c6624 Strandberg TE,

				The elderly have different drug metabolism, lower muscle mass, worse renal excretion capacity compared to younger groups. Thus the tolerability of lipid-lowering and other therapies may be reduced in the elderly. The efficacy of statin therapy in the elderly is only poorly ascertained. Debates exist on the role of statins in promoting or preventing dementia, Parkinson's disease, chronic obstructive pulmonary disease, cataract, age-related macular degeneration, diabetes, chronic renal disease and cancer.	Kolehmainen L, Vuorio A. Evaluation and treatment of older patients with hypercholesterolemia: a clinical review. JAMA. 2014 Sep 17;312(11):1136-4 Phan BA, Bittner V. Lipid-lowering therapy in patients 75 years and older: clinical priority or superfluous therapy? Prog Cardiovasc Dis. 2014 Sep-Oct;57(2):187-96 Zoungas S, Curtis A, Tonkin A, McNeil J. Statins in the elderly: an answered question? Curr Opin Cardiol. 2014 Jul;29(4):372-80 Macedo AF, Douglas I, Smeeth L, Forbes H, Ebrahim S. Statins and the risk of type 2 diabetes mellitus: cohort study using the UK clinical practice research datalink. BMC Cardiovasc Disord. 2014

					Jul 15;14:85
8	British Nuclear Cardiology Society & British Nuclear Medicine Society	Risk assessment • Formal risk assessment Cardiovascular Risk assessment with Myocardial Perfusion Scintigraphy (MPS)	MPS is able to provide robust risk assessment for populations that are usually under investigated/treated. In particular there is a wealth of data to support its use in patients with diabetes and renal failure. Elderly patients and women also benefit from the additional value of MPS over standard risk assessment tools.	Equity of access to suitable risk assessment is a pre requisite for populations that are usually underrepresented in clinical trials and guidelines.	The British Heart Foundation regularly publishes statistics confirming gender differences in terms or morbidity and mortality associated with heart disease. The ESC has also released a position statement regarding the role of MPS in cardiac risk assessment (doi: 10.1093/eurheartj/ehq235)
9	British Nuclear Cardiology Society & British Nuclear Medicine Society	Risk assessment • Formal risk assessment Cardiovascular Risk assessment with Myocardial Perfusion Scintigraphy (MPS)	Increasing amounts of complex non-cardiac surgery is being undertaken in patients with increasing co-morbidities	The cardiac complications of higher risk non-cardiac surgery are significant. These patients consume increased amounts of resource in terms of complications and dependency of care	The latest ESC guidelines (doi:10.1093/eurheartj/ehu282) quote an EU wide event rate of at least 167 000 cardiac complications annually due to non-cardiac surgical procedures, of which 19 000 are life-threatening.
10	British Nuclear Cardiology Society & British Nuclear	Risk assessment • Formal risk assessment Cardiovascular Risk	Cardiac PET is a relatively new technique that has good diagnostic accuracy when compared to existing modalities	Perfusion PET has been shown to have high diagnostic accuracy. Routine absolute flow quantitation allows for accurate non-invasive assessment of	Recent expert consensus view prefers PET for cardiac imaging (doi:10.1093/ehjci/jeu06)

	Medicine Society	assessment with Positron Emission Tomography (PET)	and in addition there are patient centred benefits such as radiation dose reduction and the ability to measure absolute myocardial blood flow for routine clinical use.	myocardial perfusion reserve, which has been shown to have an incremental prognostic value. This technique has been gaining more widespread acceptance in the US and Europe but only 2 centres provide this service in the UK	Jaarsma C, Leiner T, Bekkers SC et al. Diagnostic performance of non-invasive myocardial perfusion imaging using single photon emission computed tomography, cardiac magnetic resonance, and positron emission tomography imaging for the detection of obstructive coronary artery disease: a meta-analysis. *JACC* 2012; 59(19): 1719–1728 Murthy VL, Naya M, Foster CR et al. Improved cardiac risk assessment with noninvasive measures of coronary flow reserve. Circulation 2011;124:2215–2224
11	SCM 6	Risk assessment • Formal risk assessment Use of statin in primary prevention without a risk assessment	People with diabetes and CKD don't need to have a risk assessment before introducing statin	Waiting unnecessarily to introduce statins can mean that individuals don't receive the intervention, or the intervention is delayed	SCM
12	SCM 1	Risk assessment • Formal risk assessment	There is one point I would like to be considered. I believe there may be a hidden	This is a really basic aspect of human physiology, but as far as I can discover, no-one has ever investigated it. If,	

			pool of undiagnosed hypertension because of the way in which blood pressure is assessed, particularly by GPs, who are under such time pressure. There is plenty of evidence for inter-arm differences in blood pressure as measured conventionally. That is why several bodies recommend using both arms – but this is hardly ever done. In the majority of cases, the measurer – GP, consultant or nurse – is right-handed, and the subject is facing the opposite direction; the result is that it is pressure in the patient's left arm that is recorded. If the population in general presents a higher reading in the RIGHT arm (my own condition) …well, you can see where I'm going with this!	however, it has been done and I am the only one not to know about it, apologies.	
13	SCM 6	Risk assessment • Formal risk assessment Cardiac risk assessment of people at high risk	Identification and management of risk factors can reduce the risk of later development of coronary disease	Identification of high risk populations and quantifying individuals risk of coronary disease	
14	Merck Sharp and Dohme	Risk assessment • Formal risk assessment Ensuring clinicians assess the risk of CVD to the new guideline recommended levels	Early assessment of a patient's risk of CVD ensures a patient's CV risk is effectively managed and minimised over their lifetime.		The new NICE clinical guideline (CG181, section 1.1.4) recommends a full formal risk assessment if their estimated 10-year risk of CVD is 10% or more.

					NICE CG181. (2014) Lipid modification. [online] available from: http://www.nice.org.uk/guidance/CG181 accessed October 27th 2014.
15	HQT Diagnostics	Risk assessment • Formal risk assessment Test for Fatty Acids, supplement where necessary and re-test after 3 month	Omega-3 Index and Omega-6/3 Ratio are very good indicators of possibility for improvements in Cardiovascular Risk, risk of Myocardial Infarction, and need for Lipid Modification.	Increase Omega-3 Index to >8% and reduce Omega-6/3 Ratio to <3:1 and Cardiovascular Risk will improve, Hypertension will improve, Lipids will improve and Myocardial Infarction risk will improve	www.expertomega3.com/omega-3-study.asp?id=13 www.expertomega3.com/pdf/omega-3-benefits-reducing-cholesterol.pdf www.hqt-diagnostics.com/Clinicians
16	HQT Diagnostics	Risk assessment • Formal risk assessment Test for Vitamin D, supplement where necessary and re-test after 3 months	Increase of Vitamin D improves Cardiovascular Risk factors, Hypertension and risk of Myocardial Infarction	Vitamin D [25(OH)D] between 100-150nmol/L reduces Cardiovascular Risk, Hypertension and risk of Myocardial Infarction	www.vitamindwiki.com/Overview+Cardiovascular+and+vitamin+D www.vitamindwiki.com/Hypertension+and+vitamin+D www.grassrootshealth.net/media/download/scientists_call_to_daction_020113.pdf
17	Kidney Research UK	Risk assessment • Formal risk assessment Measuring kidney function	Patients with chronic kidney disease are at increased risk of cardiovascular disease. There is	Documenting presence and severity of chronic kidney disease indicated by CKD stage as part of cardiovascular risk assessment Proteinuria is a risk	Most recent JBS3 guidelines and comments in NICE guidelines on lipid lowering- NICE181.

		and albuminuria /proteinuria as part of cardiovascular risk assessment	evidence that lipid lowering reduces this risk. Patients with albuminuria/proteinuria are at increased cardiovascular risk	factor for cardiovascular disease	The guidance /standards in these should be kept
18	SCM4	Lipid Modification • Lifestyle interventions • Statins	Cardiovascular disease remains one of the principal causes of morbidity and mortality in the UK. The significance of cardiovascular disease prevention is highlighted in the National Strategy for Cardiovascular Disease, The NHS Health Checks programme and recommendations form NICE CG181 Lipid Modification and Cardiovascular Risk assessment. Interventions on lifestyle including smoking cessation, diet and weight optimisation and where necessary prescription of statins to high-risk individuals all are likely to result in reductions in cardiovascular events or are proven to be effective.	Primary prevention remains a secondary focus of cardiovascular disease management despite the known efficacy of preventive therapies including lipid–lowering in patients without cardiovascular disease. Uptake and adherence to current NICE cardiovascular guidelines (Lipids; CG67 now CG181; Hypertension CG127) is moderate, variable between regions and prescribing is sub-optimal. Uptake of the NHS Health Checks programme is variable across the UK with risk assessment being performed on an opportunistic basis in much of primary care. Requirements for fasting blood samples and allied logistical difficulties may have had a negative impact on the uptake of the NHS Health Checks programme. The efficacy of statins at 20% 10-year cardiovascular disease risk (as measured by QRISK) was identified in NICE CG67 in 2007. Prescription of preventive therapies even at the 20% threshold has been variable. Further data and changes in cost-efficacy relationships mean that it is now possible to treat more patients with statins. The option to treat patients at 10% 10-year risk if other lifestyle interventions have failed was	Recommendations and data on the efficacy of lifestyle intervention and lipid-management in patients without cardiovascular disease is to be found in the recommendations of NICE Lipid Modification CG181. See CG181: 1.3.14-1.3.19 Supporting data: • Cholesterol Treatment Trialists' (CTT) Collaborators, Mihaylova B, Emberson J, Blackwell L, et al. The effects of lowering LDL-cholesterol with statin therapy in people at low risk of vascular disease: meta-analysis of individual data from 27 randomised trials. Lancet. 2012 Aug 11;380(9841):581-90 Kotseva K, Wood D, De

				highlighted in NICE Lipid Modification CG181. Preliminary data suggests that intervention at this threshold would identify many patients at risk of developing myocardial infarction prior to event occurrence. Managed networks and audited policies improve uptake of cardiopreventive therapies including statins. There are equality issues with regard to the use of optimal lipid-lowering and other cardioprotective therapies in women, ethnic minorities and the elderly. Recent concerns about the effect of statins on glycaemia might lead to a reduction in uptake and adherence to lipid-lowering therapies.	Backer G, et al.. EUROASPIRE III. Management of cardiovascular risk factors in asymptomatic high-risk patients in general practice: cross-sectional survey in 12 European countries. Eur J Cardiovasc Prev Rehabil. 2010 Oct;17(5):530-40 Mortensen MB, Falk E. Real-life evaluation of European and American high-risk strategies for primary prevention of cardiovascular disease in patients with first myocardial infarction. BMJ Open. 2014 Oct 17;4(10):e005991 McNaughton RJ, Shucksmith J. Reasons for (non)compliance with intervention following identification of 'high-risk' status in the NHS Health Check programme. J Public Health (Oxf). 2014 Sep 18. pii: fdu066. [Epub ahead of print]

					Fleetcroft R, Schofield P, Ashworth M. Variations in statin prescribing for primary cardiovascular disease prevention: cross-sectional analysis. BMC Health Serv Res. 2014 Sep 20;14(1):414 Robson J, Hull S, Mathur R, Boomla K. Improving cardiovascular disease using managed networks in general practice: an observational study in inner London. Br J Gen Pract. 2014 May;64(622):e268-74 Sheppard JP, Fletcher K, McManus RJ, Mant J. Missed opportunities in prevention of cardiovascular disease in primary care: a cross-sectional study. Br J Gen Pract. 2014 Jan;64(618):e38-46
19	SCM 2	Lipid Modification • Statins Prioritise patients taking Simvastatin 10mg or 20mg daily (e.g. in view of concomitant treatment with	High-intensity statins (e.g. atorvastatin) can reduce non-HDL cholesterol by 40-50%, which can't be reliably achieved with low-dose Simvastatin (low intensity)	Previous guideline recommended Simvastatin 40mg for all primary and most secondary prevention but there has since been an MHRA alert regarding potential interaction with calcium blockers leading to many	NICE CG 181

		a calcium channel blocker) for a switch to a high intensity statin particularly if they are at high CVD risk e.g. diabetics.		patients having their dose reduced to 10 or 20mg which is much less effective (low intensity) than currently recommended agents.	
20	SCM8	Lipid Modification • Statins	The need to switch statins		
21	SCM 4	Lipid Modification • Statins	The national epidemic of obesity allied with an ageing population demographic is leading to a marked increase in the prevalence of type 2 diabetes. Type 2 diabetes is associated with a marked increase in the risks of cardiovascular disease.Optimisation of drug therapy including statins contributes to cardiovascular event reduction in patients with diabetes, This occurs acutely post-myocardial infarction, in patients with chronic cardiovascular disease and particularly in patients without established cardiovascular disease. These areas are highlighted in NICE CG181 Lipid Modification and in NICE Post-MI guideline CG172 and.	Modification (CG67) based on audit data. Thus high intensity statin therapy recommended has been variably prescribed particularly in patients with type 1 diabetes. Thus typical management regimes involves low to moderate doses of moderate efficacy statin. Moderate dose high intensity statin therapy is convincingly associated with event reduction in patients with type 2 diabetes. The updated Post-myocardial infarction (CG172) and Lipid Modification guidelines (CG181) again stress the importance of using high efficacy lipid lowering drug therapy in the prevention of recurrent cardiovascular events in patients with diabetes- both type 2 and type 1. There are equality issues with regard to the use of optimal lipid-lowering and other cardioprotective therapies in women, ethnic minorities and the elderly.	NICE Lipid Modification CG181. See CG181: type 2 diabetes see 1.3.26 ; type 1 diabetes see 1.3.23-1.3.25 Supporting data: Gyberg V, Kotseva K, Dallongeville J, et al. Does pharmacologic treatment in patients with established coronary artery disease and diabetes fulfil guideline recommended targets? A report from the EUROASPIRE III cross-sectional study. Eur J Prev Cardiol. 2014 Apr 1. [Epub ahead of print] de Ferranti SD, de Boer IH, Fonseca V, et al. Type 1 diabetes mellitus and cardiovascular

				Recent concerns about the effect of statins on glycaemia might lead to a reduction in uptake and adherence to lipid-lowering therapies in diabetes	disease: a scientific statement from the American Heart Association and American Diabetes Association. Circulation. 2014 Sep 23;130(13):1110-30 Cholesterol Treatment Trialists' (CTT) Collaborators, Kearney PM, Blackwell L, et al. Efficacy of cholesterol-lowering therapy in 18,686 people with diabetes in 14 randomised trials of statins: a meta-analysis. Lancet. 2008 Jan 12;371(9607):117-2 Carey IM, DeWilde S, Shah SM, Harris T, Whincup PH, Cook DG. Statin use after first myocardial infarction in UK men and women from 1997 to 2006: Who started and who continued treatment? Nutr Metab Cardiovasc Dis. 2012 May;22(5):400-8

					Onuma Y, Kukreja N, Ramcharitar S, Hochadel M, Gitt A, Serruys P. Interventional treatment in diabetics in the era of drug-eluting stents and compliance to the ESC guidelines: lessons learned from the Euro Heart Survey Programme. EuroIntervention. 2009 Mar;4(5):578-87
22	SCM 5	Lipid Modification • Statins	The NICE lipid modification guideline highlights the importance of using appropriate medication at an appropriate dose for primary and secondary prevention.	The guideline highlights the importance of initial selection of drug and dose with recommendation for further lipid monitoring and consideration of drug interaction, adverse effects and patient preference.	SCM
23	SCM 6	Lipid Modification • Statins Use of statins at high risk of coronary disease	Statins can reduce the risk of coronary disease event in relatively low risk groups	There is reluctance to over medicalise people at low risk of coronary disease, and an exaggerated idea of the incidence of side effects. This had led to poor uptake of statins in primary prevention	
24	Heart UK	Lipid Modification • Statins Secondary prevention post MI/ACS: optimal lipid lowering.	In line with recent NICE lipid guideline (CG181) standards 1.3.22 and 1.3.28 – all patients should aim for at least a 40% reduction in non-HDL cholesterol. This will help to prevent further atherosclerosis and vascular events.	Assessment of lipids on admission / within 24hrs of onset is variable around the country. Use of a non-fasting sample on admission would allow a baseline. Unless contra-indicated all patients should be offered 80 mg Atorvastatin (NICE CG181. Std 1.3.20). Assessment of lipids at 3 months post infarct is variable around the country.	NICE CG181

				These need to be embodied in a national standard so that the achieved reduction can be assessed, and if not sufficient, acted upon.	
25	Association of British Clinical Diabetologists (ABCD)	Lipid Modification • Statins Use of non-statin hypolipidaemic drugs in individuals not at non HDL cholesterol targets with high CVD risk	Many patients at high CVD risk are not attaining recommended targets. Current NICE guidance on high intensity statins does not advise of next steps for residual dyslipidaemia. The role of ezetimibe was mentioned in an earlier NICE document but role less clear in recent NICE 2014 Lipid modification documents	Many high CVD risk cases are not optimally managed with current guidance as residual lipid abnormalities persist despite high intensity statin	JBS3 2014 DM section NICE 2014 Lipid modification National diabetes audit
26	Association of British Clinical Diabetologists (ABCD)	Lipid Modification • Statins High CVD risk cases with diabetes and nephropathy require attained non HDL cholesterol targets (< 2.5 mmol/l) for effective CVD risk reduction	Diabetes patients with proteinuria have the highest absolute CVD risk and are often not attaining effective lipid control on statins	Excessive CVD morbidity and premature mortality amongst DM cases with nephropathy (proteinuria and CKD)	Patrick Sharp
27	Heart UK	Lipid Modification • Statins Patients who are intolerant of statins are assessed and treated appropriately.	Millions of patients are now treated for both primary and secondary prevention, with increased numbers likely post CG181 (reduction in CV risk threshold for treatment).	NICE CG181 has recommended initial treatments with 20 or 80 mg Atorvastatin (Stds 1.3.18-20, 1.3.25-27). There is a variable response by healthcare professionals to patients who do not tolerate statins. Stds 1.3.41-3 recommend actions where the initial statin is not tolerated. Patients would benefit from a standardised approach, based on this guidance.	NICE CG181
28	SCM 8	Lipid Modification	Controversial but clinically	Otherwise patients not adequately	

		• Statins Patients who are intolerant of statins are assessed and treated appropriately	important area Needs standardisation of approach	treated	
29	Heart UK	Lipid Modification • Follow up and monitoring Diabetes and other high risk primary prevention; optimal lipid lowering	In line with recent NICE lipid guideline (CG181) standards 1.3.22 and 1.3.28 – all patients should aim for at least a 40% reduction in nonHDL cholesterol. This will help to prevent further atherosclerosis and vascular events.	Patients should be assessed within 3 months of starting 20 mg Atorvastatin (NICE CG181 Std 1.3.28) – this is not consistently done. This needs to be embodied in a national standard so that the achieved reduction can be assessed, and if not sufficient, acted upon.	
30	SCM 8	Lipid Modification • Follow up and monitoring	Assessment of lipids on admission/within 24hrs of onset is variable around the country. Use of a non-fasting sample on admission would allow a baseline. Unless contra-indicated all patients should be offered 80 mg Atorvastatin (NICE CG181. Std 1.3.20). Assessment of lipids at 3 months post infarct is variable around the country. These need to be embodied in a national standard so that the achieved reduction can be assessed, and if not sufficient, acted upon.	In line with recent NICE lipid guideline (CG181) standards 1.3.22 and 1.3.28 – all patients should aim for at least a 40% reduction in non-HDL cholesterol	
31	Merck Sharp and Dohme	Lipid Modification • Follow up and monitoring Regular follow-up of people initiated on lipid-modifying therapy to monitor	It is critical to follow-up all people initiated on lipid-modifying therapy (primary and secondary prevention) with regular cholesterol testing particularly in high risk secondary prevention to	Since the first guideline on lipid modification, and the use of recommended cholesterol levels adopted from the NICE guideline (CG67) by the QOF, the improvement in the outcomes for patients with CVD	The new NICE clinical guideline (CG181, section 1.3.29) recommends an annual medication review for people taking statins.

		cholesterol levels	ensure patient's CV risk is effectively managed and minimised over their lifetime.	should be applauded (e.g. mortality rates for patients under 75 with CVD have reduced by 40% between 2001 and 2010 [CVD Outcomes 2013]). According to the EUROASPIRE survey, the UK had one of the worst performances on cholesterol management in Europe, which improved during the period that cholesterol targets were recommended and incentivised (EUROASPIRE II 2001; EUROASPIRE III 2009). This improvement in CVD outcomes is now at risk if regular follow-up of a patients cholesterol levels is not prioritised. - NICE CG67. (2008) Lipid modification. [online] available from: http://www.nice.org.uk/guidance/CG67 accessed October 27th 2014. - Cardiovascular Disease Outcomes Strategy (2013). [online] Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214895/9387-2900853-CVD-Outcomes_web1.pdf (accessed October 27th 2014). - EUROASPIRE II Study Group. (2001) Lifestyle and Risk Factor Management and Use of Drug Therapies in Coronary Patients from 15 Countries. *European Heart Journal* 22: 554-572.	This should include a cholesterol test. NICE CG181. (2014) Lipid modification. [online] available from: http://www.nice.org.uk/guidance/CG181 accessed October 27th 2014. The new medicines optimisation clinical guideline being developed by NICE recommends medication reviews. NICE (2014) Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes (draft). [online] Available from: http://www.nice.org.uk/guidance/gid-cgwave0676/resources/medicines-optimisation-draft-guideline2 accessed October 28th 2014. QOF indicator for diabetes DM004:

				- Kotseva K, Wood D, Backer GD, Bacquer DD, Pyörälä K, Keil U. (2009) EUROASPIRE III: A Survey on the Lifestyle, Risk Factors and Use of Cardioprotective Drug Therapies in Coronary Patients from 22 European Countries. *European Journal of Cardiovascular Prevention and Rehabilitation*. DOI: 10.1097/HJR.0b013e3283294b1d.	NHS England. (2014) Summary of changes to QOF 2015/2016. [online] Available from: http://www.nhsemployers.org/~/media/Employers/Documents/Primary%20care%20contracts/QOF/QOF%20Home%20Page/2015-16%20Summary%20of%20changes%20to%20QOF.pdf accessed October 30th 2014. The ESC/EAS guidelines and JBSIII guidelines continue to recommend numerical targets for cholesterol. ESC/EAS Guidelines. (2011) ESC/EAS guidelines for the management of dyslipidaemias. *European Heart Journal* 32: 1769-1818. JBSIII Board. (2014) Joint British Societies' consensus recommendations for the prevention of cardiovascular disease (JBS3). Heart

					doi:10.1136/heartjnl-2014-305693
32	Merck Sharp and Dohme	QS Lipid Modification • Follow up and monitoring The measurement of non-HDL-c and LDL-c	MSD agrees with the recommendation for the use of non-high density lipoprotein cholesterol (non-HDL-c) rather than low density lipoprotein cholesterol (LDL-c). Non-HDL-c has been shown to be a better marker of risk in both primary and secondary prevention (Cui 2001; Kirby 2013). However, one concern is the widespread understanding among health care professionals (particularly GP's) and patients of non-HDL-c rather than LDL-c.	The measuring of LDL-c levels is routinely conducted in clinical practice in England. Abolishing LDL-c without an evidence-based review of how LDL-c screening and treating to goal influence clinical practice would be premature and may have unanticipated negative consequences for public health. We recommend the continued testing and recording of LDL-c as well as non-HDL-c to allow a period of transition to implement the new guidance in clinical practice	Cui Y, Blumenthal RS, Flaws JA, Whiteman MK, Langenberg P, Bachorik PS, Bush TL. (2001) Non-High-Density Lipoprotein Cholesterol Level as a Predictor of Cardiovascular Disease Mortality. *Arch Intern Med* 161: 1413-1419. Kirby M. (2013) Managing dyslipidaemia in the context of diabetes. *Diabetes & Primary Care* 15: No 3, 141 – 148
33	The Royal College of Psychiatrists	Lipid Modification • Follow up and monitoring Patients with schizophrenia, bipolar affective disorder and other psychoses	Prevention should occur much earlier for those with chronic schizophrenia and bipolar disorder from the age of probably 25. There is an argument to include chronic depression in the chronic mental disorders list. There should be some measure of compliance with cardiovascular medication – or some form of check – many will openly admit that they are prescribed these medications but do not take them It makes more sense to make the targets annual than at 15 months.		

			Especially for service users who may have some level of cognitive debilitation. This could fit in with the annual physical health check		
34	SCM1	Lipid Modification • Follow up and monitoring Recording serum lipids: a proposal	It is reasonable to suppose that some people can healthily sustain levels of serum lipids that might prove life-threatening to others. This is simply an aspect of the way the human population varies in physiology, metabolism, etc. It follows that any absolute measures of lipid levels (eg “4 and 2”), while useful as guidelines for populations, do not necessarily apply to an individual. Considering the rheology of blood rather than its composition (at rest), it seems likely, from parallels in industrial settings, that the quality of the flow will depend on the ratio of the various “fractions” (oil-industry terminology) ie, in our case, the *relative* concentrations of the components of cholesterol. The maths is straightforward. Total cholesterol comprises HDL and LDL: $a + b = c$. This system can be completely described by the absolute value of any two of the three variables, or by the absolute value of one together with the ratio of any two. Our present method is to record		*Note. There is another reason to believe that our present method is not clever enough. Consider a GP trying to achieve the QoF guideline of “5 and 3” (for c and b respectively in the above notation). One patient scores 4.9 and 0.1, another 3.1 and 2.9. They both qualify as “pass”, but the GP would surely not be happy with the condition of either.*

			two absolute values (usually *c* and *b,* total and LDL, as in "4 and 2"). This existing data for individuals could be used to calculate a ratio such as *b/c* or *a/b*. My proposal is for a project that does just that. Use existing data from past trials that have investigated outcomes against lipids levels. Write a bit of software that will do the calculation necessary to produce a ratio. Then see if this ratio is a better predictor of outcomes than absolute measures have been.		
35	SCM 2	Secondary prevention of myocardial infarction • Cardiac rehabilitation Offer all patients with acute myocardial infarction the opportunity to participate in an activity/exercise-based programme of cardiac rehabilitation appropriate to their needs.	NICE secondary prevention guideline recommendation and good evidence base for significant reduction in recurrent events and improving overall outcome and QOL.	Access to exercise-based rehabilitation services for some groups (e.g. women, older people, BMI patients and those with heart failure) remains poor in some areas.	Secondary prevention following MI guideline CG 172 and current best practice
36	SCM 3	Secondary prevention of myocardial infarction • Cardiac rehabilitation Early Cardiac Rehabilitation following an acute Myocardial Infarction	Early cardiac rehabilitation (defined as attendance at a cardiac rehabilitation orientation appointment within 10 days) significantly improves attendance and is also cost-saving through reduced incidence of unplanned	Cardiac rehabilitation programmes varies in terms of duration, style, staffing, resources and up take across the UK. Yet national audit data available, shows a poor uptake of cardiac rehabilitation which fall short of the target of 85% uptake as set in the	NICE Clinical Guideline 172- Secondary prevention in primary and secondary care for patients following a myocardial infarction (2013)

			cardiac re-admissions.	National Framework for Coronary Heart Disease in 2000. The uptake of cardiac rehabilitation is significantly less in people from groups that are less likely to access this service. These include people from black and minority ethnic groups, older people, people from lower socioeconomic groups, women, people from rural communities, people with a learning disability and people with mental and physical health conditions (NICE 2013).	Myocardial Infarction National Audit Project (2012).
37	SCM 4	Secondary prevention of myocardial infarction • Cardiac rehabilitation Cardiac rehabilitation is acknowledged as a high priority area for patient engagement and management in NICE guidelines for management of myocardial infraction (both CG48 (2007) and NICE CG172 (2013))	Attendance at cardiac rehabilitation programmes after myocardial infarction improves outcomes and cardiovascular disease risk factor control.	Programmes subject to variable uptake, and significant differences in uptake between localities that may represent access, equality and diversity issues. Adherence to rehabilitation programmes and recommended lifestyle changes that follow from them leads to improved adherence to cardio-protective drug therapies including statins. Equality issues exist in regard to access with regard to age and gender. Recruitment to rehabilitation programmes and effectiveness of rehabilitation uptake and programme completion contribute to long-term outcomes.	See NICE guideline CG172 – Post-MI management 1.1.5-1.1.18 new recommendations Also MINAP audit data: Simms AD, Batin PD, Weston CF, Fox KA, Timmis A, Long WR, Hall AS, Gale CP. An evaluation of composite indicators of hospital acute myocardial infarction care: a study of 136,392 patients from the Myocardial Ischaemia National Audit Project. Int J Cardiol. 2013 Dec 5;170(1):81-7

					Simms AD, Baxter PD, Cattle BA, et al. An assessment of composite measures of hospital performance and associated mortality for patients with acute myocardial infarction. Analysis of individual hospital performance and outcome for the National Institute for Cardiovascular Outcomes Research (NICOR). Eur Heart J Acute Cardiovasc Care. 2013 Mar;2(1):9-18 Smedt DD, Clays E, Annemans L, et al. The association between self-reported lifestyle changes and health-related quality of life in coronary patients: the EUROASPIRE III survey. Eur J Prev Cardiol. 2013 Jan 10;21(7):796-805 Kotseva K, Wood D, De Backer G, et al. Use and effects of cardiac rehabilitation in patients with coronary heart disease: results from the

					EUROASPIRE III survey. Eur J Prev Cardiol. 2013 Oct;20(5):817-26 Halava H, Korhonen MJ, Huupponen R, Setoguchi S, Pentti J, Kivimäki M, Vahtera J. Lifestyle factors as predictors of nonadherence to statin therapy among patients with and without cardiovascular comorbidities. CMAJ. 2014 Sep 2;186(12):E449-56 Cooney MT, Kotseva K, Dudina A, De Backer G, Wood D, Graham I. Determinants of risk factor control in subjects with coronary heart disease: a report from the EUROASPIRE III investigators. Eur J Prev Cardiol. 2013 Aug;20(4):686-91
38	SCM 5	Secondary Prevention of myocardial infarction • Cardiac Rehabilitation	Cardiac Rehabilitation for all patients is recommended within the NICE Guideline on Secondary Prevention	The latest update seeks to emphasise the importance of early commencement of rehabilitation programmes for all patients	
39	SCM 6	Secondary Prevention of myocardial infarction	Access to cardiac rehabilitation is important in achieving optimal	The is inequitable access to cardiac rehabilitation both in terms of	

		• Cardiac Rehabilitation	outcomes after MI	geographical distribution of rehab centres, but also in accessibility to different communities	
40	SCM 7	Secondary Prevention of myocardial infarction • Cardiac Rehabilitation Secondary Prevention of MI	Cardiac Rehabilitation is an integral part of secondary prevention	The national up take rate for CR is 43% (National Audit of Cardiac Rehabilitation 2013) Individual CR Services differ in the delivery of their services despite the publication of the British Association of Cardiac Rehabilitation and Prevention (BACPR) Standards and Core Components 2013.	NACR Annual Report 2013 BACPR Standards and Core Components 2013
41	Faculty of Sports and Exercise Medicine	Secondary Prevention of myocardial infarction • Cardiac Rehabilitation Improving the community based physical activity programs for secondary prevention of MI	Hospital-based cardiac rehabilitation has not been shown to be superior to home-based cardiac rehabilitation for low-risk patients.	Although cardiac rehabilitation has been proven to be beneficial, uptake has been suboptimal (≤40% uptake among heart attack survivors in the UK). Reasons provided by patients are varied and include difficulty in attending the hospital (transport, car parking), a dislike of groups, work or domestic commitments. Home-based programmes have been devised to address these problems and to improve access to, and participation in, cardiac rehabilitation programmes. The programmes need to be tailored by being aware of the individuals social, religious, cultural and Ethnic background status.	Jolly K, Taylor RS, Lip GY, Stevens A. Home-based cardiac rehabilitation compared with centre-based rehabilitation and usual care: a systematic review and meta-analysis. *Int J Cardiol*. 2006;111(3):343–351. Jolly K, Lip GY, Taylor RS, et al; The Birmingham Rehabilitation Uptake Maximisation study (BRUM): a randomised controlled trial comparing home-based with centre-based cardiac rehabilitation. Heart. 2009 Jan;95(1):36-42.

					Epub 2008 Mar 10.
42	British Dietetic Association	Secondary Prevention of myocardial infarction • Cardiac Rehabilitation Recommendations concerning full provision of Cardiac Rehabilitation programmes with an emphasis on integrated lifestyle changes and access to dietitians to ensure effective delivery of consistent, reliable dietary advice.	Cardiac rehabilitation programmes, including lifestyle changes, are integral parts in the delivery of the NICE guidelines. They have been shown to reduce cardiac mortality by 27% and have other significant morbidity and quality of life benefits.	Implementation and uptake of such programmes are inconsistent (mean uptake of 44% of patients taking part, 2012) and the importance of dietary change is under promoted. Dietitians have greater success at effecting dietary change than doctors or other healthcare professionals but are underfunded within cardiac rehabilitation programmes with 48% of programmes having no dietetic input (2012). This is a reduction in access from previous years.	National Audit of Cardiac Rehabilitation (2012). British Heart Foundation. Halcox et al (2011) Lifestyle advice and drug therapy post-myocardial infarction: a survey of UK current practice. British Journal of Cardiology; 18 (4).
43	Bayer HealthCare	Secondary Prevention of myocardial infarction • Cardiac Rehabilitation The uptake of cardiac rehabilitation in accordance with clinical guideline 172. MI: Secondary prevention1 Proposed quality statement People who have had an acute myocardial infarction are offered cardiac rehabilitation programmes to begin as soon as possible after admission, and the benefits of attending are explained.	As reported in the CVD outcomes strategy, *"rehabilitation can have a major impact on mortality, quality of life and long term costs. For example, cardiac rehabilitation reduces all-cause mortality by 18% over 6-12 months and 13% over 12 months and readmissions by 31% (6-12 months)."*[2] NICE clinical guideline 172, MI secondary prevention,[1] includes the following key priorities for implementation regarding cardiac rehabilitation. • *Offer cardiac rehabilitation programmes designed to motivate people to attend and*	It is acknowledged in NICE clinical guideline 172 that *"uptake of cardiac rehabilitation is still low".* In 2011-12, only 43% of eligible patients took part in cardiac rehabilitation programmes in England, Northern Ireland and Wales. There was also a mean 55 day wait for the beginning of phase III rehabilitation.[3] The CVD Outcomes Strategy for England has set an ambition to increase provision of cardiac rehabilitation to 65% of AMI, CABG and PCI patients, and it has been estimated that this could result in 380 lives saved and 1800 fewer readmissions per year.[2]	(1) National Institute for Health and Care Excellence. MI - secondary prevention: Secondary prevention in primary and secondary care for patients following a myocardial infarction. Nov. 2013. Available from: http://www.nice.org.uk/guidance/CG172. (Last accessed: 21/10/2014). (2) Department of

			complete the programme. Explain the benefits of attending. *Begin cardiac rehabilitation as soon as possible after admission and before discharge from hospital. Invite the person to a cardiac rehabilitation session which should start within 10 days of their discharge from hospital.*		Health Cardiovascular Disease Team. Cardiovascular Disease Outcomes Strategy - Improving outcomes for people with or at risk of cardiovascular disease. 5 Mar. 2013. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/217118/9387-2900853-CVD-Outcomes_web1.pdf. (Last accessed: 21/10/2014). (3) British Heart Foundation. The National Audit of Cardiac Rehabilitation. Annual Statistical Report. 2013. Available from: http://www.cardiacrehabilitation.org.uk/docs/2013.pdf. (Last accessed: 21/10/2014).
44	Faculty of Sports and Exercise	Secondary Prevention of myocardial infarction • Lifestyle changes	Regular physical activity is important for the secondary prevention of MI	It reduces associated risk factors such as hypertension, hyperlipidaemia, type 2 diabetes, improves the mood and	https://www.rcplondon.ac.uk/sites/default/files/documents/exercise-for-life-

	Medicine	after an MI Physical Activity as secondary prevention following MI – needs Preassessment for Physical Activity and prescription as secondary prevention following MI by an appropriate health care professional. Those at higher risk or wishing to return to sport need to be assessed by a Specialist in cardiac rehabilitation.	Following an MI the health care professional needs to be able to assess risk and prescribe the appropriate physical activity progression especially in the community setting. Some physicians report that they do not deliver physical activity counseling because of limitations in time, reimbursement, knowledge, confidence, and practical tools.	quality of life and makes the person fitter. However the cardiovascular status needs to be assessed (Physical activity history / exercise test) before physical activity is prescribed to make sure the patient is not put under additional MI risk. If the patient doesn't feel confident or has further problems due to incorrect advice being given then this may lead to poor compliance and further health problems.	final_0.pdf Leon AS, Franklin BA, Costa F, et al. Cardiac rehabilitation and secondary prevention of coronary heart disease: an American Heart Association scientific statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Cardiac Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity), in collaboration with the American Association of Cardiovascular and Pulmonary Rehabilitation [published correction appears in Circulation. 2005;111(13):1717]. Circulation. 2005;111(3):369–376. http://www.aafp.org/afp/2010/0201/p289.html#afp20100201p289-b3

45	Faculty of Sports and Exercise Medicine	Secondary Prevention of myocardial infarction • Lifestyle changes after an MI Motivational interviewing for Physical activity as secondary prevention following MI	Motivational interview interventions have resulted in increased physical activity, and decreased body mass index among patients following the intervention	Intensive physical activity and diet interventions have been found to reduce cardiovascular disease risk. They do take up time and resources. The American Heart Association has recommended recently recommended motivational interviewing as an effective approach for low-intensity interventions to promote health-related outcomes	http://www.ijbnpa.org/content/10/1/40
46	Bayer HealthCare	Secondary prevention of myocardial infarction • Drug therapy The uptake of drug therapy in accordance with NICE guidance Proposed quality statement People who have had an acute myocardial infarction are offered drug treatment in accordance with NICE guidance (both clinical guidelines and technology appraisals).	NICE clinical guideline 172, MI secondary prevention, includes the following recommendation which is a key priority for implementation: Offer all people who have had an acute MI treatment with the following drugs: • ACE (angiotensin-converting enzyme) inhibitor • dual antiplatelet therapy (aspirin plus a second antiplatelet agent) • beta-blocker • statin	CG172 recognises that primary PCI has replaced thrombolysis in most cases of STEMI and that this improvement in acute treatment may have an impact on secondary prevention. Similarly new drug treatments including rivaroxaban have recently been licensed for the secondary prevention of ACS and therefore may also impact on secondary prevention.	National Institute for Health and Care Excellence. MI - secondary prevention: Secondary prevention in primary and secondary care for patients following a myocardial infarction. Nov. 2013. Available from: http://www.nice.org.uk/guidance/CG172. (Last accessed: 21/10/2014).
47	SCM 2	Secondary prevention of myocardial infarction • Drug therapy Ensure all patients with a discharge diagnosis of myocardial infarction (MI) are offered treatment with a high–dose high-intensity statin	This is now in the NICE Lipid modification guidelines for all patients with established cardiovascular disease and was already recommended following ACS in the old guidance. Patients with MI constitute a particularly high-risk group that stand to gain most from aggressive statin	Practice is in this area is currently still very variable particularly in primary care.	NICE Risk factor and Lipid modification guideline CG 181 MINAP audit to assess compliance

			therapy.		
48	SCM 4	Secondary prevention of myocardial infarction • Drug therapy	Optimisation of drug therapy including statins contributes to cardiovascular event reduction in patients with established cardiovascular disease both acutely post-myocardial infarction and in the management of chronic cardiovascular disease. These areas are highlighted in NICE Post-MI guideline CG172 and NICE CG181 Lipid Modification.	Lipid management does not always follow previous recommendations from NICE CG48 (Myocardial infraction 2007) or Lipid Modification (CG67) based on audit data. Thus high intensity high dose statin recommended was not always prescribed post –acute coronary syndrome and commonly a moderate dose of medium intensity statin was viewed as sufficient. The updated Post-myocardial infarction (CG172) and Lipid Modification guidelines (CG181) again stress the importance of maximising lipid lowering drug therapy in the prevention of recurrent cardiovascular events. There are equality issues with regard to the use of optimal lipid-lowering and other cardioprotective therapies in women and the elderly.	Recommendations and data on the efficacy of aggressive lipid-management is to be found in the recommendations of NICE Lipid Modification CG181. See CG181 1.3.20-1.3.22 Supporting data: Cholesterol Treatment Trialists' (CTT) Collaboration, Baigent C, Blackwell L, Emberson J, et al. Efficacy and safety of more intensive lowering of LDL cholesterol: a meta-analysis of data from 170,000 participants in 26 randomised trials. Lancet. 2010 Nov 13;376(9753):1670-81 Gyberg V, Kotseva K, Dallongeville J, et al. Does pharmacologic treatment in patients with established coronary artery disease and diabetes fulfil guideline

					recommended targets? A report from the EUROASPIRE III cross-sectional study. Eur J Prev Cardiol. 2014 Apr 1. [Epub ahead of print] Reiner Ž, De Bacquer D, Kotseva K, et al. Treatment potential for dyslipidaemia management in patients with coronary heart disease across Europe: findings from the EUROASPIRE III survey. Atherosclerosis. 2013 Dec;231(2):300-7 Equalities & outcomes;- Zaman MJ, Stirling S, Shepstone L,et al. The association between older age and receipt of care and outcomes in patients with acute coronary syndromes: a cohort study of the Myocardial Ischaemia National Audit Project (MINAP). Eur Heart J. 2014 Jun

					14;35(23):1551-8 Alabas OA, Allan V, McLenachan JM, Feltbower R, Gale CP. Age-dependent improvements in survival after hospitalisation with acute myocardial infarction: an analysis of the Myocardial Ischemia National Audit Project (MINAP). Age Ageing. 2014 Nov;43(6):779-85 Gale CP, Cattle BA, Baxter PD, et al. Age-dependent inequalities in improvements in mortality occur early after acute myocardial infarction in 478,242 patients in the Myocardial Ischaemia National Audit Project (MINAP) registry. Int J Cardiol. 2013 Sep 30;168(2):881-7 Carey IM, DeWilde S, Shah SM, Harris T, Whincup PH, Cook DG. Statin use after first myocardial infarction in UK men and women from 1997 to 2006: Who

					started and who continued treatment? Nutr Metab Cardiovasc Dis. 2012 May;22(5):400-8
49	SCM 5	Secondary Prevention of myocardial infarction • Drug therapy	The NICE guideline on Secondary Prevention details the drug therapy which should be considered for all patients following myocardial infarction.	The latest update seeks to emphasise the importance of early commencement of therapy and plans for titration to optimal drug dosages	
50	Bayer Healthcare	Secondary Prevention of myocardial infarction • Follow-up Ongoing follow-up in accordance with NICE guidance Proposed quality statement People who have had an acute myocardial infarction should have a bleeding risk assessment at follow-up appointments	NICE clinical guideline 172, MI secondary prevention,[1] includes the following recommendation: Offer all people who have had an MI an assessment of bleeding risk at their follow-up appointment	All antiplatelets and anticoagulants have a bleeding risk associated with them and this can impact on the risk:benefit balance. Data from a large contemporary registry of 56 440 patients[2] demonstrated that rates of bleeding increased with increasing duration of dual-antiplatelet therapy (DAPT) (7.8/1000 person-years for 3 months vs 11.3/1000 person-years for >3 months, HR 1.45, 95% CI 1.14 to 1.86, p=0.0026). If the clinical condition of the patient changes over time, this can have an impact on their bleeding risk and therefore on the relative balance of risk and benefit. Rivaroxaban has recently been licensed for the secondary prevention of ACS and assessment of ongoing bleeding risk is integral to the ongoing follow-up.	(1) National Institute for Health and Care Excellence. MI - secondary prevention: Secondary prevention in primary and secondary care for patients following a myocardial infarction. Nov. 2013. Available from: http://www.nice.org.uk/guidance/CG172. (Last accessed: 30/10/2014). (2) Varenhorst et al. Duration of dual antiplatelet treatment with clopidogrel and aspirin in patients with acute coronary syndrome. European Heart Journal (2014)

					35, 969–978
51	Kidney Research UK	Secondary Prevention of myocardial infarction • Follow-up Measuring kidney function as part of post myocardial infarction care	Patients with reduced kidney function are at higher risk of re-infarction, heart failure and death	Identifying those at lower kidney function illustrates a high risk group who may require more intensive post MI care, mainly in terms of medicine titration	Data from VALIANT clinic trial most striking, but much of this appears in current NICE guidelines.
52	SCM 5	Secondary Prevention of myocardial infarction • Revascularisation	The NICE guideline on Secondary prevention details the requirement for all patients to undergo an assessment of left ventricular function and to be considered for revascularisation (if appropriate).	The key to the implementation of the guideline is the availability of timely echocardiography and assessment by a consultant cardiologist who is able to offer, or refer to another centre for, invasive imaging with a view to revascularisation, where appropriate and taking into account comorbidity.	
53	SCM 2	Secondary prevention of myocardial infarction • Communication of diagnosis and advice Provide a comprehensive package of education and explanation (including culturally appropriate written material) of their condition and treatment for all patients discharged from hospital with a diagnosis of acute MI.	Patients now spend less time in hospital following MI, yet still have increasingly complex medical interventions and drug treatments and they, along with their families and/or carers, require careful education, reassurance and guidance regarding issues such as medication, driving, travel, return to work (if appropriate) and activities of daily living.	With the reduction in the length of stay it is important to ensure clear post-discharge arrangements are in place including a robust system for follow up and access to help and advice by telephone or email in the immediate post-discharge phase when patients are/feel most vulnerable.	NICE STEMI guideline CG 167 and current best practice Can be audited through the Myocardial Ischaemia National Audit Project (MINAP)
54	SCM 3	Secondary prevention of myocardial infarction • Communication of diagnosis and advice Sub-optimal secondary	National audit data have shown a significant improvement on starting secondary prevention medications since 2000 following an acute myocardial infarction.	With the length of hospital stay significant reduced in the last decade following an acute myocardial infarction and secondary prevention medications although initiated during the hospital	NICE Clinical Guideline 172- Secondary prevention in primary and secondary care for patients following a

		prevention medication titration following hospital discharge after an acute Myocardial infarction	However, the doses of discharge medications are often sub-optimal and up-titration management plan often incomplete in discharge letters.	stay, patients are often discharged home on sub-optimal dose of evidence based treatment. There is a need to have a fully completed discharge letter with a medication titration plan and monitoring advice to the patient's general practitioner.	myocardial infarction (2013)
55	SCM 4	Secondary prevention of myocardial infarction • Communication of diagnosis and advice	The functional capability of the myocardium in patients post-myocardial infarction is recognised as a key area determining future prognosis and patients' functional capacity and ability to return to the activities of daily living. Attention to this area was recognised as a priority in NICE Post-MI guidelines CG48 in 2007 and expanded in NICE CG172 in 2013. This comprises both assessment of left ventricular function prior to discharge and the prescription and later primary care titration of renin-angiotensin inhibitors at sufficient dose to be efficacious.	The assessment of cardiac function post-myocardial infarction is variable. Similarly while many patients are started on renin-angiotensin system inhibitors on discharge from secondary care to improve cardiac function doses are often inadequate and titration to the maximum dose required for full efficacy for future MI prevention as demonstrated in clinical trial data is often lacking. This area is noted as new priority in updated NICE guidance (Post MI-CG172) There are equality issues with investigation and management as less aggressive treatment is more frequent in the aged and there is greater scope for improvement in the elderly.	See NICE guideline CG 172 1.3.4 - 1.3.10 Data on variability is available from UK Myocardial Infarction National Audit Programme. Simms A, Weston C, West R et al. Mortality and missed opportunities along the pathway of care for ST-elevation myocardial infarction: a national cohort study. Eur Heart J Acute Cardiovasc Care. 2014 Sep 16. pii: 2048872614548602 International data on variability of management is provided by Ellis C, Gamble G, Devlin G, et al; New Zealand Acute Coronary Syndromes (NZACS)

					SNAPSHOT Audit Group. The management of acute coronary syndrome patients across New Zealand in 2012: results of a third comprehensive nationwide audit and observations of current interventional care. N Z Med J. 2013 Dec 13;126(1387):36-68 Equality issues highlighted in:- Zaman MJ, Stirling S, Shepstone L,et al. The association between older age and receipt of care and outcomes in patients with acute coronary syndromes: a cohort study of the Myocardial Ischaemia National Audit Project (MINAP). Eur Heart J. 2014 Jun 14;35(23):1551-8 Alabas OA, Allan V, McLenachan JM, Feltbower R, Gale CP. Age-dependent improvements in survival

					after hospitalisation with acute myocardial infarction: an analysis of the Myocardial Ischemia National Audit Project (MINAP). Age Ageing. 2014 Nov;43(6):779-85 Gale CP, Cattle BA, Baxter PD, et al. Age-dependent inequalities in improvements in mortality occur early after acute myocardial infarction in 478,242 patients in the Myocardial Ischaemia National Audit Project (MINAP) registry. Int J Cardiol. 2013 Sep 30;168(2):881-7
56	Bayer HealthCare	Secondary Prevention of myocardial infarction • Communication of diagnosis and advice The communication of future management plans and advice on secondary prevention by provision of discharge summaries in accordance with clinical guideline 172. MI: Secondary prevention1 Proposed quality statement People who have had an	NICE clinical guideline 172, MI secondary prevention,[1] includes the following recommendation which is a key priority for implementation: After an acute MI, ensure that the following are part of every discharge summary: • confirmation of the diagnosis of acute MI • results of investigations • incomplete drug titrations • future management plans	Although the MINAP audit results show that *"drug therapy for secondary prevention is already effectively applied nationally,"* it is acknowledged that the figures *"do not include the tendency for a reduction in use of these agents over the months following an MI."* Secondary prevention of MI may involve taking multiple medications over long periods of time, and since it has been suggested that between a half and third of all medicines prescribed for long term conditions are not taken as recommended,[2, 3] the communication of	(1) National Institute for Health and Care Excellence. MI - secondary prevention: Secondary prevention in primary and secondary care for patients following a myocardial infarction. Nov. 2013. Available from: http://www.nice.org.

		acute myocardial infarction are provided with a discharge summary covering confirmation of the diagnosis, the results of investigations, incomplete drug titrations, future management plans (including timing for review or discontinuation of any prescribed treatments) and advice on secondary prevention.	• advice on secondary prevention.	future management plans and advice on secondary prevention is crucial in aiding adherence to treatment. Better assessment and care planning and meeting identified needs has also been identified as an area for action in the Cardiovascular Disease Outcomes Strategy,[4] where it is suggested that *"providing patient-owned care plans in either GP or community settings or on discharge from hospital gives healthcare professionals the opportunity to engage patients in self-management. Professionals may wish to consider facilitating access to more comprehensive education and training programmes such as the Expert Patient Programme or arranging follow-up contacts for education and self-management support."*	uk/guidance/CG172. (Last accessed: 21/10/2014). (2) Haynes RB, McDonald H, Garg AX, Montague P. Interventions for helping patients to follow prescriptions for medications. Cochrane Database Syst Rev 2002;(2):CD000011 (3) Nunes V, Neilson J. Clinical Guidelines and Evidence Review for Medicines Adherence: involving patients in decisions about prescribed medicines and supporting adherence. London: National Collaborating Centre for Primary Care and Royal College of General Practitioners. 2009. Available from: http://www.nice.org.uk/nicemedia/live/11

					766/42971/42971.pdf (4) Department of Health Cardiovascular Disease Team. Cardiovascular Disease Outcomes Strategy - Improving outcomes for people with or at risk of cardiovascular disease. 5 Mar. 2013. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/217118/9387-2900853-CVD-Outcomes_web1.pdf. (Last accessed: 21/10/2014).
57	SCM 5	Secondary Prevention of myocardial infarction • Communication of diagnosis and advice	The NICE guideline on secondary prevention details the communication which should be given to the patient and take place between secondary and primary care	To enable optimal continuing care every discharge summary should contain key information on the final diagnosis, results of investigation and revascularisation procedures, plans for drug titration, reasons for non-prescription of usual medication (if appropriate), plans for future management and any additional advice on secondary prevention.	
58	SCM 6	Secondary Prevention of myocardial infarction • Communication of diagnosis and advice	Transfer of relevant information is critical to the subsequent management of people outside hospital. In particular in terms of	Audit shows that there is sub-optimal transfer of information to general practice, lack of clarity about drug optimisation and whether someone has	I have performed an audit in Central Manchester which shows sub-optimal transfer of

			investigations performed, drugs initiated and referral for rehabilitation	been referred for rehabilitation. There is rarely a management plan, so it is unclear who is responsible for which part of the pathway, resulting in sub-optimal care.	information, in particular of drug regimens and management plan for up-titration
59	Dietitians in Obesity Management UK (domUK)	Additional area Regular opportunistic weighing of adults.	Excess weight is recognised as a key modifiable risk factor for cardiovascular disease and other chronic conditions. Regular weighing will result in earlier identification of those who are gaining weight and therefore increasing their risk. Although different cut-off points have not been recommended for different ethnic groups due to lack of evidence, differential risk at lower BMI cut off points for some ethnic groups is recognised.	Weighing adults was included in previous QOF guidance but is no longer included. Even so, maintenance of regular weight records is recognised as patchy, and opportunities to prevent problems are therefore being missed.	The Health Survey for England identified excess weight as a modifiable risk factor affecting a significant proportion of adults (http://www.noo.org.uk/data_sources/adult/health_survey_for_england). Although this data is robust it is based upon a representative sample of the population and will therefore not identify individuals at risk. Regular recording of BMI is not always optimal and healthcare practitioners may not be aware of differential risk for different ethnic groups (http://www.nice.org.uk/guidance/ph46/resources/guidance-assessing-body-mass-index-and-waist-circumference-thresholds-for-intervening-to-prevent-ill-health-and-premature-death-among-adults-

					from-black-asian-and-other-minority-ethnic-groups-in-the-uk-pdf).
60	Dietitians in Obesity Management UK (domUK)	Additional area Regular measurement of waist circumference in adults.	Distribution of body fat, in addition to total body fat, is a key aspect of risk. Although different cut-off points have not been recommended for different ethnic groups due to lack of evidence, differential risk at lower waist circumference cut off points for some ethnic groups is recognised.	Waist circumference is not routinely measured and therefore key opportunities to identify high risk individuals are being missed.	Waist circumference is not routinely measured (http://www.noo.org.uk/data_sources/adult/health_survey_for_england and http://www.nice.org.uk/guidance/ph46/resources/guidance-assessing-body-mass-index-and-waist-circumference-thresholds-for-intervening-to-prevent-ill-health-and-premature-death-among-adults-from-black-asian-and-other-minority-ethnic-groups-in-the-uk-pdf).
61	Dietitians in Obesity Management UK (domUK)	Additional area Participation in the Public Health Responsibility Deal for food reformulation needs to become mandatory and outcomes measurable.	Participation in the Public Health Responsibility Deal is currently optional. Reformulation of foods to achieve lower salt, fat and sugar content is an important step to help achieve dietary change by altering the food environment.	Key health advocates have expressed concern over the voluntary nature of the Public Health Responsibility Deal. Although beneficial changes to food formulation have occurred both as part of this Deal and outside it, mandatory participation with measureable outcomes to improve national dietary intakes is likely to speed up the rate of change.	Concern over the voluntary nature of engagement and lack of accountability if outcomes are not achieved has been expressed (https://www.rcplondon.ac.uk/policy/responding-nhs-reform/public-health-responsibility-deal and http://www.fph.org.uk/search/responsibility+deal).

62	Dietitians in Obesity Management UK (domUK)	Additional area Reduce unintended purchases of high fat, salt and sugar containing foods and drinks at the till by ensuring that food retailers adopt a national 'healthy till' approach.	High intake of dietary fat, salt and sugar-containing foods and drinks are recognised modifiable risk factors for cardiovascular disease.	Dietary survey data recognises some improvements in national diet compared with recommendations; however intakes of sugar, salt and in some population groups dietary fat are still higher than recommended. Unintended purchases of these foods and drinks, particularly by parents under pressure from children, may be a contributory factor. In addition prominent product placement of unhealthy foods and drinks normalises them, and children may be particularly vulnerable.	Parents have identified a need for healthier checkouts and a national campaign set up to remove unhealthy foods and drinks from the tills has resulted in some high profile retailers pledging to remove junk, including Lidl, Aldi and Tesco (http://domuk.org/viewpage.php?cat=8&page=48).
63	Dietitians in Obesity Management UK (domUK)	Additional area Ensure that publically funded food and drink provision is in line with the principles of healthy eating.	The public sector is a large proportion of the population of working adults in the UK. Healthcare workers as well as colleagues in the local authority should represent role models for health, but in addition should expect that their own food and drink provision is healthy to reduce their risk of cardiovascular disease.	Current dietary intakes do not reflect recommendations in many population groups, and this is likely to contribute to increased risk of cardiovascular disease and other chronic disease conditions.	NICE guidance on prevention of cardiovascular disease recommends that the principles of healthy eating are adhered to in publically funded food and drink provision (http://www.nice.org.uk/guidance/ph25/resources/guidance-prevention-of-cardiovascular-disease-pdf). Current dietary intakes do not meet recommendations for many nutrients (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310995/NDNS_Y1_to_4_UK_report.pdf).

64	NHS England	Cardiovascular risk assessment	I wish to confirm that NHS England has no substantive comments to make regarding this consultation.
65	NHS England	Lipid Modification	I wish to confirm that NHS England has no substantive comments to make regarding this consultation.
66	NHS England	Secondary prevention of myocardial infarction	I wish to confirm that NHS England has no substantive comments to make regarding this consultation.
67	Royal College of Nursing	Cardiovascular risk assessment	This is to inform you that the Royal College of Nursing have no comments to submit to inform on the above topic engagement at this time, we look forward to participating in the next stage of development.
68	Royal College of Nursing	Lipid Modification	This is to inform you that the Royal College of Nursing have no comments to submit to inform on the above topic engagement at this time, we look forward to participating in the next stage of development.
69	Royal College of Nursing	Secondary prevention of myocardial infarction	This is to inform you that the Royal College of Nursing have no comments to submit to inform on the above topic engagement at this time, we look forward to participating in the next stage of development.