

# Secondary event prevention and risk stratification in patients with stable coronary artery disease

## Guidelines

summarising clinical guidelines for primary care

MGP Ltd identified a need for clinical guidance in this area and approached Bayer plc for an educational grant to support the development of a working party guideline.

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# Secondary event prevention and risk stratification in patients with stable coronary artery disease

**Matthew Fay (Chair)<sup>1</sup>, Amitava Banerjee<sup>2</sup>, Alan Begg<sup>3</sup>, Beverley Bostock-Cox<sup>4</sup>, Sharron Gordon<sup>5</sup>**

<sup>1</sup>GP Principal, The Willows Medical Practice; Clinical Chief Executive, Affinity Care; Honorary Clinical Lecturer, Warwick Medical School; Trustee, AF Association; Trustee, Thrombosis UK; <sup>2</sup>Senior Clinical Lecturer in Clinical Data Science and Honorary Consultant Cardiologist; <sup>3</sup>GP, Montrose; GPwSI in cardiovascular disease; Trustee of Chest, Heart, and Stroke Scotland (CHSS); Trustee of Scottish Heart and Arterial Risk Prevention Group (SHARP); <sup>4</sup>Nurse Practitioner, Mann Cottage Surgery; Education Lead, Education for Health, Warwick; <sup>5</sup>Pharmacist Consultant Anticoagulation; Managing Director, Sharron Gordon Ltd

## Introduction

Coronary artery disease (CAD), also known as coronary heart disease (CHD) or ischaemic heart disease (IHD), is the result of narrowed coronary arteries, which restrict blood flow to the heart. The main symptomatic clinical presentations are angina and myocardial infarction (MI).<sup>1-4</sup> In the UK, CAD affects 2.3 million people and leads to more than 66,000 deaths each year, including more than 22,000 people younger than 75 years of age.<sup>1</sup>

Secondary event prevention and cardiac rehabilitation are essential components of the long-term management of patients with stable CAD because they reduce future morbidity, including the risk of further MI and other manifestations of vascular disease, and mortality.<sup>2,3,5</sup> Secondary prevention and cardiac rehabilitation should be initiated during hospitalisation when patients are highly motivated.<sup>3,4</sup> Lifestyle changes should be implemented, including healthy eating, limited alcohol, stopping smoking, and regular exercise.<sup>2,4-7</sup> All patients with stable CAD should be prescribed statins, antiplatelet drugs, beta-blockers, and angiotensin-converting enzyme (ACE) inhibitors.<sup>2-7</sup> The main objective for primary care healthcare professionals (HCPs) is to improve patient symptoms, quality of life, and prognosis by preventing MI and death.<sup>2,5</sup> Primary care HCPs have a key role in ensuring that patients understand the benefits of medical therapy and potential interventions, reviewing and optimising medications and lifestyle measures, and monitoring risk factors and changes in clinical status at appropriate intervals.<sup>2,5,6</sup>

The estimated 10-year risk of a recurrent vascular event varies substantially among patients with vascular disease. Half of patients with all modifiable risk factors at guideline-recommended targets have a 10-year risk of less than 10%, but for many patients it can be more than 20% or even more than 30% despite optimal treatment.<sup>8</sup> Furthermore, although secondary prevention is generally implemented well during the acute phase after diagnosis or revascularisation, active follow-up of patients in the long term tends not to be maintained, and patients may become less vigilant in terms of taking drugs and maintaining lifestyle changes with increasing time since their acute event or diagnosis. In a meta-analysis of 376,162 patients prescribed medication for primary or secondary cardiovascular prevention, concordance was 66% after a median of 24 months, so approximately one third of patients after MI were

not concordant with cardiovascular preventative treatments in the long term.<sup>9</sup> In a study in the US, many patients with high concordance with statins following an MI did not continue with the same level of concordance two years after discharge.<sup>10</sup> Such non-concordance is associated with increased mortality<sup>11</sup>—for example, non-concordance to statins in the year after MI is associated with a 12–25% increased hazard for mortality,<sup>12</sup> and one-year survival reduces from 97.7% to 88.5% in patients who discontinue all three of aspirin, statin and beta-blockers within the first year after MI.<sup>13</sup> Supporting concordance is therefore an essential part of any clinical pathway.

## Rationale for this guideline

Although many sources provide guidance around CAD, no specific guidance has been published on shared care around secondary event prevention and risk stratification in patients with stable CAD. Furthermore, new drugs have been licensed since existing guidelines were published. This guideline, and an accompanying guideline for peripheral arterial disease (PAD),<sup>14</sup> aim to help HCPs manage patients with stable CAD and PAD across primary and secondary care, including assessing their residual risk and optimising their care.

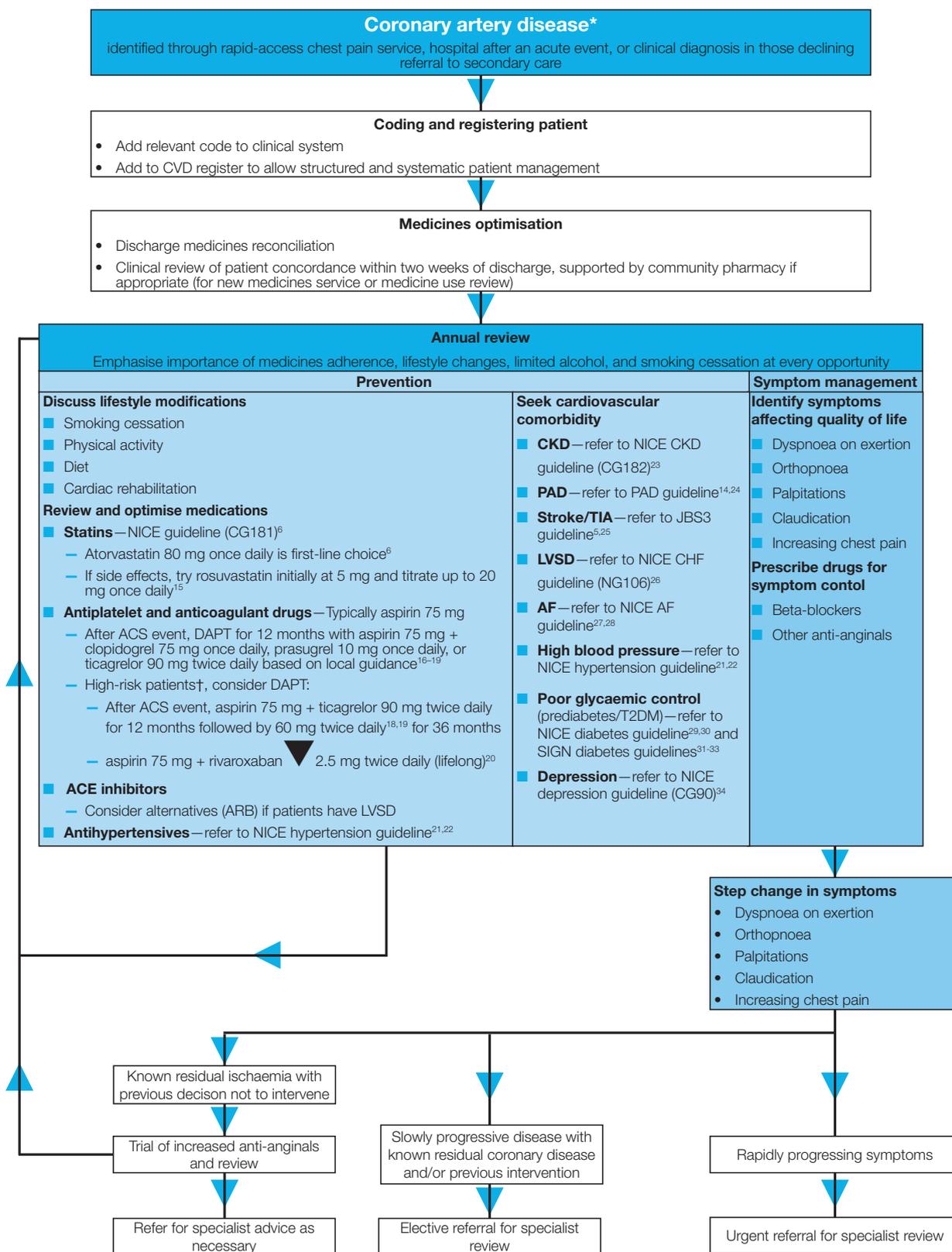
## Guideline for secondary event prevention and risk stratification in patients with stable coronary artery disease

Figure 1 (p.3) provides an algorithm summarising the working party group's consensus guideline for long-term management of patients with stable CAD.

## Identification of patients

- Patients with CAD often first present dramatically with symptoms of acute disease
  - primary care should have protocols in place, including education of reception staff, to ensure patients with symptoms of acute coronary disease are taken directly to hospital by paramedics:
    - uncomfortable pressure, squeezing, or fullness in the chest
    - pain or discomfort in one or both arms, the back, the neck, and the jaw
    - cold sweat, nausea, or lightheadedness

**Figure 1: Algorithm on the management of patients with confirmed stable coronary artery disease (CAD)**



\*Excludes patients with STEMI, NSTEMI, and unstable symptoms but includes any patient with a discharge letter asking for antiplatelet and statin to be started.

†Includes young patients (aged ≤65 years, previous multivessel disease, CVD, diabetes or CKD grade 3 or higher).

ACE=angiotensin-converting enzyme; ACS=acute coronary syndrome; AF=atrial fibrillation; ARB=angiotensin receptor blocker; CHF=chronic heart failure; CKD=chronic kidney disease; CVD=cardiovascular disease; DAPT=dual antiplatelet therapy; LVSD=left ventricular systolic dysfunction; MI=myocardial infarction; NSTEMI=non-ST elevation MI; PAD=peripheral arterial disease; STEMI=ST elevation MI; T2DM=type 2 diabetes mellitus; TIA=transient ischaemic attack.

- Patients who present in primary care reporting exertional chest pain, particularly older high-risk patients with new or increasing symptoms, will require referral to secondary care for formal diagnosis and consideration of disease in all vascular beds
- Some patients may decline referral to secondary care and should be managed within primary care as having suspected CAD, as long as this was an informed decision

### Coding patients

- Primary care should receive a discharge letter for all patients diagnosed with CAD in secondary care, detailing:
  - diagnosis
  - surgical intervention or revascularisation—performed or planned
  - referral for cardiac rehabilitation
  - medicines, including any need for dose titration and changes to previously prescribed drugs
  - laboratory tests, including electrolytes after 2–3 weeks
  - follow-up, including cardiology review, usually within 3 months
- All patients diagnosed with stable CAD should be coded appropriately and added to the practice's CHD register to ensure they receive structured care and review
  - any discharge letter that requests an antiplatelet drug and a statin to be started indicates a diagnosis of CAD or cardiovascular disease (CVD), requiring management via this algorithm on secondary prevention and risk stratification in patients with CAD or via clinical guidelines for management of stroke<sup>5,35</sup>

### Medicines optimisation

- Those responsible for medicines management locally should update the prescription record, including repeats for new medicines
- Clinical review should include assessment of patient concordance, ideally within 2 weeks of discharge
  - use standard questions for patients taking new medicines:<sup>36</sup>
    - have you had the chance to start taking your medicine yet?
    - how much of your new medicine have you felt able to take so far, if any?
    - how are you getting on with it?
    - are you having any problems with your new medicine, or concerns about taking it?
    - what concerns have you had about your new medicine, if any?
    - do you think it is working?
  - support all verbal consultations with written information
  - support by community pharmacy if appropriate (new medicines service or medicine use review)

- Reinforce importance of medicines concordance at every opportunity

### Management of patients

- Discuss all treatment options with the patient, explaining the risk–benefit profile of all drugs so they can make informed decisions

### Prevention—lifestyle modification

- Educate patients on lifestyle changes to prevent future events and improve symptoms:
  - smoking cessation<sup>37</sup>
  - physical activity
  - diet
- Refer patients for cardiac rehabilitation if not already referred by secondary care and encourage them to maintain attendance and to attend if they have not started despite referral
- Reinforce the importance of lifestyle changes, particularly smoking cessation, at every opportunity
- Consider peripheral factors with potential to impact on behavioural change associated with long-term conditions, such as socioeconomic status, family/peer pressure, personal circumstances, patient's perception of side-effects, readiness/motivation to change, depression, availability of services
  - consider undertaking a brief motivational interview

### Prevention—medication review and optimisation

- All patients with CAD should be prescribed:
  - statins
  - antiplatelet and anticoagulant drugs
  - angiotensin-converting enzyme (ACE) inhibitors
  - antihypertensive agents

### Statins

- Rule out familial hyperlipidaemia in patients with markedly raised cholesterol
- Manage lipids in accordance with NICE cardiovascular disease guideline (CG181)<sup>6</sup>
  - step down is no longer a strategy for lipid management
  - atorvastatin 80 mg once daily is the first-line choice
- No other drug class can be substituted for statins, so switch to an alternative statin if patients cannot tolerate side-effects with one agent
  - for patients who develop myalgia, try withdrawing statin treatment for 2 months, a 50% dose reduction, or switch to rosuvastatin initially at 5 mg and titrate up to 20 mg once daily

### Antiplatelet and anticoagulant drugs

- Prescribe antiplatelet therapy, typically aspirin 75 mg
  - after an acute coronary syndrome (ACS) event, prescribe dual antiplatelet therapy (DAPT) for the first 12 months with aspirin 75 mg + clopidogrel 75 mg once daily,<sup>16</sup> prasugrel 10 mg once daily,<sup>17</sup> or ticagrelor 90 mg twice daily for up to 12 months<sup>18,19</sup> based on local guidance
  - for patients at high risk (e.g. aged ≤65 years, previous multivessel disease, CVD, diabetes, or chronic kidney disease (CKD) grade 3 or higher), consider:
    - aspirin 75 mg once daily + 90 mg ticagrelor twice daily for 12 months after an ACS event, then 60 mg twice daily<sup>18,19</sup> for 36 months
    - aspirin 75 mg + rivaroxaban 2.5 mg twice daily (lifelong)<sup>20</sup>
  - prescribe a proton pump inhibitor (PPI) to patients aged ≥65 years or with a previous gastrointestinal bleed
  - educate patients about using gloves and aqueous cream to prevent bruising
- At annual review after 12 months:
  - check concordance; this can be supported by pharmacy medicines use review
  - continue to treat high-risk patients (see Box 1) aggressively
    - most patients at low risk can discontinue the second antiplatelet drug to be maintained on aspirin 75 mg
    - do not discontinue antiplatelet therapy completely without specialist advice

### ACE inhibitors

- ACE inhibitors are primarily preventative therapy
  - prescribe an ACE inhibitor to all patients unless there are contraindications or other good reasons not to do so
  - prescribe an ACE inhibitor if blood pressure (BP) is uncontrolled, the patient has residual risk, and echocardiography showed functional impairment
- Aggressively treat high-risk patients (e.g. aged ≤65 years, previous multivessel disease, CVD, diabetes, or CKD grade 3 or higher):
  - aim for BP <130/80 mmHg to minimise the bleeding risk as much as possible
  - If patients experience issues specific to ACE inhibitors, alternatives such as an angiotensin receptor blocker (ARB) or sacubitril/valsartan should be considered in line with local guidance
- If patients develop side-effects, consider switching to an alternative agent
  - for patients who develop cough, discontinue the ACE inhibitor but maintain aggressive BP management—for example, by switching to an ARB
  - if the patient has high BP without LVSD, switch to an ARB to maintain BP control
  - if the patient is taking the ACE inhibitor because they

### Box 1: Risk stratification in patients with CAD

In patients with CAD, the following factors increase the risk of an event and require more intensive management:

- increasing age
- the number of vascular beds involved
- history of previous events and intervention
- all sequelae/complications such as heart failure
- all concomitant risk factors—hypertension, diabetes, CKD, PAD, stroke/TIA, obesity, and smoking.

CAD=coronary artery disease; CKD=chronic kidney disease; PAD=peripheral arterial disease; TIA=transient ischaemic attack

have LVSD, replace as per guidance on LVSD in NICE chronic heart failure (CHF) guideline (NG106)<sup>26</sup>

### Beta-blockers

- Up to 12 months of beta-blockers is 'unequivocal' if the patient has substantial damage to the anterior wall
  - beta-blockers may provide a symptomatic benefit in patients with symptoms<sup>38</sup>
  - patients who discontinue beta-blockers and undergo bypass surgery are at increased risk of sudden death<sup>39</sup>
- Continue beta-blockers for heart rate control in patients with AF
- Continue cardioselective beta-blockers in patients with LVSD
  - cardioselective beta-blockers are not contraindicated in people with PAD or chronic obstructive pulmonary disease (COPD)
  - beta-blockers licensed for LVSD may be appropriate if the patient also has PAD
- Switch to dihydropyridine, which has advantages in terms of stroke and infarction, for patients without LVSD, in whom the benefit of long-term use of beta-blockers after MI is less clear cut than for CHF
- All preventative medicines should be reviewed, titrated, and optimised

### Prevention—seek cardiovascular comorbidity

- Some patients with CAD have additional risk factors that put them at increased risk of cardiovascular events and may benefit from more frequent follow-up and tighter global control, with holistic management involving primary and secondary care
  - vascular disease in another territory
    - CKD—manage according to NICE CKD guideline (CG182)<sup>23</sup>
    - PAD—manage according to PAD guideline<sup>14</sup>
    - stroke/transient ischaemic attack (TIA)—manage according to summary<sup>25</sup> of JBS3 guideline<sup>5</sup>

- LVSD—manage according to NICE CHF guideline (NG106)<sup>26</sup>
- atrial fibrillation (AF)—manage according to summary<sup>27</sup> of NICE AF guideline<sup>28</sup>
- high BP—manage according to summary<sup>21</sup> of NICE hypertension guideline<sup>22</sup>
- poor glycaemic control (prediabetes/type 2 diabetes mellitus)—manage according to summary<sup>29</sup> of NICE diabetes guideline<sup>30</sup> and summary<sup>31</sup> of SIGN diabetes guidelines<sup>32,33</sup>
- depression
  - depression may impact on patient’s disease control, concordance with medicines, and quality of life<sup>40,41</sup>
  - manage according to NICE depression guideline (CG90)<sup>34</sup>
  - add in a new drug (e.g. a long-acting nitrate or ivabridine in line with CG126)<sup>43</sup>
  - urgent referral for cardiological advice

### Symptom management

- › Identify symptoms that are affecting quality of life or that may indicate comorbid disease, e.g. dyspnoea on exertion, orthopnoea, palpitations, and claudication
- › Prescribe beta-blockers and other anti-anginals for symptom control
- › For patients with tachycardia:
  - aim for 60–70 bpm in patients with stable angina
  - beta-blocker is first-line choice
  - if tachycardia persists, titrate the beta-blocker or switch to dihydropyridine
- › If patient experiences chest pain within a month of discharge:
  - check concordance with drugs
  - optimise treatment in line with NICE chest pain guideline (CG95)<sup>42</sup>
  - advise the patient about use of glyceryl trinitrate (GTN) for chest pain and when to call an ambulance
  - if pain worsens despite treatment modifications, refer to cardiology
- › All medicines to manage symptoms should be reviewed, titrated, and optimised
- › If there is a step-change in symptoms:
  - in patients with known residual ischaemia in whom revascularisation was deferred because the condition was considered too complicated for surgery or the patient declined surgery:
    - trial a higher dose or add in a second anti-anginal drug, e.g. GTN
    - refer for specialist advice, as necessary, to re-evaluate residual CAD
  - if symptoms worsen over a course of months after 12 months despite beta-blocker or dihydropyridine:
    - add in a new drug (e.g. a long-acting nitrate or ivabridine in line with CG126)<sup>43</sup>
    - elective referral for specialist opinion
  - if symptoms rapidly progress over days and weeks:
    - check for co-morbidities

### Annual review

- › Annual review is important to:
  - assess symptoms
  - assess and reinforce importance of concordance with medicines and lifestyle changes, including smoking cessation
- › Box 2 summarises key points to cover during ongoing and annual surveillance of patients with CAD

### Conflicts of interest

Matthew Fay is an advisor to Anticoagulation Europe, Arrhythmia Alliance, Heart Valve Voice, National Stroke Association, and Syncope Trust, and is a trustee of Thrombosis UK and AF Association. The Westcliffe Partnership has received funding from Abbott, Bayer, Boehringer Ingelheim, Bristol Myers Squibb, Dawn, INRStar, Medtronic, Oberoi Consulting, Pfizer, Roche, Sanofi-Aventis, and Servier.

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## Box 2: Ongoing annual surveillance in patients with CAD

- Atorvastatin 80 mg once daily or rosuvastatin initially at 5 mg and titrated up to 20 mg
- Aspirin 75 mg once daily
- Systolic blood pressure aim for <130 mmHg
- Consider ACE inhibitor/ARB in patients with T2DM
- Seek other evidence of cardiovascular disease, checking glycated haemoglobin, and asking direct questions about chest pain, palpitations, or orthopnoea
- If symptoms are deteriorating, review patient management according to algorithm

ACE=angiotensin-converting enzyme; ARB=angiotensin receptor blocker; CAD=coronary artery disease; T2DM=type 2 diabetes mellitus

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## Useful resources

- NICE. *Stable angina: management*. Clinical Guideline 126: [www.nice.org.uk/cg126](http://www.nice.org.uk/cg126)
- NICE. *Hypertension in adults: diagnosis and management*. Clinical Guideline 127: [www.nice.org.uk/cg127](http://www.nice.org.uk/cg127)
- NICE. *Cardiovascular disease: risk assessment and reduction, including lipid modification*. Clinical Guideline 181: [www.nice.org.uk/cg181](http://www.nice.org.uk/cg181)
- NICE. *Angina*. Clinical Knowledge Summary: [cks.nice.org.uk/angina#!topicsummary](http://cks.nice.org.uk/angina#!topicsummary)
- NICE. Lipids in secondary prevention. Clinical Knowledge Summary: [cks.nice.org.uk/lipid-modification-cvd-prevention#!scenario:1](http://cks.nice.org.uk/lipid-modification-cvd-prevention#!scenario:1)
- NICE. High blood pressure. Clinical Knowledge Summary: [cks.nice.org.uk/hypertension-not-diabetic#!scenariorecommendation](http://cks.nice.org.uk/hypertension-not-diabetic#!scenariorecommendation)
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- Centre for Pharmacy Postgraduate Education (CCPE) guidance on consultation skills:
  - [wessexahsn.org.uk/img/projects/Consultation%20Skills%20NMS%20Anticoagulant%20Wessex%202017%20SC%20Updated%20Oct%202017.pdf](http://wessexahsn.org.uk/img/projects/Consultation%20Skills%20NMS%20Anticoagulant%20Wessex%202017%20SC%20Updated%20Oct%202017.pdf)
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