

# NICE hypertension guidance: What's new?

Nicola Milne

**Management of hypertension is a cornerstone of diabetes management. In August 2019, NICE published updated guidance on the management of hypertension both in people without diabetes and, specifically, in those with type 2 diabetes. Changes have been made to the advice on diagnosis, starting medications, monitoring, choosing medications and when to refer for same-day specialist review. In this article, the author provides an in-depth review of the NG136 guideline and the changes that have been made.**

Optimal hypertension management is recognised as a key component of good diabetes care and yet, nationally, nearly a third of people with diabetes who have had a blood pressure (BP) measurement recorded in the previous 12 months are deemed to have uncontrolled BP (NHS Digital, 2019). In August this year, NICE published its new guidance document, NG136, on identifying and treating hypertension in adults, to include people with type 2 diabetes (NICE, 2019a). The document sets out the overarching aim to reduce the risk of cardiovascular disease (CVD) through more accurate diagnosis and more effective treatment of hypertension. Specifically, it advises that these new guidelines replace the section (1.4) on BP management in the NG28 guideline on type 2 diabetes management (NICE, 2015a). The guidance on hypertension management in people with type 1 diabetes (NG17) and those with chronic kidney disease (CG182) remains the same (NICE, 2014a; 2015b).

The sections pertaining to measuring BP, assessing for CVD risk and lifestyle interventions remain unchanged from the previous guideline of 2011, but there are changes to advice on diagnosis, starting medications, monitoring, choosing

medications and when to refer for same-day specialist review.

## New targets in type 2 diabetes

One of the most significant changes in diabetes terms is that the **target clinic BP for all adults under the age of 80 years – including people with type 2 diabetes – is now <140/90 mmHg**, which is a step change from the target of <140/80 mmHg in preceding guidance. Following a review of the research, NICE states that “there is currently no evidence to suggest that thresholds for starting treatment should be different for people with type 2 diabetes”. It is noted that this target sits in line with the American Diabetes Association (2019) guidance, which also cites a lack of robust evidence for lower targets in people with type 2 diabetes and no renal disease, but is at odds with SIGN (2010) guidance, which advocates a target of <130/80 mmHg.

The change will, no doubt, be a discussion point and also goes against the current Quality and Outcomes Framework (QOF), which incentivises GP practices in England to manage hypertension in those with diabetes who do not have moderate or severe frailty to a target BP of  $\leq 140/80$  mmHg (NHS England, 2019). QOF may amend BP targets for 2020/2021 based on the new guidance, but in

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## Article points

1. The new NICE hypertension guidance specifically supersedes the hypertension advice contained in the type 2 diabetes management guideline.
2. Changes have been made to the advice on diagnosis, starting medications, monitoring, choosing medications and when to refer for same-day specialist review.
3. New blood pressure targets of <140/90 mmHg may conflict with Quality and Outcomes Framework indicators in England, and healthcare professionals will need to use their clinical judgement when deciding BP targets.

## Key words

- Cardiovascular disease
- Clinical guidance
- Hypertension

## Authors

Nicola Milne is Community Diabetes Specialist Nurse with Community Diabetes Education and Support (CoDES), Manchester.



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the meantime healthcare professionals in England will need to use their clinical judgement when deciding BP targets.

For people with diabetes and established chronic kidney disease, the target for BP remains <130/80 mmHg.

**Measuring BP**

As previously mentioned, **the guidance on measuring BP remains unchanged**, and key advice includes ensuring a relaxed and temperate environment when measuring BP, using validated equipment, checking for pulse irregularities, and the use of sitting and standing BP for those with risk or symptoms of postural hypotension.

**Diagnosis of hypertension**

The new guidance advises a **lower threshold of 15 mmHg as significant when measuring the difference in readings in each arm** (previously 20 mmHg). This change acknowledges evidence that even a small difference in readings between each arm is associated with an increased risk of cardiac events, possibly due to vascular disease. Where there is a difference of more than 15 mmHg, the arm with higher reading should be used for measurement.

If the BP in clinic is  $\geq 140/90$  mmHg, a second reading should be taken, and subsequently a third if the first and second readings are different. **The recorded clinic BP should be the lower reading of the last two measurements.**

For those with a clinic BP between 140/90 and 180/120 mmHg, the advice is to **offer ambulatory BP monitoring (ABPM) as the gold standard to confirm diagnosis**. NICE acknowledges that there are resource and training requirements around the use of ABPM but that, in the long term, this form of monitoring is cost-effective as it avoids overdiagnosis and treatment, especially in those with white-coat hypertension. The use of home BP monitoring (HBPM), using meters specified within the [British and Irish Hypertension Society-validated list](#), is appropriate if a person might be unsuitable or unable to tolerate ABPM. Guidance relating to the actual processes of recording BP for diagnosis with ABPM and HBPM remains unchanged.

Diagnosis of hypertension from clinic BP measurements alone is deemed insufficient, with

**adequate diagnosis being a clinic reading of  $\geq 140/90$  mmHg and an ABPM daytime or HBPM average of  $\geq 135/85$  mmHg.**

Whilst awaiting the confirmation of hypertension, NICE continues to recommend investigations for assessing target organ damage, such as fundoscopy, renal bloods, urine albumin:creatinine ratio estimation, HbA<sub>1c</sub>, lipids, 12-lead electrocardiogram and a formal CVD risk assessment using a validated tool, as per CG181 guidance (NICE, 2014b).

**Treating and monitoring hypertension**

Within the advice on lifestyle interventions, relaxation therapies have been removed due to lack of robust evidence, with NICE calling for more research into their clinical effectiveness in terms of reducing cardiovascular events or improving quality of life. Key recommendations remain from 2011 with regard to reviewing a persons' alcohol intake, reducing salt intake, stopping smoking, avoiding excessive caffeine intake and motivating positive lifestyle changes in terms of weight loss, where appropriate, and increasing activity.

In respect to starting antihypertensive therapy, there is a definitive nod to looking at **promoting adherence and optimisation of medications**, and a [decision aid tool](#) has been developed to assist in ensuring shared decision-making between the person with hypertension and the healthcare professional.

- In those with **persistent stage 2 hypertension** (clinic BP  $\geq 160/100$  and  $< 180/120$  mmHg, or ABPM/HBPM  $> 150/95$  mmHg), **antihypertensive therapy, in addition to lifestyle advice, should be offered**, as there is clear evidence of benefit and cost-effectiveness.
- In those **under 80 years of age with persistent stage 1 hypertension** (clinic BP of 140/90–159/99 mmHg, or ABPM/HBPM average 135/85–149/94 mmHg), **antihypertensive therapy should be discussed in those with either target organ damage, established CVD, renal disease, diabetes or an estimated CVD risk of  $\geq 10\%$** .
  - CVD risk was set at  $\geq 20\%$  in the 2011 guidance, and this reduction may have the potential to significantly increase the workload in general practice, as more people will be eligible for treatment. However, the

change to a lower threshold for treatment is already quite widely implemented in clinical practice. Indeed, Sheppard et al (2018) found that around 50% of people with stage 1 hypertension and a CVD risk <20% are already being treated with antihypertensive drugs, so the shift down from a 20% to 10% risk threshold might not increase workload quite as much as anticipated, and economic modelling has shown it to be cost-effective in reducing CVD risk, which will ultimately lessen the burden on NHS resources.

- Although there was a lack of clear economic benefit, NICE does caution that a **10-year cardiovascular risk may underestimate the lifetime probability of developing CVD**, and thus it advises **consideration of antihypertensive therapy for those under 60 years of age with persistent stage 1 hypertension with a CVD risk under 10%**.
- NICE highlights the lack of evidence for thresholds in people over the age of 80 years but suggests, in the absence of frailty and/or multimorbidity, to retain the recommendation from the 2011 guidance in **aiming for a clinic BP of <150/90 mmHg (AMBP/HMBP <145/85 mmHg)**.
- For those with **frailty and/or multimorbidity**, the advice is to **use clinical judgement**, which mirrors the changes in QOF for 2019/2020.
- For adults **under 40 years of age with hypertension, specialist evaluation of possible secondary causes is indicated**. For those without secondary causes of hypertension, NICE describes a lack of evidence on treating individuals in this age group, recommending this as an important area for research moving forwards. Again, treatment here would be based on clinical judgement.

This guidance, and that regarding the choice of antihypertensive agents, is summarised in *Figure 1* at the end of this article. Interestingly, there are no thresholds set for when BP might be deemed too low. As healthcare professionals, we need to be mindful of harm, such as falls, that could result from BP being too low, and to be especially vigilant for this in those with frailty (Vetrano et al, 2018).

When monitoring response to treatment, NICE

recommends clinic BP readings but does support those who wish to use HBPM, and indeed it advises to consider ABPM or HBPM in those with white-coat or masked hypertension.

A recurrent reminder that **ABPM and HBPM readings need to be 5 mmHg lower than clinic BP targets** is evident, and emphasis is placed on the importance of ensuring that those in our care are **given the correct education on how to self-monitor their BP effectively**. NICE found no evidence to suggest any benefit from telemonitoring.

People with diabetes, along with those with symptoms of postural hypotension and those aged over 80 years, should have both sitting and standing BP measurements taken. **Those found to have a significant postural drop should have their standing BP used for measurement**. This is to avoid using the higher, sitting measurement as the threshold for treatment, as this would overestimate BP and could result in overtreatment and an increased risk of falls.

### Choosing antihypertensive drug treatments

Note: There is a reminder to consider the NG133 guidance on hypertension in pregnancy, which was published in June this year (NICE, 2019b), for women considering pregnancy or who are pregnant or breastfeeding.

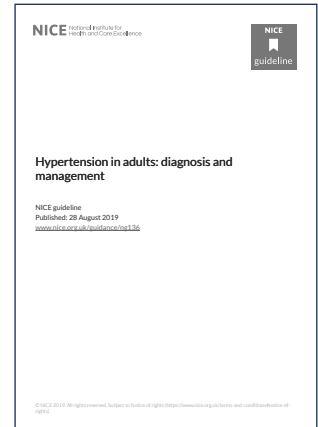
A new recommendation is to **consider an angiotensin receptor blocker (ARB) in preference to an angiotensin-converting enzyme inhibitor (ACEi) in those of black African or African-Caribbean family origin**, as there is stronger evidence to support use of the former in this cohort.

NICE has reviewed the research relating to mono or dual therapy as “Step 1” management, and found insufficient evidence to recommend any change from the previous guidance on introducing antihypertensive drugs as monotherapy.

At each step, NICE gives a reminder to check medication adherence, as per CG76 guidance (NICE, 2009), and to ensure that optimal tolerated doses are prescribed before additional medication is added.

### Step 1

- As per previous guidance, those **without diabetes under the age of 55 years** should be offered an ACEi or ARB, and those aged over 55 years or of



[Click here to read the guideline in full](https://www.nice.org.uk/guidance/ng133)

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black African or African-Caribbean family origin should be offered a calcium channel blocker (CCB).

- The new guidance has **no place for using a beta-blocker as first-line therapy** in any situation but does suggest **thiazide-like diuretics for those with heart failure**.
- For **people with diabetes**, as previously recommended, **all should be offered an ACEi or ARB regardless of age**, but a change within the 2019 guidance is that, in **those of black African or African-Caribbean family origin**, there is **no longer the recommendation to start on the dual therapy of ACEi/ARB plus CCB**, due to a lack of comprehensive data to support this. In preference, an ARB should be offered and there is an acknowledgement that there might be a need to step up to the addition of a CCB in the short term if BP remains above the target level.

### Step 2

- In those taking an ACEi/ARB, offer a CCB **or** a thiazide-like diuretic.
- In those taking a CCB, offer an ACEi/ARB **or** a thiazide-like diuretic.

### Step 3

- Offer an ACEi/ARB, a CCB and a thiazide-like diuretic.

Steps 2 and 3 are mainly unchanged, apart from the subtle change in the use of the word “or” in Step 2, to advise a choice of therapies based on individual needs rather than a set sequence in which one drug has preference over another.

### Step 4

- If BP remains **uncontrolled on three antihypertensive therapies** then the individual should be regarded as having **resistant hypertension**. Again, NICE reminds us here to look at medication adherence, to screen for postural hypotension and consider ABPM again to confirm diagnosis.
- The first choice for a fourth agent is low-dose

spironolactone in a person with a potassium level of  $\leq 4.5$  mmol/L, or an alpha- or beta-blocker if the potassium level is  $>4.5$  mmol/L.

- The 2011 recommendation for **use of high-dose thiazide diuretics has been removed** due to lack of evidence relating to the long-term benefits on CVD outcomes.
- At this stage, and certainly if the person is on four agents and still has uncontrolled hypertension, specialist advice should be sought.

## Identifying who to refer for same-day specialist review

The guideline committee advises that there was no evidence to inform recommendations on the topic of when to refer on the same day; however, as this was included in the 2011 guidance, it was updated by consensus based on the committee’s clinical experience. NICE calls for more research into when immediate referral might be beneficial.

Current recommendations are to refer when there is a BP of  $\geq 180/120$  mmHg with any of the following:

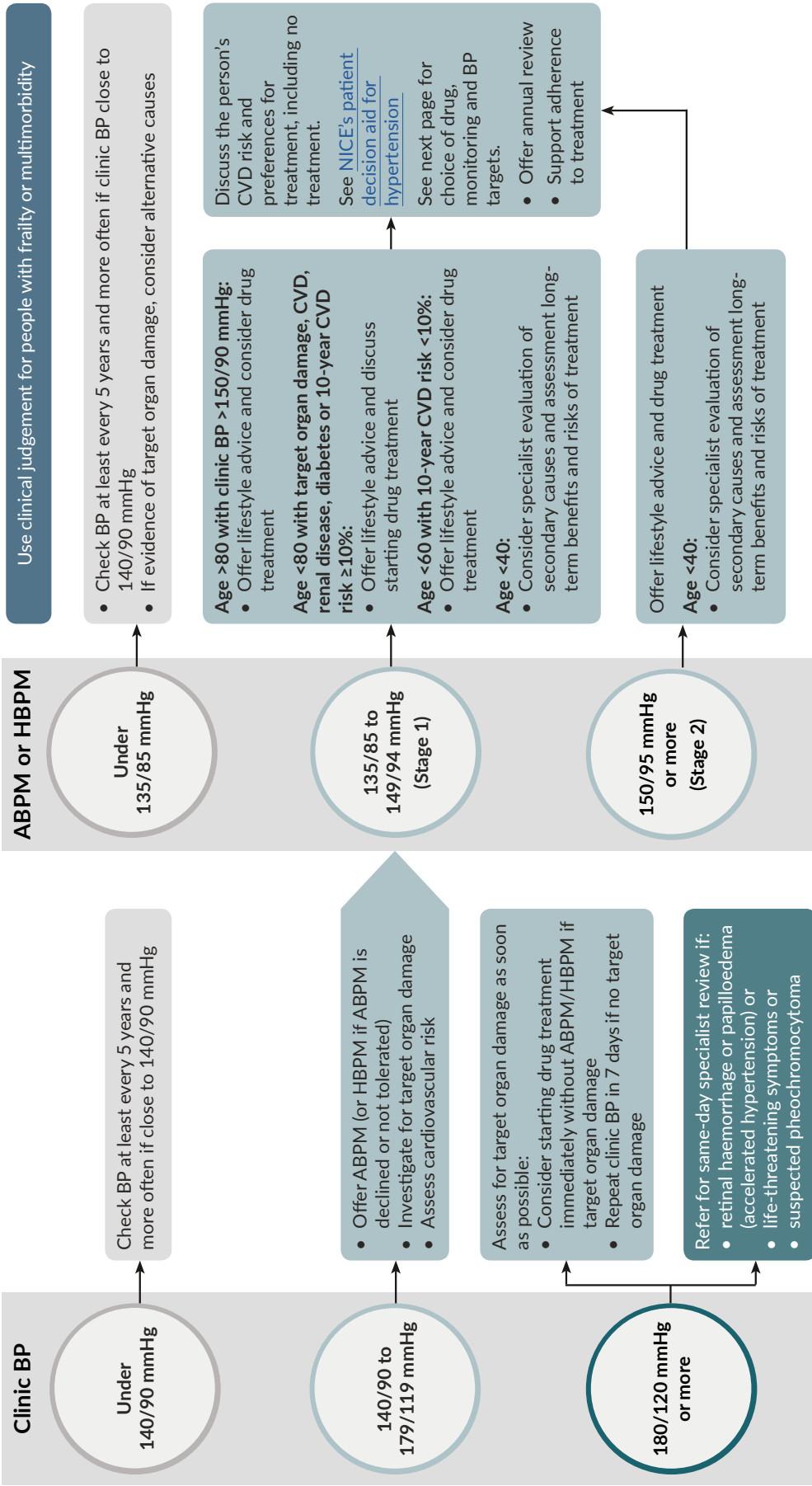
- Signs of retinal haemorrhage or papilloedema.
- Life-threatening symptoms such as new-onset confusion, chest pain, signs of heart failure or acute kidney injury.
- Suspected pheochromocytoma.

## Concluding remarks

This new hypertension guidance is most welcomed and brings the therapeutic thresholds for treatment into line with those of most other diabetes and healthcare bodies globally. In reviewing all the evidence, it reminds the healthcare professional of the importance of revisiting the very essentials of care, in trying to evoke positive lifestyle changes and always ensuring that medications are being taken as prescribed, with emphasis on shared decision-making. There is now a need to embed current targets into QOF as soon as feasible so that general practices do not face penalties for failing to meet targets even though they are adhering to NICE guidance. ■

# Hypertension in adults: diagnosis and treatment

Offer lifestyle advice and continue to offer it periodically

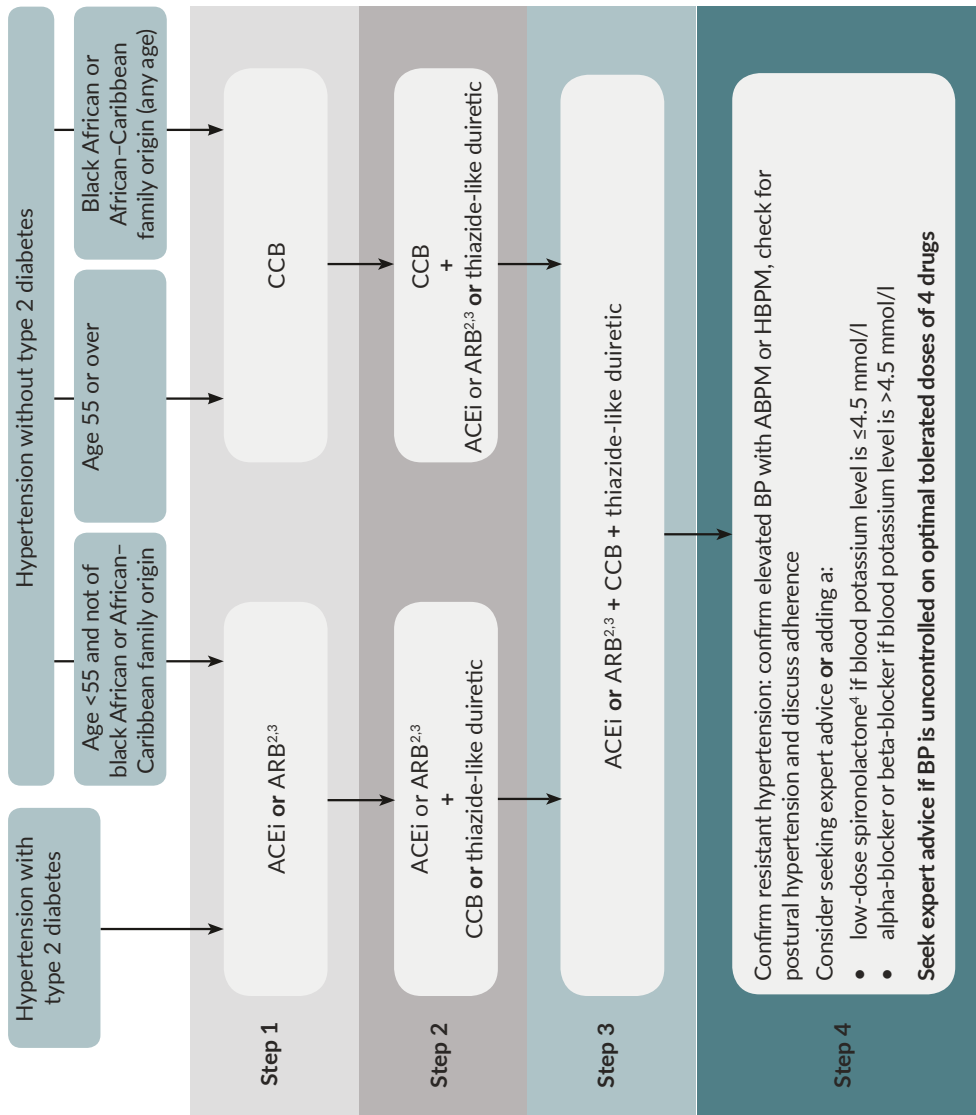


This is a summary of the recommendations on diagnosis and treatment from NICE's guideline on hypertension in adults. See the original guidance at [www.nice.org.uk/guidance/NG136](http://www.nice.org.uk/guidance/NG136)

Abbreviations: ABPM, ambulatory blood pressure monitoring; BP, blood pressure; CVD, cardiovascular disease; HBPM, home blood pressure monitoring.

Figure 1. Summary of recommendations in the NG136 guideline (NICE, 2019). Continues overleaf.  
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### Choice of antihypertensive drug<sup>1</sup>, monitoring treatment and BP targets



Offer lifestyle advice and continue to offer it periodically

Use clinical judgement for people with frailty or multimorbidity

**Monitoring treatment**

Use clinic BP to monitor treatment.

Measure standing and sitting BP in people with:

- type 2 diabetes or
- symptoms of postural hypotension or
- aged 80 and over.

Advise people who want to self-monitor to use HBPM. Provide training and advice.

Consider ABPM or HBPM, in addition to clinic BP, for people with white-coat effect or masked hypertension.

**BP targets**

Reduce and maintain BP to the following targets:

**Age <80 years:**

- Clinic BP <140/90 mmHg
- ABPM/HBPM <135/85 mmHg

**Age ≥80 years:**

- Clinic BP <150/90 mmHg
- ABPM/HBPM <145/85 mmHg

**Postural hypotension:**

- Base target on standing BP

**Frailty or multimorbidity:**

- Use clinical judgement

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<sup>1</sup> For women considering pregnancy or who are pregnant or breastfeeding, see NICE's guideline on hypertension in pregnancy. For people with chronic kidney disease, see NICE's guideline on chronic kidney disease. For people with heart failure, see NICE's guideline on chronic heart failure

<sup>2</sup> See MHRA drug safety updates on ACE inhibitors and angiotensin-II receptor antagonists: not for use in pregnancy, which states 'Use in women who are planning pregnancy should be avoided unless absolutely necessary, in which case the potential risks and benefits should be discussed'. ACE inhibitors and angiotensin II receptor antagonists: use during breastfeeding and clarification: ACE inhibitors and angiotensin II receptor antagonists. See also NICE's guideline on hypertension in pregnancy.

<sup>3</sup> Consider an ARB, in preference to an ACE inhibitor in adults of African and Caribbean family origin.

<sup>4</sup> At the time of publication (August 2019), not all preparations of spironolactone have a UK marketing authorisation for this indication.

Abbreviations: ABPM, ambulatory blood pressure monitoring; ACEi, ACE inhibitor; ARB, angiotensin-II receptor blocker; BP, blood pressure; CCB, calcium-channel blocker; HBPM, home blood pressure monitoring.

Figure 1 (continued). Summary of recommendations in the NG136 guideline (NICE, 2019). © NICE 2019. Hypertension in adults: diagnosis and treatment. Available from [www.nice.org.uk/guidance/ng136](http://www.nice.org.uk/guidance/ng136). All rights reserved. Subject to [Notice of rights](#). NICE guidance is prepared for the National Health Service in England. All NICE guidance is subject to regular review and may be updated or withdrawn. NICE accepts no responsibility for the use of its content in this product/publication.