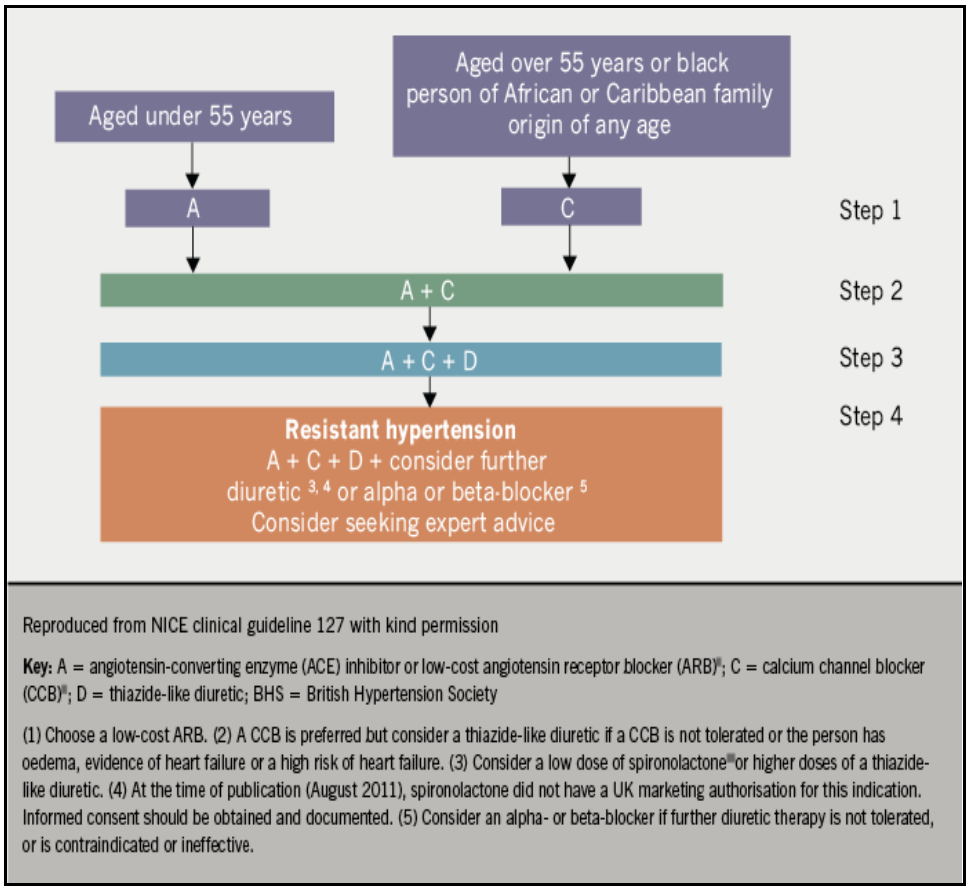
**NICE treatment algorithm for hypertension**

NB: The guidance below is for people without diabetes. For more detailed guidance on the management of BP in patients with diabetes please see NICE Guidance CG 15 and CG 87. For detailed guidance on the management of BP in patients with CKD please see NICE clinical guideline 73

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**Key:** A = angiotensin-converting enzyme (ACE) inhibitor or low-cost angiotensin receptor blocker (ARB)[1]; C = calcium channel blocker (CCB)[2]; D = thiazide-like diuretic; BHS = British Hypertension Society

(1) Choose a low-cost ARB. (2) A CCB is preferred but consider a thiazide-like diuretic if a CCB is not tolerated or the person has oedema, evidence of heart failure or a high risk of heart failure. (3) Consider a low dose of spironolactone[3] or higher doses of a thiazide-like diuretic. (4) At the time of publication (August 2011), spironolactone did not have a UK marketing authorisation for this indication. Informed consent should be obtained and documented. (5) Consider an alpha- or beta-blocker if further diuretic therapy is not tolerated, or is contraindicated or ineffective.

Please refer to more detailed prescribing notes below

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# Hypertension

## NICE CG127; 2011

### Pharmacological treatment

**Table 1: Choice of antihypertensive**

Use in conjunction with treatment steps

| Step | Age < 55 years | Age > 55 years and black people of African/Caribbean descent of any age |
|---|---|---|
| 1 | A | C |
| 2 | A + C | |
| 3 | A + C + D | |
| 4 | Resistant hypertension<br>A + C + D + additional diuretic or alpha-blocker or beta-blocker.<br>Consider seeking specialist advice | |

A = ACE inhibitor or low cost ARB
C = calcium-channel blocker
D = thiazide-like diuretic

### Step 1

- Give antihypertensive drug treatment to all people < 80 years old with stage 1 hypertension and one or more of:
  - target organ damage,
  - established CV disease,
  - renal disease,
  - diabetes,
  - 10-year CV risk ≥20%.
- Give antihypertensive drug treatment to people of any age with stage 2 hypertension.
- For people < 55 years give an ACEI or low cost ARB. If an ACEI is prescribed and not tolerated – give a low cost ARB.
- For people aged > 55 years and black people of African or Caribbean descent of any age give a CCB. If a CCB is unsuitable due to oedema or intolerance, or with/at high risk of heart failure give a thiazide-like diuretic.
- Refer people < 40 years with stage 1 hypertension and no evidence of target organ damage, CV or renal disease or diabetes for specialist evaluation.

### Step 2

- If BP not controlled at step 1; give a CCB with an ACEI/ARB.
- For black people of African or Caribbean descent; give an ARB in preference to an ACEI, in combination with a CCB.
- If a CCB is not suitable due to oedema or intolerance, or with/at high risk of heart failure give a thiazide-like diuretic.
- Review drug treatment to ensure at optimal doses before considering Step 3.

### Step 3

- Give an ACEI or an ARB in combination with a CCB and a thiazide-like diuretic.
- If clinic BP remains ≥140/90mmHg with **optimal drug treatment** – regard this as resistant hypertension and consider step 4 or seek specialist advice.

### Step 4

- For patients with resistant hypertension; add a further diuretic:
  - if serum potassium ≤4.5mmol/L: give spironolactone* ° 25mg once daily,
  - if serum potassium >4.5mmol/L: give a higher-dose thiazide-like diuretic.
- If further diuretic therapy is not tolerated, is contraindicated or ineffective; consider an alpha-blocker or beta-blocker.
- If BP remains uncontrolled with **optimal drug treatment** - seek specialist advice.

*See Summary of Product Characteristics for full prescribing information.
°Unlicensed indication. Obtain and document informed consent.

### Prescribing

- Give patients with isolated systolic hypertension (systolic BP ≥160 mmHg) the same treatment as patients with both raised systolic and diastolic BP.
- For patients > 80 years give the same treatment as patients aged ≥ 55 years. Take account of any comorbidity and concurrent drugs.
- Prescribe:
  - drugs taken once a day if possible,
  - generic drugs where appropriate, to minimise cost.

### ACEI and ARB

- If an ACEI is not tolerated, give a low cost ARB.
- **Do NOT** combine an ACEI with an ARB.

### Diuretics

- Bendroflumethiazide or hydrochlorothiazide are no longer the recommended thiazide-like diuretics for hypertension.
- If a diuretic is started or changed, give:
  - chlortalidone* 12.5 to 25mg once daily, §
  - indapamide* 1.5mg modified-release once daily or 2.5mg once daily.
- For people already taking bendroflumethiazide or hydrochlorothiazide whose BP is stable; continue treatment.
- Use spironolactone* ° with caution in patients with a reduced eGFR due to the increased risk of hyperkalaemia.

### Calcium channel blocker

- CCBs are now the preferred treatment option at step 2 as they are cost effective.

### Beta-blockers

- Beta-blockers are not recommended but can be used in step 1 for:
  - younger people when an ACEI or ARB is contraindicated or not tolerated or,
  - there is evidence of increased sympathetic drive or,
  - in women of child-bearing potential.
- If a patient on a beta-blocker needs a second drug, add a CCB rather than a thiazide-like diuretic to reduce the risk of developing diabetes.

§ Editorial note – chlortalidone is only available in the UK as a 50mg strength tablet. The recommended dose can only be given if tablets are halved or quartered. This is not practical for most patients and would not guarantee a consistent daily dose.

### Monitoring

- Use clinic BP to monitor response to treatment.
- For people with 'white coat' hypertension, use ABPM or HBPM with clinic BP measurements to monitor response to treatment.
- For patients receiving further diuretic therapy, monitor serum sodium, potassium and renal function.

### Blood pressure targets

#### Clinic BP

- Aged < 80 years: aim for BP <140/90mmHg.
- Aged > 80 years: aim for BP <150/90mmHg.

#### ABPM or HBPM

- Aged < 80 years: aim for average BP <135/85mmHg.
- Aged > 80 years: aim for average BP <145/85mmHg.

### NICE Pathway

A 'NICE Pathway' is available to support this guideline. This is an online tool that brings together guidance in an electronic flowchart and allows users to see all NICE guidance on a specific condition across a care pathway:
NICE Pathway: Hypertension