# PRACTICE TOOL Establishing a diagnosis of hypertension

**Measure blood pressure** → **≥ 130/80 mmHg?*** → **Repeat measurement ≥ 2 minutes later** → **≥ 180/110 mmHg?**

- **≥ 180/110 mmHg?** → Consider need for referral or urgent care if there are signs of end organ damage (malignant hypertension) or the patient is pregnant
- **130–179/80–109 mmHg?** → **Check blood pressure in both arms**
  - Repeat if difference is ≥ 20 mmHg
  - Consistent differences ≥ 10 mmHg are associated with an increased CVD risk
- **Provisional diagnosis of hypertension**

## Perform a clinical evaluation to understand the type of patient and their hypertension characteristics

### Patient History

- Duration of hypertension – When was their blood pressure last measured? Was it "normal"?
- Presence of precipitating or aggregating factors, e.g. NSAID use, alcohol, smoking, sedentary behaviour, diet, co-morbidities such as diabetes
- Psychosocial factors, e.g. family, work, anxiety
- Consider the patient's family history of:
  - Premature vascular events
  - Hypertension in first degree relatives
- Symptoms of end organ damage, e.g. chest pain, breathlessness, visual disturbances, confusion or alertness issues, transient focal weakness
- Any features indicative of sleep apnoea

### Physical examination

- Record the patient's height and weight
- Consider taking radial and femoral pulses (see next page)
- Consider listening for renal artery bruit if stenosis is suspected
- Evaluate for signs of end-organ damage, including:
  - Retinopathy
  - Fluid retention (may indicate heart failure)
  - Palpable renal mass

### Further investigations

**Recommended:**

- Calculate five-year CVD risk (see next page)
- General blood tests, including creatinine, eGFR, electrolytes, lipids, $HbA_{1c}$
- Urinalysis
  - Dipstick test in-clinic to detect blood/protein in urine
  - Send sample to lab to evaluate albumin/creatinine ratio
- ECG – look for left ventricular hypertrophy

**Consider if necessary or feasible:**

- Chest x-ray
- Echocardiogram
- Testing for elevated catecholamines, TSH

**Confirm diagnosis of (clinic) hypertension with at least one repeat measurement on a different day**

**Consider using out-of-clinic (at-home or 24h ambulatory)† measuring to rule out:**

**White-coat hypertension** if measurements are consistently elevated despite the absence of obvious risk factors

**Masked hypertension** if clinic blood pressure measurements are consistently normal but there are clinical features consistent with hypertension, e.g. signs of end-organ damage

For more information, see: **https://bpac.org.nz/BPJ/2016/May/blood-pressure.aspx**

* Although previous guidance has suggested a threshold of ≥ 140/90 mmHg for further clinical evaluation, the 2018 Ministry of Health CVD consensus statement suggests that patients with a blood pressure ≥ 130/80 mmHg may be eligible for antihypertensive treatment if they have a five-year CVD-risk of ≥ 15% (see next page).

† For more information on out-of-clinic blood pressure measuring, see: "Out-of-clinic blood pressure testing in primary care" at https://bpac.org.nz/BPJ/2016/May/blood-pressure.aspx

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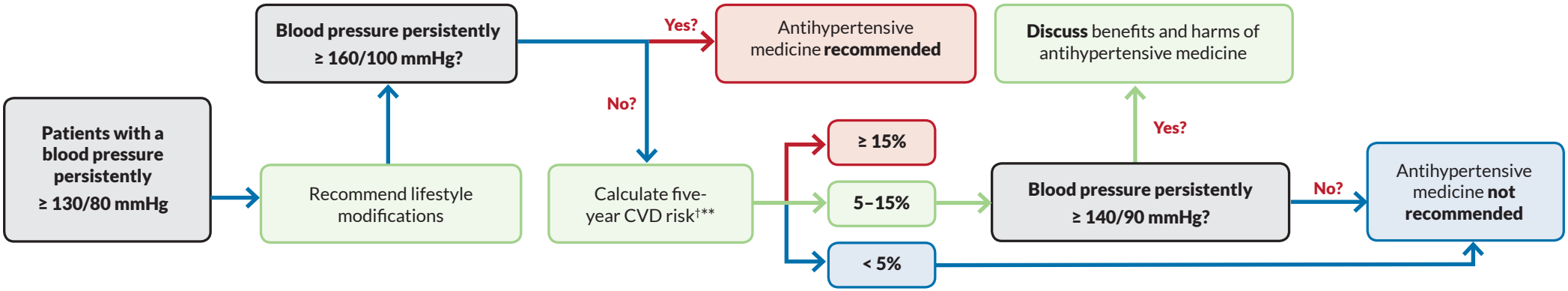
# PRACTICE TOOL Hypertension has been confirmed – *where to from here?*

## Consider clinical features of secondary hypertension – manage these where possible – refer if needed

| | |
|---|---|
| **Sleep apnoea** | • Obesity (most people with sleep apnoea are obese), daytime somnolence, fatigue or morning confusion |
| **Renovascular or primary renal disease** | • Chronically elevated serum creatinine or acute elevation of serum creatinine ≥30% after use of an ACE inhibitor or ARB<br>• Abnormal urinalysis (e.g. protein or blood in urine in the absence of infection)<br>• Elevated blood pressure in patients with diffuse atherosclerosis<br>• Identification of bruit on examination is indicative of renal artery stenosis |
| **Medicine or alcohol use** | • Elevated blood pressure and current use of NSAIDs, COC, corticosteroids, immunosuppressants, amphetamines, atypical antipsychotics<br>• Elevated blood pressure in patients consistently having > 10 standard drinks per week for women and more than 15 standard drinks for men |
| **Primary aldosteronism** | • Unexplained hypokalaemia; incidentally discovered adrenal mass |
| **Hypo-/hyperthyroidism** | • Significantly reduced/increased TSH levels |
| **Cushing syndrome** | • Cushingoid facies ("moon face"), proximal muscle weakness, ecchymoses, central obesity; significantly increased cortisol levels |
| **Aortic coarctation** | • Diminished or delayed femoral pulses and low or unobtainable blood pressure in the legs<br>• Diminished left brachial pulse which is equal to the femoral pulse if the origin of the left subclavian artery is distal to the narrowing of the aorta |
| **Pheochromocytoma** | • Pounding headaches occurring alongside palpitations and sweating; paroxysmal elevations in blood pressure; elevated catecholamines |

## Calculate the patient's five-year CVD risk to assess the need for antihypertensive medicine(s) using NZ Primary Prevention equations*

- Blood pressure measurements are insufficient to guide the use of antihypertensives in isolation† – this decision should consider the patients risk of experiencing a CVD event
- Access the CVD risk tool via *bestpractice* Decision Support on your patient management system. If your practice does not have access to this, contact BPAC Clinical Solutions: **https://bpacsolutions.co.nz/contact/**; alternatively, an online CVD risk calculator, with the option of using the Predict data, is available at: **http://chd.bestsciencemedicine.com/calc2.html**




* In patients aged < 75 years. All blood pressure recommendations are for clinic-based measurements; † A calculation of the five-year CVD risk is still recommended in patients with a blood pressure persistently ≥ 160/100 mmHg to guide other treatment decisions, however, it is not required to qualify the patient for use of antihypertensive medicines; ** See the Ministry of Health CVD consensus guidelines for more information on measuring CVD risk at https://www.health.govt.nz/publication/cardiovascular-disease-risk-assessment-and-management-primary-care. Abbreviations: ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; COC, combined oral contraceptive; CVD, cardiovascular disease; ECG, electrocardiogram; eGFR, estimated glomerular filtration rate; NSAID, non-steroidal anti-inflammatory drugs; TSH, thyroid-stimulating hormone. **References:** 1. Whelton PK, Carey RM, Aronow WS, et al. Circulation. 2018;138:e426-83; 2. Williams B, Mancia G, Spiering W, et al. J Hypertens. 2018;36:2284–309.