

HealthPathways

Hypertension

Practice Point!

Hypertension is mostly managed in primary care. The General Medicine Department does not offer a primary hypertension service. Consider rarer secondary causes and if suspected, refer to the General Medicine Department.

Assessment

- Appropriate and accurate [blood pressure measurements](#).

Blood pressure measurements

Before starting antihypertensive medication, it is recommended that:

- an average of 2 seated blood pressure measurements is taken after resting, for at least 5 minutes.
- blood pressure measurements are repeated on 3 separate occasions.
- the correct size blood pressure cuff is used.

- Consider [ambulatory blood pressure monitoring](#) or "home" monitoring.

Consider **ambulatory blood pressure monitoring** (ABPM):

- if blood pressure shows unusual variability
- if blood pressure is resistant to multiple-therapy
- in suspected "white coat" hypertension
- to evaluate treatment efficacy over 24 hours

Use validated machines, not wrist monitors. or refer to either:

- [Community Cardiac Nurse Specialist](#), or
- Medical Investigations Unit (MIU), fax the [MIU referral form](#) to **(03) 687-2232**.

Once hypertension is confirmed:

1. Check history and family history for vascular risk factors e.g., stroke, TIA, MI, angina, diabetes, peripheral vascular disease.
2. Consider [common causes of hypertension](#).

Common causes of hypertension

- High alcohol intake
- Sleep apnoea
- Obesity
- Medications (e.g., combined oral contraceptives, glucocorticoids, NSAIDs, liquorice)
- White coat effect

3. Examination:

- Cardiovascular including peripheral pulses and bruits.
- Consider checking for radio-femoral delay, renal bruits, and endocrine causes such as Cushing's syndrome (see rarer secondary causes, below).

4. Look for any end organ damage e.g., fundoscopy, urinalysis, and ECG (for LV hypertrophy).

5. Other investigations - fasting lipids, fasting blood glucose, creatinine, sodium, potassium, calcium.

6. Assess [cardiovascular risk](#).

Assess cardiovascular risk

- This can help determine whether medications are needed.
- It is important if associated with conditions such as diabetes, cardiovascular disease, cerebrovascular disease.
- See the [NZ Primary Care Handbook 2012 – Cardiovascular Risk Charts](#), or the online [Your Heart Forecast Calculator](#).

7. If severe or resistant hypertension, especially in younger patients, consider [rarer secondary causes](#).

Rarer secondary causes:

- renal causes e.g., renal disease, renal artery stenosis
- coarctation of the aorta
- endocrine causes e.g., hyperaldosteronism, Cushing's syndrome, pheochromocytoma

Consider the following tests to look for secondary causes (e.g., if patient <40 years, or has resistant hypertension or clinical features that suggest a secondary cause):

Suspected secondary cause	Indications	Investigations
Pheochromocytoma	episodic palpitations / flushes with labile blood pressure	24 hour urine for catecholamines and metanephrines (before treatment, as treatment may modify results)
Renal disease	family history of kidney disease, palpable kidneys, renal bruit, suspected urinary obstruction	Renal ultrasound
Hyperaldosteronism	hypokalaemia despite ACEi	Ambulatory morning plasma aldosterone and renin activity
Cushing's Syndrome		24 hour urinary cortisol, or 1 mg overnight dexamethasone suppression test or a series of midnight salivary cortisol samples

Management




1. The decision to start blood pressure lowering medication depends on many factors and is not covered in this pathway. See **References** (below) for more information.
2. All need lifestyle interventions e.g., [smoking cessation](#), [exercise](#), [dietary advice](#), [dietary salt reduction](#), reduced alcohol intake.

Dietary advice

- HealthInfo –  [How to Lose Weight](#)
- National Heart Foundation – [Healthy Eating Section](#) 
- NZ Primary Care Handbook 2012 – [New Zealand Cardioprotective Dietary Pattern](#) 


3. Choice of  [blood pressure lowering medication](#).


Blood pressure-lowering medication

- Recent studies have shown that the amount of blood pressure lowering is more important than the choice of anti-hypertensive drug.
- Initial choices can be a  [thiazide](#), an  [ACE inhibitor](#), or a  [calcium channel blocker](#), unless there is a specific indication for a particular class of drug.


For full prescribing details, see the NZ Formulary –  [calcium antagonists](#)

For full prescribing details, see the NZ Formulary –  [ACE inhibitors](#)

For full prescribing details, see the NZ Formulary –  [thiazides](#)

- All three can be used in combination if monotherapy is inadequate.
- Reserve  [beta blockers](#) for when there is inadequate blood pressure control with the other three main classes, or if there are specific indications, i.e.:

For full prescribing details, see the NZ Formulary –  [beta blockers](#)

- Women of childbearing potential
- Patients with:
 - evidence of increased sympathetic drive
 - an intolerance of ACE inhibitors
 - heart disease
- More than one drug is often required to achieve optimum blood pressure levels.
- Low dose combinations can maximize effectiveness and minimize side effects.
- See also: [ACE Inhibitor Dosing in Renal Impairment](#),  [NZF - Hypertension and Heart Failure](#).

4. If patient is pregnant, see [Hypertension \(pre-existing\) in Pregnancy](#), or if postpartum,  [manage accordingly](#).

Post-partum management of essential hypertension

These medications are considered safe in the postpartum period and are compatible with breast feeding:

- [Labetalol](#)

For full prescribing details, see the NZ Formulary – [labetalol](#)

My Medicines – [labetalol](#)

- [Nifedipine](#)

For full prescribing details, see the NZ Formulary – [nifedipine](#)

My Medicines – [nifedipine](#)

- [Enalapril](#)

For full prescribing details, see the NZ Formulary – [enalapril](#)

My Medicines – [enalapril](#)

Continue anti-hypertensive treatment as dictated by the blood pressure. If reducing medication, do so gradually.

Discuss lifestyle factors to reduce blood pressure.

Consider investigations to assess long-term cardiovascular risk.

5. Consider [possible secondary hypertension](#).

Consider **possible secondary hypertension** if:

- Severe or resistant hypertension i.e., the persistence of hypertension despite concurrent use of three antihypertensive agents of different classes.
- An acute rise in blood pressure over a previously stable value.
- Age < 40 years with no family history and non-obese.
- Malignant hypertension e.g., patients with severe hypertension and signs of end-organ damage such as acute renal failure, retinal hemorrhages or papilledema, heart failure, or neurologic disturbance.
- Proven age of onset before puberty.

Referral

For ambulatory blood pressure monitoring (ABPM) refer to either:

- **Community Cardiac Nurse Specialist**, or
- Medical Investigations Unit (MIU) - fax the [MIU referral form](#) to **(03) 687-2232**.

Refer to the **General Medicine Department** if:

- suspected secondary hypertension, to investigate the cause.
- severe or uncontrolled hypertension associated with renal disease or failure.
- evidence of end-organ damage.

Your patient may also wish to consider [private referral](#).

Clinicians listed on:



Healthpages [↗](#)



Healthpoint [↗](#)

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Drop-box shared with other pathway(s) – ask your writer for details

Note: Offer all referral options to all patients, even if they are eligible for DHB treatment. The HDC Code of Health and Disability Services Consumers' Rights Regulation 1996 Clause 2 Right 7: the right to make an informed choice and give informed consent.

Information

[Clinical Resources](#)

Education

BMJ Learning – [The Royal New Zealand College of General Practitioners Modules](#) [↗](#) [requires registration] – Managing Hypertension in Primary Care

Further information

BPAC – [Hypertension in Adults: The Silent Killer](#) [↗](#)

[Patient Information](#)

- HealthInfo:
 - [High Blood Pressure \(Hypertension\)](#)
 - [How to Reduce Your Salt Intake](#)

- Heart Foundation Australia – [Blood Pressure Information and Resources](#) (includes information on hypertension, self-measurement of blood pressure, and blood pressure recording chart for patients)
- Heart Foundation New Zealand – [Eat Less Salt](#)

Sources

Select bibliography

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- Turnbull F, Neal B, Ninomiya T, Algert C, Arima H, Barzi F, et al. [Effects of different regimens to lower blood pressure on major cardiovascular events in older and younger adults: meta-analysis of randomised trials](#). BMJ. 2008;336(7653):1121-3.

Page Information

Other Regions

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