



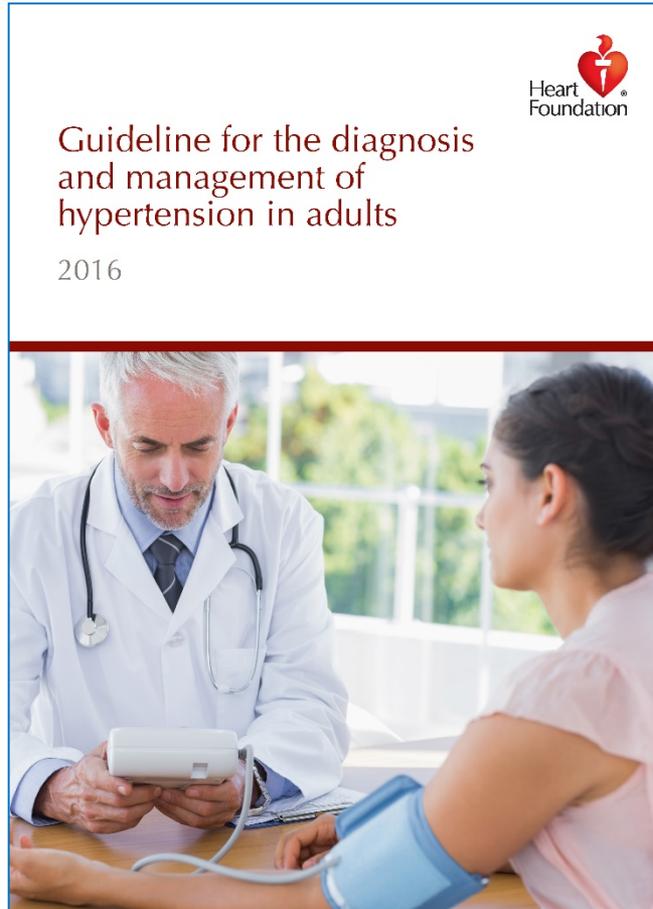
Guideline for the diagnosis and management of hypertension in adults - 2016

Guideline Aim

- To provide health professionals with the latest evidence for controlling blood pressure
 - including methods for diagnosis, monitoring, and effective treatment strategies for patients with hypertension with and without co-morbidities

Background to guideline

- Changing evidence
- High quality studies
- Large systematic reviews and randomised controlled trials
- Updated practice considerations and recommendations



What's new

- National Health and Medical Research Council levels of evidence
- Primary and secondary prevention focus on the contemporary management of hypertension in the context of an aging population with increasing comorbidities such as stroke and TIA, chronic kidney disease, diabetes, myocardial infarction, chronic heart failure, peripheral artery disease, and obstructive sleep apnoea
- Advice on new areas including out-of-clinic blood pressure measurement using ambulatory or home procedures, white coat hypertension and blood pressure variability
- New evidence for a target blood pressure of <120 mmHg in selected high cardiovascular risk populations, with close follow-up to identify adverse effects including hypotension, syncope, electrolyte abnormalities and acute kidney injury

Prevalence

In 2012-13

- 6 million Australians (34%) aged 18 years and over are hypertensive or taking antihypertensive medication [1]
- 4.1 million Australians had uncontrolled or untreated hypertension [1]
- At least 25% of Aboriginal and Torres Strait Islander adults have untreated hypertension [2]
- Higher rates with
 - Lower household income
 - Regional areas [3]

Definition and Classification

- Blood pressure is a continuous variable related to risk
- Ranges are used arbitrarily to aid both diagnosis and management decisions

| Diagnostic category | Systolic (mmHg) | | Diastolic (mmHg) |
|--|------------------------|--------|-------------------------|
| Optimal | <120 | and | <80 |
| Normal | 120-129 | and/or | 80-84 |
| High-normal | 130-139 | and/or | 85-89 |
| Grade 1 (mild) hypertension | 140-159 | and/or | 90-99 |
| Grade 2 (moderate) hypertension | 160-179 | and/or | 100-109 |
| Grade 3 (severe) hypertension | ≥180 | and/or | ≥110 |
| Isolated systolic hypertension | >140 | and | <90 |

Absolute CVD Disease Risk

- Management of hypertension should always consider absolute CVD risk [4]
- Combines multiple risk factors into a single measure of overall cardiovascular risk
- Systematic approach includes detailed medical history; cholesterol and smoking status
- Clinic reading is the only pressure measure validated to be used when using absolute CVD risk calculator
- Expressed as a percentage, likelihood of a cardiovascular event over 5 years
- Valid for Primary prevention only - Not appropriate for people with known cardiovascular disease
- Recommended for Australians > 45 years, Aboriginal and Torres Strait Islander > 35years
- www.cvdcheck.org.au

4. National Vascular Disease Prevention Alliance. Guidelines for the management of absolute cardiovascular disease risk. Melbourne: NVDPA, 2012.

Evaluation and Diagnosis

- Include blood pressure measurements, medical history, physical examination, assessment of absolute Cardiovascular (CVD) risk (if appropriate), laboratory investigations, and when required further diagnostic tests
- Assessed based upon multiple BP measurement; separate occasions 1-2 weeks apart; sooner depending upon severity
- Measuring devices include mercury and aneroid sphygmomanometer and electronic devices
- Clinic measures may not be sufficient to base treatment decisions on
- Ambulatory and Home Blood pressure monitoring assist in building an accurate blood pressure profile

Evaluation and Diagnosis

Clinical indications for out of clinic blood pressure measurements

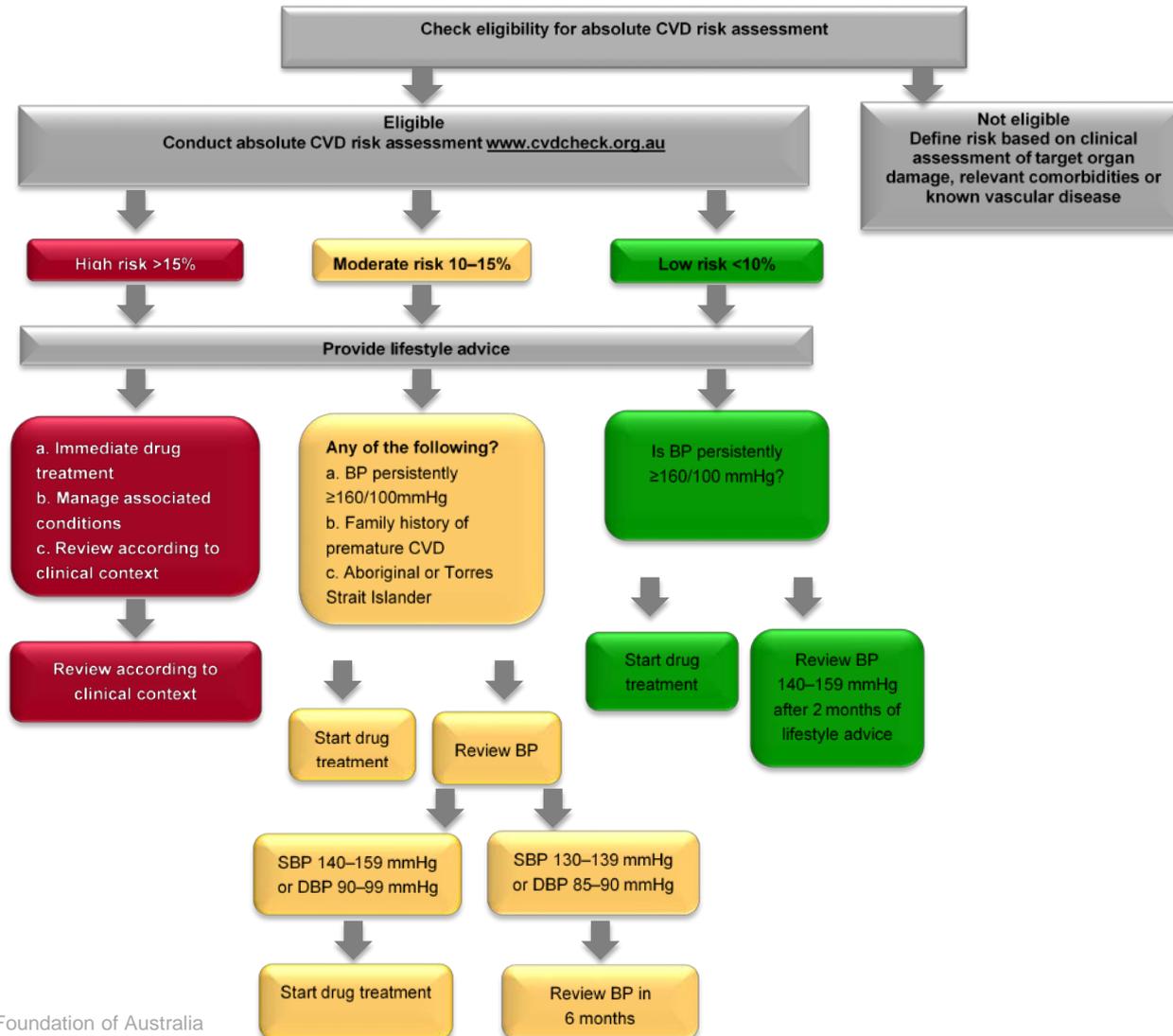
- Suspicion of or identified white coat hypertension
- Suspicion of masked hypertension
- Marked variability of clinic or clinic and home blood pressure measurements
- Autonomic, postural, post-prandial and drug induced hypotension
- Identification of true resistant hypertension
- Suspicion of nocturnal hypertension or absence of nocturnal dipping, for example in patients with sleep apnoea, chronic kidney disease, or diabetes

Recommendations

Methods of measuring blood pressure

- If clinic blood pressure is $\geq 140/90$ mmHg, or hypertension is suspected, ambulatory and/or home monitoring should be offered to confirm the blood pressure level
- Procedures for ambulatory blood pressure monitoring should be adequately explained to patients. Those undertaking home measurements require appropriate training under qualified supervision
- Finger and/or wrist blood pressure measuring devices are not recommended
- Clinic blood pressure measures must be used in absolute cardiovascular risk calculators

Treatment strategy for patients with newly diagnosed hypertension



Lifestyle advice

- Recommended for all patients with or without hypertension and regardless of drug therapy
- Can be structured and tailored to individual need
- Use of motivational interviewing and the 5A's (ask, assess, advise, assist, arrange) approach
- Advice regarding smoking cessation, nutrition, alcohol and physical activity
- Review progress regularly
- Refer to other health professionals for ongoing support and follow-up where appropriate

Recommendations

Treatment strategies & treatment targets for patients with hypertension

- Lifestyle advice
- Low absolute CVD risk (<10% 5 year risk) with persistent blood pressure $\geq 160/100$ mmHg antihypertensive therapy should be started
- Moderate absolute CVD risk (10-15% 5 year risk) with persistent blood pressure ≥ 140 mmHg and/or ≥ 90 mmHg antihypertensive therapy should be started
- Patients with uncomplicated hypertension should be treated to a target of $<140/90$ mmHg or lower if tolerated
- In selected high absolute CVD risk populations a more intense treatment can be considered, aiming to a target of less than 120mmHg systolic blood pressure can improve cardiovascular outcomes.
- **Close follow up of these patients is recommended to identify treatment related adverse effects**

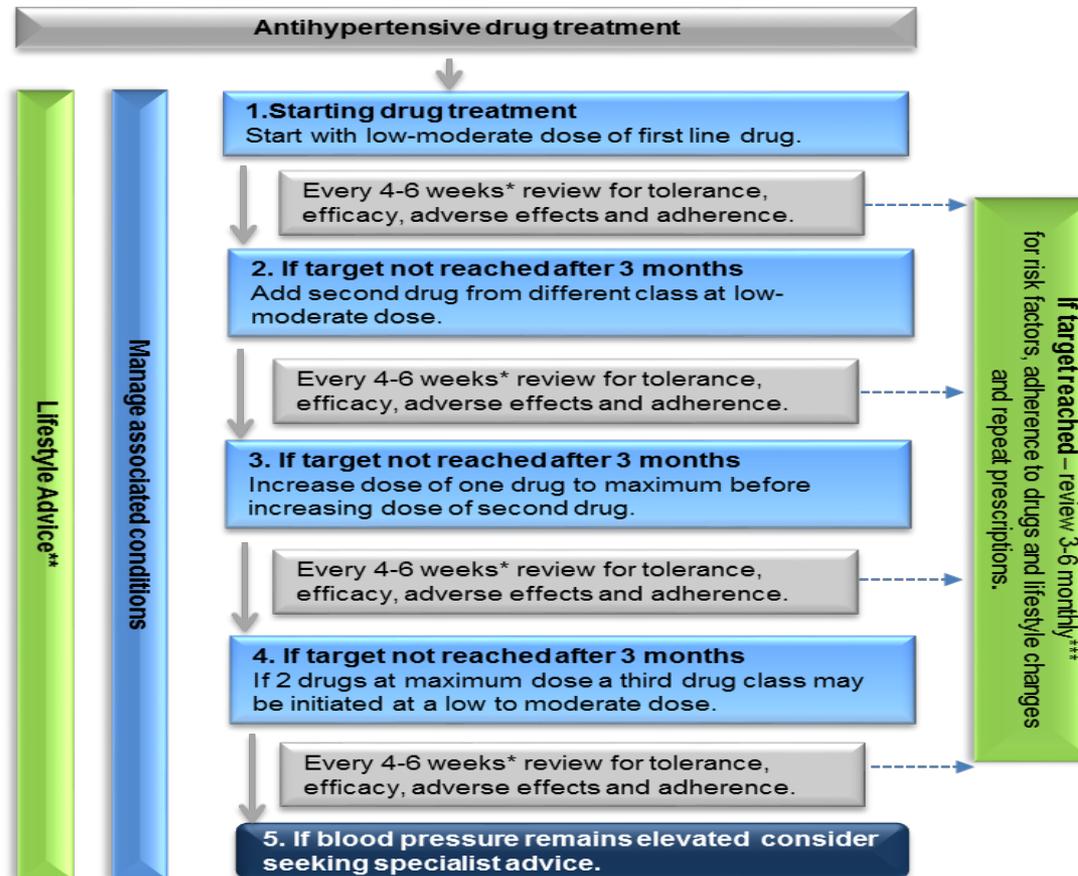
Recommendations

Treatment strategies & treatment targets for patients with hypertension

- In uncomplicated hypertension ACE inhibitors or ARBs, calcium channel blockers, and thiazide diuretics are all suitable first line antihypertensive drugs, either as monotherapy or combination unless contraindicated.
- The balance between efficacy and safety is less favourable for beta blockers than other first-line antihypertensive drugs. Thus beta-blockers should not be offered as a first-line drug therapy for patients with hypertension not complicated by other conditions.
- ACE inhibitors and ARBs are not recommended in combination due to the increased risk of adverse effects.

Antihypertensive therapy

Drug Treatment and Monitoring



Treatment targets and strategies for selected co-morbidities

- Stroke and Transient Ischaemic Attack
- Acute stroke
- Chronic Kidney Disease
- Diabetes
- Myocardial Infarction
- Chronic heart failure
- Peripheral Arterial Disease

Treatment strategies for associated conditions

- White- coat or masked hypertension
- Older persons
- Pregnancy
- Blood pressure variability
- Treatment resistant hypertension
- Obstructive Sleep Apnoea

Strategies to Maximise Adherence

- Communication
- Individualise Advice
- Maintain motivation

Managing other cardiovascular risk factors

- Lipid lowering therapy
- Antiplatelet therapy

Patients' perspectives

- Awareness of the factors influencing adherence
- Address patients understanding of the cause
- Explain the lack of symptoms
- Address any concerns about adverse effects

Other guidelines

Targets

| | Heart Foundation Hypertension | Absolute CVD risk [4] | Secondary prevention of Coronary Heart Disease [5] | Secondary Prevention of CVD in Type 2 Diabetes [5] |
|-------------------------|--|-----------------------|--|--|
| General target | <140/90 lower if tolerated | ≤140/90 | NA | NA |
| CVD | <140/90 Peripheral Vascular Disease | NA | <130/80 CHD | ≤130/80 |
| Diabetes | <140/90 | ≤130/80 | NA | ≤130/80 |
| CKD | <140/90 lower if tolerated | ≤140/90 | NA | NA |
| Micro/Macro albuminuria | | ≤130/80 | NA | NA |

NA = Not applicable

4. National Vascular Disease Prevention Alliance. Guidelines for the management of absolute cardiovascular disease risk. Melbourne: NVDPA, 2012. 5. National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand. Reducing risk in heart disease: an expert guide to clinical practice for secondary prevention of coronary heart disease. Melbourne: National Heart Foundation of Australia, 2012.

Other guidelines

Treatment strategies with confirmed hypertension

| | Heart Foundation Hypertension | Absolute CVD risk [4] |
|----------------------------|---|---|
| Low absolute CVD risk | <p>If BP persistently $\geq 160/100$, give lifestyle advice and start BP treatment</p> <p>If BP 140-159, give lifestyle advice and review in 2 months</p> | <p>If BP persistently $\geq 160/100$, give lifestyle advice and start BP treatment</p> |
| Moderate absolute CVD risk | <p>If BP persistently $\geq 160/100$ or SBP 140-159 or DBP 90-99, give lifestyle advice and start treatment</p> <p>If SBP 130-139 or DBP 85-90, review in 2 months</p> | <p>If BP persistently $\geq 160/100$, give lifestyle advice and start treatment</p> <p>If $< 160/100$, give lifestyle advice and review 3-6 months; consider BP treatment if no change</p> |
| High absolute CVD risk | Start BP treatment | Start BP treatment |

Committee membership

| Member | Organisation representing |
|-------------------------------|---|
| Professor Len Arnolda (Chair) | |
| Professor Craig Anderson | National Stroke Foundation |
| Professor Graeme Hankey | National Stroke Foundation |
| Professor Vlado Perkovic | Kidney Health Australia |
| Dr Faline Howes | Royal Australian College of GPs |
| Diane Cowley | Hypertension Nurses Association |
| Professor Markus Schlaich | High Blood Pressure Research Council of Australia |
| Mr Les Leckie | |
| Dr John Dowden | |
| Dr Genevieve Gabb | |
| Professor Jonathon Golledge | |
| Professor Arduino Mangoni | |
| Professor Nicholas Zwar | |

Kidney Health Australia, National Stroke Foundation and the High Blood Pressure Research Council of Australia have endorsed the Guideline. The RACGP have recommended the Guideline for approval as an Accepted Clinical Resource.

The Guideline is available for download from the Heart Foundation website

www.heartfoundation.org.au/for-professionals/clinical-information/hypertension