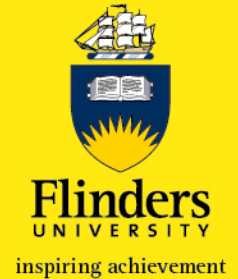


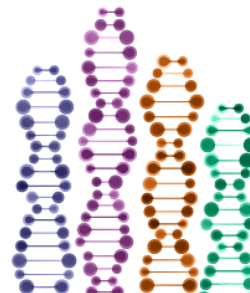
Management of Hypertension

Clinical update



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The Royal Australasian
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RACP
Congress
2016

Adelaide
Convention Centre
16-18 May 2016

Conflict of interest

- **National Blood Pressure and Vascular Disease Advisory Committee (National Heart Foundation of Australia)**
 - National hypertension guidelines (2008, 2010 and 2016)
- **Expert Advisory Panel, Australian College of Emergency Medicine**
 - Guidelines on thrombolysis in acute stroke (2016)



Contents

- **2016 Australian Hypertension Guidelines:**
 - **Key purpose and features**
 - **Types of hypertension addressed**
 - **Decisions regarding pharmacological treatment**
 - **Treatment targets (blood pressure)**
- **Summary and conclusions**

2016 Australian hypertension guidelines

- **Previous guidelines - 2008 (update 2010)**
- **National Blood Pressure and Vascular Disease Advisory Committee**
 - 13 committee members, including chair
- **National Heart Foundation**
 - 2 administrative/managerial staff
- **External organization (literature review)**
- **Endorsed by 7 national organizations and professional societies**

Key purpose, features and types of hypertension

- To provide healthcare professionals, *particularly those working in primary care and community services*, with the latest evidence for controlling BP
 - Recommendations on diagnosis and monitoring
 - Treatment strategies in patients with *essential hypertension*, with or without comorbidities
- *Emphasis on absolute cardiovascular risk assessment*
 - Treatment initiation
 - Target BP
- Extensive literature review, prioritizing data from large systematic reviews and RCTs
 - *Clinical outcomes rather than BP lowering effects*

Areas not covered

- **Assessment and management in people <18 years**
- **Accelerated hypertension in emergency care settings**
- **Specialist management of secondary hypertension**
- **Hypertension in pregnancy**

Hypertension diagnosis and management in primary care in Australia



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ORIGINAL ARTICLE

Prevalence, detection and drug treatment of hypertension in a rural Australian population: the Greater Green Triangle Risk Factor Study 2004–2006

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- **N=3,320, age 25-74 years, participation rate 49%**
- **One third had hypertension ($\geq 140/90$ mmHg)**
 - **~ Half of those were treated**
 - **~ Half of those treated were controlled ($< 140/90$ mmHg)**

Barriers to diagnosing and managing hypertension

A qualitative study in Australian general practice

Table 2. Barriers to diagnosing and managing hypertension

- Clinical uncertainty about the true underlying BP and a distrust of the technology used to measure it
- Distrust toward the evidence underpinning the management of hypertension
- Patient age, gender and comorbidity
- Perceived patient attitude
- Clinical inertia
- Patient centred care
- Systems issues

Management of hypertension in primary care in Australia

Table 2. Main themes identified

Uncertainty about BP measurement

'Do you use the electronic one? Do you do it on one reading? Do you send people home with 24 hour BP monitors? Do you send people home with a monitor (to measure their BP) three times a day for a week? What is the best standard to do it?' [Female GP, focus group 2, aged 36–45 years]

Achieving consensus in practice

'Standardisation of measurement is something that we don't have within our practice. We all have different techniques and different thoughts about what's appropriate.' [Male registrar, focus group 3, aged 46–55 years]

Accommodating patient differences

'Your approach is different too depending on the patient. You have patients who tolerate coming to the doctor. They tolerate having bloods, they tolerate everything, but you also have those that don't ... you've got to think what's my best chance of getting to the outcome here, so you might change what you normally do.' [Female GP, focus group 1, aged 26–35 years]

Addressing systematic barriers

'... if I didn't have to do two team care arrangements so people could get free podiatry ... I could sit and spend a lot longer talking to patients about their blood pressure ...' [Male GP, focus group 1, aged 46–55 years]

Table 3. Specific actions recommended by GPs to improve hypertension management at various levels

GP level

- List of available guidelines
- Clarification of best technique to measure, record and interpret BP

Home BP monitoring

- Digital BP machine calibration guidelines
- List of validated BP machines
- Automatic BP machine with memory function
- Patient self management guidelines

Ambulatory BP monitoring

- Evidence for validity
- Validity in different patient groups
- Interpretation guidelines

Mercury sphygmomanometers

- Calibration guidelines

White coat hypertension

- Definition, diagnosis, assessment of risk

Investigation guidelines for raised BP

Cardiovascular risk assessment tool

- How to use/interpret results

List of medication costs

Patient level

- Patient education materials

Systems level

- Funding for home and ambulatory BP monitors
- Recognition of complexity of good BP care provision through Medicare
- Broader public health policy approach for BP and other cardiovascular risk factors

Main issues identified

- **Sub-optimal management and monitoring**
- **Significant uncertainty:**
 - **BP measurement protocols**
 - **Standardization**
 - **Interpretation of BP readings (and CV risk)**
 - **Treatment decisions**

New guidelines - 2016

Determining the need to treat and the type of treatment

- ***If clinical BP \geq 140/90, ABPM or HBP should be offered to confirm the diagnosis***
- **Management - traditional approach**
 - Blood pressure thresholds
- **Suggested approach in the new guidelines**
 - Assessing absolute CVD risk (www.cvdcheck.org.au)
 - ***Primary prevention***
 - **Australians >45 years (ATSI >35 years) and <75 years**
 - ***Use clinical BP***
 - ***Algorithms not validated for ambulatory, automated, or home BP measures***

Recommendations for treatment

- **Low risk (<10%) and persistent BP \geq 160/100 mmHg**
 - **Start BP lowering treatment**
- **Moderate risk (10-15%) and persistent BP \geq 140/90 mmHg**
 - **Start BP lowering treatment**
- **High risk (>15%)**
 - **Start BP lowering treatment, regardless of BP**

Antihypertensive drug treatment

1. Starting drug treatment

Start with low-moderate dose of first line drug.

Every 4-6 weeks* review for tolerance, efficacy, adverse effects and adherence.

2. If target not reached after 3 months

Add second drug from different class at low-moderate dose.

Every 4-6 weeks* review for tolerance, efficacy, adverse effects and adherence.

3. If target not reached after 3 months

Increase dose of one drug to maximum before increasing dose of second drug.

Every 4-6 weeks* review for tolerance, efficacy, adverse effects and adherence.

4. If target not reached after 3 months

If 2 drugs at maximum dose a third drug class may be initiated at a low to moderate dose.

Every 4-6 weeks* review for tolerance, efficacy, adverse effects and adherence.

5. If blood pressure remains elevated consider seeking specialist advice.

If target reached – review 3-6 monthly**
for risk factors, adherence to drugs and lifestyle changes
and repeat prescriptions.

Lifestyle Advice**

Manage associated conditions

Choice of pharmacological treatment

- **Based on available evidence (clinical outcomes)**
- **Suitable first-line drugs (noting any possible contraindications or comorbidities)**
 - **Thiazide diuretics**
 - **Calcium channel blockers**
 - **ACE inhibitors**
 - **ARBs**
- **Combination therapy**
 - **ACE inhibitors and calcium channel blockers are superior to thiazide diuretics combined to either an ACE inhibitor or a beta blocker**

Treatment targets (2008-2010)

Patient group	Target (mmHg)
People with proteinuria >1 g/day (with or without diabetes)	< 125/75
People with associated condition/s or end-organ damage: <ul style="list-style-type: none">• Coronary heart disease• Diabetes• Chronic kidney disease• Proteinuria (> 300 mg/day)• Stroke/TIA	< 130/80
People with none of the following: <ul style="list-style-type: none">• Coronary heart disease• Diabetes• Chronic kidney disease• Proteinuria (> 300 mg/day)• Stroke/TIA	< 140/90 or lower if tolerated

Treatment targets (2016)

- **Low-moderate risk (uncomplicated hypertension)**
 - $\leq 140/90$ mmHg (*clinic BP*)
- ***High-risk***
 - $\leq 140/90$ mmHg (*clinic BP*)
 - ***Target <120 mmHg SBP (? clinic) if***
 - *Deemed safe on clinical grounds*
 - *Drug therapy is well tolerated*
 - *Recommendation subject to review*

BP treatment targets in high-risk patients

- Arguedas JA et al, Cochrane Database Syst Rev 2009;(3):CD004349
 - Treating patients to lower than standard BP targets, $\leq 140/90-100$ mmHg, does not reduce mortality or morbidity
 - Different methods to measure BP
 - Sensitivity analysis in diabetes and CKD showing similar results
- ACCORD (type 2 diabetes, 2010)
 - Targeting SBP < 120 mmHg, as compared with < 140 mmHg, did not reduce cardiovascular events
 - More adverse events in the intensive-treatment group
 - Average of three measurements after 5 min (automatic device)
- SPRINT (*high-risk patients without T2D, stroke, HF, proteinuria, 2015*)
 - Targeting SBP < 120 mm Hg, as compared with < 140 mm Hg, reduced cardiovascular events and death
 - Higher rates of some adverse events in the intensive-treatment group
 - Seated BP after a rest period (automated or manual devices)

Automated BP vs. clinical (manual) BP vs. ABPM

Table 2 | Mean (SD) blood pressure (BP) taken in physicians' office before and after enrolment into study and baseline mean awake ambulatory BP recorded between two office visits for patients randomised to intervention (automated office BP) and control (manual office BP) groups, with estimated mean differences (95% confidence interval) between BP readings

Measurement	Automated office BP group (n=299)	Conventional manual office BP group (n=249)
Last routine manual office BP (mm Hg)	149.5 (10.8)/81.4 (8.3)	149.9 (10.7)/81.8 (8.5)
Office BP (mm Hg) after enrolment	135.6 (17.3)/77.7 (10.9)	141.4 (14.6)/80.2 (9.5)
Difference from last routine office BP (mm Hg)	-13.9 (-11.8 to -16.1)***/-3.7 (-2.5 to -4.8)***	-8.5 (-6.5 to -10.4)***/-1.6 (-0.4 to -2.8)**
Awake ambulatory BP (mm Hg)	133.2 (12.4)/74.4 (9.8)	135.0 (13.1)/75.9 (10.0)
Difference from last routine office BP (mm Hg)	-16.3 (-14.5 to -18.1)***/-7.0 (-5.8 to 8.1)***	-14.9 (-12.9 to -17.0)***/-5.9 (-4.6 to 7.2)***
Difference from post-enrolment office BP (mm Hg)	-2.3 (-0.31 to -4.3)*/-3.3 (-2.2 to -4.4)***	-6.5 (-4.3 to -8.6)***/-4.3 (-2.9 to 5.8)***

Automatic vs. clinical: - 13.9 mmHg SBP



Cardiovascular outcomes at different on-treatment blood pressures in the hypertensive patients of the VALUE trial

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- ***High-risk hypertensive patients***
- ***BP measured with a mercury sphygmomanometer***

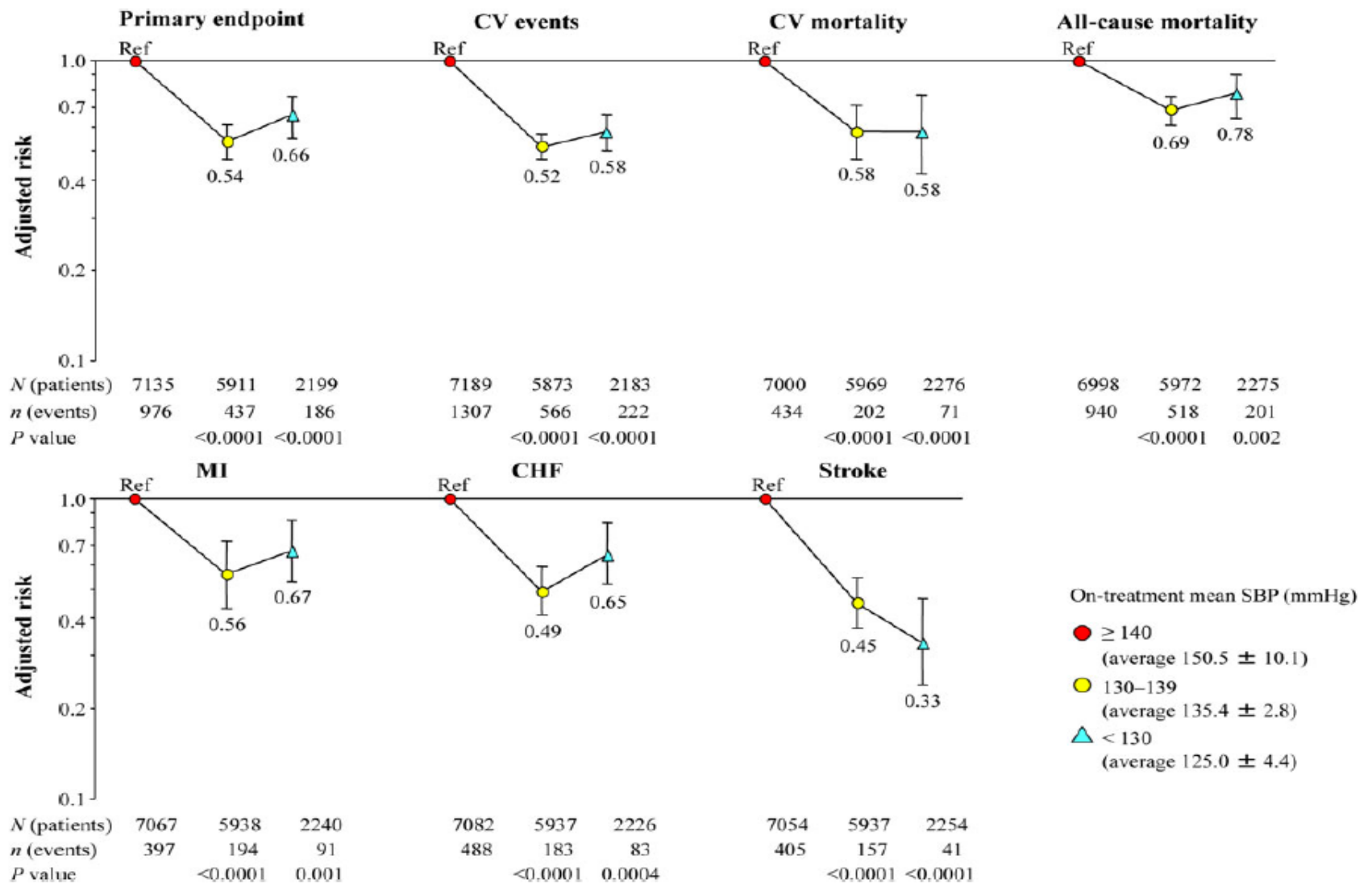


Figure 4 Hazard ratio for outcomes according to the mean systolic blood pressure during the treatment period, i.e. a systolic blood pressure ≥ 140 , $130-139$, and < 130 mmHg. The group of patients with a systolic blood pressure ≥ 140 mmHg was taken as reference (Ref). Hazard ratio was adjusted for baseline covariates as in Figures 2 and 3. The risk scale is logarithmic. *N* and *n* at the bottom refer, respectively, to the number of patients and events in each group; *P* values are shown vs. Ref. Numbers in parenthesis at the bottom right refer to the average on-treatment systolic blood pressure in each group. The diastolic blood pressure values for the groups with systolic blood pressure ≥ 140 , $130-139$, and < 130 mmHg were 82.8 ± 7.8 , 79.9 ± 5.9 , and 77.2 ± 6.0 mmHg, respectively. Other symbols as in Figure 3.

Issues with available evidence for BP targets in high-risk patients

- **Different populations and exclusion criteria**
 - ? Impact of frailty
 - Diabetes
- **Different methods for measuring BP**
- **Differences between drugs and treatment regimens?**
- **SPRINT post-hoc subgroup analyses awaited**
 - Age (>75 years); ? 85+

Guideline recommendations in clinical practice (primary care)

- **Key issues**
 - Lack of consistent approach with BP measurement
 - Method (manual vs. automatic)
 - Number of measurements
 - Setting (e.g. quiet room, resting period before measurements)
 - Diagnosis is likely to require non-clinical measurements (e.g. ABPM), *not to be used for CVD risk estimation*
 - Significant proportion (~50%) of those receiving treatment have uncontrolled BP
- *Suggested (personal) approach to target BP, pending further evidence*
 - *Aim for BP <140/90 mmHg regardless of risk and method of measurement*

Summary

- **2016 Australian National Hypertension Guidelines**
 - Key purpose and features
 - Main types of hypertension addressed
 - Tools for decision making
 - Issues with treatment targets and applicability in clinical practice (primary care)