2027 Australian Guideline for the Diagnosis and Management of Elevated Blood Pressure and Hypertension in Adults Supplementary document

1. Methodology

1.1 Framework and approach

The guideline was developed using the GRADE-ADOLOPMENT framework, a structured methodology that enables guideline groups to adopt, adapt, or develop de novo recommendations using existing high-quality guidelines and evidence syntheses. This approach supports the timely, rigorous and transparent use of published international and national guidance and evidence syntheses to inform, adapt, or develop new recommendations suitable for local application, while ensuring the final recommendations are appropriate for the local Australian context, including population characteristics, clinical practice patterns, and health system factors. In line with this framework, the guideline development group used GRADE Evidence-to-Decision (EtD) principles to consider the balance of benefits and harms, patients' values and preferences, resource use, equity, acceptability, and feasibility when formulating recommendations.

1.2 Funding and collaboration

The guideline was funded solely by the Heart Foundation. A formal collaboration agreement was established with the Heart Foundation, Stroke Foundation and Hypertension Australia, reflecting the shared interests and priorities of these organisations in improving hypertension care. There was no industry involvement in the production of this guideline.

1.3 Governance and guideline development group

The guideline was developed under a multi-tiered governance structure designed to provide strategic oversight, clinical and methodological expertise, and meaningful consumer and community involvement. The roles and responsibilities of each group are described below.

Project steering committee (PSC)

The PSC provides overall leadership and strategic direction for the project. Its responsibilities are to:

- provide leadership and strategic oversight of project scope and inclusion and exclusion criteria
- provide strategic oversight of all funding, sponsorship, partnership, and collaboration opportunities
- oversee the management of conflicts of interest and resolve any disputes between guideline groups
- commit resources to the activities and promotion of the project.

Co-chairs of the Expert Steering Group (ESG)

The Co-Chairs lead the ESG, ensuring that the guideline recommendations align with the evidence and with clinical practice in Australia, and that all disputes are settled fairly. Their responsibilities are to:

- contribute to the drafting of the terms of reference and the formation of the guideline development groups
- manage ESG meetings effectively, facilitating group processes and promoting balanced participation of all members
- support effective consumer involvement
- negotiate with group members, manage conflicts of interest, and resolve conflict during ESG meetings
- ensure the ESG remains focused and task-oriented
- delegate work and coordinate the output of the ESG.

Expert Steering Group (ESG)

The ESG comprises leading professionals and consumers who provide critical expertise and guidance throughout the guideline development process. Its responsibilities are to:

- define the clinical questions for systematic review (in PICO format) and determine priorities for the guideline
- review evidence summaries and syntheses provided by the Guideline Development team
- provide expert advice on clinical content, ensuring all recommendations align with the best available evidence
- participate in consensus-building discussions for clinical and management recommendations
- provide feedback on draft sections, focusing on clinical accuracy and applicability
- determine the certainty of evidence and strength of recommendations, ensuring consistent methodology
- assist in stakeholder engagement strategies, advising on the integration of feedback and subsequent revisions
- monitor the inclusion of patient perspectives, particularly from underrepresented groups.

Aboriginal and Torres Strait Islander Peoples Advisory Group

The Aboriginal and Torres Strait Islander Peoples Advisory Group ensures that the perspectives, values, and preferences of Aboriginal and Torres Strait Islander peoples are reflected throughout the guideline. Its responsibilities are to:

- ensure the patient perspectives of Aboriginal and Torres Strait Islander peoples are integrated into the guideline
- provide feedback on drafts, particularly on recommendations centred on Aboriginal and Torres Strait Islander peoples
- represent the values and preferences of diverse Aboriginal and Torres Strait Islander communities.

Consumer Advisory Group (CAG)

The CAG ensures that patient and consumer perspectives are reflected throughout the guideline. Its responsibilities are to:

- ensure patient perspectives are integrated into the guideline
- provide feedback on drafts, particularly on patient-centred recommendations
- represent the values and preferences of diverse consumer groups, including disadvantaged and disproportionately affected groups

Expert advisory sub-groups (EAGs)

The EAGs provide focused clinical and methodological input to support the development of individual guideline sections. Their responsibilities are to:

- assist in developing the draft evidence summaries and recommendations for their assigned sections
- assist in classifying the certainty of evidence and strength of recommendations
- Assist in drafting the guideline and supporting materials
- represent their sub-group on the ESG.

Reference groups

Reference groups provide organisational and implementation perspectives, helping to ensure the guideline is fit for purpose and supporting its uptake. Its responsibilities are to:

- review draft evidence-based recommendations and provide feedback to ensure alignment with their organisation's public health and clinical practice needs
- advise on the implementation of the guideline
- keep their organisations informed and facilitate endorsement.

Guideline development group

The guideline development group executes the core research activities essential to developing the evidence-based guideline. Their responsibilities span the following areas.

Evidence gathering and synthesis

- conduct comprehensive literature searches across databases including PubMed, Embase, and the Cochrane Library
- identify relevant studies against pre-established eligibility criteria
- maintain a structured database of all included studies and undertake ongoing evidence surveillance following publication of the guideline, at intervals to be determined.

Data extraction and analysis

- extract key data from selected studies, ensuring accuracy and consistency
- conduct critical appraisal and risk-of-bias assessments using appropriate tools
- perform evidence synthesis, including meta-analyses where applicable, to summarise the results of the included studies.

Development of PICO questions

- collaborate with the ESG to draft and refine PICO (Population, Intervention, Comparator, Outcome) questions for each prioritised section
- ensure that PICO questions are clear, focused, and clinically meaningful.

Drafting evidence summaries and recommendations

- prepare evidence summaries and synthesise findings into concise, actionable recommendations
- draft supporting documents such as GRADE evidence profiles and summary of findings tables
- ensure that recommendations are based on the best available evidence and are clinically relevant and applicable.

Support for public consultation and stakeholder engagement

- prepare materials for public consultation, including patient-friendly summaries and feedback forms
- collate and categorise stakeholder feedback, preparing reports for the Clinical Evidence Manager and the ESG to review.

Collaboration with the Expert Steering Group

- engage regularly with the ESG to present evidence, discuss recommendations, and refine content based on feedback
- assist in addressing specific clinical questions and ensure the evidence aligns with expert expectations.

Quality control and reporting

- ensure all outputs, including evidence summaries, recommendations, and feedback reports, are accurate and meet quality standards
- provide regular progress reports to the Clinical Evidence Manager and contribute to the final documentation.

Coordination of the peer review process

- manage external expert peer review, collating feedback and ensuring revisions are implemented
- maintain records of all review activities and ensure feedback is integrated appropriately.

1.4 Management of conflicts of interest

All members of the ESG and development team declared competing interests at enrolment and before each meeting using a standardised form. Declared interests were reviewed by the guideline development team and management actions (e.g. recusal from specific discussions or votes) were applied where relevant and documented.

1.5 Guideline development

Identification and appraisal of source guidelines

An initial scoping search was undertaken using Google and PubMed to identify recent, high-quality international and national hypertension guidelines and related evidence syntheses. All identified guidelines were screened for relevance and currency, and potentially eligible guidelines were critically appraised using the AGREE II instrument to assess methodological quality, clarity, stakeholder involvement, and editorial independence. This appraisal also considered recency and the applicability of recommendations to the Australian population, models of care, and healthcare system.

Question prioritisation and PICO development

Recommendations from eligible source guidelines were mapped against a set of potential clinical questions structured according to the PICO (Population, Intervention, Comparator, Outcome) framework. These PICO topics covered the spectrum of hypertension care, including detection and diagnosis, risk assessment, thresholds and targets for treatment, pharmacological and non-pharmacological interventions, and measurement technique and monitoring. The mapped PICO list was circulated to the ESG, which had the opportunity to add PICO topics not identified during the scoping search. The ESG then undertook a formal prioritisation exercise to rank the PICO questions. Priority questions were selected as the focus of the guideline to ensure that recommendations addressed the most relevant and high-impact issues for hypertension management in Australia. For each priority question, the guideline development group applied the GRADE-ADOLOPMENT methodology to determine whether to adopt existing recommendations, adapt them to the Australian context, or develop new recommendations de novo, drawing on updated evidence where necessary.

1.6 Recommendation development

Evidence review and search strategy

For each prioritised PICO question, a structured evidence review and recommendation development process was undertaken. International hypertension guidelines were reviewed to identify recommendations relevant to the Australian PICO questions and healthcare context. The underpinning citations and primary studies for each source recommendation were documented, and key data were systematically extracted. For each PICO question, a protocol and search strategy were developed and peer reviewed by the guideline development team and the ESG to ensure completeness, reproducibility and methodological rigour. Literature searches were conducted in Medline (via PubMed and Ovid), Embase and the Cochrane Library, with additional targeted searches developed where necessary, informed by the search cut-off dates of key recent international hypertension guidelines. Australian-specific literature was screened in parallel, and uniquely relevant Australian studies were flagged for consideration in relation to local applicability.

Study selection

Study selection followed a predefined, protocol-driven screening process. Titles and abstracts identified through the searches were screened by a single reviewer against PICO-aligned eligibility criteria, with a second reviewer independently assessing a 20% sample at both title/abstract and full-text stages to verify consistency and minimise selection bias. Any discrepancies were resolved through discussion and, where needed, adjudication by a third member of the guideline development team. Screening and study flow were managed in Covidence to support transparent documentation of inclusion and exclusion decisions. Systematic reviews and meta-analyses were prioritised, with eligible RCTs not included in these reviews retrieved separately. Where systematic reviews were unavailable, evidence from high-quality RCTs, non-randomised studies and observational studies (including cohort studies) was considered.

Critical appraisal and risk of bias

Included studies and evidence syntheses were subjected to structured critical appraisal. Risk of bias in randomised controlled trials was assessed using the RoB 2 tool. Systematic reviews and meta-analyses were appraised using AMSTAR. Cohort studies were evaluated with the SIGN critical appraisal tools, while cross-sectional studies were appraised using the GIN critical appraisal instrument. These appraisals informed judgements about internal validity and contributed directly to the assessment of certainty of evidence for each outcome.

Data extraction and evidence synthesis

Data extraction was conducted using standardised templates in Excel to ensure consistent capture of study characteristics, population details, interventions and comparators, outcome definitions and measures, effect estimates and key limitations. Summary of findings tables were developed using GRADEpro, presenting pooled or best-available effect estimates for critical and important outcomes, together with GRADE ratings of the certainty of the evidence. For each PICO, a concise evidence report synthesising the quantitative findings and key contextual issues was prepared and shared with the ESG for deliberation.

Certainty of evidence assessment

The certainty of evidence for each outcome was assessed using the GRADE approach across its domains, risk of bias, inconsistency, indirectness, imprecision, and publication bias (with consideration of upgrading factors for observational evidence), and rated as high, moderate, low, or very low. GRADEpro was utilised for consistency across the guideline development team.

Formulating recommendations

The guideline development team and ESG used GRADE Evidence-to-Decision (EtD) frameworks for each research question and proposed recommendation. Within each EtD, the panel considered the balance of desirable and undesirable effects, the overall certainty of the body of evidence, the importance of outcomes, patients' values and preferences, resource use and cost-effectiveness, equity implications, and the acceptability and feasibility of implementation within the Australian health system. On the basis of these judgements, recommendations were formulated using the GRADE approach, specifying both the direction (for or against an intervention or strategy) and the strength (strong or conditional). Where the evidence base was limited, indirect or heterogeneous, this was explicitly documented, and the rationale for the recommendation clarified, including any reliance on expert consensus or contextual factors specific to the Australian setting.

The template for the EtD used in this guideline is presented in Table 1.

Table 1: GRADE evidence to decision framework and summary table

Question	
Clinical question	*[Should [intervention] vs [comparator] be used for [population]?]*
Population	*[Adults with … ; include any priority population the question is scoped to.]*
Intervention	*[…]*
Comparator	*[Usual care / placebo / alternative …]*
Main outcomes	*[Critical and important outcomes, as prioritised by the ESG.]*
Setting	*[Australian primary care / specialist / community …]*
Perspective	*[Individual patient / population / health system]*
Evidence source(s)	*[Systematic reviews or primary studies underpinning this EtD, with citations.]*
Evidence to decision framework	
Problem *Is the problem a priority?*	

JUDGEMENT	**RESEARCH EVIDENCE**	**ADDITIONAL CONSIDERATIONS**
○ No ○ Probably no ○ Probably yes ○ Yes ○ Varies ○ Don't know	*[Burden of disease, prevalence, current care gaps, national priority context, and the consequences of not addressing the problem.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Desirable effects

How substantial are the desirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Trivial ○ Small ○ Moderate ○ Large ○ Varies ○ Don't know	**[Body of evidence — Author (Year)]** *[Narrative summary of the benefits across critical and important outcomes. Refer to the evidence summary table below.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Evidence summary — [body of evidence / comparison]

Outcome № of participants (studies)	**Plain summary**	**Relative effect (95% CI)** Anticipated absolute effects	**Certainty of the evidence (GRADE)**
[Outcome] *[n studies (N participants)]*	*[Plain-language statement of effect and direction.]*	*[RR / MD (95% CI)]* *[n fewer/more per 1000 (CI)]*	⊕⊕⊕⊕ High · ⊕⊕⊕◯ Moderate ⊕⊕◯◯ Low · ⊕◯◯◯ Very low *[+ footnote letters]*
[Outcome] *[n studies (N participants)]*	*[Plain-language statement of effect and direction.]*	*[RR / MD (95% CI)]* *[n fewer/more per 1000 (CI)]*	⊕⊕⊕⊕ High · ⊕⊕⊕◯ Moderate ⊕⊕◯◯ Low · ⊕◯◯◯ Very low *[+ footnote letters]*

Footnotes: a. [reason for downgrading] b. [reason for downgrading]

Repeat the judgement row and the evidence summary table above for each separate body of evidence or comparison contributing to this criterion.

Undesirable effects

How substantial are the undesirable anticipated effects?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Large ○ Moderate ○ Small ○ Trivial ○ Varies ○ Don't know	**[Body of evidence — Author (Year)]** *[Narrative summary of harms, serious adverse events, and burden of the intervention. Refer to the evidence summary table below.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Evidence summary — [body of evidence / comparison]

Outcome № of participants (studies)	**Plain summary**	**Relative effect (95% CI)** Anticipated absolute effects	**Certainty of the evidence (GRADE)**
[Outcome] *[n studies (N participants)]*	*[Plain-language statement of effect and direction.]*	*[RR / MD (95% CI)]* *[n fewer/more per 1000 (CI)]*	⊕⊕⊕⊕ High · ⊕⊕⊕◯ Moderate ⊕⊕◯◯ Low · ⊕◯◯◯ Very low *[+ footnote letters]*
[Outcome] *[n studies (N participants)]*	*[Plain-language statement of effect and direction.]*	*[RR / MD (95% CI)]* *[n fewer/more per 1000 (CI)]*	⊕⊕⊕⊕ High · ⊕⊕⊕◯ Moderate ⊕⊕◯◯ Low · ⊕◯◯◯ Very low

			[+ footnote letters]

Footnotes: a. [reason for downgrading] b. [reason for downgrading]

Certainty of the evidence

What is the overall certainty of the evidence of effects?

JUDGEMENT	SUMMARY OF CERTAINTY	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	**[Body of evidence — Author (Year)]** *[Certainty rating and the reason for it, per outcome or per body of evidence.]* *[Certainty rating and the reason for it, per outcome or per body of evidence.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Where the recommendation draws on more than one body of evidence, repeat the judgement row above so each body of evidence carries its own certainty rating. The overall rating is driven by the outcomes critical to the decision.

Values

Is there important uncertainty about or variability in how much people value the main outcomes?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Important uncertainty or variability ○ Possibly important uncertainty or variability ○ Probably no important uncertainty or variability ○ No important uncertainty or variability	*[How much do those affected value each of the main outcomes? Draw on consumer input, qualitative evidence, or panel judgement where no research evidence was identified.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Balance of effects

Does the balance between desirable and undesirable effects favour the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favours the comparison ○ Probably favours the comparison ○ Does not favour either the intervention or the comparison ○ Probably favours the intervention ○ Favours the intervention ○ Varies ○ Don't know	*[Weigh the size and certainty of benefits against harms, accounting for values and any variability. State the residual uncertainty explicitly — e.g. indirectness of the trial populations to the Australian setting.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Resources required

How large are the resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Large costs ○ Moderate costs ○ Negligible costs and savings ○ Moderate savings	*[Resource use identified, from whose perspective, and over what horizon. State plainly where no resource-use evidence was identified.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

○ Large savings ○ Varies ○ Don't know		

Certainty of the evidence of required resources
What is the certainty of the evidence of resource requirements (costs)?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Very low ○ Low ○ Moderate ○ High ○ No included studies	*[Certainty rating for the resource-use evidence, or "no included studies".]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Cost effectiveness
Does the cost-effectiveness of the intervention favour the intervention or the comparison?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Favours the comparison ○ Probably favours the comparison ○ Does not favour either the intervention or the comparison ○ Probably favours the intervention ○ Favours the intervention ○ Varies ○ No included studies	*[Economic evaluations identified. Note the perspective (governmental, societal, net health), the time horizon, the setting, and applicability to Australia.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Equity
What would be the impact on health equity?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ Reduced ○ Probably reduced ○ Probably no impact ○ Probably increased ○ Increased ○ Varies ○ Don't know	*[Consider priority populations: Aboriginal and Torres Strait Islander peoples, CALD communities, people in regional and remote areas, older adults, people experiencing socioeconomic disadvantage, and gender-diverse people.] [Note baseline differences in prevalence or outcomes, whether the intervention is likely to reach these groups equally, and whether the evidence is applicable to them.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Acceptability
Is the intervention acceptable to key interest-holders?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ○ Probably yes ○ Yes ○ Varies ○ Don't know	*[Acceptability to consumers, clinicians, and other affected parties — e.g. surveys, qualitative studies, consumer advisory input.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Feasibility

Is the intervention feasible to implement?

JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
○ No ○ Probably no ○ Probably yes ○ Yes ○ Varies ○ Don't know	*[Barriers and enablers to implementation in the Australian setting — workforce, supply, infrastructure, regulation, sustainability.]*	*[Panel discussion, contextual factors, Australian practice considerations, or note "none".]*

Summary of judgement

[Intervention] vs [comparator]

Shade or bold the selected cell in each row.

Problem	No	Probably no	Probably yes	Yes		Varies	Don't know
Desirable effects	Trivial	Small	Moderate	Large		Varies	Don't know
Undesirable effects	Large	Moderate	Small	Trivial		Varies	Don't know
Certainty of the evidence	Very low	Low	Moderate	High			No included studies
Values	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability			
Balance of effects	Favours the comparison	Probably favours the comparison	Does not favour either the intervention or the comparison	Probably favours the intervention	Favours the intervention	Varies	Don't know
Resources required	Large costs	Moderate costs	Negligible costs and savings	Moderate savings	Large savings	Varies	Don't know
Certainty of the evidence of required resources	Very low	Low	Moderate	High			No included studies
Cost effectiveness	Favours the comparison	Probably favours the comparison	Does not favour either the intervention or the comparison	Probably favours the intervention	Favours the intervention	Varies	No included studies
Equity	Reduced	Probably reduced	Probably no impact	Probably increased	Increased	Varies	Don't know
Acceptability	No	Probably no	Probably yes	Yes		Varies	Don't know
Feasibility	No	Probably no	Probably yes	Yes		Varies	Don't know

Notes: [State which body of evidence each judgement reflects where the panel rated more than one, and record any judgement the panel could not reach consensus on.]

Conclusions

Draft recommendation(s)	*[Write the recommendation in active voice. Name the population, the action, and the qualifier or exception. One recommendation per box; add rows for additional recommendations arising from the same question.]*

Type of recommendation	Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	Strong recommendation for the intervention
	○	○	○	○	○
Justification	*[Two to four sentences drawing the EtD criteria together — which judgements drove the direction and strength of the recommendation.]* **Detailed justification** *[Body of evidence — key findings and certainty, as bullet points.]*				
Subgroup considerations	*[Populations for whom the recommendation differs, or "NA".]*				
Implementation considerations	*[What is needed for this to happen in practice — consumer, clinician, service, and system level.]*				
Monitoring and evaluation considerations	*[What should be measured, at what level, and how often.]*				
Research priorities	*[Evidence gaps this EtD exposed, or "NA".]*				

Classification of guidance

There are three classifications of guidance used throughout this guideline, arranged in a hierarchy that reflects the strength of the underlying evidence and the context of their application: GRADE recommendations, consensus recommendations, and practice points.

GRADE recommendations provide the most robust guidance, using the GRADE methodology.[1] They balance benefits and harms, incorporate an individual's preferences, and consider resource use, offering either a strong or conditional recommendation depending on the certainty of evidence and the intervention's impact.

Consensus recommendations are used when the GRADE approach is not applicable, often due to indirect or limited evidence. They are informed by expert opinion, supported by the available evidence, and take account of values, preferences and resources. They provide critical guidance in areas where clinical decisions are necessary, even though the evidence base may not be direct or comprehensive. Consensus recommendations have also been used where international recommendations were endorsed by the ESG and advisory groups but an updated systematic review was not undertaken for this guideline; in these instances, the source guideline is cited in the notes of the recommendation table.

Practice points offer actionable, practical advice to facilitate the implementation of recommendations. They detail the specifics of applying recommendations, such as who, what, how and when, and they often include supplementary information like medication dosing or tools to enhance implementation. While they do not stand alone, practice points are essential to ensuring recommendations are applied effectively, particularly in settings with geographical or resource-related challenges.

Classification	Type/Level	Definition	Basis for use	Implications for patients	Implications for clinicians	Implications for policymakers
GRADE recommendation	High Certainity	Very confident the true effect lies close to the estimated effect; desirable effects clearly outweigh undesirable effects.	Randomised controlled trials with no serious methodological concerns	Most individuals would want this course of action; only a small proportion would not	Most patients should receive this course of action; adherence may serve as a quality indicator	Can generally be adopted as policy across most settings
GRADE recommendation	Moderate certanity	Moderately confident in the effect estimate; the true effect is likely close but may differ. Desirable effects likely outweigh undesirable effects.	RCTs downgraded by one level, or upgraded observational studies	Most individuals would want this course of action	Most patients should receive this course of action	Can generally be adopted as policy
GRADE recommendation	Low Certanity	Confidence in the effect estimate is limited; the true effect may be substantially different. Trade-offs between benefits and harms are less certain.	Observational studies, or RCTs downgraded by two levels	Most individuals would want the suggested action, but many would not; patient values should drive the decision	Shared decision-making is essential; decisions should reflect individual patient values and preferences	May serve as a starting point for policy debate with stakeholder input
GRADE recommendation	Very low	Very little confidence in the effect estimate; the true effect is likely substantially different. Benefits and harms are highly uncertain.	Case series, expert opinion, mechanistic reasoning	Patient values and preferences are central to the decision	Shared decision-making is essential; clinical judgement and individual circumstances must guide application	Policy adoption requires careful local consideration and stakeholder engagement

Consensus recommendation	-	Developed when the GRADE approach is not applicable, typically due to indirect or limited evidence. Informed by expert opinion, supported by available evidence, and considers values, preferences and resources. Provides critical guidance where clinical decisions are necessary even without a direct or comprehensive evidence base.	Indirect, limited, or unavailable direct evidence; GRADE methodology not applicable	Guidance reflects expert consensus on the best available approach; individual preferences remain relevant	Requires professional judgement; recommendations may not be directly generalisable to all patient groups	Relevant to local context; policy uptake should consider the indirect nature of the supporting evidence
Practice point	-	Actionable and practical advice to facilitate the implementation of recommendations. Details the specifics of applying recommendations — including who, what, how, and when — and may include supplementary information such as medication dosing or implementation tools. Does not stand alone but is essential for ensuring recommendations are effectively applied, particularly in settings with geographical or resource-related challenges.	Derived from recommendations; designed to support real-world application	Helps individuals understand what to expect in terms of how a recommendation will be applied in practice	Provides practical detail to support consistent and effective implementation across diverse clinical settings	Supports equitable application of guidance across resource-varied and geographically diverse settings

Reaching consensus

Recommendations and their direction and strength were agreed by consensus.

Equity and priority populations

Implications for priority populations, including First Nations Peoples, and other groups experiencing inequities in hypertension outcomes, were considered within the EtD process and reflected in recommendations and practice points where relevant.

1.7 Review, approval and maintenance

External review and public consultation

A draft of the guideline underwent external expert peer review and a period of public consultation, and feedback was collated, considered, and addressed, with changes documented.

Final approval and endorsement

The final guideline was approved by the Heart Foundation, Stroke Foundation and Hypertension Australia. Endorsement is an ongoing process and organisations that have endorsed this guideline are presented on the endorsement page. Located at (not developed yet).

Dissemination and implementation

The guideline will be disseminated via The Heart Foundation website and is supported by implementation tools which can be found in the additional resource link at (not developed yet).

Updating the guideline

The guideline will be reviewed and updated every 5 years, or as significant new evidence emerges, with responsibility held by the Heart Foundation.

2. Composition of Expert Groups

Expert Steering Group members

Position	Name	Organisation representing	Profession	State
Co-Chair	Professor Garry Jennings, AO	Heart Foundation Hypertension Australia	Cardiologist	Vic
Co-Chair	Professor Markus Schlaich	Hypertension Australia	Nephrologist	WA

		National Hypertension Taskforce		
Member	Professor Charlotte Hespe, AM	RACGP	General Practitioner	NSW
Member	Professor Nigel Stocks	RACGP	General Practitioner	SA
Member	Professor Alta Schutte	Hypertension Australia National Hypertension Taskforce	Public Health	NSW
Member	Associate Professor Jun Yang	Endocrine Society of Australia	Endocrinologist	VIC
Member	Professor Anthony Rogers	National Hypertension Taskforce	Public Health	NSW
Member	Audrey Lee	National Hypertension Taskforce The George Consumer Group	Consumer	NSW
Member	Professor Graeme Hankey, AO	ANZSO	Neurologist	WA
Member	Professor Elif Ekinci	Australian Centre for Accelerating Diabetes Innovations (ACADI)	Academic Endocrinologist	VIC
Member	Professor Mark Nelson	Menzies Institute	General Practitioner	TAS
Member	Laureate Professor Clare Collins	The University of Newcastle	Nutrition and Dietetics	NSW
Non-voting member	Dr Dannii Dougherty	Heart Foundation Adelaide University	Methodologist	SA

Expert Advisory Sub-group members

Position	Name	Organisation representing	Profession	State
Co-chair	Professor Nigel Stocks	RACGP	General Practitioner	SA
Co-chair	Professor Alta Schutte	Hypertension Australia National Hypertension Taskforce	Public Health	NSW
Member	Associate Professor Jun Yang	Endocrine Society of Australia	Endocrinologist	VIC
Member	Professor Anthony Rogers	National Hypertension Taskforce	Public Health	NSW

Member	Professor Graeme Hankey, AO	ANZSO	Neurologist	WA
Member	Professor Elizabeth (Liz) Halcomb	University of Wollongong National Hypertension Taskforce	Academic Nurse	NSW
Member	Professor Karen Dwyer	Kidney Health Australia	Nephrologist	VIC
Co-chair	Professor Mark Nelson	Menzies Institute	General Practitioner	TAS
Co-chair	Professor James Sharman	Menzies Institute	Public Health	TAS
Member	Professor Elif Ekinci	Australian Centre for Accelerating Diabetes Innovations (ACADI)	Academic Endocrinologist	VIC
Member	Dr Anastasia Mihalidou	CSANZ	Scientist in cardiology	NSW
Member	Meredith King	Australian Physiotherapy Association	Physiotherapist	NSW
Member	Suzanna Nash	Australian College of Pharmacy	Pharmacist	QLD
Member	Alexandra Warwick	Austin Health, ANZSO	Nurse Practitioner	VIC
Member	Claire Antrobus	Pharmaceutical Society of Australia	Pharmacist	QLD
Co-chair	Professor Charlotte Hespe, AM	RACGP	General Practitioner	NSW
Co-chair	Laureate Professor Clare Collins	The University of Newcastle	Nutrition and Dietetics	NSW
Member	Roxanne Perry	Kidney Health Australia	Renal nurse	SA
Member	Dr Emily Ramage	Australian Physiotherapy Association	Physiotherapist	VIC
Member	Professor Seana Gall	University of Tasmania ANZSO	Public Health Epidemiologist	TAS
Member	Conjoint Associate Professor Kathy Trieu	The George Institute National Hypertension Taskforce	Public Health	NSW

Member	Professor Bruce Neal	The George Institute	Public Health	NSW
Member	Professor Garry Jennings, AO	Heart Foundation Hypertension Australia	Cardiologist	Vic
Member	Professor Markus Schlaich	Hypertension Australia National Hypertension Taskforce	Nephrologist	WA

3. Conflicts of interest for expert groups

Professor Garry Jennings	National Heart Foundation of Australia, Chief Medical Advisor; Baker Foundation, Trustee and Director; University of Sydney, Honorary Professor; Monash University, Honorary Professor; Alfred Health, Honorary Cardiologist; Baker Heart & Diabetes Institute, Life Governor & cardiologist; Global Cardiovascular Research Funders Forum, Board member; 'Hypertension', AHA Journal Associate Editor; Hypertension Australia, Board member
Professor Markus Schlaich	Hypertension Australia, Chair of Board; National Hypertension Taskforce, Co-Chair; World Hypertension Lague, President-elect; May Measurement Month, Trustee / Board Member; Member of Scientific Advisory Boards for Abbott, Astra Zeneca, Eli Lilly, Kardigan, Medtronic, and NovoNordisk (Financial / scientific); Received research support from Abbott, Astra-Zeneca, Boehringer Ingelheim, Medtronic, Novartis, and ReCor. (Financial / scientific); Received consulting fees and /or speaker fees and/or travel support from Abbott, Amgen, Astra-Zeneca, Boehringer-Ingelheim, Eli-Lilly, Idorsia, Kardigan, Merck, Medtronic, Novartis, Novo-Nordisk, Pfizer, ReCor, and Servier. (Financial / scientific).
Professor Anthony Rogers	Professor Rodgers is employed by The George Institute for Global Health (TGI) and Imperial College London. TGI has submitted patent applications for low-dose combination products for hypertension and Professor Rodgers is listed as an inventor. George Medicines Pty Ltd (GM) is a subsidiary of TGI, holds a license for these patents and has received investment to develop these combination therapies – an application for marketing approval of a low-dose triple combination has been submitted to the FDA. Professor Rodgers is seconded part-time to GM. Professor Rodgers has no financial interest in these patents or in GM.
Professor Charlotte Hespe	Owner and Principle General Practitioners at Glebe Family Medical Practice; CESPHN (EIS Health) Board Director; The Gender Centre Board Director; $1.2 million (CIA) MRFF Grant Funding; Australia Digital Health Agency, Clinical Lead, Contracts for work on an hourly basis since 2018; NHMRC, Peer Reviewer, Payment to be expert GP Peer reviewer for Research grants (International partnerships); PSR, Panel Chair, Payment for chairing peer review panels; RACGP Lifelong Member; AMA Member; GP Advisor, speaker (guest presenter) and education moderator for a number of health related organisations, Pharmaceutical organisations or government committees including: Cancer Institute NSW, Pharmaceutical Society of Australia, Amgen, Astrazeneca, CSL

	Sequeiris, CSIRO, GESA, GSK, HealthEd, HealthShare, HerHeart,Inside Practice, Limbic, Lumos, MedEd, Menarini, Moderna, MSD, National Hypertension Taskforce, Novartis, Novo Nordisk, Optimo Healthcare, Pen, Therapeutic Guidelines, Department of Health, TGA. These engagements may or may not related to Hypertension.
Professor Nigel Stocks	Summit Health, Director; Australian Medicines Handbook; Director; RACGP Member; RACP, Member
Professor Mark Nelson	RACGP, Member; CSANZ, Member; AAS, Member; AFPHM, Member; 2023 received Medtronic Speaker fees.
Professor Graeme Hanky	Receive personal honoraria quarterly from: the American Heart Association for editing/processing manuscripts as Associate Editor, Circulation; Janssen Research and Development for duties as Co-chair, Executive Committee; Librexia Stroke phase 3 clinical trial of milvexian (oral factor Xia inhibitor) vs placebo for secondary stroke prevention.
Professor Aletta Schutte	Australian Cardiovascular Alliance, Company Secretary, Board Member; Hypertension Australia, Board Member; National Hypertension Taskforce, Co-chair; South African Hypertension Society; Board Member. Affiliated as collaborator on Vanguard Grant, Co-supervisor with postdoctoral Fellowship, Co-investigator, Catalyst Shortlisted Grant; International Society of Hypertension, Fellow/Past President; European Society of Cardiology, Fellow; Royal Society of South Africa, Fellow; European Society of Hypertension, Member, American Heart Association, HTN Council, Member; During the past 3 years, received speaker honoraria from pharmaceutical companies: Servier, Abbott, Sanofi, AstraZeneca; and device companies Medtronic, Omron, and Aktiia and serves on scientific advisory boards for Medtronic, Alnylam, SiSU Health and Sky Labs. AE Schutte is employed at The George Institute for Global Health (TGI) which holds an interest in George Medicines Pty Ltd (GM) via its social enterprise arm, George Institute Ventures. She has no personal financial interest in GM nor has received funding for her independent contribution to the GMRx2 program. TGI holds patents for ultra-low-dose fixed-dose combination products for the treatment of hypertension and diabetes (Granted: US 10,369,15; US 10,799,487; US 10,322,117; US 11,033,544; US 11,478,462; Pending: US 17/932,982; US 18/446,268; US 17/598,122; US 17/317,614; US 17/527,084; US 17/527,085; US 17/527,087).
Audrey Lee	The George Institute, Consumer Representative (Honorary Consumer Fellow)
Laureate Professor Clare Collins	Dietitian Australia, Fellow; Australian Academy of Health and Medical Science, Fellow; Nutrition Society of Australia, Fellow; Hypertension Australia, Member; Australian and NZ Obesity Society, Member; Diabetes Australia, Member; American Society for Nutrition, Member. Holds IP in dietary assessment tools available commercially though the University of Newcastle as follows: Australian Eating Survey and Healthy Eating Quiz https://australianeatingsurvey.com.au/; As part of my NHMRC research Fellowship (investigator grant, L3, 2022-26) I conduct research on diet-related aspects of blood pressure. I am disclosing this for transparency

Professor Jun Yang	Monash University, Department of Medicine, Associate Professor / Researcher; Monash Health, Head of the Endocrine Hypertension Service; consultant endocrinologist; NHMRC Investigator Grant (2020-2025) and Centre of Research Excellence Funding (2023-2028); MRFF Clinical Trials Grant (2023-2027) and Health Professional Grant (2023-2025); AstraZeneca Clinical trial funding for Bax24 (recruitment to complete in April 2025); Hudson Institute of Medical Research Seed funding award in 2022; Endocrine Society of Australia, Council Member; Endocrine Society (USA), Member, and Member of Annual Meeting Steering Committee; ACvA, Member; Hypertension Australia, Member; ANZ Alliance for Cardiovascular Trials, Member; Primary Aldosteronism Foundation, Chair of Patient Engagement Committee
Professor Elif Ekinci	Australian Centre for Accelerating Diabetes, Innovations (ACADI) Director; University of Melbourne Head of Department of Medicine; Centre for Research and Education in Diabetes and Obesity (CREDO), Austin Health Head of Diabetes Research; Austin Health Head of Diabetes Research; Baker Department of Cardiometabolic Health Honorary Senior Fellow ;Jacaranda Consulting Suites, Endocrinologist; Affiliated with Diabetes and obesity clinical trials funding paid to institution; Abbott, AstraZeneca, Arrowhead Pharmaceuticals, Amgen, Boehringer, Ingelheim Pty Ltd, Eli Lilly, Endogenex, NewAmsterdam, Novartis, Novo Nordisk, Omnipod, Versanis Bio; Advisory board paid to institution for diabetes research: Eli Lilly, Boehringer, Novo Nordisk; Royal Australasian College of Physicians (RACP) Fellow, Endocrine Society Member, Australian Diabetes Society (ADS) Member, American Diabetes Association (ADA) Member
Alexandra Warwick	Membership with Australia and New Zealand Stroke Organisation, delegate
Dr Anastasia Mihailidou	None reported
Professor Elizabeth Halcomb	Australian Hypertension Taskforce, Working Group Co-Chair; Australian College of Nursing, Faculty Chair; Australian Primary Healthcare Nurses Association, Member Expert Nurse Panel; Sigma Nursing, Board Director; Australasian Association of Academic Primary Care; Chair Conference Committee 2026; CSANZ, CNC executive
Dr Emily Ramage	Hydro Functional Fitness, Co-founding share holder; Western Health, Research Physiotherapist; University of Melbourne, Honorary Physiotherapist Position; Health Expectations Journal, ECR Editorial Board Member; Cerebrovascular Diseases & Cerebrovascular Diseases Journal EXTRA, Editorial Board Member; International Knowledge Translation Research Network, Trainee Member; University of Melbourne, Honorary Physiotherapy Position, Department of Medicine, Dentistry and Health Sciences, University of Melbourne mid-career Research Project Catalyst Grant & Melbourne Disability Institute Seed Funding Grant; MRFF, CI grant recipient; Stroke Foundation, CI grant recipient, Early Career Seed Grants; World Stroke Organisation, Member and Future Leader Alumni, Future Leader Project Grants; Centre for Research Excellence to accelerate Stroke Trial, Affiliate member, Innovation and Translation Grant Opportunity as CI; International Knowledge Translation Research Network, Trainee Member, Funding to support publication as part of the IKT concept papers; Australian Physiotherapy Association, Member; Australia and New Zealand Stroke Organisation, Member, and co-chair of the emerging stroke clinician scientist group; World Stroke Organisation, Member and Future Leader

	Alumni; Centre for Research Excellence to accelerate Stroke Trial, Affiliate member
Professor James Sharman	Hypertension Australia Board Member
Professor Karen Dwyer	Catholic College Sale, Board Member; Australasian Metabolic Health Society, Chairperson; ANZSN, Member; TSANZ, Member; TTS, Member; Received honorarium for educational events from pharma (BI, AZ, CSL, Bayer).
Conjoint Associate Professor Kathy Trieu	None Reported
Meredith King	Australian Physiotherapy Association, Titled Cardiorespiratory Member; Thoracic Society of Australia and New Zealand, Student Member.
Roxanne Perry	None Reported

4. Additional content for secondary causes

Secondary Causes for hypertension

Primary aldosteronism

Primary aldosteronism (PA) is a significant and relatively common cause of secondary hypertension,[2-5] associated with worse CV outcomes than essential hypertension, even at similar blood pressure levels.[6,7] The aldosterone to renin ratio (ARR) is the key screening test, with an elevated ARR suggestive of PA.

Australian data show that elevated ARR is common in people with newly diagnosed hypertension. In one prospective study, 25% had an elevated ARR and 14% of eligible participants were confirmed to have PA.[3] In a cross-sectional study of urban young Indigenous populations in the Northern Territory, 26% had an elevated ARR.[8] These findings support routine considerations of PA testing in adults with hypertension, particularly in high-risk groups.

The following guidance has been adapted for the Australian setting from the European Society of Cardiology and the Endocrine Society.[2,9] In general practice, screening for PA can be done with a morning blood test measuring aldosterone and renin (concentration or activity), with the patient not on a sodium-restricted diet in the days before the testing. Potassium should be checked at the same time, as hypokalaemia can lower aldosterone and complicate interpretation; if the initial screen is negative in someone with low potassium, correct potassium into the reference range and repeat the test.

Medications that interfere with the renin–angiotensin–aldosterone system can affect test accuracy, so any adjustments must balance accuracy with safety and practicality in primary care. Broadly, a positive screen is suggested when renin is low or suppressed and aldosterone is inappropriately high relative to renin, resulting in a raised ARR, using local laboratory thresholds where available. No single cut-off is definitive, so results should be interpreted in

the context of clinical features, pre-test probability of PA and concurrent medications or conditions.

If the initial screen is negative but clinical suspicion remains moderate to high (for example, resistant hypertension or unexplained hypokalaemia), repeating the test on another day is reasonable, particularly after correcting hypokalaemia or adjusting interfering medications where safe. In people with chronic kidney disease, renin and aldosterone are harder to interpret, so repeat testing may be considered if hypertension worsens, becomes resistant, or if new hypokalaemia or atrial fibrillation (without another clear cause) develops.

Obstructive sleep apnoea

Obstructive sleep apnoea (OSA) is a chronic condition which is characterised by recurring partial or complete upper airway obstruction during sleep, leading to intermittent hypoxia and sleep fragmentation.[10,11] OSA is an independent risk factor for hypertension and CVD.[12]

The prevalence of OSA varies depending on the population and diagnostic criteria used. In Australia, OSA is estimated to affect around 20% of adults, while symptomatic OSA occurs in approximately 2–5% of the general middle-aged population.[11]

OSA should be suspected in people with hypertension who report loud snoring, witnessed apnoeas, disturbed sleep, awakenings with choking or gasping, nocturnal sweating, daytime sleepiness, fatigue or reduced concentration, and in those with non-dipping or reverse-dipping patterns on 24-hour blood pressure monitoring.[11,13] Other features include nocturia, cognitive difficulties, low mood and reduced work performance.[11]

Risk factors include male sex, age over 50 years, overweight and obesity, higher alcohol intake and post-menopausal status in women.[11] OSA is more common in people with type 2 diabetes, hypertension, cardiovascular disease and in those taking sedatives, and lifestyle and weight-loss advice is an important part of care.[11]

History, examination and validated questionnaires (OSA50, Epworth Sleepiness Scale, STOP-Bang) can help identify high-risk patients.[2,11] OSA is diagnosed with a sleep study, either in a laboratory or at home.[11] Referral can be via a sleep or respiratory specialist, or in some cases directly from a GP.[11]

The gold standard test is attended in-laboratory polysomnography, but limited access and cost mean home-based studies are increasingly used. A simplified polysomnogram confirms OSA when the apnoea–hypopnoea index (AHI) is > 5 events/hour and grades severity as mild (AHI < 15), moderate (15–30) or severe (> 30).[11]

Renal parenchymal disease

Renal parenchymal disease is a group of conditions affecting the renal cortex and renal medulla including glomerular, vascular and tubulointerstial diseases.[14] These diseases impair kidney function resulting in perturbations in sodium and fluid handling, the RAAS pathway and sympathetic activity collectively contributing to the development of hypertension.[15] Individuals are often asymptomatic early in the disease course and become increasingly symptomatic as

the disease progresses. Signs and symptoms include haematuria, proteinuria, nocturia, peripheral oedema, nausea and vomiting, itch, joint pain, abdominal pain and fatigue.[16,17]

Approximately 1 to 2% of hypertension diagnoses are attributable to renal parenchymal disease and it is more common among individuals with chronic kidney disease. There is limited Australian prevalence data on renal parenchymal disease as secondary causes of hypertension.[16,17] Risk factors include diabetes mellitus, autoimmune diseases, recurrent urinary tract infections, obstructive uropathy, and a family history of kidney disease. Smoking, obesity, and cardiovascular disease are also associated with increased risk of renal diseases.[18]

Initial investigations for renal parenchymal disease include serum electrolytes, creatinine, estimated glomerular filtration rate, urinalysis and urine albumin:creatinine ratio as well as renal ultrasound. Additional studies are based on the suspected underlying cause of renal parenchymal disease and may include further imaging (Doppler ultrasound, CT or MRI), serum protein electrophoresis, autoantibody screens or tissue biopsy.[13,16,19]

Renovascular hypertension

Renovascular hypertension is characterised by reduced renal perfusion due to narrowing or occlusion of renal arteries.[20]Atherosclerotic renal artery stenosis and fibromuscular dysplasia are common causes underlying reduced renal perfusion.[21] Both result in the activation of the RAAS system, leading to vasoconstriction, sodium reabsorption and an increase in blood pressure.[20] Signs and symptoms include flash pulmonary oedema and peripheral oedema, declining renal function following an ACE inhibitor or ARB, abdominal bruit or asymmetry in kidney size.[13,16] Individuals with fibromuscular dysplasia may also report migraines and pulsatile tinnitus.[22,23]

Renovascular hypertension accounts for approximately 1 to 5% of all cases of hypertension but is more common among individuals with treatment-resistant hypertension.[24] Atherosclerosis is the underlying cause of renovascular hypertension in most individuals with fibromuscular dysplasia accounting for 10 to 20% of cases.[17] Rarer causes include neurofibromatosis type 1, mid-aortic syndrome, arteriovenous fistula and renal artery aneurysm.[25] Renal artery atherosclerosis is present in 14 to 40% of individuals with hypertension, yet few have sufficient occlusion (>60 to 70%) to result in renovascular hypertension (0.1 to 5%).[26] Australian specific data is limited. Risk factors associated with renovascular hypertension reflect the underlying cause. Among those with atherosclerotic disease, risk factors include older age, smoking, diabetes, dyslipidaemia and prior cardiovascular disease.[27] Risk factors for fibromuscular dysplasia include younger age and female sex.[28]

Initial investigations for renovascular hypertension include serum electrolytes, creatinine, estimated glomerular filtration rate, urinalysis and urine albumin:creatinine ratio. Imaging including Doppler ultrasound, MRI and abdominal CT angiogram may be useful to localise renal artery stenosis.[13,16]

Pheochromocytoma / paraganglioma

Pheochromocytomas and paragangliomas are rare neuroendocrine tumours derived from chromaffin cells.[29,30] They are characterised by episodic section of catecholamines leading to a heterogenous set of intermittent symptoms including: paroxysmal hypertension, headaches, palpitations, diaphoresis, anxiety, pallor, abdominal pain, weight loss, polyuria, fever and hyperglycaemia.[31]

Pheochromocytomas originate in the adrenal medulla and account for 80-85% of chromaffin-derived tumours.[31] Paragangliomas occur outside the adrenal gland and are generally found along the paravertebral sympathetic chain, cranial nerves or nerves innervating retroperitoneal and pelvic organs.[32] Both tumours are typically benign, with approximately 10% of pheochromocytomas and 20% of paragangliomas malignant.[29,30]

Pheochromocytomas are relatively rare, with an estimated global prevalence of 19.8 per 1,000,000 individuals occurring 1.9 cases per 1,000,000 person-years.[33] Australian and paraganglioma specific prevalence data is limited. Risk factors associated with the development of pheochromocytomas and paragangliomas include multiple endocrine neoplasia type 2 (MEN2), neurofibromatosis (NF) type 1 and von Hippel-Lindau syndromes, and mutations in SDH complex.[34] Hypoxia secondary to high altitudes, cyanotic congenital heart disease and COPD are additional risk factors for paragangliomas.[30]

Initial investigations for suspected pheochromocytomas and paragangliomas include 24-hour urinary or plasma free metanephrines.[35] Imaging including CT abdomen and pelvis with contrast or MRI can be used to localise the tumour. Genetic testing may be considered in individuals with known or suspected MEN2, NF and von Hippel-Lindau syndromes.[34]

Anti-cancer therapies

Hypertension is more common in patients on anti-cancer therapy than in the general population, owing to multiple mechanisms, including the direct vascular and renal effects of anti-cancer therapy.[36] New onset hypertension has been reported as an adverse event for numerous cancer therapies, with risk estimates ranging from 10% to 36%.[37] Drugs that more commonly cause hypertension include vascular endothelial growth factor (VEGF) signalling pathway inhibitors (VSPIs); rapidly accelerated fibrosarcoma B-type (BRAF) and mitogen-activated protein kinase kinase (MEK) inhibitors; Bruton's tyrosine kinase inhibitors; rearranged during transfection (RET) receptor tyrosine kinase inhibitors; poly (adenosine diphosphate-ribose) polymerase inhibitors; proteasome inhibitors; platinum-based compounds; alkylating agents; calcineurin inhibitors; mammalian target of rapamycin (mTOR) inhibitors; and endocrine therapy, such as anti-androgens and aromatase inhibitors.[36] Adjunctive therapies used in cancer management, including corticosteroids, exogenous erythropoietin and non-steroidal anti-inflammatory drugs, can also contribute. The concomitant administration of such adjunctive therapies alongside antineoplastic agents is a frequent practice.[38]

Accurate measurement of BP is crucial for the diagnosis and management of hypertension, and special attention should be given to optimal control of anxiety and pain in patients with cancer.[36] Where BP needs to be checked often and over a prolonged period, for instance, during treatment initiation or dose changes in patients on VSPIs, in whom hypertension may

worsen within days and lead to a hypertensive emergency, home monitoring with a validated device should be used.[36] A baseline reading before starting any prohypertensive anti-cancer therapy is essential, as some patients show a notable BP rise on these agents and require antihypertensive therapy to be started or escalated promptly.[36]

Iatrogenic causes

Medications, supplements and alcohol are overlooked secondary causes of hypertension and account for approximately 2 to 20% of diagnoses.[13,16] The mechanism underlying elevated blood pressure varies, yet most relate to alterations in RAAS pathways or sympathetic tone. Medications associated with hypertension are listed in **Error! Reference source not found.**.

Table 2 Common medications associated with secondary hypertension

Class of medication	Medications	Proposed Mechanism
Anti-VEGF signalling inhibitors	Bevacizumab Sorafenib Sunitinib	Decreased NO and prostacyclin production, stimulation of endothelin-1 receptors resulting in vasoconstriction
Immunosuppressive agents	Tacrolimus	Increased sympathetic tone Increased Na+ reabsorption in proximal tubule Vasoconstriction due to increased endothelian-1 and reduced NO production
Nonsteroidal anti-inflammatories and paracetamol	-	Reduce PGE2 and PGI2 expression leading to vasodilation and Na+ and water reabsorption
Steroids	Glucocorticoids, mineralocorticoids, liquorice	Na+ and water reabsorption, secretion of potassium via mineralocorticoid receptions Increase in blood volume and BP Increased AT2R and Na+/Ca2+ influx altering vascular tone Reduced NO availability
Hematologic agents	Erythropoietin stimulating agents	Increased blood viscosity and vasoconstriction, increased ET-1 production, decreased nitric oxide synthesis

Sex hormones	Estrogen	Increased angiotensin synthesis in liver, leading to RAAS activation and Na+ and water reabsorption
Selective norepinephrine reuptake inhibitors	Buspirone Fluoxetine venlafaxine	Increased norepinephrine and vasoconstriction
Recreational drugs	PCP, Methamphetamine Cocaine	MDMA, PCP and methamphetamine increase catecholamine release and blocks reuptake leading to increased SNS activation Cocaine antagonises sodium channels increasing SNS activity as well as increasing arterial stiffness
Alcohol	-	Alterations in RAAS signalling Increase sympathetic tone
Caffeine	-	Increases catecholamine release, and antagonises adenosine inhibiting vasodilation
Stimulants	Methylphenidate Dexmethylphenidate	Block reuptake of norepinephrine and dopamine and release catecholamines

Notes: mechanisms from Msai (2019) and Grossman (2012)[39,40]

Abbreviations: AT2R, Angiotensin II type 2 receptor; BP, Blood pressure; Ca^{2+}, Calcium; ET-1, Endothelin-1; MDMA, 3,4-Methylenedioxymethamphetamine; Na^{+}, Sodium; NO, Nitric oxide; NSAIDs, Nonsteroidal anti-inflammatory drugs; PCP, Phencyclidine; PGE_2, Prostaglandin E_2; PGI_2, Prostacyclin; RAAS, Renin–angiotensin–aldosterone system; SNRIs, Serotonin–norepinephrine reuptake inhibitors; SNS, Sympathetic nervous system; VEGF, Vascular endothelial growth factor.

Practice points

Primary aldosteronism

Limited access to local pathology services in rural and remote Australia means aldosterone and renin tests are often performed in central laboratories, requiring long-distance transport that can delay processing and increase the risk of sample degradation or artefactual changes such as renin cryoactivation. Some remote services may not routinely offer the ARR or may batch-send samples, so practical pathways should be agreed with the local laboratory, including tube type, transport conditions and validated cut-offs.

In a Northern Territory cohort, remote participants had higher measured renin despite similar aldosterone, consistent with cryoactivation during chilled transport and risking underestimation of positive ARR results; lower salt intake in some remote communities may further raise renin and lower ARR, increasing under-detection if standard urban cut-offs are

used.[8] Confirmatory testing and subtyping (for example, saline suppression, fludrocortisone suppression and adrenal vein sampling) are often unavailable locally and require travel to tertiary centres. Where saline suppression is impractical, simpler options such as captopril challenge may be more feasible, and in high-suspicion cases empiric mineralocorticoid receptor antagonist therapy (for example, spironolactone) can be used pragmatically to improve blood pressure and outcomes.

Healthy lifestyle interventions

Effective management of hypertension extends beyond face-to-face interactions with individuals. Supporting those with elevated BP and hypertension to understand their condition and sustain changes to diet, physical activity, and other lifestyle factors is beneficial to achieving and maintaining BP control, and well-chosen tools and resources can make a meaningful difference to how successfully these recommendations are implemented.

This section brings together a curated selection of resources to support implementation of the guideline for both health professionals and patients. They are intended to complement clinical care, providing practical, evidence-informed material that clinicians can draw on during consultations or direct patients towards for self-directed learning and ongoing support.

Resources developed specifically for and with First Nations people are identified separately within each domain, recognising the importance of culturally appropriate, community-informed materials in supporting equitable care.

The list is not exhaustive, and inclusion does not imply endorsement from the Heart Foundation of any specific product or program and does not imply that one is more beneficial over another. Resources should be selected according to the individual needs, preferences, health literacy, and circumstances of each patient.

5. Start here

The first move for each intervention, and the point at which someone else should be involved.

Topic	First move in the consultation	Bring in someone else when
Eating pattern	Use the Heart Foundation heart-healthy eating pattern as the frame, then tailor it to the person's culture, budget and cooking skills.	Dietary change is complex or comorbidities are present — refer to an Accredited Practising Dietitian.
Sodium	Teach the per 100 g sodium column on the label. Most salt comes from packaged food, not the shaker.	Orthostatic hypotension or heart failure — individualise rather than restrict.
Potassium	Food first. Offer potassium-enriched salt to people who salt their food.	Increased hyperkalaemia risk — only with clinical supervision and monitoring.

Topic	First move in the consultation	Bring in someone else when
Fibre	Five serves of vegetables including legumes, and swap refined grains for wholegrain.	Cost or availability is the barrier — work from what the person can actually get.
Physical activity	Ask about current activity and sitting time before advising anything.	Comorbidity, frailty or safety concerns, or before a structured or vigorous program — refer to an Accredited Exercise Physiologist or physiotherapist.
Alcohol	Screen with AUDIT-C or IRIS rather than asking an open question.	Screening flags risky drinking — use the RACGP alcohol and other drug pathways.
Smoking and vaping	Ask, Advise, Help at every visit, and record smoking and vaping status.	Every time — Quitline referral plus TGA-approved pharmacotherapy beats either alone.
Weight	Follow the Heart Foundation obesity and cardiovascular disease consensus statement.	As set out in that statement.

6. Common barriers, across every intervention

When this comes up	What to do
Cost is the barrier	A GP Chronic Condition Management Plan subsidises individual and group allied health sessions. Quitline referral and Heart Foundation Walking are free.
No allied health locally	Telehealth is an option for both dietetics and exercise physiology.
Limited health, numerical or culinary literacy	Use plain language and visual aids built around foods and activities the person recognises. Refer for tailored support rather than handing over written material.
Food, facilities or programs are hard to get to	Ask what the person can actually get and afford before recommending anything specific.

When this comes up	What to do
The person is First Nations	Offer the First Nations resource in preference to the general-population equivalent. These are usually developed with communities and should be the first referral.
The topic carries stigma — alcohol, smoking, weight	Advise respectfully and without judgement. Stigma and shame affect whether someone engages with care at all.
The person wants to use an app	Check it against the RACGP guidance on recommending health apps, and confirm a nutrition app draws on Australian nutrient data and the Australian Dietary Guidelines. Ask at the next visit whether it is actually being used. Apps, wearables and web programs support counselling; they do not replace it.[41-43]

No specific product is recommended in this guideline. These technologies change quickly and the evidence for individual products is limited.

7. Heart-healthy eating pattern

In the consultation

- Use the Heart Foundation's heart-healthy eating pattern as the framework. It brings together the principles of the DASH and Mediterranean diets, both of which improve cardiovascular risk factors.[44-47]
- Make water the drink of choice, and advise limiting discretionary and ultra-processed foods — cakes, biscuits, pastries, chocolate, chips, lollies, fast food — and sugar-sweetened drinks such as soft drink, flavoured milk, energy drinks and sweetened juice. These are the main sources of added sugar, salt, and saturated and trans fats.
- Tailor advice to the person's preferences, culture, cooking skills, and what they can access and afford. Keep the core elements of the pattern; change the foods that deliver them.[48,49]
- Teach label reading — the nutrition information panel, health star rating and ingredients list. Use the resources below, refer to an Accredited Practising Dietitian, or point to a structured program such as a supermarket tour run by a community health clinic.
- Reducing sodium and increasing potassium and fibre are the nutrient-level strategies that matter most for blood pressure. See the sections that follow.

What the pattern looks like

Food group	What to aim for
Vegetables and fruit	Plenty, across the day.

Food group	What to aim for
Wholegrains	A variety of fibre-rich wholegrains — grainy bread, wholemeal pasta, oats, brown rice.
Protein	Mostly fish and seafood, legumes, nuts and seeds. Smaller amounts of eggs and lean poultry. Red meat one to three times a week.
Dairy	Unflavoured milk, yoghurt and cheese. Reduced-fat varieties for people with elevated LDL-cholesterol or coronary heart disease.
Fats	Nuts, seeds, avocados, olives and their oils for cooking.
Flavour	Herbs and spices instead of salt.[44]

When to refer

- Refer to an Accredited Practising Dietitian where dietary change is complex or comorbidities are present. Advice from a dietitian lowers blood pressure more than the same advice from other providers.[50,51]
- Where a dietitian is not available, an appropriately trained health professional can provide dietary support.
- Use the Hierarchy of dietary interventions to judge how far to escalate and when to refer.

Priority populations

Group or setting	What changes
Regional and remote	Cost and limited availability of fresh fruit, vegetables, fish and seafood are real constraints.[52-55] Frozen, dried and canned fruit, vegetables and legumes with no added salt or sugar are appropriate substitutes. Frozen and canned fish are acceptable — choose products in spring water or olive oil rather than brine. Limited cooking and storage facilities also constrain what is practical, so work from what the person has.
First Nations peoples	Support the inclusion of traditional foods where this fits the person's preferences and cultural practices, and link to local programs where available.[56,57]
Older adults	Ask whether meals come from an external provider. Where a special diet is needed, contact the provider so the meals match it.

Resources

Resource	Use it for
RACGP: Smoking, nutrition, alcohol, physical activity (SNAP)	A consistent structure for raising diet, activity, alcohol and smoking in a routine consultation.
RACGP: Recommending health apps	Assessing an app before you suggest it.
Heart Foundation: nutrition position statements, evidence summaries and reviews	Background when you need the evidence behind a specific food or nutrient.
Heart Foundation: Reading food labels	Teaching the nutrition information panel, per 100 g comparison and health star ratings.
Heart Foundation: Heart-healthy recipes	Something concrete to send home with.
Heart Foundation: Healthy eating skills	When the barrier is planning, shopping or cooking rather than knowledge.
Heart Foundation: Hierarchy of dietary interventions	Deciding how far to escalate and when to refer.
Eatforhealth.gov.au: Eat for Health resources	National dietary guidance and consumer material.
Commonwealth of Australia: Health Star Rating System	Comparing similar products within a food category.
Healthy Eating With No Money & No Time	When cost or time is the main barrier.

For First Nations people

Resource	Use it for
Eatforhealth.gov.au: Aboriginal and Torres Strait Islander guide to healthy eating	Patient-facing dietary guidance developed for First Nations people.

Resource	Use it for
Australian Indigenous HealthInfoNet: nutrition	Local programs, publications and resources.
Heart Foundation and St Vincent's Heart Health	General heart health resources for First Nations people.

8. Sodium

In the consultation

- The target is less than 2,000 mg of sodium a day — under 5 g of salt, or about a teaspoon — counting the salt already in processed, packaged and takeaway food, not just what is added at home.
- Reduce gradually. Taste adapts over time, and a stepwise reduction is easier to sustain.[58]
- Tracking intake helps. A paper diary works, and so do apps that scan barcodes and interpret nutrition labels.[41,59,60]

Where the salt is, and what to do about it

Do this	In practice
Build meals from whole foods	Fresh, minimally processed vegetables, fruit, wholegrains and lean protein — meat, fish, poultry, legumes, nuts and seeds.
Cut the high-salt staples	Processed meat, savoury snacks, sauces, condiments, takeaway and ready-made meals.
Rinse what you can	Drain and rinse canned vegetables before eating.
Change how you flavour food	Herbs, spices, garlic, ginger, lemon juice or vinegar instead of salt.
Watch the cooking staples	Go easy on soy sauce, fish sauce, gravy, and stock powders and cubes. Choose reduced-salt versions where they exist.
Take the salt off the table	Avoid adding salt when cooking or at the table. If salt is added, switch to a potassium-enriched substitute — see Potassium.
Read the panel, not the front of the pack	Compare the per 100 g sodium column and take the lower option. Look for 'low salt', 'no added salt' or 'salt-reduced'.

Check before you advise

- Individualise where sodium requirements differ. Be cautious with restriction in orthostatic hypotension and heart failure.[61-63]

Resources

Resource	Use it for
Heart Foundation: Reading food labels	Teaching the per 100 g comparison.
Heart Foundation: Salt and heart health	A patient-facing explainer.
Heart Foundation: Food sources of sodium	Concrete swaps rather than a general instruction to cut down.
Health Direct: Sodium and salt	Plain-language patient information.
NHMRC: sodium nutrient reference values	When a specific number is queried.

9. Potassium

In the consultation

- Food first. Increase potassium-rich foods as part of the heart-healthy eating pattern: legumes such as chickpeas and beans, nuts, vegetables such as spinach, tomatoes and potatoes, and fruit such as bananas, apples and dried fruit.[64,65]
- Lowering sodium and raising potassium work together. Both stay as core advice for everyone with hypertension.[66]
- For people who add salt during cooking or at the table, recommend a 1:1 switch from regular salt to potassium-enriched salt, which is roughly 75% sodium chloride and 25% potassium chloride.[66,67]
- Decide together, weighing medical history, kidney function, contraindications, and the person's preferences and values, within the overall management plan.

Check before you advise

Check	Why it matters
Kidney function and hyperkalaemia risk	This advice does not apply to people at increased risk of hyperkalaemia — chronic kidney disease, potassium-sparing diuretics, potassium supplements, or other reasons. Where

Check	Why it matters
	potassium is increased in these people, do it under clinical supervision with monitoring of serum potassium.
Iodine intake	Fewer than half of the potassium-enriched salt substitutes on the market are iodised.[68] Where iodised salt is a significant source of dietary iodine, consider overall intake, particularly in someone at risk of deficiency.[67]
Availability and affordability	Check before recommending potassium-rich foods or potassium-enriched salt, particularly in regional and remote areas.[69]

Resources

Resource	Use it for
Heart Foundation: Food sources of potassium	Supporting a food-first conversation.
Health Direct: foods high in potassium	A patient-facing list.
NHMRC: potassium nutrient reference values	When a specific number is queried.
Hypertension Australia and National Hypertension Taskforce of Australia: position statement on potassium-enriched salt	Who is and is not suitable, and the size of the effect to expect.

10. Fibre

In the consultation

- The Adequate Intake for adults in Australia is 25 g a day for women and 30 g for men. The Suggested Dietary Target for reducing chronic disease risk is higher again — 28 g for women and 38 g for men — and most adults meet neither.[70]

How to get there

Do this	In practice
Vegetables, legumes and fruit	At least five serves of vegetables, including legumes, and two serves of fruit daily.
Swap the grains	White bread, regular pasta and white rice for wholegrain versions, plus barley, oats and wholegrain breakfast cereals.
Change the snacks	Nuts and seeds, wholegrain crackers or air-popped popcorn.
Use the label	Choose products with more fibre per 100 g.

Priority populations

- Check availability and affordability before recommending fibre-rich foods, particularly in regional, remote and lower socioeconomic areas.[71,72]

Resources

Resource	Use it for
Heart Foundation: Reading food labels	Comparing fibre per 100 g between products.
Heart Foundation: Food sources of fibre	Practical substitutions.
Health Direct: high-fibre foods	A patient-facing list.
NHMRC: fibre nutrient reference values	The Adequate Intake and Suggested Dietary Target figures.

11. Physical activity

In the consultation

- Ask about current activity and sedentary time, and compare it against the national 24-hour movement guidelines.[73]
- Encourage regular physical activity for everyone, whether for preventing or managing high blood pressure.[13,73-76]

- Explain that the benefits go well beyond blood pressure: better glucose and lipid profiles, fitness, body composition, mental wellbeing, physical function and quality of life, and lower risk of type 2 diabetes, dementia and some cancers.[73,76,77]
- Advise breaking up prolonged sitting through the day, not just adding exercise.[73,76]
- Match the advice to the person — baseline fitness, physical limitations, musculoskeletal injury or disease, comorbidities, medication, preferences, and access to safe facilities and environments.[73,74,78]

How to build it up

Principle	What to say
Any activity beats none	Emphasise this first. It matters more than hitting a particular number.[73,76]
Volume before intensity	Set small, measurable goals early to build confidence. Build the total amount of activity first and increase intensity later, particularly for someone starting out or returning after a break, where this lowers injury risk.[73,76]
Choose something sustainable	Walking, swimming, cycling or a home-based program. Group options such as a local parkrun or walking group add peer support and social connection, which helps people keep going.[79-82]
It can be accumulated	'Exercise snacking' — brief bursts of moderate-to-vigorous movement built into a routine, like walking to public transport or taking the stairs — improves cardiorespiratory fitness and is often more achievable for someone short on time.[83,84]
A number that works	Around 7,000 steps a day is realistic for many people and is associated with lower cardiovascular risk and mortality than lower counts.[85] Wearables and step-tracking apps help with monitoring and motivation.[78,86]

When to refer

- Refer to an Accredited Exercise Physiologist or physiotherapist for tailored advice, safe progression and behaviour change support, particularly where comorbidities are present.[73,76,78]
- An exercise professional can also complete a comprehensive pre-exercise clinical screen, which allows safe prescription tailored to underlying conditions and reduces the risk of adverse events.
- A Chronic Condition Management Plan can subsidise individual or group exercise sessions.

Priority populations

- Individualise advice for First Nations people, taking account of cultural context, preferred language, and the capacity to take part in what is being suggested. Refer to local programs where these exist.[87,88]

Resources

Resource	Use it for
RACGP: SNAP	A consistent prompt to ask about activity.
RACGP: Recommending health apps	Assessing an app before you suggest it.
Department of Health, Disability and Ageing: 24-hour movement guidelines — recommendations for people with chronic conditions	The target framework to assess against.
AUSactive, ESSA and Sports Medicine Australia: pre-exercise screening and risk factor assessment	Before someone starts a structured or vigorous program.
Exercise is Medicine Australia: hypertension and exercise factsheet	A single-page handout at the end of a consultation.
Heart Foundation: physical activity resources for health professionals	Background and patient material.
Heart Foundation Walking	A free, low-barrier, social option where cost or confidence is the barrier.

For First Nations people

Resource	Use it for
Australian Indigenous HealthInfoNet: physical activity	Local programs, publications and resources.
Heart Foundation and St Vincent's Heart Health	General heart health resources for First Nations people.

12. Alcohol

In the consultation

- Screen with a validated tool — AUDIT-C or the Indigenous Risk Impact Screen (IRIS) — rather than an open question about intake.
- There is no safe level of alcohol. The less someone drinks, the lower their risk of cardiovascular disease and other alcohol-related harm.[89,90]
- Drinking less reduces a range of health risks, not only blood pressure.[89,90]
- One Australian standard drink contains 10 g of pure alcohol, and a given drink often holds more than one. Ask the person to check the label, and remember that home pours are usually larger than they look.
- Encourage regular alcohol-free days each week as a practical way to bring total intake down.

Priority populations

- Discuss alcohol with First Nations people respectfully and without judgement, recognising that stigma and shame can stop people engaging with care. Refer to programs, services and resources tailored to First Nations people where these are available.

Resources

Resource	Use it for
RACGP: SNAP	A consistent prompt to ask about alcohol.
RACGP: alcohol and other drug (AOD) screening	The AUDIT-C and IRIS tools themselves.
Heart Foundation: Alcohol and heart health	A standard drink guide and practical tips to drink less.
NHMRC: Australian guidelines to reduce health risks from drinking alcohol	The national limits.

For First Nations people

Resource	Use it for
Australian Indigenous Alcohol and Other Drugs Knowledge Centre	Alcohol resources, publications and programs.
Strong Spirit Strong Mind	Alcohol resources and tools.

Resource	Use it for
Heart Foundation and St Vincent's Heart Health	General heart health resources for First Nations people.

13. Smoking and vaping cessation

In the consultation

- Ask every adult, whatever their age, whether they smoke or vape, and record it in the clinical record.
- Use Ask, Advise, Help, or the RACGP 5As — ask, assess, advise, assist, arrange.
- Offer a referral to a multi-session behavioural intervention such as Quitline, and prescribe a TGA-approved pharmacotherapy where clinically appropriate. The combination works better than either alone.
- Encourage people who use e-cigarettes to quit, whether or not the product contains nicotine.[91]
- Expect it to take more than one attempt. Keep offering advice and access to evidence-based strategies after a relapse.

Common sticking points

What comes up	How to respond
"I'll put on weight"	The health benefits of quitting are likely to outweigh the risks of the weight gained. Refer to allied health if that concern is a barrier.
The person has a mental health condition	Extra support is often needed. The RACGP smoking cessation guidelines set out the additional options.[92]
The person vapes instead of smoking	Encourage quitting either way. The Heart Foundation and Quit position statement covers how to handle questions about e-cigarettes.

Priority populations

- Quitline is the preferred multi-session behavioural intervention because it is accessible and uses protocols tailored to specific groups, including First Nations people through the Aboriginal Quitline.
- A range of cessation resources and programs are tailored for First Nations people. These are culturally responsive and often developed in partnership with communities, so refer to them first.

Resources

Resource	Use it for
Heart Foundation: Smoking, vaping and your heart	The patient-facing handout.
Heart Foundation and Quit: position statement on smoking and vaping cessation	How to handle questions about e-cigarettes.
Heart Foundation and Commonwealth of Australia: Australian Guideline for assessing and managing cardiovascular disease risk, 2023	Where smoking sits in overall cardiovascular risk.
RACGP: SNAP	A consistent prompt to ask about smoking.
RACGP: Supporting smoking cessation — a guide for health professionals	The prescribing and counselling detail.
RACGP: smoking cessation apps	Assessing an app before you suggest it.
Quitline	Free multi-session behavioural support — refer during the consultation.
Quit Centre	The clinician-facing digital hub.
Cancer Council Victoria: Tobacco in Australia	Background research and policy.

For First Nations people

Resource	Use it for
Quitline for Aboriginal and Torres Strait Islander Communities	A cessation service with First Nations counsellors, and resources developed specifically for First Nations people.

Resource	Use it for
Medicines to help Aboriginal and Torres Strait Islander people stop smoking — health workers guide	Prescribing support for the health workforce.
Australian Indigenous Alcohol and Other Drugs Knowledge Centre	Tobacco resources, publications and programs.
Heart Foundation and St Vincent's Heart Health	General heart health resources for First Nations people.

14. Weight

Use the Heart Foundation's Obesity and cardiovascular disease: a clinical consensus statement. It sets out recommendations, practice points and resources for assessing, diagnosing and managing adults living with overweight or obesity who have established cardiovascular disease or are at high risk of it, covering behaviour modification, obesity management medications, metabolic bariatric surgery, and lifelong care and follow-up.

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