

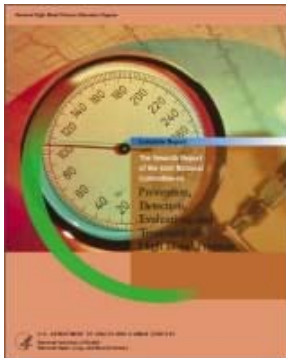
Joint National Committee on High Blood Pressure (JNC 8)

**AMGA Town Hall
Scientific Advisory Council**

History of NHLBI CVD Adult Clinical Guidelines

Joint National Committee on Prevention, Detection, Evaluation, & Treatment of High Blood Pressure (JNC)

JNC 7: 2003
JNC 6: 1997
JNC 5: 1992
JNC 4: 1988
JNC 3: 1984
JNC 2: 1980
JNC 1: 1976



Detection, Evaluation, & Treatment of High Blood Cholesterol in Adults (ATP, Adult Treatment Panel)

ATP III Update: 2004
ATP III: 2002
ATP II: 1993
ATP I: 1988

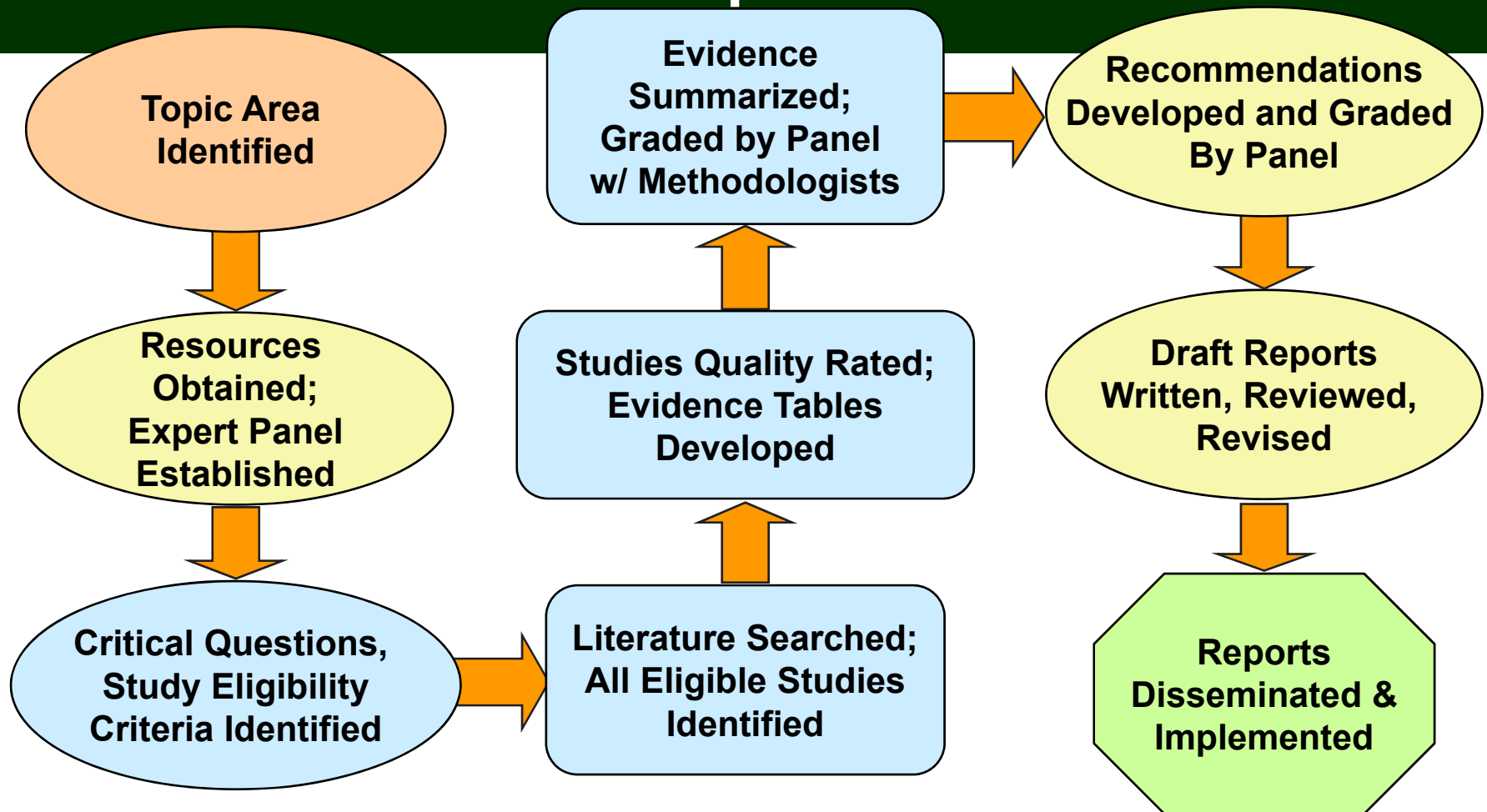


Clinical Guidelines on the Identification, Evaluation, & Treatment of Overweight and Obesity in Adults

Obesity 1: 1998



NHLBI Systematic Review and Guideline Development Process



*The Blue portion is the Systematic Review

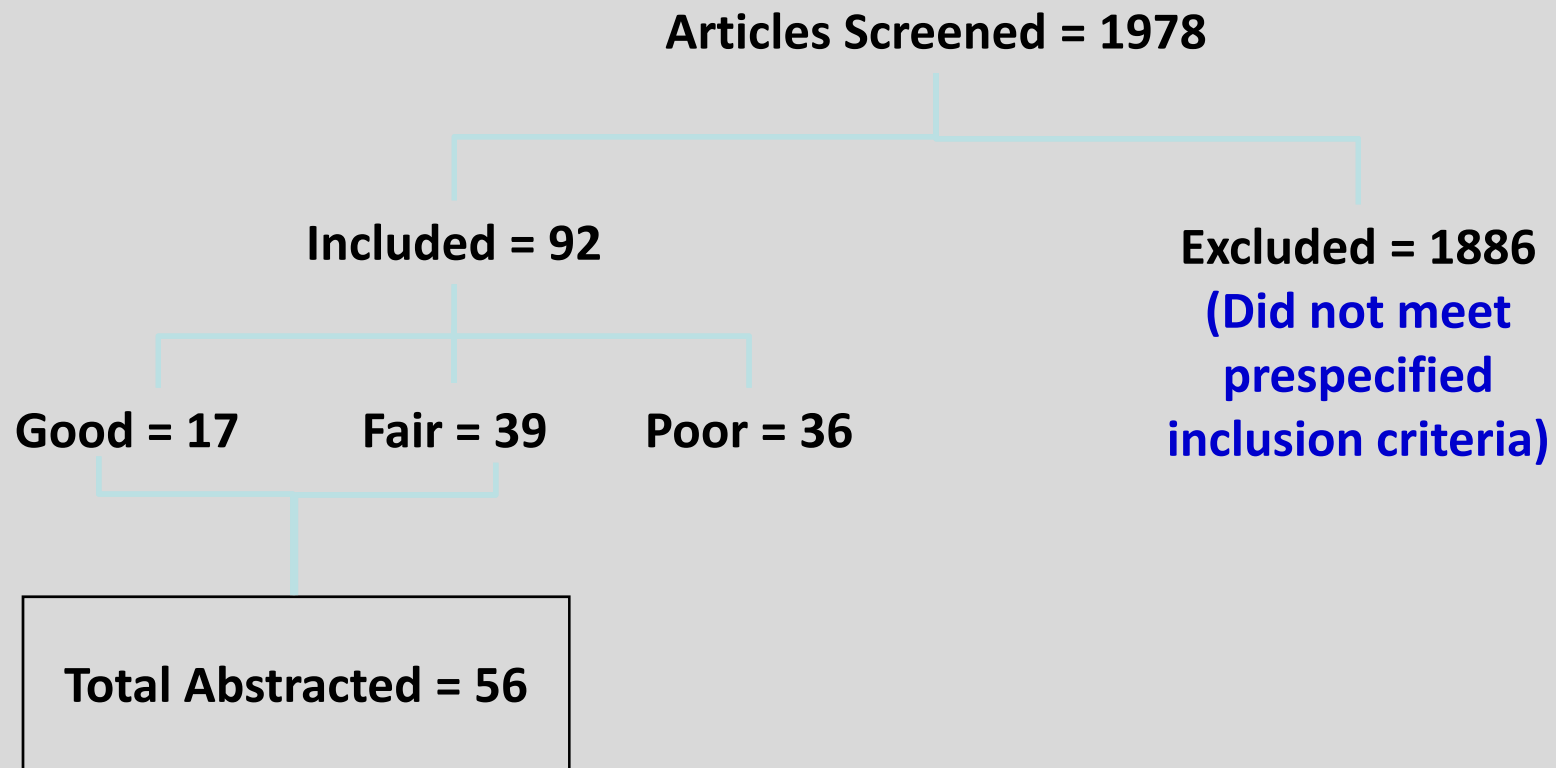
This 2014 HTN evidence-based guideline focuses on the panel's 3 highest ranked questions related to HTN management

1. In adults with HTN, does initiating antihypertensive pharmacologic therapy at specific BP thresholds improve health outcomes?
2. In adults with HTN, does treatment with antihypertensive pharmacologic therapy to a specified BP goal lead to improvements in health outcomes?
3. In adults with HTN, do various antihypertensive drugs or drug classes differ in comparative benefits and harms on specific health outcomes?

Thresholds

The panel decided that, although some trials had higher thresholds for eligibility than the goals tested, translation into practice should make the threshold for initiating antihypertensive treatment the same as the BP treatment goal.






Question 2: Among adults, does treatment with antihypertensive pharmacological therapy to a specified BP goal lead to improvements in health outcomes?



NHLBI Study Assessment Tool: Controlled Intervention Studies

Criteria	Yes	No	Other
1. Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT?			
5. Were the people assessing the outcomes blinded to the participants' group assignments?			
7. Was the overall drop-out rate from the study at its endpoint 20% or less than the number originally allocated to treatment?			
14. Were all randomized participants analyzed in the group to which they were originally assigned (i.e., did they use an intention-to-treat analysis)?			
Quality Rating (Good, Fair, Poor) (see guidance)			
Rater #1 initials:	Rater #2 initials:		
Additional Comments (If POOR, please state why):			

Summary Table for Goal BP Question

Trial, year Sample characteristics Sample size Duration Quality Rating	BP Goal Achieved BP Differences between groups	Overall Mortality	Coronary Heart Disease (includes fatal MI, non-fatal MI, sudden death, or combinations)	Cerebrovascular morbidity and mortality (includes fatal, non-fatal, or combination)	Heart Failure (includes fatal, non-fatal or combination)
SHEP, 1991 Adults, ages ≥ 60 years, SBPs 160-219 and DBPs of < 90 mmHg N = 4,736 Mean 4.5 years Good	SBP Goal: <ul style="list-style-type: none"> For individuals with SBPs of >180 mmHg: <160 For those with SBPs of 160-179: a reduction of at least 20 mmHg <u>At start of trial</u> Baseline SBP, mmHg (SD): Txt: 170.5 (9.5) Placebo: 170.1 (9.2) <u>At 5 years</u> Achieved SBP, mmHg (SD) Txt: 144.0 (19.3) Placebo: 155.1 (20.9) p = NR	 Total deaths RR: 0.87 CI (0.73, 1.05)	 Non-fatal MI RR: 0.67 CI (0.47, 0.96) Symptomatic MI Events: 63 vs 98 p = 0.005 CHD RR: 0.75 CI (0.60, 0.94) Non-fatal MI or CHD deaths RR: 0.73 CI (0.57, 0.94)  MI deaths: RR: 0.57 CI (0.30-1.08) Total CHD deaths: RR: 0.80 (0.57, 1.13) CHD death - sudden (<1 hr) RR: 1.00 CI (0.56, 1.78) CHD death - rapid (1-24 hrs) RR: 0.87 CI (0.48, 1.56)	 Non-fatal plus fatal stroke RR: 0.64 CI (0.50, 0.82) p = 0.0003	 Fatal and non-fatal HF RR: 0.51 CI (0.37, 0.71) p < 0.001

Special Communication

2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults

Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)

Paul A. James, MD; Suzanne Oparil, MD; Barry L. Carter, PharmD; William C. Cushman, MD; Cheryl Dennison-Himmelfarb, RN, ANP, PhD; Joel Handler, MD; Daniel T. Lackland, DrPH; Michael L. LeFevre, MD, MSPH; Thomas D. MacKenzie, MD, MSPH; Olugbenga Ogedegbe, MD, MPH, MS; Sidney C. Smith Jr, MD; Laura P. Svetkey, MD, MHS; Sandra J. Taler, MD; Raymond R. Townsend, MD; Jackson T. Wright Jr, MD, PhD; Andrew S. Narva, MD; Eduardo Ortiz, MD, MPH

JAMA 2/5/2014

Box. Recommendations for Management of Hypertension

Recommendation 1

In the general population aged ≥ 60 years, initiate pharmacologic treatment to lower blood pressure (BP) at systolic blood pressure (SBP) ≥ 150 mm Hg or diastolic blood pressure (DBP) ≥ 90 mm Hg and treat to a goal SBP < 150 mm Hg and goal DBP < 90 mm Hg. (Strong Recommendation – Grade A)

Corollary Recommendation

In the general population aged ≥ 60 years, if pharmacologic treatment for high BP results in lower achieved SBP (eg, < 140 mm Hg) and treatment is well tolerated and without adverse effects on health or quality of life, treatment does not need to be adjusted. (Expert Opinion – Grade E)

Recommendation 2

In the general population < 60 years, initiate pharmacologic treatment to lower BP at DBP ≥ 90 mm Hg and treat to a goal DBP < 90 mm Hg. (For ages 30-59 years, Strong Recommendation – Grade A; For ages 18-29 years, Expert Opinion – Grade E)

Recommendation 3

In the general population < 60 years, initiate pharmacologic treatment to lower BP at SBP ≥ 140 mm Hg and treat to a goal SBP < 140 mm Hg. (Expert Opinion – Grade E)

Recommendation 4

In the population aged ≥ 18 years with chronic kidney disease (CKD), initiate pharmacologic treatment to lower BP at SBP ≥ 140 mm Hg or DBP ≥ 90 mm Hg and treat to goal SBP < 140 mm Hg and goal DBP < 90 mm Hg. (Expert Opinion – Grade E)

Recommendation 5

In the population aged ≥ 18 years with diabetes, initiate pharmacologic treatment to lower BP at SBP ≥ 140 mm Hg or DBP ≥ 90 mm Hg and treat to a goal SBP < 140 mm Hg and goal DBP < 90 mm Hg. (Expert Opinion – Grade E)

Recommendation 6

In the general nonblack population, including those with diabetes, initial antihypertensive treatment should include a thiazide-type diuretic, calcium channel blocker (CCB), angiotensin-converting enzyme inhibitor (ACEI), or angiotensin receptor blocker (ARB). (Moderate Recommendation – Grade B)

Recommendation 7

In the general black population, including those with diabetes, initial anti-hypertensive treatment should include a thiazide-type diuretic or CCB. (For general black population: Moderate Recommendation – Grade B; for black patients with diabetes: Weak Recommendation – Grade C)

Recommendation 8

In the population aged ≥ 18 years with CKD, initial (or add-on) antihypertensive treatment should include an ACEI or ARB to improve kidney outcomes. This applies to all CKD patients with hypertension regardless of race or diabetes status. (Moderate Recommendation – Grade B)

Recommendation 9

The main objective of hypertension treatment is to attain and maintain goal BP. If goal BP is not reached within a month of treatment, increase the dose of the initial drug or add a second drug from one of the classes in recommendation 6 (thiazide-type diuretic, CCB, ACEI, or ARB). The clinician should continue to assess BP and adjust the treatment regimen until goal BP is reached. If goal BP cannot be reached with 2 drugs, add and titrate a third drug from the list provided. Do not use an ACEI and an ARB together in the same patient. If goal BP cannot be reached using only the drugs in recommendation 6 because of a contraindication or the need to use more than 3 drugs to reach goal BP, antihypertensive drugs from other classes can be used. Referral to a hypertension specialist may be indicated for patients in whom goal BP cannot be attained using the above strategy or for the management of complicated patients for whom additional clinical consultation is needed. (Expert Opinion – Grade E)

Recommendation

In the general adult population 60 years of age and older, initiate pharmacologic treatment to lower blood pressure at SBP \geq 150mm Hg or DBP \geq 90mm Hg and treat to a goal SBP $<$ 150 mm Hg and goal DBP $<$ 90mmHg.

(Strong Recommendation – Grade A)

Major Trials Testing SBP Goals in General Populations

	SHEP	Syst-Eur	HYVET	JATOS	VALISH
Number	4,736	4,695	3,845	4,418	3,260
Entry SBP	160-219	160-219	160-199	≥160	≥160
Goal SBP	<148	<150	<150	<140	<140
Achieved SBP	142	151	144	136	137
Stroke ↓	36%	42%	ns	ns	ns
CVD ↓	32%	31%	34%	ns	ns
Mortality ↓	ns	ns	21%	ns	ns

SBP = systolic blood pressure

CVD = cardiovascular disease

Cochrane Database of Systematic Reviews: Treatment Blood Pressure Targets for Hypertension 2009

“The cohort of patients with low blood pressure as identified by achieved blood pressure selects for patients who did not have sustained elevated blood pressure in the first place, for patients in whom the blood pressure is most easily reduced, for patients with the lowest baseline blood pressure, and for patients who are most compliant (healthy user effect, Dormuth 2009).”
continued ...

Cochrane 2009 continued

“All of these factors are most likely associated with a lower risk of having an adverse cardiovascular event. The approach is thus heavily biased for finding less cardiovascular events in the patients with lower blood pressure.”

Arguedas JA, Perez MI, Wright JM



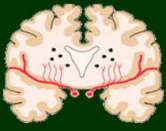
The Secondary Prevention of Small Subcortical Strokes (SPS3) Study

Blood-pressure Targets in Patients with Recent Lacunar Stroke: The SPS3 Randomized Trial

**SPS3 Study Group, Benavente OR, et al.
Lancet. 2013(Aug 10);382:507-15.**

*SPS3 Coordinating Center: University of British Columbia, Vancouver, Canada
SPS3 Statistical Center: University of Alabama at Birmingham, US*

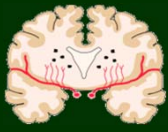
**SPS3 is sponsored by National Institutes of Health - NINDS
NINDS: U01 NS38529**



SPS3

SPS3 Design

- Randomized multicenter international trial.
- Lacunar strokes within 180 days (mean 62), verified by MRI.
- Randomized to 2 interventions in a factorial design:
 - 1) *Antiplatelet therapy (double blind)*:
 - aspirin 325 mg + placebo
 - aspirin 325 mg + clopidogrel 75 mg
 - 2) *Target levels of blood pressure control (open label)*:
 - “higher” 130-149 mmHg systolic (mean 138 mm Hg)
 - “lower” <130 mmHg systolic (mean 127 mm Hg)
- Outcomes:
 - Primary: recurrent stroke.
 - Secondary: major vascular events, cognitive decline, death.
- 3020 participants, mean follow up 3.7 years.



SPS3

Efficacy Outcomes

	Higher Target		Lower Target		HR (95% CI)	p value
	N	%/pt-yr	N	%/pt -yr		
All stroke	152	2.8	125	2.3	0.81 (0.64, 1.03)	0.08
-Ischemic stroke	131	2.4	112	2.0	0.84 (0.66, 1.09)	0.19
-Intracerebral hemorrhage	16	0.29	6	0.11	0.37 (0.15, 0.95)	0.03
Major vascular events*	188	3.4	160	3.0	0.84 (0.68, 1.04)	0.10
-Myocardial infarction	40	0.70	36	0.62	0.88 (0.56, 1.4)	0.59
Deaths	101	1.74	106	1.8	1.03 (0.79, 1.35)	0.82
-Vascular death	41	1.74	36	0.61	0.86 (0.55, 1.35)	0.52

*Defined as: stroke, MI, vascular deaths.

Why is it important not to recommend intensifying medication to reduce BP below the level proven in clinical trials?

- Lower thresholds identify a much larger population as having HTN and presumably needing drug therapy (e.g. reducing definition of HTN from $<140/90$ to $<120/80$ doubles those with HTN)
- Millions classified as having HTN based on lower goals require more drugs
- Treating to lower BP goals may be harmful
- If neither beneficial or harmful, resources would be wasted and patient adherence would suffer

Recommendation

Corollary : In the general population 60 years of age and older, if pharmacologic treatment for high blood pressure results in a lower achieved SBP (for example, less than 140 mmHg) and treatment is well tolerated without adverse effects on health or quality of life, treatment does not need to be adjusted
(Expert opinion)

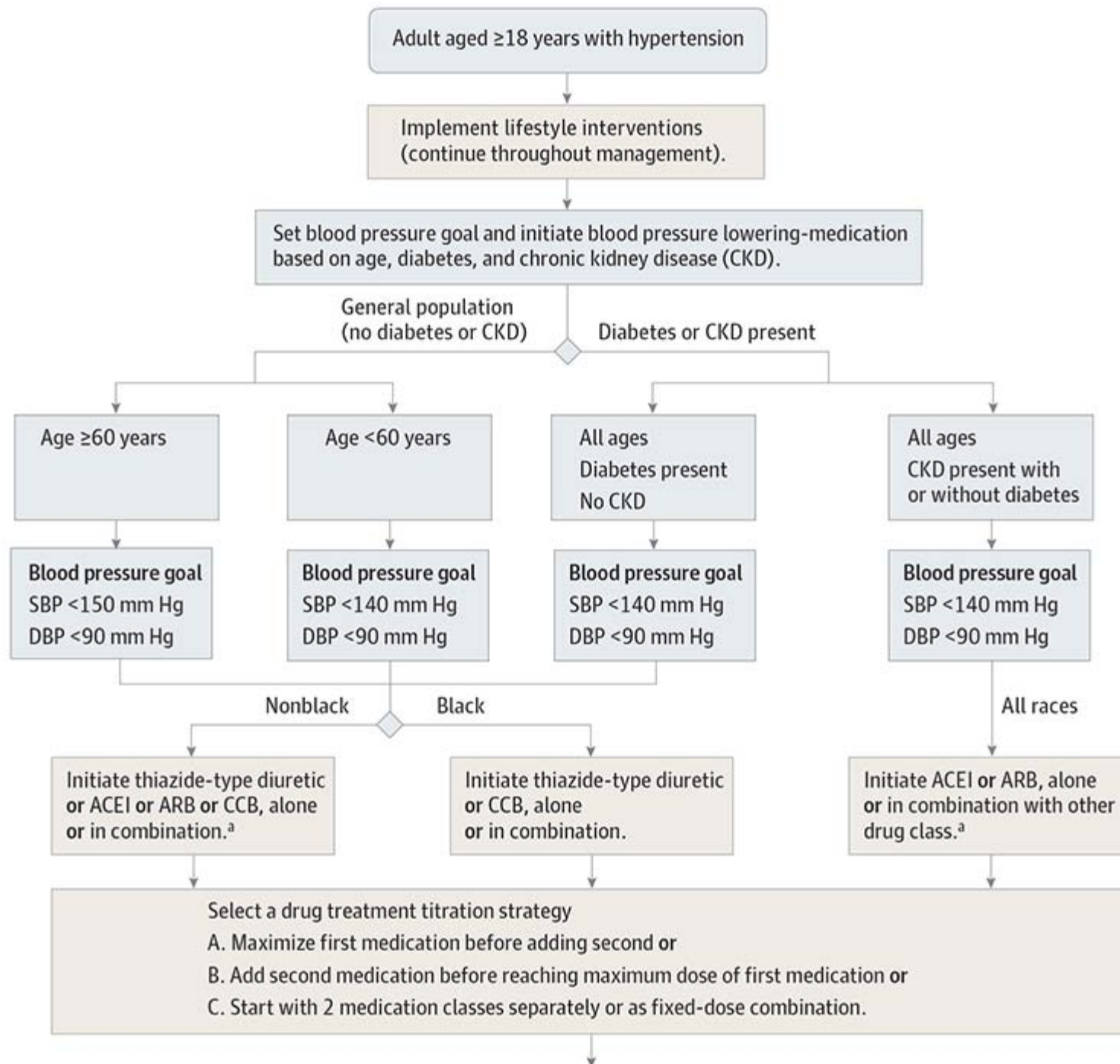
Initial Combinations of Medications

Diuretics

β -blockers should be included in the regimen if there is a compelling indication for a β -blocker

ACE inhibitors
or
ARBs*

Calcium
antagonists



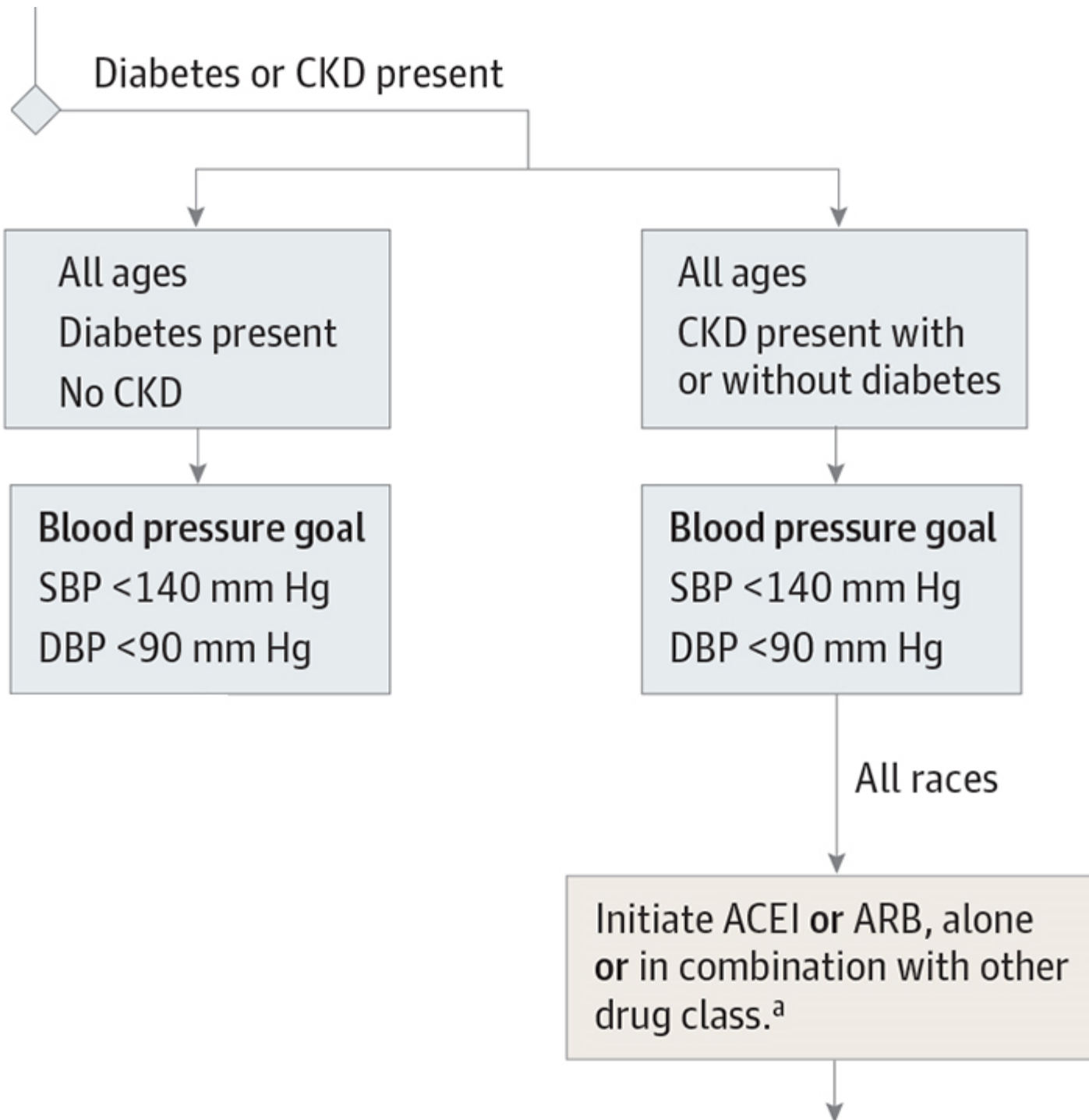
Adult aged ≥ 18 years with hypertension

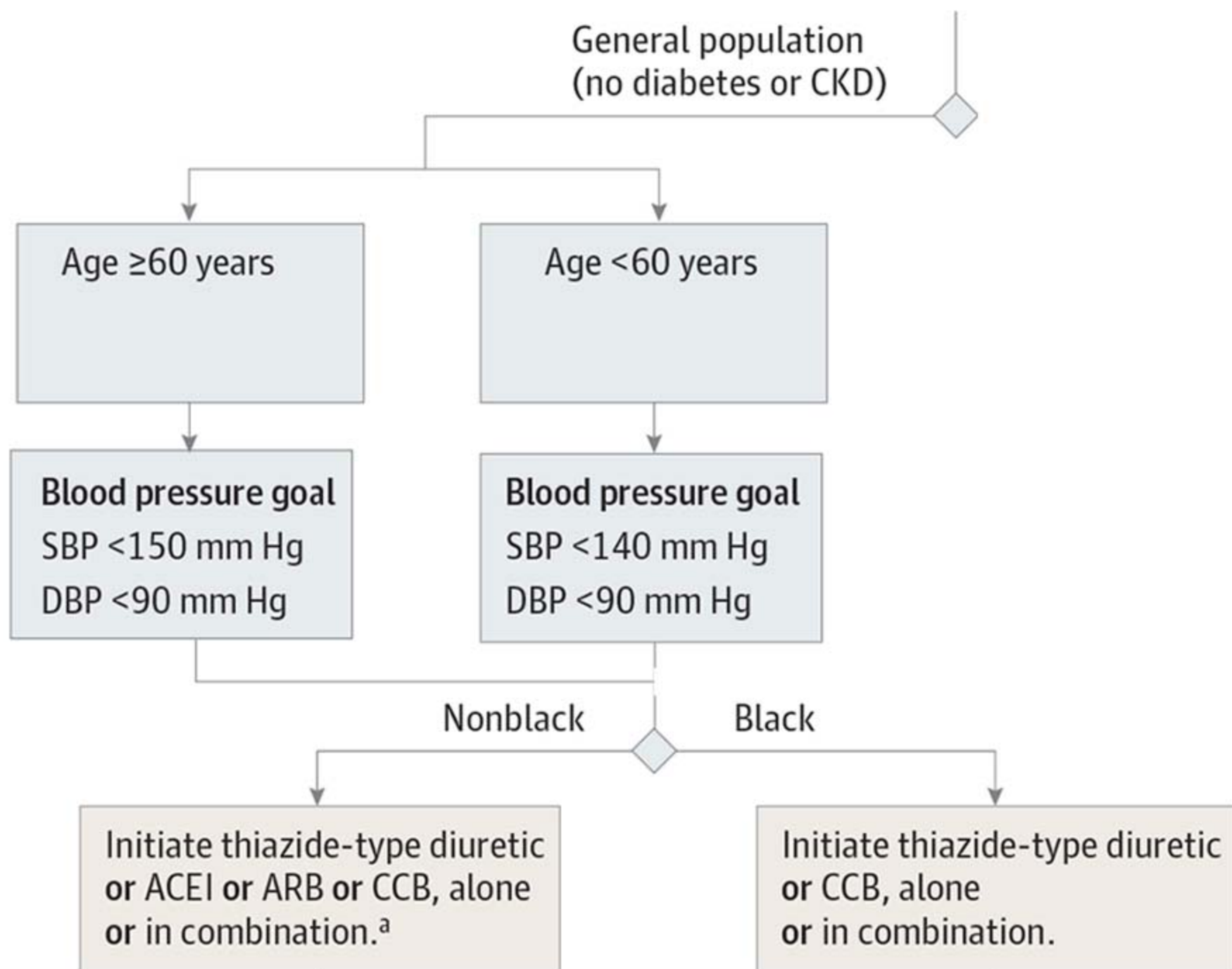


Implement lifestyle interventions
(continue throughout management).



Set blood pressure goal and initiate blood pressure lowering-medication
based on age, diabetes, and chronic kidney disease (CKD).



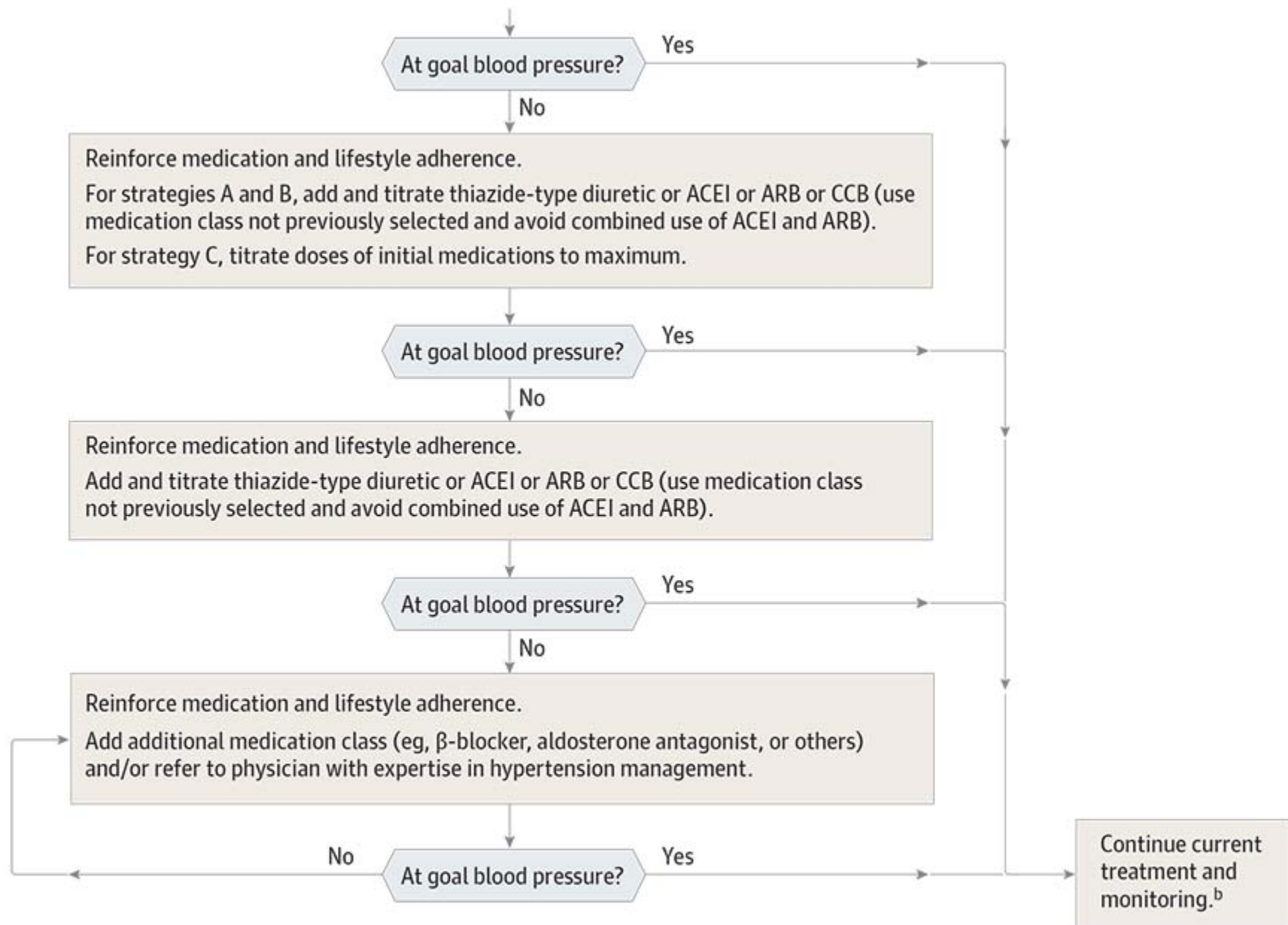


Select a drug treatment titration strategy

A. Maximize first medication before adding second **or**

B. Add second medication before reaching maximum dose of first medication **or**

C. Start with 2 medication classes separately or as fixed-dose combination.



Current NCQA proposal for Controlling High Blood Pressure

- Rate 1: Members 18-59 years with most recent BP <140/90
- Rate 2: Members 60 and older with most recent BP < 150/90
- Rate 3: Total (Rate 1 + Rate 2)
HEDIS 2015 performance metrics

NCQA Process

- HEDIS 2014 (2013 data) is done
- Public comments April through June with final NCQA decision in July 2014
- Passage is highly likely
- 2014 data (HEDIS 2015) would be collected with new specifications in place