



## Blood Pressure Categories

BP Category	Systolic BP (mmHg)		Diastolic BP (mmHg)
Normal Blood Pressure	<120	AND	<80
Elevated Blood Pressure	120-129	AND	<80
Stage 1 Hypertension	130-139	OR	80-89
Stage 2 Hypertension	≥140	OR	≥90

Use average of ≥2 BP readings obtained on ≥2 occasions

# Hypertension Management

Based on the 2017 ACC/AHA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults



## Hypertension Treatment Goals

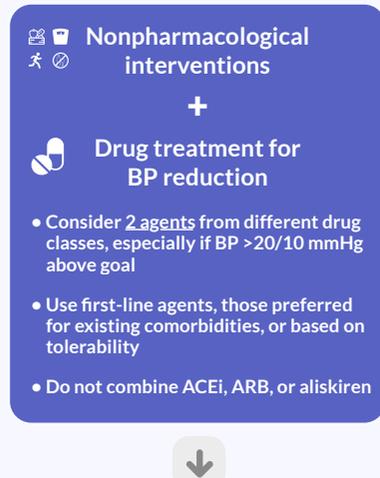
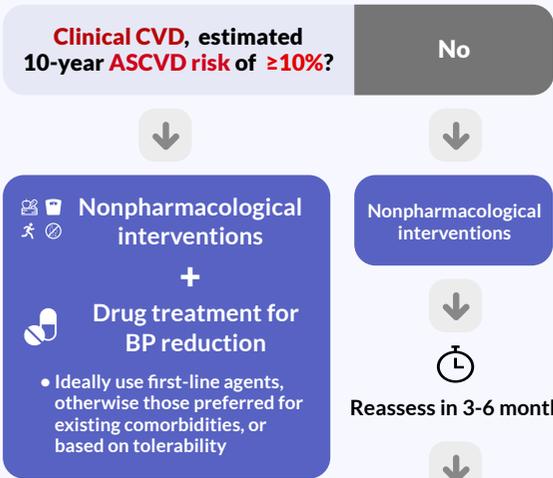
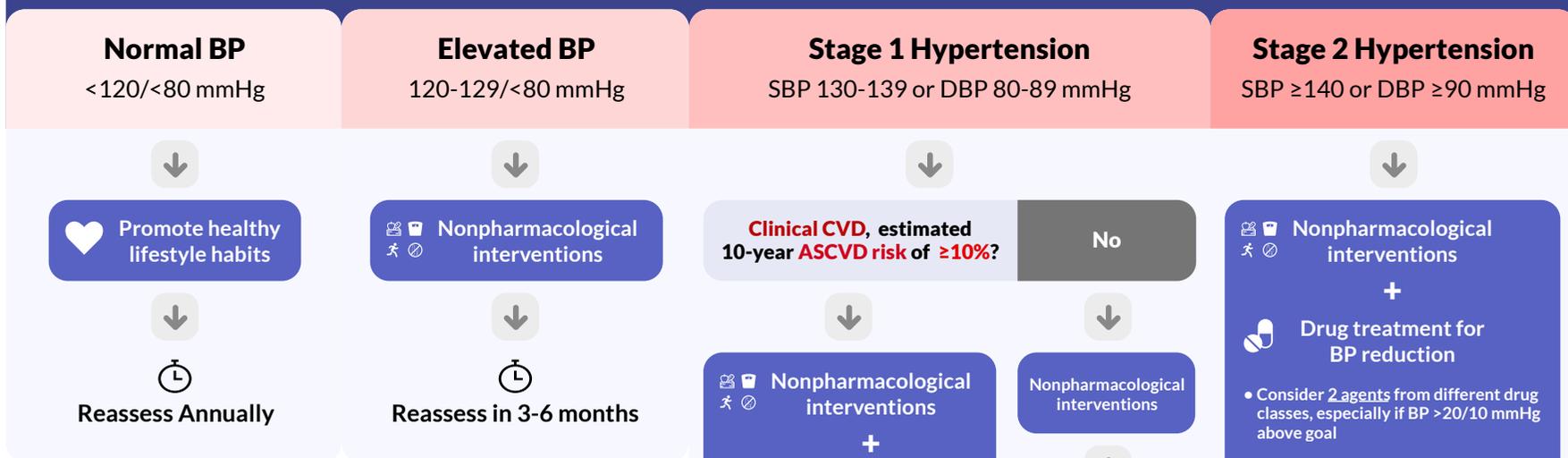
Goal for all **ages <65 years** with hypertension, regardless of chronic comorbidities, if tolerated is **<130/80 mmHg**

BP goal for **ages ≥65 years** is **<130 mmHg (SBP)**

Reasonable to adjust BP goal based on patient factors including: high comorbidity burden, life expectancy, clinical judgment, patient preference,



## Hypertension Treatment Algorithm



## Antihypertensive Medications

### Primary Medications (Generally First-Line)

**Thiazide diuretics**  
chlorthalidone, indapamide, hydrochlorothiazide, metolazone

- Chlorthalidone preferred: long half-life, evidence for CVD benefit
- HCTZ: may be cheaper, more widely available, more tolerable
- Monitor electrolytes: hyponatremia, hypokalemia, uric acid, calcium

**ACE inhibitors**  
lisinopril, benazepril, enalapril, ramipril, etc.

- Do not combine with ARBs or aliskiren
- Risk of hyperkalemia, esp. with CKD, K supplements, K-sparing drugs
- Avoid in pregnancy

**ARBs**  
losartan, valsartan, olmesartan, etc.

- Do not combine with ACEis or aliskiren
- Risk of hyperkalemia, esp. with CKD, K supplements, K-sparing drugs
- Avoid in pregnancy

**CCBs, dihydropyridines**  
amlodipine, felodipine, etc.

- Dose-related lower leg edema, more common in females
- Avoid use with HFrEF; use amlodipine or felodipine if required

**CCBs, non-dihydropyridines\***  
diltiazem, verapamil

- \*Generally less preferred than the dihydropyridine CCBs
- Avoid regular use with BBs due to risk of bradycardia and heart block
- Do not use with HFrEF
- Drug interactions: both are CYP3A4 substrates, moderate inhibitors

### Secondary Medications

**Beta-blockers**  
atenolol, metoprolol, carvedilol, bisoprolol, labetalol, nebivolol, etc.

- May be first-line with compelling indication (e.g. IHD, post-MI, HF)
- HFrEF preferred agents: metoprolol succinate, carvedilol, bisoprolol
- Bronchospastic airway disease preferred: atenolol, metoprolol, bisoprolol
- Generally avoid use of BBs with intrinsic sympathomimetic activity (e.g. acebutolol, pindolol, penbutolol), especially with IHD or HF
- Avoid abrupt cessation: risk of rebound tachycardia

**Loop diuretics**  
furosemide, torsemide, bumetanide

- Preferred diuretics with symptomatic HF
- Preferred over thiazides with significant CKD (GFR <30 mL/min)

**K-sparing diuretics**  
triamterene, amiloride

- Minimal antihypertensive effect; used to protect from hypokalemia
- Avoid in patients with significant CKD (GFR <45 mL/min)

**Aldosterone antagonists**  
spironolactone, eplerenone

- Preferred add-on with resistant HTN and in primary aldosteronism
- K-sparing diuretic effect: avoid with K-sparing diuretics, or CKD
- Spironolactone > risk of gynecomastia, impotence than eplerenone

**Alpha-1 blockers**  
doxazosin, prazosin, terazosin

- May be considered second-line in those with concomitant BPH
- Risk for orthostatic hypotension, especially in older adults

**Direct vasodilators**  
hydralazine, minoxidil

- Use w/ a diuretic and BB: causes fluid retention and reflex tachycardia
- Hydralazine has risk of drug-induced lupus-like syndrome
- Minoxidil has risk of hirsutism and requires use with a loop diuretic

**Central alpha-2 agonists**  
clonidine, guanfacine, methylodopa

- Generally last-line due to CNS adverse effects, orthostatic hypotension
- Avoid abrupt cessation: risk of rebound hypertension (esp. clonidine)

### Reference:

[1] Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines [published correction appears in J Am Coll Cardiol. 2018 May 15;71(19):2275-2279]. J Am Coll Cardiol. 2018;71(19):e127-e248. doi:10.1016/j.jacc.2017.11.006

[2] Jones DW, Whelton PK, Allen N, et al. Management of Stage 1 Hypertension in Adults With a Low 10-Year Risk for Cardiovascular Disease: Filling a Guidance Gap: A Scientific Statement From the American Heart Association. Hypertension. 2021;77(6):e58-e67. doi:10.1161/HYP.000000000000195



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