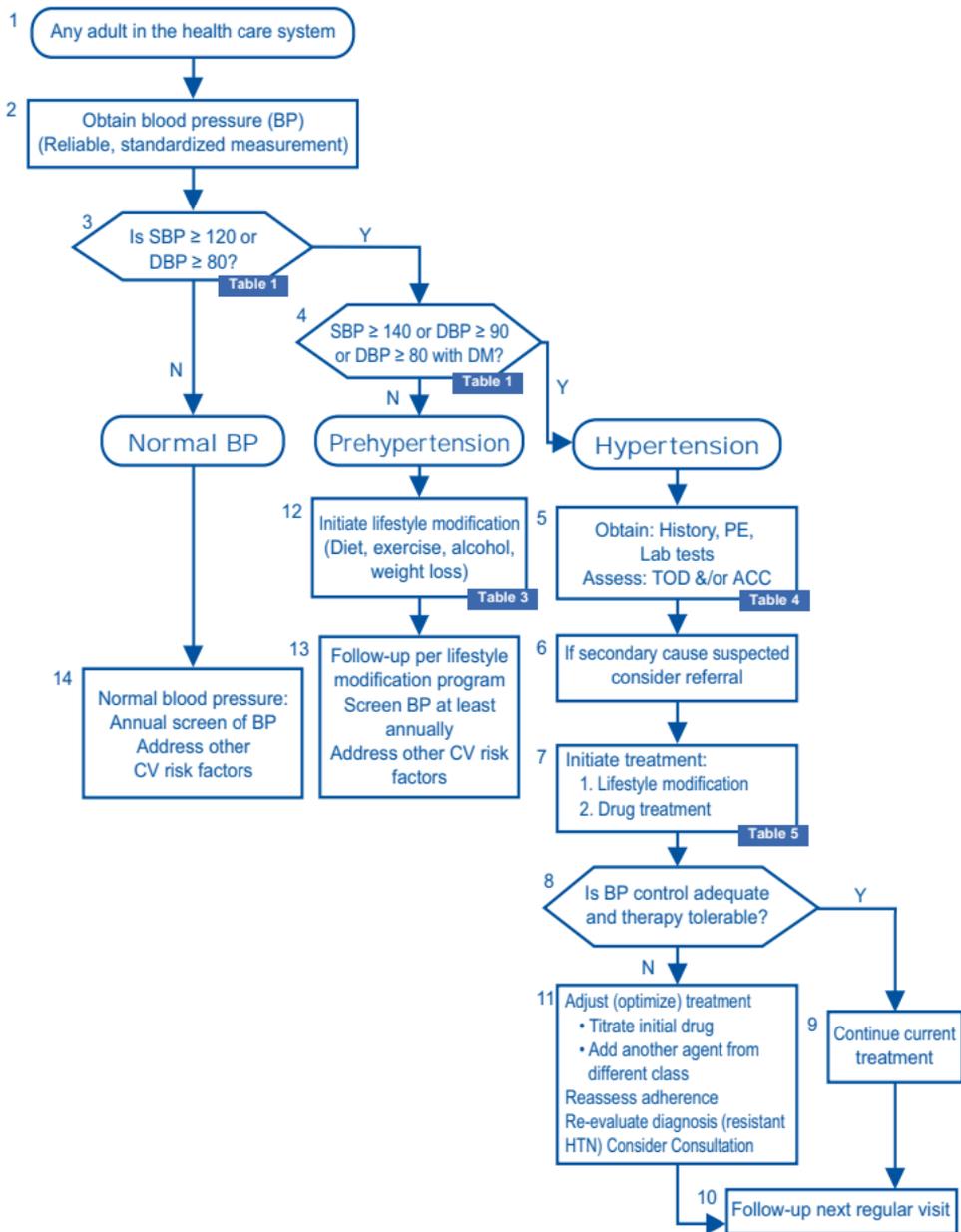


# VA/DoD Clinical Practice Guideline for the Diagnosis and Management of Hypertension - Pocket Guide Update 2004 Revision July 2005



**Table 1: Follow-Up and Therapy Based on Initial Blood Pressure Measurements For Adults**

	<b>SBP *</b> Mm Hg	<b>DBP*</b> Mm Hg	<b>Follow-up</b>	<b>LSM**</b>	<b>Initial Drug Therapy</b>
<b>Normal</b>	<b>&lt; 120</b>	<b>&lt; 80</b>	Recheck in 1 year	<b>Consider</b>	
<b>Prehypertension</b>	<b>120-139</b>	<b>80-89</b>	Recheck in 1 year***	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Consider for patient with DM</li> </ul>
<b>Stage 1 Hypertension</b>	<b>140-159</b>	<b>90-99</b>	Confirm within 1-2 months	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Thiazide diuretic unless contraindicated or not tolerated (Consider ACEI, ARBs, BB, CCB).</li> <li>• For compelling indication, see Table 5</li> </ul>
<b>Stage 2 Hypertension</b>	<b>≥160</b>	<b>≥100</b>	Evaluate or refer to source of care within 1 month, or sooner, depending on clinical situation	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Drug therapy with combination of 2 drugs for most patients. Should include thiazide-type diuretic unless contraindicated or not tolerated (Consider ACE, ARBs, BB, CCB).</li> <li>• For compelling indication, see Table 5</li> </ul>

\* If systolic and diastolic categories are different, follow recommendations for the higher measurement. (e.g. 160/86 mm Hg is considered Stage 2 hypertension).

\*\* Lifestyle Modification

\*\*\* Modify the scheduling of follow-up according to reliable information about past blood pressure measurements, other comorbidities, or target organ disease.

**Table 2: Routine laboratory tests for the investigation of all patients with hypertension**

1. Urinalysis (UA)
2. Blood chemistry (potassium, sodium, blood urea nitrogen [BUN], creatinine, fasting glucose)
3. Fasting lipid profile (total cholesterol, high density lipids-cholesterol [HDL-C], low density lipids-cholesterol [LDL-C], triglycerides [TG])
4. 12-lead electrocardiography

**Table 3: Impact of Lifestyle Therapies on BP in Hypertensive Adults**

<b>Intervention</b>	<b>Lifestyle Modification or Change</b>	<b>Expected SBP Reduction (range)</b>
<b>Sodium intake reduction</b>	Maximum of 100 meq/L day (2.4 gm sodium or 6 gms sodium chloride)	2-8 mm Hg
<b>Weight loss</b>	Reduce and/or maintain normal body weight (e.g., BMI 18.5-24.9)	5-20 mm Hg/ 10-kg wt loss
<b>Alcohol reduction</b>	Limit to no more than 2 drinks/day for men, no more than 1 drink/day in women and light weight persons	2-4 mm Hg
<b>Exercise</b>	Aerobic exercise for at least 30 minutes, most days of week	4-9 mm Hg
<b>DASH Diet</b>	DASH* diet rich in fruits, vegetables, low-fat dairy products, with overall reduced saturated and total fat content	8-14 mm Hg

\* Dietary Approaches to Stop Hypertension

Refer to full  
guideline or guideline  
summary for  
medication dosage  
recommendations

**Table 4: Indicators For High Absolute Risk of A Primary Or Secondary Cardiovascular Event**

Associated Clinical Conditions (ACC)	Target Organ Disease (TOD)
<p><b>Diabetes</b></p> <p><b>Cerebrovascular disease</b></p> <ul style="list-style-type: none"> <li>• Ischemic stroke</li> <li>• Cerebral hemorrhage</li> <li>• Transient ischemic attack</li> </ul> <p><b>Heart disease</b></p> <ul style="list-style-type: none"> <li>• Myocardial infarction</li> <li>• Angina</li> <li>• Coronary revascularization</li> <li>• Chronic heart failure</li> </ul> <p><b>Chronic kidney disease</b></p> <ul style="list-style-type: none"> <li>• Diabetic nephropathy</li> <li>• Glomerulonephritis</li> <li>• Hypertensive renovascular disease</li> </ul> <p><b>Aortic disease</b></p> <ul style="list-style-type: none"> <li>• Dissecting aneurysm</li> <li>• Fusiform aortic aneurysm</li> </ul> <p><b>Peripheral arterial disease</b></p>	<ul style="list-style-type: none"> <li>• Left ventricular hypertrophy (LVH) (electrocardiogram, echocardiogram)</li> <li>• Microalbuminuria <math>\geq 30</math> mcg/min and/or proteinuria <math>\geq 200</math> mg/day and/or glomerular filtration rate (GFR) <math>&lt; 60</math> mls/min</li> <li>• Ultrasound or radiological evidence of atherosclerotic plaque (aorta, carotid, coronary, femoral and iliac arteries)</li> <li>• Hypertensive retinopathy (Grade II or more)</li> </ul>

*Modified from: Guidelines Subcommittee of the WHO-ISH: 1999 WHO-ISH guidelines for the management of hypertension. J Hypertens 1999, 17:151-183.*

**Table 6: Strategies to Improve Patient Adherence to Antihypertensive Therapy**

1. Be aware of signs of patient non-adherence to therapy.(e.g., missed appointments, missed refills)
2. Establish the goal of therapy early: to reduce BP to non-hypertensive levels with minimal or no adverse effects
3. Educate patients about the disease, and involve them and their families in its treatment. Have them measure blood pressure at home
4. Maintain contact with patients; consider contact by phone/e-mail
5. Integrate pill taking into routine activities of daily living
6. Prescribe medications that require no more than twice daily dosing if possible
7. Ask about adverse effects and adjust therapy to prevent, minimize, or ameliorate side effects.
8. Enlist the support of pharmacist in adjusting medication with regular follow-up
9. Consider group visits for education

# Table 5: Drug Therapy

## Patients With Uncomplicated Hypertension

	Preferred Agents	Alternate Agents
<b>HTN - without compelling indications</b>	<ul style="list-style-type: none"> <li>• Thiazide-type diuretic</li> </ul>	<ul style="list-style-type: none"> <li>• ACEI</li> <li>• ARB</li> <li>• Beta-blocker</li> <li>• CCB</li> </ul>

### Comments\*

1. Immediate-release nifedipine should not be used.
2. An ARB may be considered in a patient who is intolerant to an ACEI.
3. Alpha-blockers are useful in treating symptomatic BPH, but are not recommended as monotherapy for treating HTN.

**Other agents**

- Aldosterone antagonist
- Alpha-blocker
- Clonidine
- Reserpine
- Vasodilator

## Preferred Agents in Patients with Comorbidity

	Preferred Agents	Alternative Agents
<b>DM †</b>	<ul style="list-style-type: none"> <li>• Thiazide-type diuretic and/or ACEI</li> </ul>	<ul style="list-style-type: none"> <li>• ARB</li> <li>• CCB</li> <li>• Beta-blocker</li> </ul>
<b>Systolic HF</b>	<ul style="list-style-type: none"> <li>• ACEI</li> <li>• Beta-blocker</li> </ul>	<ul style="list-style-type: none"> <li>• ARB</li> <li>• Hydralazine-Nitrate</li> <li>• Aldosterone antagonist</li> </ul>
		<ul style="list-style-type: none"> <li>• Diuretic (for treatment of volume overload)</li> <li>• LADHP</li> </ul>
<b>CKD ‡</b>	<ul style="list-style-type: none"> <li>• ACEI</li> <li>• ARB</li> <li>• Diuretic (thiazide or loop, based on kidney function)</li> </ul>	<ul style="list-style-type: none"> <li>• Beta-blocker</li> <li>• NCCB</li> <li>• LADHP</li> </ul>
<b>Post Stroke</b>	<ul style="list-style-type: none"> <li>• Thiazide-type diuretic and ACEI</li> </ul>	<ul style="list-style-type: none"> <li>• LADHP</li> </ul>
<b>Post – MI</b>	<ul style="list-style-type: none"> <li>• Beta-blocker</li> <li>• ACEI</li> </ul>	<ul style="list-style-type: none"> <li>• NCCB</li> <li>• Thiazide-type diuretic</li> </ul>

## Patients in High Ambient Temperatures or in Other Extreme Conditions that Increase Dehydration Risk

### Preferred Agents

High ambient temp  
and/or extreme  
conditions

- LADHP
- ACEI
- ARB

### Alternate Agents

- CCB
- Low dose Thiazide- type diuretic

### Comments

For patient already deployed to high ambient conditions, consider LADHPs.

† See VA/DoD Clinical Practice Guideline, Management of Diabetes Mellitus

‡ See VA/DoD Clinical Practice Guideline, Management of Chronic Kidney Disease

ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; CCB = calcium channel blocker; NCCB = nondihydropyridine calcium channel blocker; CDK = chronic kidney disease; LADHP = long-acting dihydropyridine calcium channel blocker

\* For complete drug information, review the manufacturer's prescribing information