# Medical Management of Adults with Hypertension

The following guideline recommends diagnostic evaluation, education and pharmacologic treatment that support effective patient self-management.

## Eligible Population
- Adult patients ≥ 18 years of age.
- Not pregnant.

## Key Components

### Initial assessment
- The objectives of the initial evaluation are to assess lifestyle, cardiovascular risk factors, concomitant disorders, reveal identifiable causes of hypertension and check for target organ damage and cardiovascular disease.
- Physical examination: 2 or more BP measurements on initial visit plus one or more follow-up visits using regularly calibrated equipment with the appropriate sized cuff and separated by at least 2 minutes with the patient seated and standing, verification in contralateral arm, funduscopic exam, neck exam (bruits), heart and lung exam, abdominal exam for bruits or aortic aneurysm, extremity pulses and neurological assessment

### Patient education and nonpharmacologic interventions
- Lifestyle modification: weight reduction (BMI goal < 25), reduction of dietary sodium to less than 2.4 gm/day, DASH diet (i.e. diet high in fruits and vegetables, reduced saturated and total fat), aerobic physical activity ≥ 30 minutes most days of the week, tobacco avoidance, increased dietary potassium and calcium, moderation of alcohol consumption
- Consider self BP monitoring. Check accuracy of home measurement device regularly. Home readings are often 5 mm Hg lower than office.

### Goals of Therapy
- If no other risk factors and < 60 years of age: target BP <140/90
- If no other risk factors and ≥ 60 years: target BP <150/90
- Patients with risk factors, including diabetes: target BP <140/90. Consider target BP <130/80 for CKD patients with albuminuria.
- Caution: low diastolic or orthostatic symptoms may limit ability to control systolic. Use extreme caution if diastolic is below 60.
- For diabetics, mortality increases if diastolic is below 70.

### Pharmacologic interventions
- Hypertension, *Stage 1* based on systolic and/or diastolic (140-159/90-99): start with thiazide-type diuretic, ACE-I, ARB, or DHP-CCB for almost all patients.
- In general, diuretics and DHP-CCB appear to be more effective as an initial treatment in African-Americans.
- ACE-I recommended in patients with diabetes, CKD, or heart failure.
- Beta-blockers are recommended in patients with ischemic heart disease or heart failure.
- Intensify treatment until treatment goals are met; 3 or more drugs may be necessary for some patients to achieve goal BP.
- Caution: NSAIDs may complicate management of hypertension and worsen renal function.
- Avoid concurrent use of ACE and ARB.

### Monitoring and adjustment of therapy
- Hypertension, *Stage 1*: initiate therapy and recheck within two months until goal is reached.
- Hypertension, *Stage 2*: initiate therapy and recheck weekly or more often if indicated. Symptomatic Stage 2 may require hospital monitoring and treatment.
- Once BP controlled with medication: recheck at each visit, at least annually.
- Check serum potassium and creatinine at least annually for patients on diuretics/ACE-I/ARB.

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2. Moderate alcohol consumption is generally defined as up to two drinks per day for men, one drink per day for women.
3. ACE-I = angiotensin converting enzyme inhibitor, ARB = angiotensin receptor blocker, DHP-CCB = long-acting dihydropyridine calcium channel blocker (e.g. amlodipine, felodipine)