Module A: Screening and Diagnosis

1. Adult in healthcare system
   - Is the patient currently being treated for HTN?
2. Go to Module B, Box 16
3. Obtain office blood pressure (see Sidebar 1)
4. When measured (see Appendix G in the full CPG), is SBP ≥130 mm Hg or DBP ≥80 mm Hg?
5. Does patient have an acute injury or illness?
6. Screen blood pressure periodically, address other CV risk factors (including healthy diet and physical activity); in patients with known or suspected target organ damage (see Sidebar 3), consider possibility of masked HTN (consider HBPM or ABPM)
7. If blood pressure is <130 mm Hg SBP and <90 mm Hg DBP, make diagnosis of HTN without further testing
8. Confirm diagnosis of HTN by measuring blood pressure after 1–3 weeks (see Sidebar 2); is diagnosis confirmed?
9. Obtain history and physical and assess for target organ damage and comorbid conditions (see Sidebar 3); consider baseline testing (e.g., basic metabolic panel, urinalysis, EKG, A1c, other tests) as appropriate
10. Is secondary cause suspected?
11. Evaluate as indicated; consider referral
12. Initiate treatment (go to Module B)

Sidebar 1: Office Blood Pressure Measurement

- ABP (preferred)
  - Fully automated machine programmed to wait five minutes and record the average of three measurements separated by at least 30 seconds
- Standard Technique (alternative)
  - Use a properly calibrated and validated sphygmomanometer
  - Use an average of 2 readings
  - Use a properly calibrated and validated ABPM
  - Use a fully automated machine programmed to wait five minutes and record the average of ≥2 readings

Sidebar 2: Confirm Diagnosis

- If the follow-up clinic blood pressure value is ≥130 mm Hg SBP or ≥90 mm Hg DBP, make diagnosis of HTN without further testing
- Consider HBPM or ABPM to inform the diagnosis in select patients (see Recommendation 4 in the full CPG)
- If blood pressure is <130 mm Hg SBP and <90 mm Hg DBP, make diagnosis of HTN without further testing
- Confirm diagnosis of HTN by measuring blood pressure after 1–3 weeks (see Sidebar 2); is diagnosis confirmed?
- Assess the need for and implement lifestyle modification, then follow up for adherence (e.g., diet, exercise, weight loss, alcohol moderation)

Sidebar 3: Examples of Target Organ Damage and Comorbid Conditions

- Target organ damage: stroke, MI, peripheral arterial disease, LVH, CHF, CKD, and retinopathy
- Comorbid conditions: CKD, dyslipidemia, diabetes, obesity/overweight, OSA, and tobacco dependence

Module B: Treatment

13. Evaluate as indicated: consider referral
14. Initiate treatment (go to Module B)
15. Determine blood pressure goal (see Sidebar 4)
16. Patient appropriate for HTN treatment
17. Implement SDM to assess patient values and preferences; assess the need for and implement lifestyle modification
18. Is the patient willing to engage in pharmacotherapy?
19. Patient refuses pharmacotherapy; consider non-pharmacological/dietary/lifestyle interventions to improve blood pressure control
20. Patient refuses referral; consider non-pharmacological/dietary/lifestyle interventions to improve blood pressure control
21. Follow up periodically; reassess preferences
22. Follow up regularly (e.g., monthly or quarterly): Blood pressure at goal?
23. Treatment regimen is optimized (see Sidebar 6)
24. Comorbid conditions and/or other patient preferences direct otherwise
25. Follow up annually or more frequently as dictated by comorbid conditions (to include lab monitoring, if indicated)

Sidebar 4: Goals for Blood Pressure

- Systolic Goal (see Recommendations 6 – 8 in the full CPG)
  - <130 mm Hg
  - If less stringent goal is desired per clinical judgment and/or patient preference, aim for at least:
    - <140 mm Hg for patients age 60 and older
    - <140 mm Hg for patients age 60 and over with type 2 diabetes
- Diastolic Goal (see Recommendation 9 in the full CPG)
  - <90 mm Hg for patients age 30 and above

Sidebar 5: Initiate Drug Therapy

- General Population
  - Recommend one or more of the following:
    - Thiazide-type diuretics
    - ACEIs or ARBs
    - Long-acting CCBs
  - For patients unlikely to achieve goal with monotherapy (e.g., patients with SBP/DBP of ≥20/10 mm Hg above goal), consider initiating treatment with combination therapy or monotherapy with close follow up for titration and/or addition of medications based on blood pressure response
- Specific Populations:
  - For patients age 65 and over, we suggest using a thiazide-type diuretic for reduction in composite cardiovascular outcomes
  - For African American patients, we recommend against using ACEIs or ARBs as monotherapy
  - For patients with CKD, see VA/DoD CPG

1. See the VA/DoD Clinical Practice Guideline for the Management of Chronic Kidney Disease. Available at: https://www.healthquality.va.gov/guidelines/CD/CKD/
2. See the VA/DoD Clinical Practice Guideline for the Management of Dyslipidemia for Cardiovascular Risk Reduction. Available at: https://www.healthquality.va.gov/guidelines/CD/LD/
3. See the VA/DoD Clinical Practice Guideline for the Management of Type 2 Diabetes Mellitus in Primary Care. Available at: https://www.healthquality.va.gov/guidelines/CD/diabetes/
4. See the VA/DoD Clinical Practice Guideline for Screening and Management of Obesity and Overweight. Available at: https://www.healthquality.va.gov/guidelines/CD/obesity/
Sidebar 6: Optimize Treatment

- Access adherence
- Consider evaluating for interfering substances (some prescription medications, NSAIDs, alcohol, recreational drugs)
- Consider evaluating and addressing contributing lifestyle factors
- Optimize treatment (refer to Appendix F, Table F-1 in the full CPG)
- Titrate initial drug
- Add another agent from a different class
- Reevaluate diagnosis (resistant HTN, secondary causes of HTN)
- Consider specialty consultation for patients with resistant HTN
- Consider co-interventions to enhance management of HTN and improve blood pressure (pharmacist-led, nurse-led, dietitian-led)
- Use proper technique (attended or unattended, fully AOBP measurement is preferred)
- Use a validated upper-arm cuff measurement device that has been calibrated
- Support the patient’s arm (e.g., resting on a desk)
- Position the middle of the cuff on the patient’s upper arm, level with the right atrium
- Use the correct cuff size so that the bladder encircles 75 – 100% of the upper arm
- Take proper measurements needed
  - At the first visit, record blood pressure in both arms; use the arm that gives the higher reading for subsequent readings (if consistently 10 – 15 mm Hg higher)
  - Separate repeated measurements by 30 seconds
  - Properly document accurate blood pressure readings
  - Record SBP and DBP
  - Note the time of most recent blood pressure medication taken before measurement
  - Average readings
    - Average 2 readings for the visit blood pressure
    - For initial documentation of the patient’s blood pressure, use an average of the previous 2 visits
  - Provide blood pressure readings to patient
  - Provide patients their SBP/DBP readings both verbally and in writing; help the patient interpret the results

Guidance Conducting Home Blood Pressure Measurement

- Preparation
  - Have an empty bladder; rest quietly, without talking or texting, in seated position with back supported for at least five minutes
- Position
  - Sit with back supported; keep both feet flat on the floor
  - Cuff should be on bare arm; directly above the bend of the arm, pulled taut
  - The arm with the cuff should be supported on a flat surface
  - Correct the position of the bladder (commonly marked on the cuff) so that it is placed over the arterial pulsation of the patient’s bare upper arm
  - The arm with the cuff should be on a flat surface
- Number of readings
  - Take 2 readings at least 1 minute apart in the morning before any antihypertensive medications and 2 readings at least 1 minute apart in the evening before bed for a total of 4 readings
- Duration of monitoring
  - Preferred monitoring period is ≥7 days; a minimum period of 3 days may be sufficient, ideally in the period immediately before the next appointment
- Analyzing readings
  - For each monitoring period, average all of the readings
  - If the first day of readings is excluded, as sometimes recommended, the expected reduction in blood pressure decrease may not be achieved
- For more information about blood pressure measurements, see Appendix G and Appendix H in the full CPG. For a video with instructions on measuring blood pressure at home, visit the "Home Blood Pressure Monitoring" video available at this link: https://www.healthquality.va.gov/guidelines/CD/htn/

Guidance Conducting Office Blood Pressure Measurement

- Property have the patient
  - Sitting in a chair with feet flat on floor and back supported for 3 – 5 minutes without talking or moving around before recording the first reading
  - Avoid caffeine, exercise, and smoking for ≥30 minutes before measurement
  - Ensure that the patient has emptied his/her bladder
  - The patient nor the observer should talk during rest period or the measurement
  - Remove clothing covering the location of cuff placement
  - Sitting on an exercising table does not fulfill these criteria

Use proper technique (attended or unattended, fully AOBP measurement is preferred)
- Use a validated upper-arm cuff measurement device that has been calibrated
- Support the patient’s arm (e.g., resting on a desk)
- Position the middle of the cuff on the patient’s upper arm, level with the right atrium
- Use the correct cuff size so that the bladder encircles 75 – 100% of the upper arm
- Take proper measurements needed
  - At the first visit, record blood pressure in both arms; use the arm that gives the higher reading for subsequent readings (if consistently 10 – 15 mm Hg higher)
  - Separate repeated measurements by 30 seconds
  - Properly document accurate blood pressure readings
  - Record SBP and DBP
  - Note the time of most recent blood pressure medication taken before measurement
  - Average readings
    - Average 2 readings for the visit blood pressure
    - For initial documentation of the patient’s blood pressure, use an average of the previous 2 visits
  - Provide blood pressure readings to patient
  - Provide patients their SBP/DBP readings both verbally and in writing; help the patient interpret the results

DASH Diet Protocol

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated fat</td>
<td>6% of total calories</td>
</tr>
<tr>
<td>Total fat</td>
<td>27% of total calories</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>55% of total calories</td>
</tr>
<tr>
<td>Dietary fiber</td>
<td>30 grams/day</td>
</tr>
<tr>
<td>Protein</td>
<td>18% of total calories</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>150 mg/day</td>
</tr>
<tr>
<td>Total calories</td>
<td>(energy) Balance energy intake and expenditure to maintain desirable body weight/weight gain</td>
</tr>
</tbody>
</table>

Mediterranean Diet Protocol

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive oil</td>
<td>≥4 tbsp per day</td>
</tr>
<tr>
<td>Tree nuts and peanuts</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Fresh fruits including natural fruit juices</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Seafood (primarily fatty fish)</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Legumes</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Skirt</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>White meat</td>
<td>In place of red meat</td>
</tr>
<tr>
<td>Wine with meals</td>
<td>≥2 glasses per week for those who choose</td>
</tr>
<tr>
<td>Soda drinks</td>
<td>≤1 drink per day</td>
</tr>
<tr>
<td>Commercial baked goods, sweets, pastries</td>
<td>≤3 servings per week</td>
</tr>
<tr>
<td>Spread fats</td>
<td>≤1 serving per day</td>
</tr>
<tr>
<td>Red and processed meats &lt;1 serving per day</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select Antihypertensive Therapy*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiazide-Type Diuretics</td>
</tr>
<tr>
<td>Chlorothalidone</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- *Complete drug information, review the manufacturer’s prescribing information

- Drug classes recommended as primary pharmacologic therapy for HTN for reduction in composite CV outcomes; selected medications include those listed on the VA National Formulary and DoD Basic Core Formulary; refer to the full HTN CPG for treatment recommendations and additional medications information

- Hydrochlorothiazide 12.5 – 50 mg/day may be considered as an initial dose with titration recommended to 25 – 50 mg/day; refer to Recommendation 25 and associated discussion in the full HTN CPG for further information

- The patient nor the observer should talk during rest period or the measurement
- Avoid caffeine, exercise, and smoking for ≥30 minutes before measurement
- Ensure that the patient has emptied his/her bladder
- The patient nor the observer should talk during rest period or the measurement
- Remove clothing covering the location of cuff placement
- Sitting on an exercising table does not fulfill these criteria

- Use proper technique (attended or unattended, fully AOBP measurement is preferred)
- Use a validated upper-arm cuff measurement device that has been calibrated
- Support the patient’s arm (e.g., resting on a desk)
- Position the middle of the cuff on the patient’s upper arm, level with the right atrium
- Use the correct cuff size so that the bladder encircles 75 – 100% of the upper arm
- Take proper measurements needed
  - At the first visit, record blood pressure in both arms; use the arm that gives the higher reading for subsequent readings (if consistently 10 – 15 mm Hg higher)
  - Separate repeated measurements by 30 seconds
  - Properly document accurate blood pressure readings
  - Record SBP and DBP
  - Note the time of most recent blood pressure medication taken before measurement
  - Average readings
    - Average 2 readings for the visit blood pressure
    - For initial documentation of the patient’s blood pressure, use an average of the previous 2 visits
  - Provide blood pressure readings to patient
  - Provide patients their SBP/DBP readings both verbally and in writing; help the patient interpret the results

Nutrient Recommended Intake

- Saturated fat 6% of total calories
- Total fat 27% of total calories
- Carbohydrate 55% of total calories
- Dietary fiber 30 grams/day
- Protein 18% of total calories
- Cholesterol 150 mg/day
- Total calories (energy) Balance energy intake and expenditure to maintain desirable body weight/weight gain

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Recommended Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated fat</td>
<td>6% of total calories</td>
</tr>
<tr>
<td>Total fat</td>
<td>27% of total calories</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>55% of total calories</td>
</tr>
<tr>
<td>Dietary fiber</td>
<td>30 grams/day</td>
</tr>
<tr>
<td>Protein</td>
<td>18% of total calories</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>150 mg/day</td>
</tr>
<tr>
<td>Total calories</td>
<td>(energy) Balance energy intake and expenditure to maintain desirable body weight/weight gain</td>
</tr>
</tbody>
</table>

Mediterranean Diet Protocol

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive oil</td>
<td>≥4 tbsp per day</td>
</tr>
<tr>
<td>Tree nuts and peanuts</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Fresh fruits including natural fruit juices</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Seafood (primarily fatty fish)</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Legumes</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>Skirt</td>
<td>≥3 servings per week</td>
</tr>
<tr>
<td>White meat</td>
<td>In place of red meat</td>
</tr>
<tr>
<td>Wine with meals</td>
<td>≥2 glasses per week for those who choose</td>
</tr>
<tr>
<td>Soda drinks</td>
<td>≤1 drink per day</td>
</tr>
<tr>
<td>Commercial baked goods, sweets, pastries</td>
<td>≤3 servings per week</td>
</tr>
<tr>
<td>Spread fats</td>
<td>≤1 serving per day</td>
</tr>
<tr>
<td>Red and processed meats &lt;1 serving per day</td>
<td></td>
</tr>
</tbody>
</table>