**JNC 8 Hypertension Guideline Algorithm**

Adult aged ≥ 18 years with HTN
Implement lifestyle modifications
Set BP goal, initiate BP-lowering medication based on algorithm

General Population (no diabetes or CKD)

- **Age ≥ 60 years**
  - BP Goal < 150/90
  - Nonblack
    - Initiate thiazide, ACEI, ARB, or CCB, alone or in combo
  - Black
    - Initiate thiazide or CCB, alone or combo

- **Age < 60 years**
  - BP Goal < 140/90
  - No CKD
    - All Ages
      - Diabetes present
        - No CKD
          - All Ages and Races
            - CKD present with or without diabetes
              - BP Goal < 140/90
              - BP Goal < 140/90

Diabetes or CKD present

- **Age ≥ 60 years**
  - BP Goal < 140/90
  - All Ages
    - Diabetes present
      - No CKD
      - CKD present with or without diabetes
        - BP Goal < 140/90

- **Age < 60 years**
  - BP Goal < 140/90
  - All Ages and Races
    - Diabetes present
    - No CKD
    - CKD present with or without diabetes
      - BP Goal < 140/90

Nonblack

- **Black**
  - Initiate ACEI or ARB, alone or combo w/another class

At blood pressure goal?

- Yes
  - Reinforce lifestyle and adherence
    - Titrate medications to maximum doses or consider adding another medication (ACEI, ARB, CCB, Thiazide)
    - At blood pressure goal?
      - Yes
        - Reinforce lifestyle and adherence
          - Add a medication class not already selected (i.e., beta blocker, aldosterone antagonist, others) and titrate above medications to max (see back of card)
          - At blood pressure goal?
            - Yes
              - Continue tx and monitoring
            - No
              - Reinforce lifestyle and adherence
                - Titrate meds to maximum doses, add another med and/or refer to hypertension specialist


Card developed by Cole Glenn, Pharm.D. & James L Taylor, Pharm.D.
## Compelling Indications

<table>
<thead>
<tr>
<th>Indication</th>
<th>Treatment Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Failure</td>
<td>ACEI/ARB + BB + diuretic + spironolactone</td>
</tr>
<tr>
<td>Post –MI/Clinical CAD</td>
<td>ACEI/ARB AND BB</td>
</tr>
<tr>
<td>CAD</td>
<td>ACEI, BB, diuretic, CCB</td>
</tr>
<tr>
<td>Diabetes</td>
<td>ACEI/ARB, CCB, diuretic</td>
</tr>
<tr>
<td>CKD</td>
<td>ACEI/ARB</td>
</tr>
<tr>
<td>Recurrent stroke prevention</td>
<td>ACEI, diuretic</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>labetolol (first line), nifedipine, methyldopa</td>
</tr>
</tbody>
</table>

## Drug Class

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Agents of Choice</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretics</td>
<td>HCTZ 12.5-50mg, chlorthalidone 12.5-25mg, indapamide 1.25-2.5mg</td>
<td>Monitor for hypokalemia</td>
</tr>
<tr>
<td></td>
<td>triamterene 100mg, spironolactone 25-50mg, amiloride 5-10mg, triamterene 100mg</td>
<td>Most SE are metabolic in nature</td>
</tr>
<tr>
<td></td>
<td>furosemide 20-80mg twice daily, torsemide 10-40mg</td>
<td>Most effective when combined w/ ACEI</td>
</tr>
<tr>
<td>ACEI/ARB</td>
<td>ACEI: lisinopril, benazapril, fosinopril and quinapril 10-40mg, ramipril 5-10mg</td>
<td>SE: Cough (ACEI only), angioedema (more with ACEI), hyperkalemia</td>
</tr>
<tr>
<td></td>
<td>ARB: candesartan 8-32mg, valsartan 80-320mg, losartan 50-100mg, olmesartan 20-40mg</td>
<td>Losartan lowers uric acid levels; candesartan may prevent migraine headaches</td>
</tr>
<tr>
<td>Beta-Blockers</td>
<td>metoprolol succinate 50-100mg and tartrate 50-100mg twice daily, nebivolol 5-10mg</td>
<td>Not first line agents – reserve for post-MI/CHF</td>
</tr>
<tr>
<td></td>
<td>propranolol 40-120mg twice daily, carvedilol 6.25-25mg</td>
<td>Cause fatigue and decreased heart rate</td>
</tr>
<tr>
<td></td>
<td>bisoprolol 5-10mg, labetalol 100-300mg twice daily</td>
<td>Adversely affect glucose; mask hypoglycemic awareness</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>Dihydropyridines: amlodipine 5-10mg, nifedipine ER 30-90mg, Non- dihydropyridines: diltiazem ER 180-360 mg, verapamil 80-120mg 3 times daily or ER 240-480mg</td>
<td>Cause edema; dihydropyridines may be safely combined w/ B-blocker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-dihydropyridines reduce heart rate and proteinuria</td>
</tr>
<tr>
<td>Vasodilators</td>
<td>hydralazine 25-100mg twice daily, minoxidil 5-10mg</td>
<td>Hydralazine and minoxidil may cause reflex tachycardia and fluid retention – usually require diuretic + B-blocker</td>
</tr>
<tr>
<td></td>
<td>terazosin 1-5mg, doxazosin 1-4mg given at bedtime</td>
<td>Alpha-blockers may cause orthostatic hypotension</td>
</tr>
<tr>
<td>Centrally-acting Agents</td>
<td>clonidine 0.1-0.2mg twice daily, methyldopa 250-500mg twice daily guanfacine 1-3mg</td>
<td>Clonidine available in weekly patch formulation for resistant hypertension</td>
</tr>
</tbody>
</table>