Using the New Hypertension Guidelines

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Special Communication

Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure

A Cooperative Study
Some days you people make me want to pull my hair out!
Classification of Hypertension
## Categories of BP in Adults*

<table>
<thead>
<tr>
<th>BP Category</th>
<th>SBP</th>
<th>DBP</th>
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</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120 mm Hg</td>
<td>&lt;80 mm Hg</td>
</tr>
<tr>
<td>Elevated</td>
<td>120–129 mm Hg</td>
<td>&lt;80 mm Hg</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>130–139 mm Hg</td>
<td>80–89 mm Hg</td>
</tr>
<tr>
<td>Stage 2</td>
<td>≥140 mm Hg</td>
<td>≥90 mm Hg</td>
</tr>
</tbody>
</table>

*Individuals with SBP and DBP in 2 categories should be designated to the higher BP category.

**BP indicates blood pressure (based on an average of ≥2 careful readings obtained on ≥2 occasions), as detailed in DBP, diastolic blood pressure; and SBP systolic blood pressure.**
Absolute risk for CVD mortality increase with each decade of life and linear relationship above $BP > 120/75$ mmHg

A: Systolic blood pressure

B: Diastolic blood pressure

A Randomized Trial of Intensive versus Standard Blood-Pressure Control

The SPRINT Research Group*
• **25% reduction** in myocardial infarction, stroke, acute decompensated heart failure, or death from cardiovascular causes in the intensive group

• **27% reduction** in all-cause mortality

• Hypotension, syncope, electrolyte abnormalities, and acute kidney injury was higher in the intensive arm

• No substantial differences in injurious falls between the two arms

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Hypertension Management
Think 2 - Levels of Hypertension Care

Level 1 (Lifestyle)
- Weight loss
- Healthy diet (DASH Diet)
- Reduced intake of dietary sodium
- Enhanced intake of dietary potassium
- Physical Activity
- Moderation in alcohol intake

Level 2 (Pharmacologic)
- First choice (thiazide diuretics, calcium-channel blockers, and ACE inhibitors or ARBs)
- Disease specific drug therapy
- Combination drug therapy
Additional 13.7% population now have hypertension but only 1.9% additional patients require pharmacologic therapy.

Potential U.S. Population Impact of the 2017 ACC/AHA High Blood Pressure Guideline

Paul Muntner, PhD, Robert M. Carey, MD, Samuel Gidding, MD, Daniel W. Jones, MD, Sandra J. Taler, MD, Jackson T. Wright, Jr, MD, PhD, Paul K. Whelton, MB, MD, MSc
## Don’t Underestimate Lifestyle for Hypertension

<table>
<thead>
<tr>
<th>Nonpharmacological Intervention</th>
<th>Dose</th>
<th>Approximate Impact on SBP</th>
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</table>
| Weight loss                     | Weight/bodyfat | Best goal is ideal body weight, but aim for at least a 1-kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1-kg reduction in body weight. | Hypertension: -5 mm Hg  
Normotension: -2/3 mm Hg |
| Healthy diet                    | DASH dietary pattern | Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat. | Hypertension: -11 mm Hg  
Normotension: -3 mm Hg |
| Reduced intake of dietary sodium| Dietary sodium | Optimal goal is <1500 mg/d, but aim for at least a 1000-mg/d reduction in most adults. | Hypertension: -5/6 mm Hg  
Normotension: -2/3 mm Hg |
| Physical activity               | Aerobic | ● 90–150 min/wk  
● 65%–75% heart rate reserve | Hypertension: -5/8 mm Hg  
Normotension: -2/4 mm Hg |

Level II (Pharmacologic) Treatment Based on History and Risk

- Primary Prevention
- Secondary Prevention
- Co-Morbidities
Primary Prevention

Qualifies: No prior history of cardiovascular disease.

BP Threshold: \( \geq 130/80 \text{ mmHg} \) and 10-year risk of ASCVD \( \geq 10\% \); \( \geq 140/90 \text{ mmHg} \) and 10-year risk of ASCVD \(< 10\% \)

BP Goal: \(< 130/80 \text{ mmHg} \) (ASCVD 10-year risk \( \geq 10\% \) should be on statins)

Treatment: **Level I** and **Level II** (first choice vs disease specific pharmacologic therapy vs 2 therapies)
Risk Factors

- Age (45-79 years)
- Gender
- Race
- Total Cholesterol
- HDL-Cholesterol
- Systolic BP (treatment)
- Diabetes
- Smoker

Heart Health NOW Website Tools

Hypertension Treatment based on 10-Year Risk of ASCVD for Primary Prevention (same for statins)
Secondary Prevention

Qualifies: Prior history of clinical cardiovascular disease (coronary artery disease, stroke, non-coronary related vascular disease).

BP Threshold: $\geq 130/80$ mmHg

BP Goal: $<130/80$ mmHg

Treatment: **Level I** and **Level II** (first choice vs disease specific pharmacologic therapy)
Preferred Medications

**First Line:** Thiazide diuretics (chlorthalidone), CCBs, ACE inhibitors/ARBs

**Race-Ethnicity:** African-Americans (thiazide diuretics or CCBs)

**Guideline Directed Medical Therapy:** i.e. ACE inhibitors in heart failure
Too High (Stage II Hypertension)

BP Threshold: $\geq 140/90$ mmHg

BP Goal: $<130/80$ mmHg

Treatment: **Level I** and **Level II** (2 first-line therapies)
Management

Normal BP (Reassess annually)

Elevated BP (120-129/<80 mmHg)

Level I therapy (Lifestyle)

Re-assess 3-6 months
Elevated BP after 2 checks (No ASCVD History)

Stage I
(130-139/80-89 mmHg)
Level I therapy (10-year risk <10%)
Re-assess in 3-6 mo

Stage II
(≥ 140/90 mmHg)
Level I and Level II therapy (10-year risk ≥10%)
Re-assess monthly until BP goal is met (consider intensification of therapy)

Follow-Up
Re-assess monthly until BP goal is met (consider intensification of therapy)

COR LOE Recommendation for Out-of-Office and Self-Monitoring of BP

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
<th>Recommendation for Out-of-Office and Self-Monitoring of BP</th>
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<tbody>
<tr>
<td>I</td>
<td>SR</td>
<td>Out-of-office BP measurements are recommended to confirm the diagnosis of hypertension and for titration of BP-lowering medication, in conjunction with telehealth counseling or clinical interventions.</td>
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</tbody>
</table>
### BP Thresholds for and Goals of Pharmacological Therapy in Patients With Hypertension According to Clinical Conditions

<table>
<thead>
<tr>
<th>Clinical Condition(s)</th>
<th>BP Threshold, mm Hg</th>
<th>BP Goal, mm Hg</th>
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<tr>
<td><strong>General</strong></td>
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<tr>
<td>Clinical CVD or 10-year ASCVD risk ≥10%</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>No clinical CVD and 10-year ASCVD risk &lt;10%</td>
<td>≥140/90</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Older persons (≥65 years of age; noninstitutionalized, ambulatory, community-living adults)</td>
<td>≥130 (SBP)</td>
<td>&lt;130 (SBP)</td>
</tr>
<tr>
<td><strong>Specific comorbidities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Chronic kidney disease after renal transplantation</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Heart failure</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Stable ischemic heart disease</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Secondary stroke prevention</td>
<td>≥140/90</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Secondary stroke prevention (lacunar)</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>≥130/80</td>
<td>&lt;130/80</td>
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ASCVD indicates atherosclerotic cardiovascular disease; BP, blood pressure; CVD, cardiovascular disease; and SBP, systolic blood pressure.
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Acknowledgements

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