



Check.
Change.
Control.



JOHNS HOPKINS
M E D I C I N E

JOHNS HOPKINS
HEALTH SYSTEM

JNC 8 Updates on Hypertension

Monica Mukherjee, MD, MPH, FACC, FASE

Assistant Professor of Medicine

Johns Hopkins University Division of Cardiology

Baltimore, Maryland

Email: mmukher2@jhmi.edu

Disclosures

- None

Introduction

- Hypertension affects 29% US adult population
 - Estimated 72 million people, with a prevalence of >65% in persons older than 60 yrs, 1 in 3 adults
- Hypertension disproportionately affects the African American community with over 45% AA males and 46% AA females affected by high blood pressure compared to a national rate of 33%.
- Attributable risk factor in 41% of all CVD deaths from MI, heart failure, and stroke
- HTN in middle age is known to increase the risk of chronic kidney disease (CKD) and dementia in later life

Introduction

- Graded relationship between increasing BP and risk of CVD
 - Increase in BP 20 mmHg systolic or 10 mmHg diastolic associated with a doubling of the risk of CVD death, regardless of age
- Despite increasing BP recognition and improvement in control are improving, nearly half of the hypertensive population remains suboptimally controlled

Many Americans are living with high blood pressure that is not controlled

Our Goal for Better Control



GOAL
 - MOVE -
13.6M
PEOPLE
TO CONTROL
 - BY 2020 -



From 2009 to 2012 among US adults with HBP



54.1%
 HBP is
 controlled



76.5%
 currently
 treated



82.7%
 are aware
 they have HBP



17.3%
 remain
 undiagnosed

JNC 8 Recommendations

- JNC7 published in 2003, IOM called for updated guidelines in 2011 aimed at answering 3 major questions:
 - Does initiating antihypertensive treatment at specific BP thresholds improve health outcomes?
 - Does treatment with antihypertensive therapy to a specific BP goal improve health outcomes?
 - Are there differences in benefit/harm between antihypertensive drugs or drug classes on specific health outcomes?

JNC 8 Recommendation 1

- In the general population ≥ 60 yrs, initiate pharmacologic treatment at **SBP ≥ 150 mmHg** or **DBP ≥ 90 mmHg** and treat to a goal **SBP < 150 mmHg** and **DBP < 90 mmHg**
- JNC 8 BP target of $< 150/90$ mmHg is recommended for those older than 60 yrs, evidence for this target is strongest for those > 80 yrs
 - Hypertension in the Very Elderly Trial: benefit to treating patients > 80 yrs to an average SBP of 144 mmHg
 - 39% reduction in fatal strokes, 21% reduction in death from any cause, and 64% reduction in HF
 - Frail adults > 80 yrs were excluded from the trial

JNC 8 Recommendation 1

- SPRINT designed to look for a benefit of intensive BP treatment in those at risk for developing heart failure or CVD
 - Randomized 9361 nondiabetic adults ≥ 50 yrs with no prior stroke to a standard group with target SBP < 140 mmHg and an intensive group with target SBP < 120 mmHg
 - Average age of 68 yrs and Framingham 10-year CVD risk 20%
- Significantly reduced relative rates of CVD-related death (43%, $p=0.005$) and events (25%, $P<0.001$)
- Reduction in CVD events came at the cost of higher rates of hypotension, acute kidney injury, syncope, and electrolyte disturbances
- Results from SPRINT contradict the recommendations of JNC8 and may support even lower SBP targets for the consideration of the new AHA/ACC guideline committee

JNC 8 Recommendation 2

- In all persons <60 yrs or >18 yrs (and either those younger or older than 60 yrs with either DM or CKD), initiate pharmacologic treatment **to lower SBP ≥ 140 or DBP ≥ 90 mmHg** and treat to a goal BP of **<140/90 mmHg**
- Recommendation for target BP in DM by most professional societies is <140/90 mmHg, although ESH/ESC recommend a DBP target of <85 mmHg
 - More support can be found for DBP versus SBP goals among younger adults with HTN and DM

Summary Recommendations

General Area	JNC 8 Recommendation	Recommendations for AHA/ACC Committee
Diagnosis of hypertension	None	<ul style="list-style-type: none"> • Add specific recommendations on use of ambulatory blood pressure monitoring and home blood pressure monitoring • Devise a risk-based strategy for determination of treatment initiation thresholds and targets • Specify timeframe of attempting lifestyle modification alone before initiation of therapy
Treatment initiation thresholds and targets	<p>Adults ≥ 60 y old, SBP/DBP treatment initiation threshold and target of 150/90 mm Hg</p> <p>Adults >18 y old and <60 y old or any adult with diabetes or CKD, SBP/DBP treatment initiation threshold and target of 140/90 mm Hg</p>	<ul style="list-style-type: none"> • Lower the SBP treatment initiation threshold and target to 140 mm Hg for adults ≤ 80 y old^{16, 20, 21} • Lower DBP treatment initiation threshold and target to 85 mm Hg for diabetic adults.^{27, 31} • Optional SBP/DBP treatment initiation threshold and target of $\leq 130/80$ mm Hg for adults with CKD and >300 mg/d proteinuria^{35, 36} • Add specific guidance for adults with preexisting CVD
Selection of therapy	<p>Nonblack adults, including diabetics: first-line therapy includes thiazides, CCB, ACEI/ARB</p> <p>Black adults, including diabetics: first-line therapy includes thiazides or CCB</p> <p>Adults with CKD: first-line therapy includes ACEI/ARB</p>	<ul style="list-style-type: none"> • For nonblack adults with preexisting CVD or diabetes, recommend ACEI or ARB as first-line therapy • For black adults with diabetes, recommend ACEI or ARB as add-on therapy for patients requiring multidrug therapy

Guidelines for Referral

Visit and Clinical Status	Blood Pressure	Recommendations
Hypertensive urgency or emergency	≥ 210 and/or ≥ 120 mmHg	<ol style="list-style-type: none"> 1. Recheck BP after 5 minutes 2. Abort any planned procedure, call 911 3. Provide referral note with details of BP
Single-visit dental hygienist's reading for a patient/client with a history of risk factors (prior MI, angina, recurrent stroke, DM, renal disease)	180-209 and/or 110/119 mmHg	<ol style="list-style-type: none"> 1. Recheck BP after 5 minutes 2. Abort any planned procedure, call 911 3. Provide referral note with details of BP 4. Refer the patient/client for a medical consultation
Single-visit dental hygienist's reading for a patient/client with a history of risk factors (prior MI, angina, recurrent stroke, DM, renal disease)		<ol style="list-style-type: none"> 1. Re-check BP after 5 minutes 2. Perform only non-invasive dental hygiene care; avoid invasive procedures 3. Give the patient/client a written note of all the BP readings 4. Refer the patient/client for a medical consultation

Guidelines for Referral

Visit and Clinical Status	Blood Pressure	Recommendations
Single-visit dental hygienist's reading for a patient/client with a history of risk factors (prior MI, angina, recurrent stroke, DM, renal disease)	160-179 and/or 100-109 mmHg	<ol style="list-style-type: none"> 1. Recheck BP after 5 minutes 2. Perform only non-invasive dental hygiene care; avoid invasive procedures 3. Give the patient/client a written note of all the BP readings 4. Refer the patient/client for a medical consultation
Single-visit dental hygienist's reading for a patient/client with a history of risk factors (prior MI, angina, recurrent stroke, DM, renal disease)	130-159 and/or 80-99 mmHg	<ol style="list-style-type: none"> 1. Re-check BP after 5 minutes 2. Perform only non-invasive dental hygiene care; avoid invasive procedures 3. Give the patient/client a written note of all the BP readings 4. Refer the patient/client for a medical consultation

Guidelines for Referral

Visit and Clinical Status	Blood Pressure	Recommendations
Single-visit dental hygienist's reading for a patient/client with a history of risk factors (prior MI, angina, recurrent stroke, DM, renal disease) or who is receiving anti-hypertensive medication	<130 and/or 80 mmHg	1. Proceed with dental hygiene care and procedures as required

Blood Pressure Management

American Heart Association Programs

AHA is working toward that goal here in Maryland by encouraging participation in these two blood pressure management programs.

Target: BP

- AHA/AMA call to action
- Clinical resources for improving HBP
- Recognition

Check. Change. *Control.*[®]

- Individual self-management program
- Offered through key partners

Blood Pressure Management

What is Target: BP?



- ✓ A call to action motivating medical practices, practitioners and health services organizations to prioritize blood pressure control
- ✓ Recognition for healthcare providers who attain high levels of blood pressure control in their patient populations, particularly those who achieve 70, 80 percent or higher control
- ✓ A source for tools and assets for healthcare providers to use in practice, including the AHA/ACC/CDC Hypertension Treatment Algorithm and the AMA's M.A.P. Checklist



Blood Pressure Management

What is Check. Change. *Control.*®?



Developed to support hypertension management among the adult population, **Check. Change. *Control.*®** engages participants, emphasizing 3 important aspects of managing hypertension:

1. **Checking** for high blood pressure and symptoms;
2. **Changing** lifestyle and seeking treatment;
3. **Controlling** hypertension by taking preventative measures.



Additional Resources

AHA Go Red for Women Campaign

<https://www.goredforwomen.org>

Johns Hopkins Women's Cardiovascular Health Center

Monica Mukherjee, MD, MPH, mmukher2@jhmi.edu

American Heart Association, Maryland

Danelle Buchman, Senior Community Health Director, danelle.buchman@heart.org



Special Consideration

SUPPLEMENTAL SLIDES

6 December 2016

Special Consideration: *Diabetes*

- Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial compared 2 SBP targets in diabetic patients, <140 or <120 mmHg
 - 4.7 yrs follow-up, the primary outcome of nonfatal MI, stroke, or CVD death was *not significantly different* between the 2 groups
 - Total stroke rate in intensive arm was reduced by 41% (p=0.01)
- Based on these studies, achieving a lower BP goal in people with diabetes appears to be more consistently associated with a lower risk of stroke than MI
 - **Support a target SBP <140 mmHg and DBP <85 mmHg** in DM

Special Consideration: *Diabetes*

- Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial compared 2 SBP targets in diabetic patients, <140 or <120 mmHg
 - 4.7 yrs follow-up, the primary outcome of nonfatal MI, stroke, or CVD death was *not significantly different* between the 2 groups
 - Total stroke rate in intensive arm was reduced by 41% (p=0.01)
- Based on these studies, achieving a lower BP goal in people with diabetes appears to be more consistently associated with a lower risk of stroke than MI
 - **Support a target SBP <140 mmHg and DBP <85 mmHg** in DM

Special Consideration: *CKD*

- BP targets in CKD were also increased from <130/80 to <140/90 mmHg between the JNC 7 → JNC 8
- Important distinction between CKD based on proteinuria status, with a lower BP goal of <130/80 to 90 mmHg for those with proteinuria detectable on urinalysis
- Given that the baseline risk of the patient appears to influence the outcomes of BP treatment, a **lower BP goal of <130/80 mmHg** may be recommended for those with **>300 mg/d proteinuria**

Special Consideration: *Secondary Prevention of CVD*

- AHA, ACC, ASH, ESC endorse a goal of **<140/90 mmHg for those with HTN and CVD** with an optional target **of <130/80 mmHg** for those with CVD and previous MI, stroke/TIA, carotid artery disease, peripheral arterial disease, or abdominal aortic aneurysm

JNC 8 Recommendation 6-9

- In the general **nonblack** population, including those with DM, initial antihypertensive treatment should include a **thiazide-type diuretic, CCB, ACEI, or ARB**
- In the general **black** population, including those with diabetes, initial antihypertensive treatment should include a **thiazide-type diuretic or CCB**
 - In the black population with HTN (no DM or CKD), CCBs and thiazide diuretics generally tend to be favored as initial therapy over renin-angiotensin system blockers based on subgroup analysis from ALLHAT
 - If a black patient has coexisting CKD and albuminuria, initial treatment should be an ACEI or ARB

JNC 8 Recommendation 6-9

- In the population aged ≥ 18 yrs with **CKD**, initial (or add-on) antihypertensive treatment should include an **ACEI or ARB** to improve kidney outcomes
 - Baseline risk and degree of proteinuria important in guiding intensiveness of antihypertensive therapies
- While JNC 8 has the same treatment recommendations for people with or without diabetes, most other societies suggest that only ACEIs or ARBs should be first-line treatment for patients with diabetes