



IMPLICATIONS OF THE 2017 ACC/AHA Guidelines and Management of resistant hypertension

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Disclosures

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What Is Blood Pressure?

- Risk factor (biomarker): Predicts risk of future cardiovascular and renal events
- Target of intervention: Lowering BP appears to decrease risk
- Hemodynamic factor: Responsible for perfusion of all major organs

2017 ACC/AHA/AAPA/ABC/ACPM/AGS/ APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High-Blood Pressure in Adults

2017 ACC/AHA Hypertension Guideline

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Available at: Hypertension and Journal of the American College of Cardiology

Full-text guidelines available on the websites:

AHA (professional.heart.org) and ACC (www.acc.org)

Definition of Clinical Practice Guideline (CPG)

- “Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances.” (*Institute of Medicine, 1990*)
 - *Transparent*
 - *Manage conflict of interest*
 - *Multidisciplinary development group (including patient/consumer advocates)*
 - *Utilize systematic review of available data*
 - *Establish weight of evidence and strength of recommendation*
 - *Clear articulation of recommendation*
 - *Subject to external review*
 - *Updated regularly*

ACC/AHA Guidelines Not the Final or Only Word

Two Different Prevention Approaches - Two Different Complementary Perspectives

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

 American Heart Association®

2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines
Neil J. Stone, Jennifer G. Robinson, Alice H. Lichtenstein, C. Noel Bairey Merz, Conrad B. Blum, Robert H. Eckel, Anne C. Goldberg, David Gordon, Daniel Levy, Donald M. Lloyd-Jones, Patrick McBride, J. Sanford Schwartz, Susan T. Shero, Sidney C. Smith, Jr, Karol Watson and Peter W. F. Wilson

Circulation. 2014;129:S1-S45; originally published online November 12, 2013;
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Journal of Clinical Lipidology (2014) 8, 473-488

Journal of Clinical Lipidology

Original Articles

National Lipid Association recommendations for patient-centered management of dyslipidemia: Part 1 – executive summary[☆]

 CrossMark

Terry A. Jacobson, MD*, Matthew K. Ito, PharmD, Kevin C. Maki, PhD, Carl E. Orringer, MD, Harold E. Bays, MD, Peter H. Jones, MD, James M. McKenney, PharmD, Scott M. Grundy, MD, PhD, Edward A. Gill, MD, Robert A. Wild, MD, PhD, Don P. Wilson, MD, W. Virgil Brown, MD

Stone NJ, et al, *Circulation.* 2014;129:S1-S45.

Jacobson TA, et al. *J Clin Lipidol.* 2014;8:473-488.



What Can we all Agree on?
GUIDING PRINCIPLES



Guiding Principles - 1

- Elevated blood pressure is a major public health issue that affects at least 1/3 of the adult population
- Increased blood pressure is associated with increased cardiovascular risk, including risk of stroke, heart failure, myocardial infarction and cardiovascular death
- Given the same level of blood pressure, persons with other cardiovascular risk factors, including age, are at increased absolute cardiovascular risk
- Blood pressure measurement needs to be done in systematic fashion and when performed in the office should be done by trained individuals
- Home blood pressure monitoring, 24 hour ambulatory blood pressure monitoring (ABPM) and Automated office blood pressure monitoring (AOBPM) enhance cardiovascular risk assessment over traditional office blood pressure measurement alone

Guiding Principles - 2

- Lifestyle modification, including the DASH eating plan and increased exercise, is the cornerstone of the treatment and prevention of high blood pressure
- Reducing blood pressure with pharmacological therapy reduces cardiovascular risk across a wide spectrum of patients
- Most patients who require pharmacologic therapy should be treated with a combination of one or more of the following drug classes (in the absence of compelling indications for another agent)
 - ACE inhibitor or Angiotensin Receptor Blocker (ARB)
 - Thiazide or thiazide type diuretic
 - Calcium Channel Blocker (CCB)
- Other modifiable cardiovascular risk factors should also be managed appropriately

Guiding Principles - 3

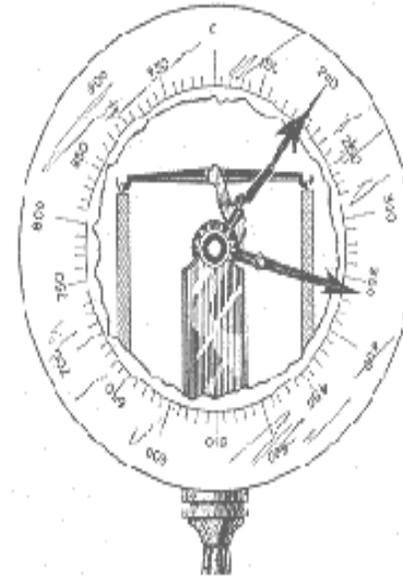
- Patients with white coat hypertension are at less cardiovascular risk than those with out of office high blood pressure
- Screening for secondary hypertension should be performed only in select individuals
- Early target organ damage, including albuminuria/proteinuria and LVH should be assessed in all patients with elevated blood pressure
- ACE inhibitors and ARBs should generally not be used together
- When using drug therapy, medications should be titrated up approximately every 4-6 weeks until blood pressure goal is achieved
- In CKD patients with elevated blood pressure, treatment regimen should include an ACE inhibitor or ARB
- Patients whose blood pressure is not controlled despite use of 3 or more anti-hypertensive agents (reasonably dosed), at least one of which is a diuretic, have resistant hypertension
- Once daily doses and fixed dose combination tablets are preferred
- A team based approach to management of high blood pressure is beneficial
- Every adult with high blood pressure should have a clear, detailed, and current evidence-based plan of care



POINT OF CONTROVERSY – INDIVIDUALIZE!

- BP Measurement
- Definition of Hypertension
- Threshold for Initiation of Pharmacological Antihypertensive Therapy
- Blood Pressure Goals

Evolution of BP Measurement



1733 Reverend Stephen Hales inserts long glass tube upright into horse's artery – BP causes blood to rise in tube

Optimal Blood Pressure Measurements

- FACT – Incorporating home BP measurement, ABPM or AOBPM refines cardiovascular risk assessment over use of office BP alone
- FACT – No prospective, randomized controlled clinical trial has directly compared these methods in regards to reduction of clinical outcomes
- Recommendations
 - Use careful and systematic approach to office BP management
 - Enhance office BP measurement with use of home BP monitoring, ABPM or AOBPM as individual practice and patient characteristics dictate

Definition of Hypertension

- FACT – Even mild elevations in blood pressure are associated with increased cardiovascular risk
- FACT – Making diagnosis of hypertension is not the same as saying that pharmacological therapy is needed
- Recommendations
 - Hypertension = High Blood Pressure
 - Office BP = Screening Test (>130 mmHg systolic or >80 mmHg diastolic)
 - Home BP (mean), ABPM (mean daytime), or AOBPM should be used to confirm the diagnosis of hypertension in most patients (>130 mmHg systolic or >80 mmHg diastolic)
 - White coat hypertension is defined as repeatedly elevated office BP with normal out of office BP (generally should be confirmed with ABPM if possible)

Proposed Algorithm for Making the Diagnosis of Hypertension

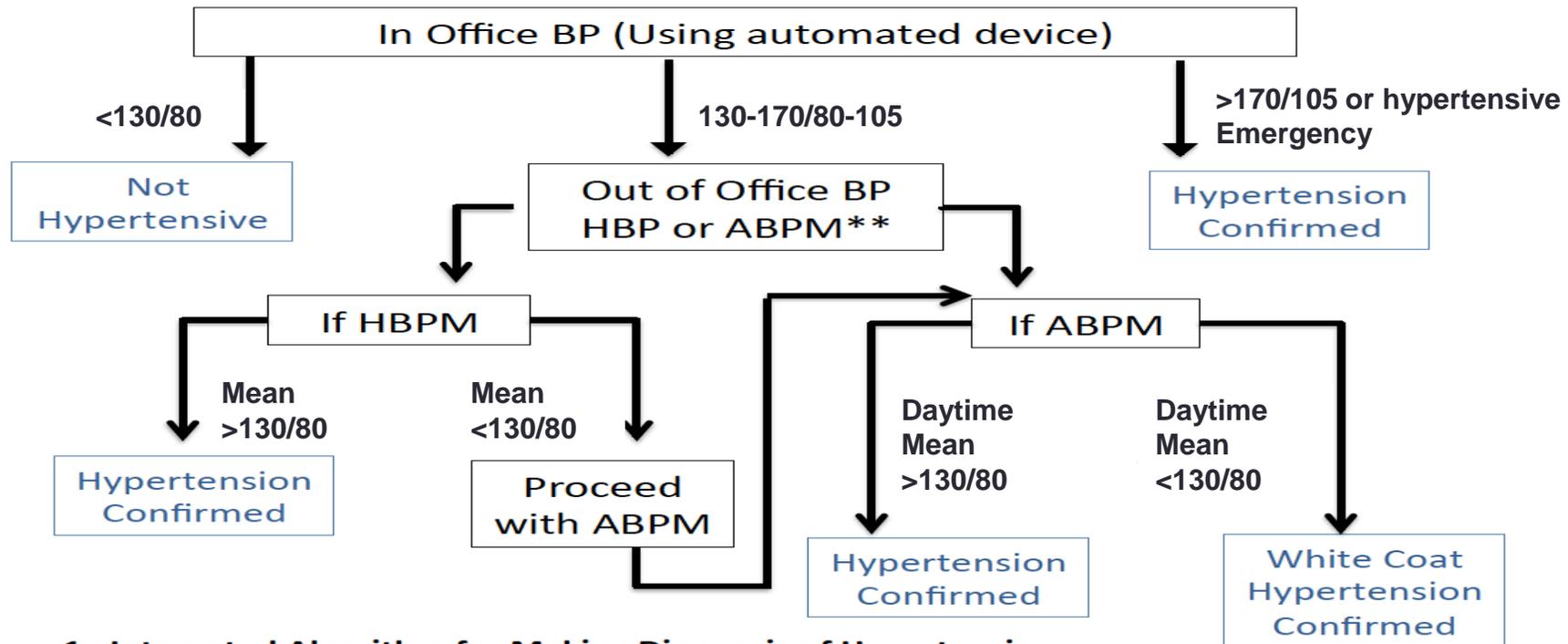


Figure 1. Integrated Algorithm for Making Diagnosis of Hypertension

All Blood Pressure Readings in mmHg

BP = Blood Pressure; HBPM = Home Blood Pressure Monitoring; ABPM = Ambulatory Blood Pressure Monitoring

* Consider out of office BP if Known Target Organ Damage to rule out masked hypertension; **Preferred

Consider repeated in office BP Measurement, perhaps using unsupervised automatic repeated measurements if out of office BP monitoring not available

Modified from Bloch MJ, Basile J, uptodate, 2018

Threshold for Initiation of Anti-Hypertensive Medications

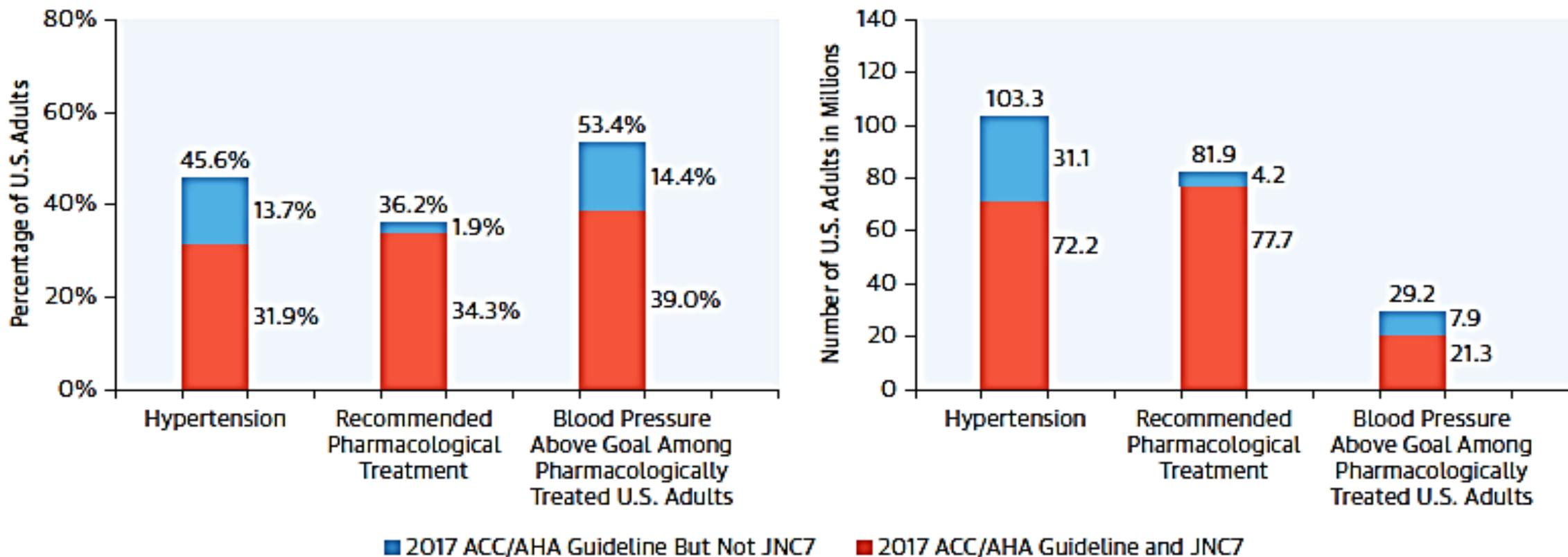
- FACT – Using only entry criteria for RCTs of antihypertensive therapy would probably lead to treatment of patients who would not likely benefit and miss treatment of many patients who would likely benefit
- FACT – Basing decision on overall cardiovascular risk makes intuitive sense
- FACT – It can be very difficult to make individual patient decisions based on the abstraction of data from the mean results meta-analyses that include an incredibly diverse selection of subjects, especially when many of the included studies did not focus on when to initiate medications

Threshold for Initiation of Anti-Hypertensive Medications

- Recommendations
 - Use 2017 ACC/AHA Recommendation as a *GUIDE*
 - >140 mmHg systolic or 90 mmHg Diastolic (>135/85 mmHg mean home, daytime ABPM or AOBPM)*
 - Or
 - >130 mmHg Systolic or >80 mmHg Diastolic (on mean home, mean daytime ABPM or AOBPM*) if any of following: ASCVD, Diabetes, CKD, 10 years calculated ASCVD risk >10%
 - Individualize recommendation based on
 - Integration of multiple BP readings in and out of office (or on AOBPM)
 - Individual patient characteristics
 - Individual practice setting
 - Shared decision making
 - Expert opinion (yours)
 - If decide not to treat, clearly document rationale
 - Re-evaluate decision regularly

*consider repeated office if these modalities not available

2017 ACC/AHA Guideline and JNC 7: Prevalence of Hypertension, Recommendation for Pharmacologic Treatment and BP Above Goal Among US Adults



JNC 7: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure.

Muntner P, et al. *J Am Coll Cardiol*. 2018;71(2):109-118.

Blood Pressure Goals

- FACT – Difficult to define the best goal for an individual patient based on available data
- FACT – Available clinical trials may not mimic ‘real-world’ clinical medicine
- FACT – It can be very difficult to make individual patient decisions based on the abstraction of data from the mean results meta-analyses that include an incredibly diverse selection of subjects

Blood Pressure Goals

- Recommendation

- Use 2017 ACC/AHA Recommendation as a *GUIDE*
 - Target <130/80 mmHg (mean home, mean daytime ABPM, or AOBPM*) for most patients
- Consider less aggressive goal (<135/85, <140/90, <145/90, <150/90) in any of the following:
 - Postural hypertension
 - Labile blood pressure
 - Documented side effects to multiple anti-hypertensive medications
 - Patients already taking 3 antihypertensive medications (including a diuretic if tolerated) at or near maximum dose
 - Over 75 years of age, particularly if high burden of comorbidity or diastolic BP <55 mmHg
 - Older adults with severe frailty, dementia, or limited life expectancy

*consider repeated office if these modalities not available

Blood Pressure Goals

- Recommendations:
 - Goal Should Be
 - Individualized based on patient characteristics
 - Individualized based on practice setting
 - Determined for either office BP, out of office BP or both
 - Well documented (along with rationale)
 - Consistent from visit to visit and among providers
 - Shared with patients

Perhaps in future guidelines should take into account baseline BP and number of medications that it takes to get to goal

Perhaps future guidelines should concentrate on 'targets' rather than 'goals'

Diagnostic and Treatment Algorithm for Resistant HTN

- 1) Confirm treatment resistance
- 2) Exclude pseudo-resistance
- 3) Identify and reverse contributing lifestyle factors
- 4) Discontinue or minimize interfering substances
- 5) Screen for secondary cause of HTN
- 6) Rationalize/intensify pharmacological treatment
- 7) Refer to clinical hypertension specialist

Conclusions

- Guidelines are just that – they should enhance, not replace quality clinical decision making
- Especially when speaking to patients, the general public, and our primary care colleagues (including allied health providers), we need to focus on areas of consensus rather than areas of controversy
 - Continue to develop a set of guiding principles
- We should de-escalate the controversy on the definition of hypertension
- We need to incorporate ‘enhanced’ BP measurement techniques (home BP monitoring, ABPM, AOBPM) into routine clinical practice
- Using shared decision, making we need to individualize thresholds for starting anti-hypertensive medications and determining BP goals



“It is much more important to know what sort of a patient has a disease than what sort of a disease a patient has.”

- William Osler