PCNA 2014 Pharmacology Preconference

Joanna Sikkema DNP, MSN, ANP-BC, FAHA, FPCNA
Course Director
Please note

• On Friday at 12:15 p.m, there is a Product Theater Lunch, hosted by AstraZeneca, that does not appear in the program.
• Everyone is welcome to attend
• Internet access password (for PCNA session room):
  – pcna2014
Today’s Agenda

• 12:45-1:45 pm: Hypertension
• 1:45-2:45 pm: Unintended Cardiovascular Effects
• 2:45-3:00 pm break
• 3:00-4:00 pm Antiplatelet Therapy
• 4:00-5:00 pm Anticoagulants
• 5:00-5:30 pm Case Studies
• 5:30 Adjourn

• Please help us stay on time! If necessary, we will hold the Q and A during the 5:30 discussion period
Claiming CE Credit

• Designed as a 7 hour course
• Two hours in pre-course preparation
• Review references
• Pre-course self-evaluation
• In-place course today= 4.5 hours
• (product theatre lunch today= non-CE)
• Post-test= 0.5 hours
Post-test

- Test questions will be posted online @pcna.net tomorrow, Thursday April 10
- You will be sent the link allowing you to submit your answers by Monday April 14 latest (details on next slide)
- Twenty multiple choice questions: Passing score= 75%
- You are given more than one attempt to pass
- Our goal is for everyone to be successful!
How to obtain your CE credit

• You will receive an email by Monday Apr 14 (latest) instructing you to log into the portal at http://pcna.peachnewmedia.com with your PCNA credentials
• This will bring you to their account where you will select ‘Click Here to Proceed to Classroom’
• Here, you will be able to choose Pharmacology Preconference (If attending the full symposium, you will do this separately, as no post-test with the latter)
• There will be a ‘submit credit’ button on this page which needs to be selected.
• Follow process for post-test, eval and certificate
Future Pharmacology Programming

• Based on your feedback and on-going learning needs assessment, we hope to incorporate a similar course annually
• We also plan to make this course available in our on-line library in June
• We plan to provide additional web-based pharmacology CE programs
Meet the Faculty

• Hypertension
  – Joanna Sikkema DNP, MSN, ANP-BC, FAHA, FPCNA

• Unintended Cardiovascular Effects
  – Kevin B. Sneed, PharmD

• Antiplatelet Therapy
  – Lynne Braun, PhD, CNP, CLS, FAHA, FPCNA, FAAN

• Anticoagulants
  – Janet Long, MSN, ACNP, CLS, FAHA, FPCNA
Faculty Disclosures

• Joanna Sikkema: no relationships to disclose
• Kevin B. Sneed: no relationships to disclose
• Lynne Braun
  • NIH – salary support
  • UpToDate – advisory board, author
  • Practice Point – speaker
• Janet Long: no relationships to disclose
Pharmacologic Management of Hypertension

Joanna D. Sikkema, DNP, MSN, ANP-BC, FAHA, PCNA
Adult Nurse Practitioner and Assistant Professor
University of North Dakota, College of Nursing
Objectives

• Identify the major differences in the 2014 Evidence-Based Guidelines for the Management of High Blood Pressure in Adults and the JNC-7 Guidelines.

• Define the concept of “compelling indications” in the choice of pharmacologic agents in the management of hypertension.

• Explain the physiologic alterations and target organ damage associated with high blood pressure.

• Identify best practice pharmacologic therapy for special populations with high blood pressure.
The Impact of Hypertension

- 78 million adults in the United States
  - 74.9% are being treated
  - 52.5% under control
  - 89.4% report a usual source of health care
- Projected to effect >1.5 billion people in the US by 2025
- Stroke (72%)
- Cardiovascular disease (46%)
- Direct and indirect cost estimated at 69.9 billion dollars


A 74 y/o frail African American female, with a past history of dementia, SVT, and dyslipidemia presents to the clinic with a resting HR of 96 a BP of 168/96 and home BP readings ranging from 164-170/94–88.

Which pharmacological agent would you start her on?

1. A diuretic (HCTZ)
2. An ACEI (Angiotensin-converting enzyme inhibitor)
3. A beta-blocker
4. A calcium channel blocker
Case 2

A 42 year old Hispanic female, newly diagnosed with Type II diabetes, presents with a BP of 140/94 and HBPM of 138–148/86–86

What medication would you chose to start the patient on?

1. A diuretic (HCTZ) 17%
2. An ACEI (Angiotensin-converting enzyme inhibitor) 74%
3. A beta-blocker 4%
4. A calcium channel blocker 4%
Case 3

A 64 year old male patient, who has unsuccessfully tried lifestyle modification for 6 months, has a persistent BP reading of 148/90.

Should he be started on medication to lower his blood pressure?

61% 1. Yes
39% 2. No
Causes of Hypertension

- **Primary** (essential) hypertension accounts for 95% of cases
- Constitutional risk factors for hypertension: family history, age-related factors, insulin resistance and metabolic abnormalities including diabetes, race
- Lifestyle risk factors: obesity, stress, sedentary lifestyle/inactivity
- **Secondary** hypertension accounts for 5-10% of cases
  - Sleep Apnea
  - Drugs: (OC, NSAIDS, decongestants, cocaine, amphetamines)
  - Chronic Kidney Disease
  - Primary aldosteronism
  - Renovascular disease
  - Chronic steroid use/ Cushing’s syndrome
  - Thyroid or parathyroid disease
  - Pheochromocytoma
  - Coarctation of the aorta
Mechanism of Blood Pressure Control

- Short Term Blood Pressure Regulation:
  - Neural mechanisms: Integration and modulation of the ANS
  - Humoral mechanisms: renin-angiotensin-aldosterone mechanism and sympathetic neurotransmitter: epinephrine from the adrenal gland → vascular tone

- Long Term Blood Pressure Regulation: Kidney
  - Excess sympathetic nerve activity → alters arterial pressure to the kidney
  - Changes in neural or humoral control of kidney function alters the diuresis-natriuresis process to higher fluid pressure → arterial pressure ↑ peripheral vascular resistance
  - ** Many antihypertensive medications produce BP lowering by increasing Na+ and water elimination

Mechanism of Blood Pressure Control
continued

The Pathophysiology of Pre-Hypertension

“Inflammation, Immunity and Hypertension”

• Pre-hypertension predicts the development of hypertension
• Innate Immunity: First defense against pathogens
• Adaptive Immunity: Very specific immunity
  – Activation of CD4 lymphocytes and T cells which travel to the site of inflammation
• Inflammation–Immunity-Hypertension:
• Even limited elevation of BP triggers this response
• ** Importance of lifestyle modification and early intervention
• * Possible immunotherapy in the future to treat hypertension

Impact of Prehypertension

• Association of prehypertension to mortality
• Meta-analysis of 20 studies/1,129,098 participants
• Conclusion
  – Significant increase in CVD mortality and especially stroke mortality, but not all-cause mortality
  – High range pre-hypertension risk
  – Higher in blacks than other ethnicities
• Recommendation
  – * Prehypertension should be sub-classified
  – Low range prehypertension 120-129/80-84
  – High range prehypertension 130-139/85-89

Evaluating Hypertension

- Average of 2 or more BP readings obtained from 2 or more office visits /HBP monitoring.
- Identify any underlying causes of hypertension.
- Assess for target-organ damage and CV disease.
- Evaluate lifestyle and identify factors that may affect the prognosis of guide treatments.
- AHA recommends HBPM or (SBPM).

Target Organ Damage

• Heart
  – Left ventricular hypertrophy
  – Angina or prior MI
  – Prior coronary revascularization (PCI or CABG)
  – Heart Failure

• Brain
  – Stroke or Transient ischemic attack

• Chronic kidney disease

• Peripheral arterial disease

• Retinopathy
Disparities in the Prevalence of Hypertension

• Higher in men up to 45 years of age
• 45-64 years of age, same incidence
• After age 65 higher for women
• Higher incidence among Black Americans (41% versus 28%)
• Asian Americans/Pacific Islanders
• Hispanics
Hispanics/Latinos and Hypertension
The Hispanic Community Health Study (HCHS/SOL)

• 16,415 US Hispanic/Latinos from Bronx, Chicago, Miami and San Diego
• Diverse Background:
• Ages 18-44, 45-64, 65-74
• Age 45 – 64: 40.3% men and 41.6% women had hypertension
• Age: 65-74: 72.4% men & 77.4% women had hypertension
• Highest among Cubans, Dominicans and Puerto Ricans and lowest among Mexicans and South Americans
• 51.5% of men and 31.3% women from 45 – 74 had sleep apnea
• * Highest among the Cuban population and lowest among South American

Pharmacological Management of Hypertension
Angiotensin-Converting Enzyme (ACEI) Inhibitors
Angiotensin-II Receptor Blockers (ARBs)

- Critical drugs for hypertension management, HF, AMI
- ACE act on the critical enzyme that generates angiotensin II, preventing the conversion of angiotensin I to angiotensin II
- ARBs act on the major angiotensin II receptor that responds to Angiotensin II stimulation
- Both well tolerated
- Improves endothelial function in diabetes
- Renal protective
- * contraindicated in pregnancy
Calcium Channel Blockers

- Act by selective inhibition of the L & T-channels of the vascular smooth muscle and myocardium
  - L “long acting channels”
  - T” transient channels”
- Less calcium is available for contraction
- **Dihydropyridines** (greater vascular selectivity versus myocardium)
- Nifedipine (Procardia XL, Adalat) (short acting), Amlodipine (Norvasc) (longer acting with arteriole dilation)
- **Non-Dihydropyridines** (AV nodal inhibition properties and relaxation of the coronary vascular smooth muscle)
  Verapamil (Calan), Diltiazem (Cardizem)
- ** Contra-indicated in HF
- Effective in African/Caribbean - American population
**β-Blockers**

- Sympathetic nervous system blocking, ↓HR, ↑diastolic coronary blood filling time
- ↓plasma renin
- Cause release of vasodilatory prostaglandins
- Cardio-selective: Metoprolol, Atenolol, Bisoprolol
- Combined α & β–Blockers: Labetalol and Carvedilol
- Found to be effective in the black population after CCBs
Selective $\alpha$-Adrenergic Antagonists

- Selectively block $\alpha$-1 receptors in arterioles and venules
- More effective when used with a diuretic & $\beta$-blocker
- Doxazosin (Cardura), Prazosin (Minipress), Trazosin (Hytrin)
- * Orthostatic hypotension
Diuretic Therapy

• Continue as first line drug per guidelines
  – Thiazides, Loop diuretics, K-sparing, Aldosterone receptor blockers

• Thiazide diuretics work best in hypertension

• Low dose HCTZ significantly reduces CV mortality, HF and Stroke

• * work best in combination therapy with ACEI, ARRB, CCB
The STITCH Hypertension Algorithm (Simplified Treatment Intervention to Control Hypertension)

• Begins with low dose of diuretic/ACEI or ARB fixed dose combination
• Low-dose combination therapy more effective than low-dose monotherapy
• Incidence of adverse effects less (similar to placebo)
• Fixed dosing improves adherence
• Results
  – STITCH 64.7% reached target versus guideline care 52.7%
  – Medication adherence (via drug logs) higher in fixed dosing
  – STITCH algorithm included initial dosing with fixed dosing combination therapy
  – MD satisfaction increased in fixed dosing combination and greater drug titration in fixed dosing combination

Figure 2. STITCH-care algorithm.

Initial therapy with a low dose ACE/diuretic or ARB/diuretic combination

IS BLOOD PRESSURE CONTROLLED?

Yes

No

Continue with current therapy

Up-titration of combination therapy successively to the highest dose

Yes

No

Continue with current therapy

Add calcium channel blocker and up-titrated

Yes

No

Continue with current therapy

Add an α-blocker, β-blocker or spironolactone

# Drug Titration Strategies

<table>
<thead>
<tr>
<th>Table 5. Strategies to Dose Antihypertensive Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

*James, P. et al. JAMA. Published online December 18, 2013*
Lifestyle Interventions to Reduce Blood Pressure

• Weight loss
• Salt reduction
• Adoption of Dietary Approaches to Stop Hypertension eating pattern (DASH)
• Aerobic exercise for 30 minutes daily
• Alcohol in moderation
OTC and Supplements Enhancing Hypertension

- Nonsteroidal anti-inflammatory agents or COX-2 inhibitors
- Sympathomimetics (decongestants, diet pills, cocaine)
- Stimulants (amphetamine, methamphetamine)
- Oral contraceptives or hormone replacement agents
- Some antidepressants
- Dietary supplements (ginseng, ephedra, ma huang, bitter orange)
- Natural licorice
Looking at Special Populations
Patients with Hypertension and CVD

- Stable angina
  - Historically a Beta-blocker has been the drug of choice
  - Calcium channel blockers also found to be beneficial
- Chronic stable angina
  - Can use Beta-blocker + calcium channel blockers (dihydropyridine CCBs drug of choice amlodipine, nifedipine)
- Unstable angina or MI
  - Beta-blocker and/or ACE initially with addition of others (nitrates, antianginals) added as needed
- Heart Failure
  - Beta-blockers + (ACE or ARB) + aldosterone antagonist with systolic HF and EF < 35%
Patients with Hypertension and Diabetes

- Control of HBP key goal for diabetics to ↓CVD risk
- ADA guidelines (2013) goal BP <140/80 with ACEI or ARB
- ADA guidelines (2013) Younger diabetics systolic target <130mm Hg
- JNC 8 guidelines (2013) goal BP <140/90 with ACEI or ARB
- UKPDS reduction in BP (mean 154/87 to 144/82) → significant reduction in diabetes complications and CVD deaths.
  - No difference between ACEI and Beta-blockers however Beta–blockers better tolerated.
Management of Patients with Hypertension and Diabetes continued

- ACEI & ARB reduce progression of diabetic nephropathy and reduce albuminuria in pts. with diabetic hypertension
- Serum creatine, glomerular filtration rate (eGFR) and K+ monitored
- * Caution with Beta-blockers in insulin dependent diabetes and hypoglycemia
- ADA: Pregnant patients with diabetes and chronic hypertension, BP targets 110-129/65-79 mm HG
- ACEI and ARBs contraindicated in pregnancy

Hypertension in African Americans

- Heart disease, stroke, diabetes and ESRD highest in African Americans.
- Occurs earlier, is more severe with significant target-organ damage
- Some studies show AA lower levels of renin which results in excess salt and fluid.
- Also SNS over activity and abnormalities in endothelium – dependent vasodilation and ↑ large artery stiffening
- JNC8 (2013) Goal of <140/90 (recommends thiazide-type diuretic and/or CCB alone or in combination)
- ISHIB (2010) Goal of < 135/85 (Diuretic or CCB)

Hypertension and the Elderly

- 2/3 persons over age 65 have HBP & 70% adults ≥75 yrs of age
- More common in women
- Many with multiple co-morbidities = high risk
- Postural hypotension significant issue in elderly:
  - BP should be measured sitting and standing
- LV diastolic dysfunction + systemic impedance (arterial stiffness) → ↑HBP and HF
- After age 70 isolated systolic hypertension (ISH) common (>90% patients with HBP) with high peak systolic and low diastolic pressure
- Sodium restriction often very effective in elderly

Hypertension Management in the Elderly  Continued

• Lifestyle modification effective for mild hypertension, HOWEVER > age 75 data minimal
• CCBS good especially with stroke reduction
• Beta-blockers and diuretics often not tolerated
  – Low dose and slow up-titration
• ACEI and ARBS well tolerated
• Slow titration (absorption, metabolism and excretion lower)
• 2/3 seniors WILL require ≥ 2 drugs
Hypertension Management in the Elderly  
Continued

- Common side effects of antihypertensives in the elderly
  - **B-Blockers**: confusion, fatigue, dizziness, chronotropic incompetence, claudication, depression, cold sensitivity, incontinence
  - **Calcium channel blockers**: dizziness, peripheral edema (dihydropyridines) constipation (Verapamil), CHF decompensation, conduction disease: bradycardia, heart block
  - **ACEI**: orthostatic hypotension, hyperkalemia, fatigue and cough
  - **Diuretics**: urinary frequency, ↑ incontinence, hyperuricemia, hyperglycemia (diabetics), muscle cramps, ↑electrolyte imbalance

- **JNC 8 Age ≥ 60** 150/90

Hypertension in Pregnancy

- Hypertension complicates 1:10 pregnancies
- Critical to distinguish between preexisting (chronic) from pregnancy-induced (gestational hypertension) and the syndrome of preeclampsia.
- Classified as “mild” 140 -159/90 – 109 or “severe” > 160/110 mm Hg.
- Goals:
  - To prolong pregnancy as long as safely possible
  - Maximize the gestational age of the infant
  - Minimize fetal exposure to medications
- ** Challenge is when to start antihypertensive medications and what BP target

Hypertensive Disorders in Pregnancy

continued

• **Chronic hypertension**: BP > 140/90 mm Hg, predating pregnancy or before 20 weeks gestation
  – 25% incidence of developing preeclampsia

• **Pre-eclampsia-eclampsia**: new onset hypertension in later pregnancy
  – Also has proteinuria 1+ and greater than >300 mg per 24 hr urine collection
  – Multiorgan clinical features: hypertension, proteinuria, cerebral edema, hepatic dysfunction (↑ LFTS and low platelets)
  – * Lowering systemic BP further decreases placental perfusion does not “cure” the syndrome
  – * Need to prevent major cardiac and neurologic disaster
  – * Fetal risk is growth restriction and prematurity
Hypertensive Disorders in Pregnancy
continued

- **Gestational hypertension**: hypertension in later pregnancy without systemic features of preeclampsia
- At risk for preeclampsia anytime and 1-2 weeks postpartum
- Pharmaceutical Agents:
  - Methyldopa – first line (centrally α2-adrenergic agonist)
  - Labetalol – second line (nonselective β-blocker)
  - Nifedipine - second line
- Severe hypertension in pregnancy is > 160/110.
- * important to avoid hypotension \(\rightarrow \downarrow\) placental blood flow
Obstructive Sleep Apnea (OSA) and Hypertension

- Strong risk factor for resistant hypertension
- Benefit noted in pre-hypertension
- * Not as first-line therapy to pharmacology but adjunctive
- Meta analysis of trials: reduction of systolic BP 2.5 mm Hg and 1.8 diastolic BP with CPAP
- CPAP particularly beneficial for resistant hypertension
- Beneficial in pre-hypertension
Alternative Therapies for Blood Pressure Control

• Often trial offered to avoid or delay pharmacological therapy
• Combination of therapies found to be helpful with resistant hypertension
• In general little or no side effects or health risks especially for medication intolerant individuals
• **Behavioral Interventions**: * Limited testing of strategies reporting majorly “observational”
• **Exercise Interventions**: Dynamic aerobic exercise & Resistance exercise * Strong evidence of benefit and BP lowering
• **Nutritional Interventions**: co-enzyme Q10, fish oil, L-arginine, alpha lipoic acid, polyphenols and Vit D
• **Device Intervention**: Renal Denervation

Behavioral Therapies and BP Lowering
HRQ (Healthcare Research and Quality Review)

- Meditation techniques: Zen, Transcendental Meditation (TM), Mindfulness Based Stress Reduction (MBSR)
- Biofeedback Techniques: behavioral therapy, relaxation therapy, guided imagery
- Yoga
- Audio Relaxation Programs (Mozart)
- Acupuncture
- Slow deep breathing with device monitoring
The Guideline Controversy
Background Information JNC
Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure

- JNC 1 1976 – JNC 7 2003
- JNC 8 organized in 2008 with review submitted 6/2013
- Submitted for review to 16 federal agencies & 20 individual reviewers
- NHLBI subsequently decided AHA/ACC should make future guidelines
- JNC8: based on 2011 Institute of Medicine guidelines recommendations
- Systematic review of RCTs only
### JNC 7 BLOOD Pressure Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>SBP mm Hg</th>
<th>DBP mm Hg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120</td>
<td>&lt;80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120-139</td>
<td>80-89</td>
</tr>
<tr>
<td>Stage 1 Hypertension</td>
<td>140-159</td>
<td>90-99</td>
</tr>
<tr>
<td>Stage 2 Hypertension</td>
<td>≥ 160</td>
<td>≥100</td>
</tr>
</tbody>
</table>

JNC 7. *JAMA*. 2003;289:2560-2572
### JNC 7: Compelling Indications for Individual Drug Classes

<table>
<thead>
<tr>
<th>High-Risk Condition With Compelling Indication*</th>
<th>Diuretic</th>
<th>Beta-Blocker</th>
<th>ACE Inhibitor</th>
<th>ARB</th>
<th>CCB</th>
<th>Aldo Ant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Post-MI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>High CAD risk</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Recurrent stroke prevention</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

MI = myocardial infarction; CAD = coronary artery disease; Aldo Ant = aldosterone antagonist.

*Based on benefits from outcome studies or existing guidelines, the compelling indication is managed in parallel with the BP.

Guideline Questions JNC 8

1) Does initiating antihypertensive treatment at specific BP thresholds improve health outcomes?

2) Does treatment with antihypertensive therapy to a specific BP goal improved health outcomes?

3) Are there differences in benefit/harm between antihypertensive drugs or drug classes on specific health outcomes?
JNC 8 Algorithm

James, PA et al. JAMA 2014
JNC 8 Algorithm

Select a drug treatment titration strategy
A. Maximize first medication before adding second or
B. Add second medication before reaching maximum dose of first medication or
C. Start with 2 medication classes separately or as fixed-dose combination.

James, PA et al. JAMA 2014
Recommendations at a Glance

When do the guidelines recommend starting medication?

If you are younger than 60 years:
- Systolic 140 mm Hg or higher
- Diastolic 90 mm Hg or higher

If you are 60 years or older:
- Systolic 150 mm Hg or higher
- Diastolic 90 mm Hg or higher

If you have chronic kidney disease or diabetes at any age:
- Systolic 140 mm Hg or higher
- Diastolic 90 mm Hg or higher

Jin, J. JAMA 2014
The Rainbow of Blood Pressure Guidelines

- Age 60 vs. 80 for different SBP treatment goals

Wright et al. *Annals of Internal Medicine* 2014
A Comparative Study Review of JNC 7 and 8 Guidelines

• A review of NHANES data from 2005 – 2011
• 16,372 adults from NHANES
• 27.6% of adults age 60 years or older were receiving BP-lowering medication meeting more stringent JNC 7 targets and would receive no therapy under the 2014 BP guideline as they would be at goal.
• ** Impact of changes related to CVD outcomes remains to be determined
• 1: 4 adults >age 60 currently treated with BP medication would be eligible for less intensive BP control
• * 13.5 million adults no longer be considered to have poorly controlled BP
• 5.8 million adults would no longer be prescribed antihypertensive medication

SUMMARY

• New goal for patients under 60 (or 80) is 140/90
• If you are 60+ with diabetes or CKD, the goal is 140/90
• Use an ACE or ARB, but not both, in patients with CKD
• In black patients, start with a diuretic or CCB
• In non-black patients, start with a diuretic, CCB, ACE, or ARB
• Beta-blockers should not be used until the above are tried (unless the patient has CAD or CHF)

James, P. et al. JAMA. Published online December 18, 2013
WHAT’S NEXT?

• At the request of the NHLBI, the AHA and the ACC are in the planning stages of creating a collaborative, comprehensive, evidence-based guideline on the treatment of hypertension.

• This guideline will be the fifth in the series set of CVD prevention guidelines supported by systematic evidence reviews from the NHLBI.

• Major hypertension and primary care physician specialty societies have been invited to participate as full partners with the AHA and ACC in the creation of this future comprehensive hypertension guideline.

M Jessup and JG Herold, Hypertension, 2-4-2014.
Tackling the Epidemic of Hypertension

• A multifactorial approach
  – Patients, families, providers, healthcare delivery systems and communities
  – Patient and provider awareness, access to care, lifestyle modification, evidence – based treatment, medication adherence

• AHA primary focus area of the 2014-2017 strategic plan

• Million Hearts (UDHHS, CDC & CMS) first 2 years action plan focuses on control of hypertension

• Eliminating current disparities

• Impacting change for the individual and the community
Case 1

A 74 y/o frail African American female, with a past history of dementia, SVT, and dyslipidemia presents to the clinic with a resting HR of 96 a BP of 168/96 and home BP readings ranging from 164-170/94–88.

Which pharmacological agent would you start her on?

1. A diuretic (HCTZ)  
2. An ACEI (Angiotensin-converting enzyme inhibitor)  
3. A beta-blocker  
4. A calcium channel blocker
Case 2

A 42 year old Hispanic female, newly diagnosed with Type II diabetes, presents with a BP of 140/94 and HBPM of 138–148/86–86

What medication would you chose to start the patient on?

1. A diuretic (HCTZ)
2. An ACEI (Angiotensin-converting enzyme inhibitor)
3. A beta-blocker
4. A calcium channel blocker

12% 84% 1% 2%
Case 3

A 64 year old male patient, who has unsuccessfully tried lifestyle modification for 6 months, has a persistent BP reading of 148/90.

Should he be started on medication to lower his blood pressure?

35% 1. Yes
65% 2. No
Bibliography

- Dariush et al. Heart Disease and Stroke Statistics-2014 Update: A Report from the American Heart Association, Circulation. 2014. 10.1161/01