


## Pharmacy Updates in Primary Care



January 31<sup>st</sup>, 2018      Nathan Lamberton      David N. Ombengi  
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## First Metformin, Then...?

AR is a 57 year-old African American male with a PMH significant for recently diagnosed type 2 diabetes, history of MI (2017) and HTN.

His HgbA1c at diagnosis three months ago was 9.2%. He was then started on metformin and has been titrated up to 1000mg twice daily.

His HgbA1c today is 8.3% and requires additional therapy. Assuming no relevant lab abnormalities, what is your next recommendation?

## Blood Pressure Control

What is the rate of HTN control (in %) in the United States?

## Medication Use in Cardiovascular Disease (CVD)

What are the recommendations for the use of antihypertensives in primary or secondary prevention of CVD?

# Objectives

- Explain changes to the 2018 American Diabetes Association Guidelines (ADA) regarding treatment considerations
- Discuss a novel Glucagon-Like Peptide-1 (GLP-1) receptor agonist and its implications in treatment
- Summarize the health disparities of hypertension control, class of recommendation, and level of evidence in the prevention, diagnosis, treatment, evaluation and management of hypertension in adults
- Highlight the four systematic review questions on High BP in adults in the 2017 guidelines
- Discuss the 2017 updates in the prevention, diagnosis, treatment, evaluation and management of hypertension in adults

## Applying Class of Recommendation and Level of Evidence to Clinical Strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care\* (Updated August 2015)

CLASS (STRENGTH) OF RECOMMENDATION	
<b>CLASS I (STRONG)</b>	Benefit >>> Risk
Suggested phrases for writing recommendations:	
<ul style="list-style-type: none"> <li>Is recommended</li> <li>Is indicated/useful/effective/beneficial</li> <li>Should be performed/administered/other</li> </ul>	
Comparative-Effectiveness Phrases:	
<ul style="list-style-type: none"> <li>Treatment/strategy A is recommended/indicated in preference to treatment B</li> <li>Treatment A should be chosen over treatment B</li> </ul>	
<b>CLASS IIa (MODERATE)</b>	Benefit >> Risk
Suggested phrases for writing recommendations:	
<ul style="list-style-type: none"> <li>Is reasonable</li> <li>Can be useful/effective/beneficial</li> </ul>	
Comparative-Effectiveness Phrases:	
<ul style="list-style-type: none"> <li>Treatment/strategy A is probably recommended/indicated in preference to treatment B</li> <li>It is reasonable to choose treatment A over treatment B</li> </ul>	
<b>CLASS IIb (WEAK)</b>	Benefit > Risk
Suggested phrases for writing recommendations:	
<ul style="list-style-type: none"> <li>May/might be reasonable</li> <li>May/might be considered</li> <li>Usefulness/effectiveness is unknown/unclear/uncertain or not well established</li> </ul>	
<b>CLASS III: No Benefit (MODERATE)</b>	Benefit = Risk
(Generally, LOE A or B use only)	
Suggested phrases for writing recommendations:	
<ul style="list-style-type: none"> <li>Is not recommended</li> <li>Is not indicated/useful/effective/beneficial</li> <li>Should not be performed/administered/other</li> </ul>	
<b>CLASS III: Harm (STRONG)</b>	Risk > Benefit
Suggested phrases for writing recommendations:	
<ul style="list-style-type: none"> <li>Potentially harmful</li> <li>Causes harm</li> <li>Associated with excess morbidity/mortality</li> <li>Should not be performed/administered/other</li> </ul>	

LEVEL (QUALITY) OF EVIDENCE‡	
<b>LEVEL A</b>	
<ul style="list-style-type: none"> <li>High-quality evidence‡ from more than 1 RCT</li> <li>Meta-analyses of high-quality RCTs</li> <li>One or more RCTs corroborated by high-quality registry studies</li> </ul>	
<b>LEVEL B-R</b>	(Randomized)
<ul style="list-style-type: none"> <li>Moderate-quality evidence‡ from 1 or more RCTs</li> <li>Meta-analyses of moderate-quality RCTs</li> </ul>	
<b>LEVEL B-NR</b>	(Nonrandomized)
<ul style="list-style-type: none"> <li>Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies</li> <li>Meta-analyses of such studies</li> </ul>	
<b>LEVEL C-LD</b>	(Limited Data)
<ul style="list-style-type: none"> <li>Randomized or nonrandomized observational or registry studies with limitations of design or execution</li> <li>Meta-analyses of such studies</li> <li>Physiological or mechanistic studies in human subjects</li> </ul>	
<b>LEVEL C-EO</b>	(Expert Opinion)
Consensus of expert opinion based on clinical experience	

COR and LOE are determined independently (any COR may be paired with any LOE). A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

\* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

‡ For comparative-effectiveness recommendations (COR I and IIa; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

§ The method of assessing quality is evolving, including the application of standardized, widely used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

## Pharmacy Updates in Diabetes Management

### 2018 ADA Standards of Medical Care in Diabetes

#### **General updates:**

- Screening youth for type 2 diabetes
- A1c test considerations
- Health technology and diabetes management

#### **Relevant pharmacy-related updates:**

- Cardiovascular-specific treatment recommendations
- Managing hypertension in patients with diabetes
- Low dose aspirin for Type 1 or 2, pregnant patients after 1<sup>st</sup> trimester
- Patient-centered and cost-of-care impact on treatment

## Cardiovascular Considerations for Diabetes

Increased risk of coronary artery disease and decreased life expectancy

### **2007 – Rosiglitazone**

- Increased risk of **myocardial infarction** and increased risk of **death** from cardiovascular disease

### **2008 – FDA Requires Cardiovascular Data**

- Required an investigation of cardiovascular outcomes of glucose-lowering agents

Schnell, Oliver, Lars Rydén, Eberhard Standl, and Antonio Ceriello. "Current Perspectives on Cardiovascular Outcome Trials in Diabetes." *Cardiovascular Diabetology* 15, no. 1 (October 2016): 139. <https://doi.org/10.1186/s12933-016-0456-8>.

## Cardiovascular Outcomes Trials (CVOT)

### **Requirements for CVOTs:**

- Two-side 95% CI upper limit of 1.8 (pre-approval) and/or 1.3 (post-approval) for major adverse events
- Analysis could include meta-analysis of placebo-controlled, add-on, and active-controlled trials OR a single, large, safety CVOT
- Must include at least 2 years of CV safety data
- Population must include high-risk patients
- Determination of CV events in phase II and III clinical trials

Schnell, Oliver, Lars Rydén, Eberhard Standl, and Antonio Ceriello. "Current Perspectives on Cardiovascular Outcome Trials in Diabetes." *Cardiovascular Diabetology* 15, no. 1 (October 2016): 139. <https://doi.org/10.1186/s12933-016-0456-8>.

## CVOTs Demonstrating Cardiovascular Benefit

Trial Name	Medication	Comparator	Outcome	Hazard Ratio (95% CI)
CANVAS	Canagliflozin	Placebo	CV death, MI or stroke	0.86 (0.75-0.97)
EMPA-REG	Empagliflozin	Placebo	CV death, MI or stroke	0.86 (0.74-0.99)
	Empagliflozin	Placebo	Hospitalization due to heart failure	0.65 (0.50-0.85)
LEADER	Liraglutide	Placebo	CV death, MI or stroke	0.87 (0.78-0.97)
SUSTAIN-6	Semaglutide	Placebo	CV death, MI or stroke	0.74 (0.58-0.95)

Schnell, Oliver, Lars Rydén, Eberhard Standl, and Antonio Ceriello. "Current Perspectives on Cardiovascular Outcome Trials in Diabetes." *Cardiovascular Diabetology* 15, no. 1 (October 2016): 139. <https://doi.org/10.1186/s12933-016-0456-8>.

## Pharmacologic Therapy for Type 2 Diabetes

### Established ASCVD:

*"...antihyperglycemic therapy should **begin with lifestyle management and metformin** and subsequently incorporate an agent proven to reduce major adverse cardiovascular events and cardiovascular mortality (**currently empagliflozin and liraglutide**)..."*

### What about semaglutide?

American Diabetes Association. "Standards of Medical Care in Diabetes - 2018." *Diabetes Care* 41, no. January (2018): 159. <https://doi.org/https://doi.org/10.2337/dc18-Sint01>.

## Semaglutide (Ozempic®)

**FDA-Approved December 2017**

Not currently available

**Class:** GLP-1 receptor agonist

**Indication:** adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes

**Dose:** 0.5mg or 1mg subcutaneously once weekly

Novo Nordisk. Novo Nordisk Receives FDA Approval of OZEMPIC® (semaglutide) Injection For the Treatment of Adults with Type 2 Diabetes. News Releases. December 2017. Available from: <http://press.novonordisk-us.com/2017-12-5-Novonordisk-Receives-FDA-Approval-of-OZEMPIC-R-semaglutide-injection-For-the-Treatment-of-Adults-with-Type-2-Diabetes>

## GLP-1 Agonist Characteristics

### **Mechanism of Action**

Glucose-dependent insulin secretion

Decreased glucagon secretion

Slowed gastric emptying

Increased satiety

**A1c Lowering:** 1.0-1.5%

**Weight Loss:** ~2-5kg

### **Side Effects**

Nausea

Diarrhea

Caution with renal impairment

Increased risk of pancreatitis

Risk of thyroid c-cell tumors

Detail-document, P L, and Clinical Endocrinologists. "PHARMACIST'S LETTER / PRESCRIBER'S LETTER Drugs for Type 2 Diabetes" 26, no. August (2013): 1-9.

## Currently Available GLP-1 Agonists

### Exenatide (Bydureon® and Byetta®)

No proven cardiovascular benefit  
Twice daily to once weekly injection

### Dulaglutide (Trulicity®)

No proven cardiovascular benefit  
Once weekly injection

### Liraglutide (Victoza®)

Proven cardiovascular benefit  
Once daily injection

### Albiglutide (Tanzeum®)

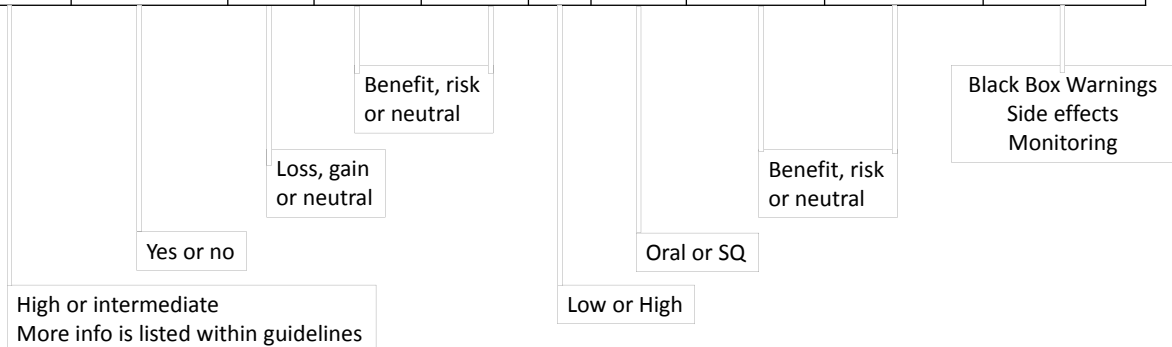
No proven cardiovascular benefit  
Once weekly injection

### Semaglutide (Ozempic®)

Proven cardiovascular benefit  
Once weekly injection

## Table 7. Drug-Specific and Patient Factors

Efficacy	Hypoglycemia	Weight Change	CV Effects		Cost	Oral/SQ	Renal effects		Additional Considerations
			ASCVD	CHF			Progression of DKD	Dosing/Use Considerations	



American Diabetes Association. "Standards of Medical Care in Diabetes - 2018." *Diabetes Care* 41, no. January (2018): 159. <https://doi.org/https://doi.org/10.2337/dc18-Sint01>.



## Summary

- Empagliflozin and liraglutide decrease cardiovascular risk in patients with history of ASCVD
- Semaglutide may be an alternative option for at-risk patients
- Updated guidelines provide patient-specific factor considerations

## Pharmacy Updates in Hypertension Management

**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**

**Publication Information**

This slide set is adapted from the 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

Published on November 13, 2017, available at: *Hypertension*  
and *Journal of the American College of Cardiology*.

The full-text guidelines are also available on the following  
websites: AHA ([professional.heart.org](http://professional.heart.org)) and ACC ([www.acc.org](http://www.acc.org))

## Health disparities hypertension and hypertension control

- Age-adjusted prevalence of hypertension among all U.S. adults 18 years and older is 33.5% (CDC 2013-14)
- 43.7 % of adults with hypertension have controlled blood pressure
- Older adults, non-Hispanic blacks, and US-born adults with lower family income, lower education, without health insurance, with diabetes, obesity, or a disability have a higher prevalence of hypertension than their counterparts

### Systematic Review Questions on High BP in Adults

Question Number	Question
1	Is there evidence that self-directed monitoring of BP and/or ambulatory BP monitoring are superior to office-based measurement of BP by a healthcare worker for 1) preventing adverse outcomes for which high BP is a risk factor and 2) achieving better BP control?
2	What is the optimal target for BP lowering during antihypertensive therapy in adults?
3	In adults with hypertension, do various antihypertensive drug classes differ in their comparative benefits and harms?
4	In adults with hypertension, does initiating treatment with antihypertensive pharmacological monotherapy versus initiating treatment with 2 drugs (including fixed-dose combination therapy), either of which may be followed by the addition of sequential drugs, differ in comparative benefits and/or harms on specific health outcomes?

BP indicates blood pressure.

## 2017 Hypertension Clinical Practice Guideline Updates Summary

- BP Threshold 130/80 (SPRINT Trial)
- HBPM and ABPM as part of HTN confirmation and treatment
- ASCVD calculation and primary prevention
- 4 Classes of drugs

### CVD Risk Factors Common in Patients With Hypertension

COR	LOE	Recommendation for Coexistence of Hypertension and Related Chronic Conditions
I	B-NR	Screening for and management of other modifiable CVD risk factors are recommended in adults with hypertension.

Modifiable Risk Factors*	Relatively Fixed Risk Factors†
<ul style="list-style-type: none"> <li>• Current cigarette smoking, secondhand smoking</li> <li>• Diabetes mellitus</li> <li>• Dyslipidemia/hypercholesterolemia</li> <li>• Overweight/obesity</li> <li>• Physical inactivity/low fitness</li> <li>• Unhealthy diet</li> </ul>	<ul style="list-style-type: none"> <li>• Chronic Kidney Disease</li> <li>• Family history</li> <li>• Increased age</li> <li>• Low socioeconomic/educational status</li> <li>• Male sex</li> <li>• Obstructive sleep apnea</li> <li>• Psychosocial stress</li> </ul>

\*Factors that can be changed and, if changed, may reduce CVD risk.

†Factors that are difficult to change (CKD, may not reduce CVD risk

CKD indicates chronic kidney disease; and CVD, cardiovascular disease.

### Categories of BP in Adults\*

COR	LOE	Recommendation for Definition of High BP
I	B-NR	BP should be categorized as normal, elevated, or stage 1 or 2 hypertension to prevent and treat high BP.

BP Category	SBP		DBP
Normal	<120 mm Hg	and	<80 mm Hg
Elevated	120–129 mm Hg	and	<80 mm Hg
<b>Hypertension</b>			
Stage 1	130–139 mm Hg	or	80–89 mm Hg
Stage 2	≥140 mm Hg	or	≥90 mm Hg

1<sup>st</sup> New  
Recommendation

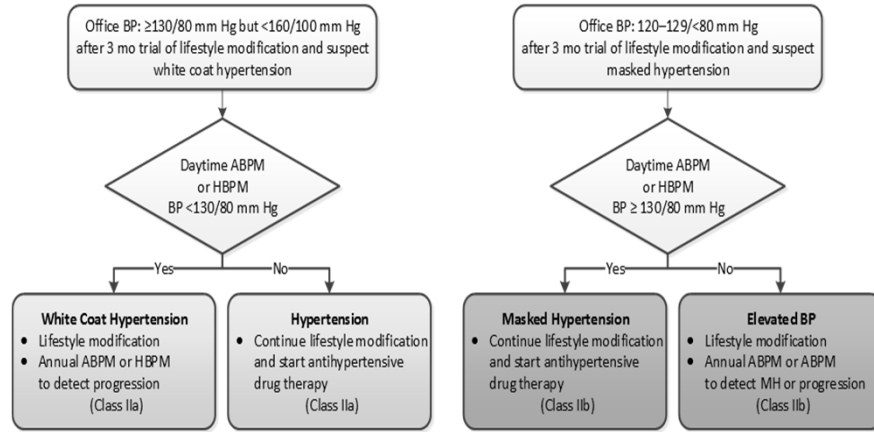
### Out-of-Office and Self-Monitoring of BP

COR	LOE	Recommendation for Out-of-Office and Self-Monitoring of BP
I	A <sup>SR</sup>	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.

SR indicates systematic review.

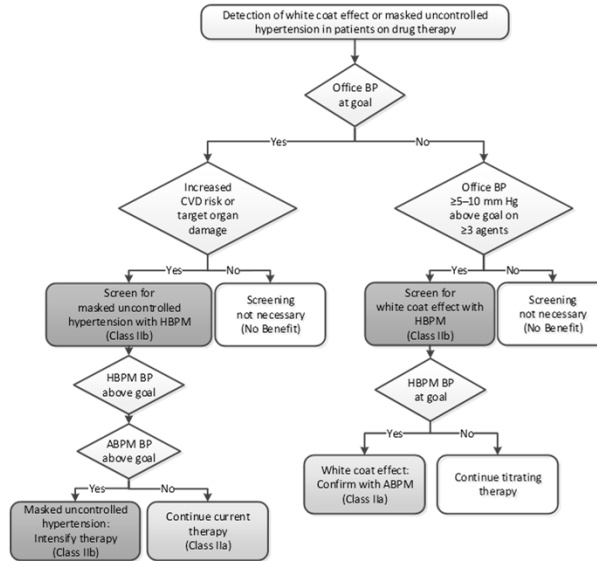
2<sup>nd</sup> New  
Recommendation

### Detection of White Coat Hypertension or Masked Hypertension in Patients Not on Drug Therapy



Colors correspond to Class of Recommendation in Table 1. ABPM indicates ambulatory blood pressure monitoring; BP, blood pressure; and HBPM, home blood pressure monitoring.

### Detection of White Coat Effect or Masked Uncontrolled Hypertension in Patients on Drug Therapy



Colors correspond to Class of Recommendation in Table 1. ABPM indicates ambulatory blood pressure monitoring; BP, blood pressure; and HBPM, home blood pressure monitoring.

## Nonpharmacological Interventions

**Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension\***

Strength of Recommendation and Level of Evidence		Nonpharmacological Intervention	Dose	Approximate Impact on SBP	
				Hypertension	Normotension
<b>SOR – Level 1 LOE – A</b>	Weight loss	Weight/body fat	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.	-5 mm Hg	-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.	-11 mm Hg	-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.	-5/6 mm Hg	-2/3 mm Hg
	Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg

**Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension\***  
(cont.)

	Nonpharmacological Intervention	Dose	Approximate Impact on SBP	
			Hypertension	Normotension*
Physical activity	Aerobic	<ul style="list-style-type: none"> <li>● 90–150 min/wk</li> <li>● 65%–75% heart rate reserve</li> </ul>	-5/8 mm Hg	-2/4 mm Hg
	Dynamic resistance	<ul style="list-style-type: none"> <li>● 90–150 min/wk</li> <li>● 50%–80% 1 rep maximum</li> <li>● 6 exercises, 3 sets/exercise, 10 repetitions/set</li> </ul>	-4 mm Hg	-2 mm Hg
	Isometric resistance	<ul style="list-style-type: none"> <li>● 4 × 2 min (hand grip), 1 min rest between exercises, 30%–40% maximum voluntary contraction, 3 sessions/wk</li> <li>● 8–10 wk</li> </ul>	-5 mm Hg	-4 mm Hg
Moderation in alcohol intake	Alcohol consumption	In individuals who drink alcohol, reduce alcohol† to: <ul style="list-style-type: none"> <li>● Men: ≤2 drinks daily</li> <li>● Women: ≤1 drink daily</li> </ul>	-4 mm Hg	-3 mm

\*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension.

†In the United States, one "standard" drink contains roughly 14 g of pure alcohol, which is typically found in 12 oz of regular beer (usually about 5% alcohol), 5 oz of wine (usually about 12% alcohol), and 1.5 oz of distilled spirits (usually about 40% alcohol).

## Treatment of High BP



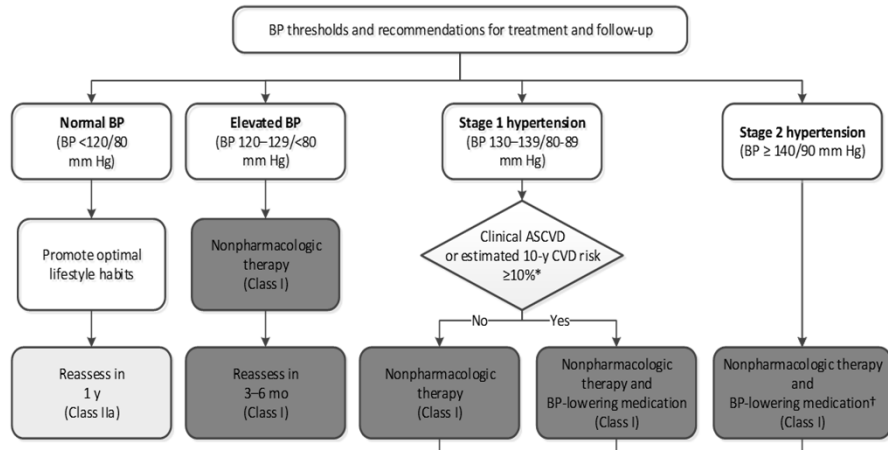
**BP Treatment Threshold and the Use of CVD Risk Estimation to Guide Drug Treatment of Hypertension**

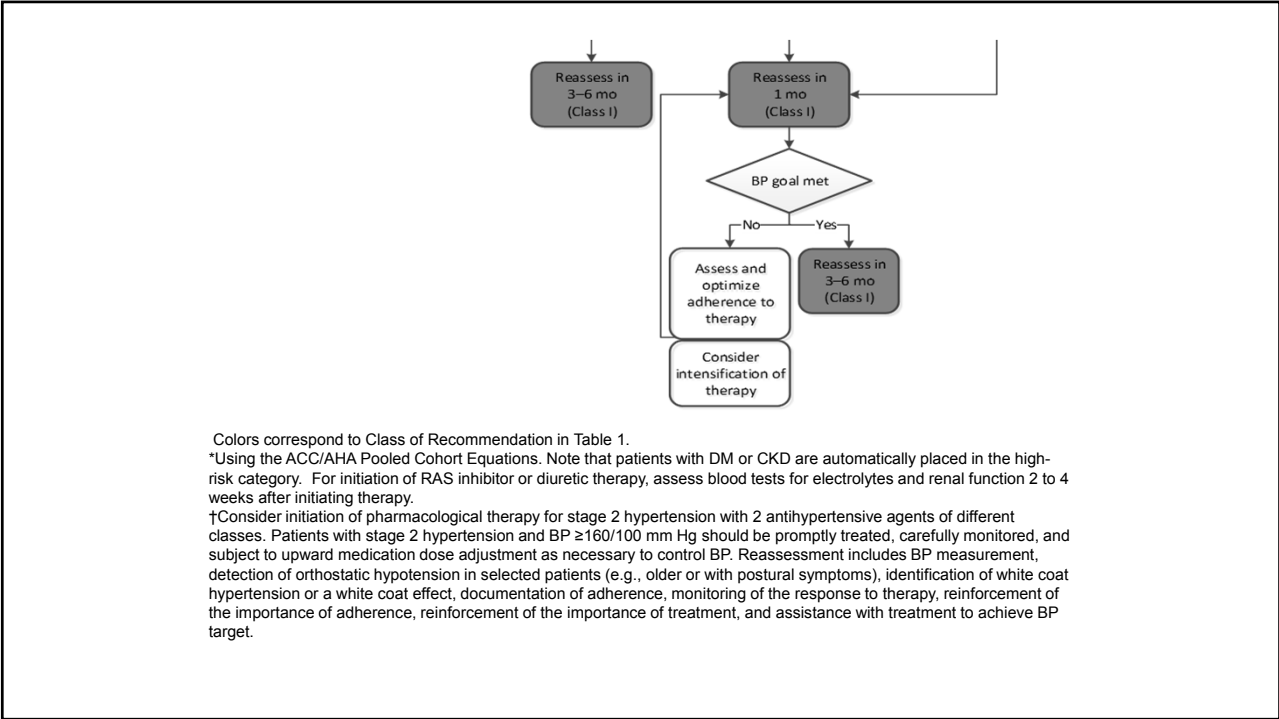
<b>COR</b>	<b>LOE</b>	<b>Recommendations for BP Treatment Threshold and Use of Risk Estimation* to Guide Drug Treatment of Hypertension</b>
<b>I</b>	<b>SBP: A</b>	<ul style="list-style-type: none"> <li>Use of BP-lowering medications is recommended for secondary prevention of recurrent CVD events in patients with clinical CVD and an average SBP of 130 mm Hg or higher or an average DBP of 80 mm Hg or higher</li> <li>For primary prevention in adults with an estimated 10-year atherosclerotic cardiovascular disease (ASCVD) risk of 10% or higher and an average SBP 130 mm Hg or higher or an average DBP 80 mm Hg or higher.</li> </ul>
	<b>DBP: C-EO</b>	
<b>I</b>	<b>C-LD</b>	<ul style="list-style-type: none"> <li>Use of BP-lowering medication is recommended for primary prevention of CVD in adults with no history of CVD and with an estimated 10-year ASCVD risk &lt;10% and an SBP of 140 mm Hg or higher or a DBP of 90 mm Hg or higher.</li> </ul>

\*ACC/AHA Pooled Cohort Equations (<http://tools.acc.org/ASCVD-Risk-Estimator/>) to estimate 10-year risk of atherosclerotic CVD.

**3<sup>rd</sup> New Recommendation**

**Blood Pressure (BP) Thresholds and Recommendations for Treatment and Follow-Up**  
(continued on next slide)





### General Principles of Drug Therapy

COR	LOE	Recommendation for General Principle of Drug Therapy
III: Harm	A	Simultaneous use of an ACE inhibitor, ARB, and/or renin inhibitor is potentially harmful and is not recommended to treat adults with hypertension.

### BP Goal for Patients With Hypertension

COR	LOE	Recommendations for BP Goal for Patients With Hypertension
I	<b>SBP: B-R<sup>SR</sup></b>	For adults with confirmed hypertension and known CVD or 10-year ASCVD event risk of 10% or higher a BP target of less than 130/80 mm Hg is recommended.
	<b>DBP: C-EO</b>	
IIb	<b>SBP: B-NR</b>	For adults with confirmed hypertension, without additional markers of increased CVD risk, a BP target of less than 130/80 mm Hg may be reasonable.
	<b>DBP: C-EO</b>	

SR indicates systematic review.

### Choice of Initial Medication

COR	LOE	Recommendation for Choice of Initial Medication
I	<b>A<sup>SR</sup></b>	For initiation of antihypertensive drug therapy, first-line agents include thiazide diuretics, CCBs, and ACE inhibitors or ARBs.

SR indicates systematic review.

**4<sup>th</sup> New  
Recommendation**

### Choice of Initial Monotherapy Versus Initial Combination Drug Therapy

<b>COR</b>	<b>LOE</b>	<b>Recommendations for Choice of Initial Monotherapy Versus Initial Combination Drug Therapy*</b>
<b>I</b>	<b>C-EO</b>	Initiation of antihypertensive drug therapy with 2 first-line agents of different classes, either as separate agents or in a fixed-dose combination, is recommended in adults with stage 2 hypertension ( $\geq 140/90$ mmHg) and an average BP more than 20/10 mm Hg above their BP target.
<b>Ila</b>	<b>C-EO</b>	Initiation of antihypertensive drug therapy with a single antihypertensive drug is reasonable in adults with stage 1 hypertension and BP goal $<130/80$ mm Hg with dosage titration and sequential addition of other agents to achieve the BP target.

## Hypertension in Patients With Comorbidities

## Stable Ischemic Heart Disease

COR	LOE	Recommendations for Treatment of Hypertension in Patients With Stable Ischemic Heart Disease (SIHD)
I	SBP: B-R	In adults with SIHD and hypertension, a BP target of less than 130/80 mm Hg is recommended.
	DBP: C-EO	
I	SBP: B-R	Adults with SIHD and hypertension (BP $\geq$ 130/80 mm Hg) should be treated with medications (e.g., GDMT beta blockers, ACE inhibitors, or ARBs) for compelling indications (e.g., previous MI, stable angina) as first-line therapy, with the addition of other drugs (e.g., dihydropyridine CCBs, thiazide diuretics, and/or mineralocorticoid receptor antagonists) as needed to further control hypertension.
	DBP: C-EO	

## Stable Ischemic Heart Disease (cont.)

COR	LOE	Recommendations for Treatment of Hypertension in Patients With Stable Ischemic Heart Disease (SIHD)
I	B-NR	In adults with SIHD with angina and persistent uncontrolled hypertension, the addition of dihydropyridine CCBs to GDMT beta blockers is recommended.
IIa	B-NR	In adults who have had a MI or acute coronary syndrome, it is reasonable to continue GDMT beta blockers beyond 3 years as long-term therapy for hypertension.
IIb	C-EO	Beta blockers and/or CCBs might be considered to control hypertension in patients with CAD (without HF/rEF) who had an MI more than 3 years ago and have angina.

## Diabetes Mellitus

<b>COR</b>	<b>LOE</b>	<b>Recommendations for Treatment of Hypertension in Patients With DM</b>
<b>I</b>	<b>SBP: B-R<sup>SR</sup></b>	In adults with DM and hypertension, antihypertensive drug treatment should be initiated at a BP of 130/80 mm Hg or higher with a treatment goal of less than 130/80 mm Hg.
	<b>DBP: C-EO</b>	
<b>I</b>	<b>A<sup>SR</sup></b>	In adults with DM and hypertension, all first-line classes of antihypertensive agents (i.e., diuretics, ACE inhibitors, ARBs, and CCBs) are useful and effective.
<b>IIb</b>	<b>B-NR</b>	In adults with DM and hypertension, ACE inhibitors or ARBs may be considered in the presence of albuminuria.

SR indicates systematic review.

## Strategies to Improve Hypertension Treatment and Control

### Structured, Team-Based Care Interventions for Hypertension Control

COR	LOE	<b>Recommendation for Structured, Team-Based Care Interventions for Hypertension Control</b>
I	A	A team-based care approach is recommended for adults with hypertension.

### Recommendations for Action

- Utilize a population-based policy and systems change approach to prevent and control hypertension
- Ensuring that patients receive care consistent with current guidelines and effective antihypertensive medication if needed
- Use Home blood pressure monitoring as a part of routine management of hypertensive patients could include the recommendation that patients be reimbursed for a monitor
- Reimburse health care providers for services related to patients using home blood pressure monitoring

## First Metformin, Then...?

AR is a 57 year-old African American male with a PMH significant for recently diagnosed type 2 diabetes, history of MI (2017) and HTN.

His HgbA1c at diagnosis three months ago was 9.2%. He was then started on metformin and has been titrated up to 1000mg twice daily.

His HgbA1c today is 8.3% and requires additional therapy. Assuming no relevant lab abnormalities, what is your next recommendation?

## Blood Pressure Control

What is the rate of HTN control (in %) in the United States?



## Medication Use in Cardiovascular Disease (CVD)

What are the recommendations for the use of antihypertensives in primary or secondary prevention of CVD?

Questions

## References

- Arlington V. American Diabetes Association Releases 2018 Standards of Medical Care in Diabetes. American Diabetes Association. Dec 8 2017. Available from: <http://www.diabetes.org/newsroom/press-releases/2017/american-diabetes-association-2018-release-standards-of-medical-care-in-diabetes.html?referrer=https://www.google.com/>
- Schnell, Oliver, Lars Rydén, Eberhard Standl, and Antonio Ceriello. "Current Perspectives on Cardiovascular Outcome Trials in Diabetes." *Cardiovascular Diabetology* 15, no. 1 (October 2016): 139. <https://doi.org/10.1186/s12933-016-0456-8>.
- American Diabetes Association. "Standards of Medical Care in Diabetes - 2018." *Diabetes Care* 41, no. January (2018): 159. <https://doi.org/https://doi.org/10.2337/dc18-Sint01>.
- Novo Nordisk. Novo Nordisk Receives FDA Approval of OZEMPIC® (semaglutide) Injection For the Treatment of Adults with Type 2 Diabetes. News Releases. December 2017. Available from: <http://press.novonordisk-us.com/2017-12-5-Novo-Nordisk-Receives-FDA-Approval-of-OZEMPIC-R-semaglutide-Injection-For-the-Treatment-of-Adults-with-Type-2-Diabetes>
- Detail-document, P L, and Clinical Endocrinologists. "PHARMACIST ' S LETTER / PRESCRIBER ' S LETTER Drugs for Type 2 Diabetes" 26, no. August (2013): 1–9.
- Whelton, Paul K, Robert M Carey, Wilbert S Aronow, Donald E Casey, Karen J Collins, Cheryl Dennison Himmelfarb, Sondra M DePalma, et al. "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." *Hypertension*, January 1, 2017. <http://hyper.ahajournals.org/content/early/2017/11/10/HYP.0000000000000065.abstract>.