



# Guideline Specific Selection of Anti-Hypertensives to Adequately Manage Hypertension at East Orange VA

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## Background

Hypertension is a common medical condition, more common in people of African heritage and is associated with increased risk of serious health problems including heart attacks, strokes, and kidney failure. Non-adherence to up-to-date guidelines may lead to poorly controlled blood pressures, which can further increase cardiovascular morbidity and mortality. Due to changing guidelines, appropriate medication regimens are not always adhered to in the outpatient setting. This is apparent in primary care clinics in the East Orange VA, as many patients are not on first-line therapy for hypertension. By understanding the proportion of patients not on indicated anti-hypertensives based on American College of Cardiology (ACC) guidelines for high blood pressure in adults (2017), providers at the VA may be able to then implement methods to increase adherence to up-to-date guidelines. Thus, ultimately this will lead to improved hypertension management and prevent complications that arise from uncontrolled hypertension in the veteran population.

## Classification

Systolic, Diastolic Blood Pressure (mm Hg)	JNC7	2017 ACC/AHA
<120 and <80	Normal BP	Normal BP
120–129 and <80	Prehypertension	Elevated BP
130–139 or 80–89	Prehypertension	Stage 1 hypertension
140–159 or 90–99	Stage 1 hypertension	Stage 2 hypertension
≥ 160 or ≥100	Stage 2 hypertension	Stage 2 hypertension

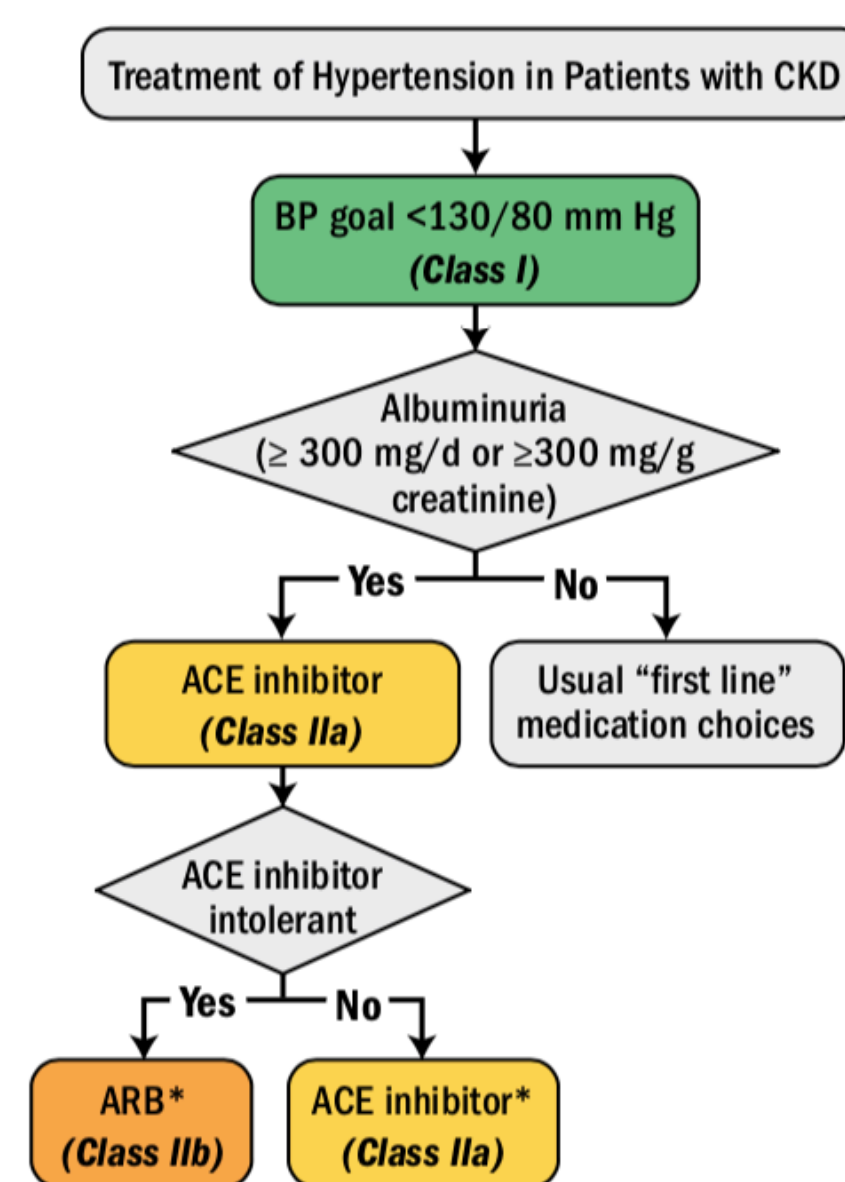
## References

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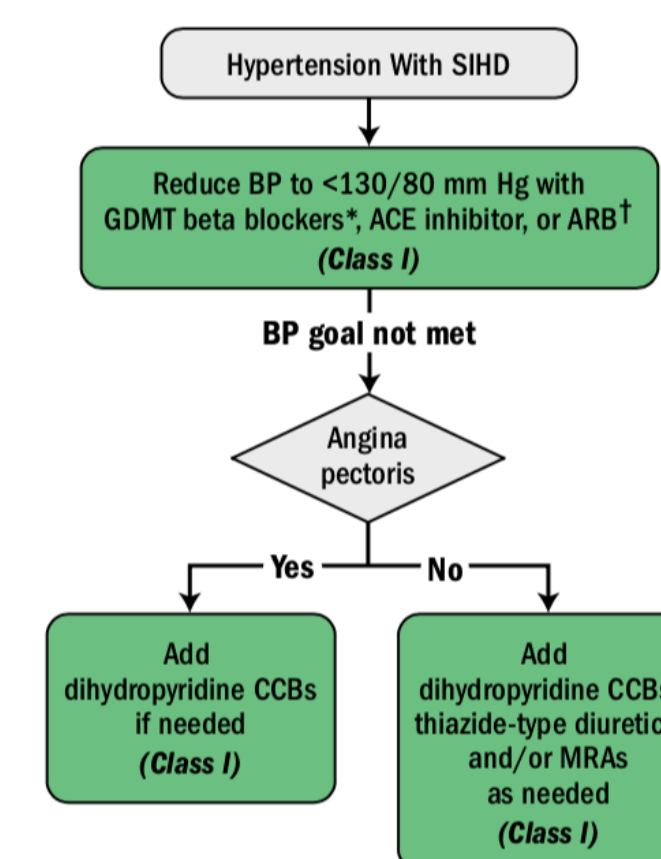
## Methods

Retrospective chart review was conducted for 306 randomized patients with the diagnosis of hypertension in various primary clinics in the East Orange VA. Anti-hypertensive regimens were reviewed as well as relevant medical co-morbidities that factor into appropriate medication regimens based on ACC guidelines for hypertension in adults (2017). The proportion of patients who were not on guideline recommended anti-hypertensives was calculated after retrospective chart review.

### Management of Hypertension in Patients with Chronic Kidney Disease



### Management of Hypertension in Patients with Stable Ischemic Heart Disease (SIHD)



## Diabetes Mellitus

Recommendations for Treatment of Hypertension in Patients With DM		
COR	LOE	Recommendations
I	SBP: B-R <sup>SR</sup> DBP: C-E0	1. 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.
I	A <sup>SR</sup>	2. 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.
IIb	B-NR	3. In adults with DM and hypertension, ACE inhibitors or ARBs may be considered in the presence of albuminuria.

## Results

Our results indicate that 69.6% of the study sample were on guideline directed antihypertensive regimens. 93 patients were not following guideline directed antihypertensive regimens representing 30.4% of the study sample.

### Heart Failure with Reduced Ejection Fraction (HFrEF)

Recommendations for Treatment of Hypertension in Patients with Heart Failure with Reduced Ejection Fraction (HFrEF)		
Referenced studies that support recommendations are summarized in online Data Supplement 34		
COR	LOE	Recommendations
I	C-E0	1. Adults with HFrEF and hypertension should be prescribed GDMT* titrated to attain a BP less than 130/80 mm Hg.
III: No Benefit	B-R	2. Nondihydropyridine CCBs are not recommended in the treatment of hypertension in adults with HFrEF.

### Heart Failure with Preserved Ejection Fraction (HFpEF)

Recommendations for Treatment of Hypertension in Patients with Heart Failure with Preserved Ejection Fraction (HFpEF)		
Referenced studies that support recommendations are summarized in online Data Supplement 35, 36		
COR	LOE	Recommendations
I	C-E0	1. In adults with HFpEF who present with symptoms of volume overload, diuretics should be prescribed to control hypertension.
I	C-LD	2. Adults with HFpEF and persistent hypertension after management of volume overload should be prescribed ACE inhibitors or ARB and beta blockers titrated to attain systolic BP less than 130 mm Hg.

## Conclusions

There are a significant proportion of patients not on appropriate anti-hypertensive regimens based on ACC guidelines in primary care clinics at the East Orange VA. These findings will allow for development of methods on quality improvement to aid in adherence of providers to current guidelines on the management of hypertension.