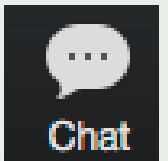


# Reminders

- Please rename yourself with your name and practice location in the “Manage Participants” box.
- Please enter your name and practice location into the “Chat” to record your attendance.
- Use the “Chat” feature to ask questions and receive survey links.
- Please remember to “Mute” your microphone unless speaking.
- Call our Tech Team at 440-796-2221 if you have audio or visual problems.
- If you can’t connect to audio via computer, or you lose computer audio at anytime, you can call in to the clinic at: 646-876-9923; meeting ID: 850 112 117.



# Structure of ECHO Clinics

Duration	Item
5 minutes	Introductions, roll call, announcements
10 minutes	Didactic presentation, followed by Q&A
20 minutes	Case Study 1 presentation and discussion
20 minutes	Case Study 2 presentation and discussion
5 minutes	Wrap-up/Post-Clinic Survey completion



# CARDI•OH

Ohio Cardiovascular Health Collaborative



*In partnership with:*



# Cardi-OH ECHO Reducing the Burden of Hypertension

Thursday, January 16, 2020

# Disclosure Statements



The following planners, speakers, moderators, and/or panelists of the CME activity have financial relationships with commercial interests to disclose:

- Adam T. Perzynski, PhD reports being co-founder of Global Health Metrics LLC, a Cleveland-based software company and royalty agreements for forthcoming books with Springer publishing and Taylor Francis publishing.
- Brian Bachelder, MD received funds for his role as Physician Advisor at VaxCare.
- SiranM. Koroukian, PhD received grant funds for her role as a subcontractor on a study funded by Celgene.
- Christopher A. Taylor, PhD, RDN, LD, FAND reports grant funding and travel support for his role as a consultant, researcher, and presenter for Abbott Nutrition, and is also a member of the Scientific Advisory Council of Viocare, Inc.
- Jackson T. Wright, Jr., MD, PhD reports research support from the NIH and Ohio Department of Medicaid and consulting with NIH, AHA, and ACC.
- These financial relationships are outside the presented work.

All other planners, speakers, moderators, and/or panelists of the CME activity have no financial relationships with commercial interests to disclose.

# Uncontrolled hypertension: Scope and impact of the problem



Jackson T. Wright, Jr., MD, PhD, FACP, FAHA

Emeritus Professor of Medicine

Director, Clinical Hypertension Program

Division of Nephrology and Hypertension

University Hospitals Cleveland Medical Center

Case Western Reserve University

# Objectives

- Provide an overview of the prevalence and impact of hypertension in the United States.
- Summarize the prevalence of diagnosed, but uncontrolled hypertension and its impact on cardiovascular outcomes.
- List and explain 3 reasons why hypertension in an individual patient may be uncontrolled.

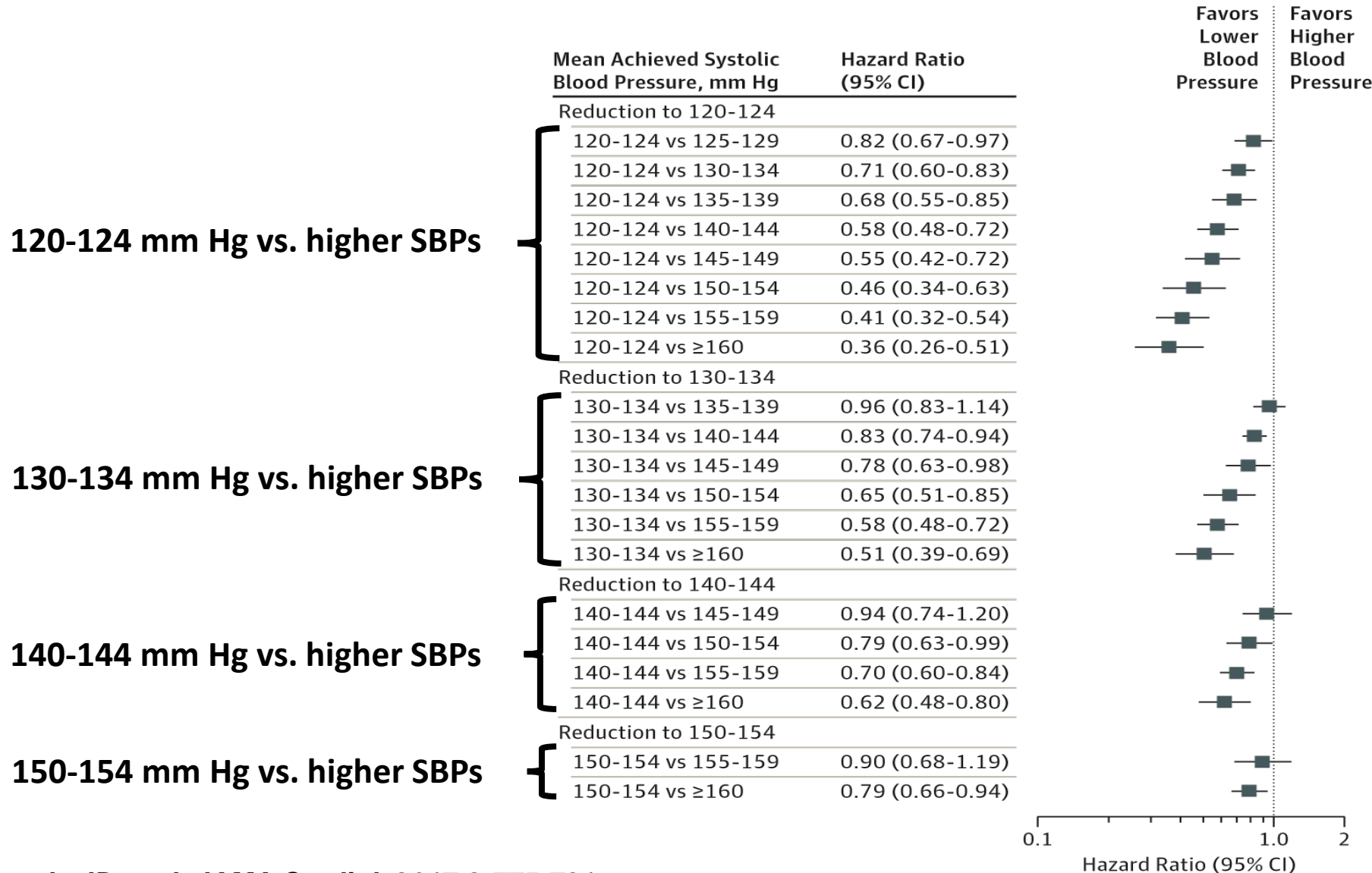
# Clinical Significance of Hypertension



- In the US, hypertension accounts for more CVD deaths than any other modifiable CVD risk factor
- It is second only to cigarette smoking as a preventable cause of death for any reason
- In the follow-up study of 23,272 U.S. NHANES (National Health and Nutrition Examination Survey) participants, >50% of deaths from coronary heart disease and stroke occurred among individuals with hypertension
- It is the leading cause of heart failure, the leading DRG for hospitalizations and the most common reason for primary care visits
- The above data are exaggerated in minorities and in lower SES populations

# Hazard Ratios (95% CI) for Major Cardiovascular Disease at Different Levels of Achieved Systolic BP

*Network Meta-analysis (42 RCTs: N = 144,220)*



## Key Findings

- Progressive reduction in risk of CVD at lower levels of achieved SBP down to levels below current European & US recommendations
- Similar findings for stroke, CHD and all-cause mortality
- Similar pattern in a sensitivity analyses where
  - SPRINT results excluded
  - Results from four trials with risk or lack of clarity for bias
- No inconsistency between direct or network (indirect) comparisons
- No inconsistency for CVD benefit in several other meta-analyses (including Xie et al., Verdecchia et al., and Bangalore et al.)



# RECENT HYPERTENSION GUIDELINE RECOMMENDATIONS

Guideline	Evidence Review Methodology	BP Target in General Adult Population	BP Target in High CVD Risk Grps	BP Target in CKD and DM
NICE (2011, amended 2019) <sup>1</sup>	Systematic Review	Age < 80: <140/90 Age ≥ 80: <150/90	Age < 80: <140/90 Age ≥ 80: <150/90	<140/90
JAMA 2014 HTN Guideline <sup>2</sup>	Systematic Review	Age < 60: <140/90 Age ≥ 60: <150/90	Age < 60: <140/90 Age ≥ 60: <150/90	<140/90
CHEP (2016) <sup>3</sup>	Consensus (Graded)	Age < 80: SBP < 120 Age ≥ 80: SBP < 150 (if < 120 target inappropriate)	Age < 80: SBP < 120 Age ≥ 80: SBP < 150 (if < 120 target inappropriate)	< 130/80
Australian (2016) <sup>4</sup>	Consensus (Graded)	<140/90	<120/80 if thought safe	N/A
ACC/AHA (2017) <sup>5</sup>	Consensus (Graded)	< 130/80	< 130/80	< 130/80
AAFP/ACP (2017) <sup>6</sup>	Consensus	Age < 60: <140/90 Age ≥ 60: <150/90	Age < 60: <140/90 Age ≥ 60: <150/90	<140/90
ESH/ESC (2018) <sup>7</sup>	Consensus (Graded)	<140/90; < 130/80 if tolerated Age ≥ 65: SBP 130-140	Age < 65: <130/80 Age ≥ 65: SBP 130-140	CKD: SBP 130-140 DM: <130/80
ADA BP Targets (2018) <sup>8</sup> (diabetic patients)	Consensus	<140/90	<130/80	<130/80
KDIGO 2019 <sup>9</sup>	Consensus	< 130/80	< 130/80	<130/80

**Annals of Internal Medicine**

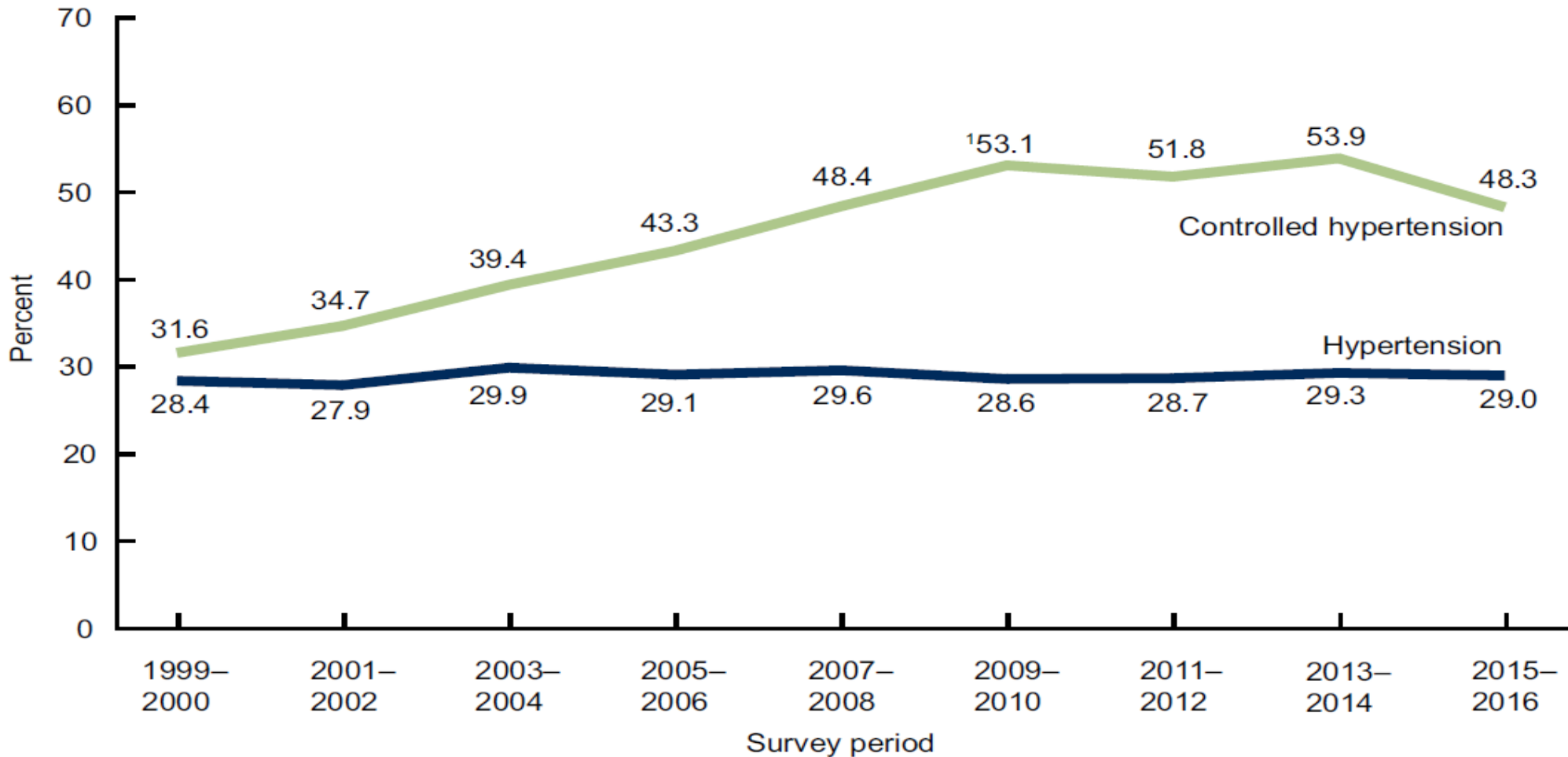
| **SPECIAL ARTICLE**

## **Evidence Supporting a Systolic Blood Pressure Goal of Less Than 150 mm Hg in Patients Aged 60 Years or Older: The Minority View**

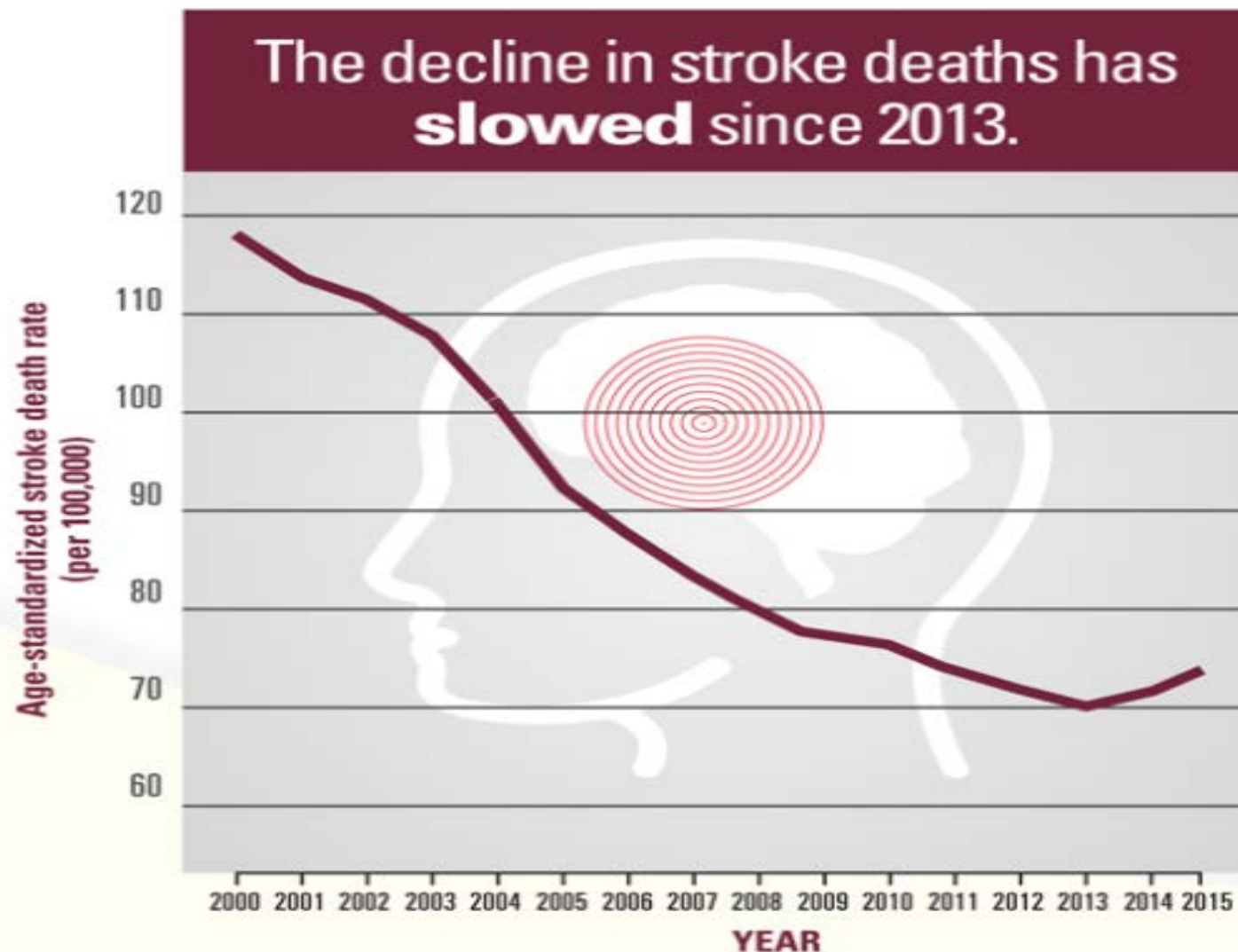
Jackson T. Wright Jr., MD, PhD; Lawrence J. Fine, MD, DrPH; Daniel T. Lackland, PhD; Gbenga Ogedegbe, MD, MPH, MS;  
and Cheryl R. Dennison Himmelfarb, PhD, RN, ANP

Ann Intern Med 2014;160: 499-504

# Age-adjusted trends in hypertension and controlled hypertension (< 140/90 mmHg) among adults aged 18 and over: United States, 1999–2016 (NCHS)



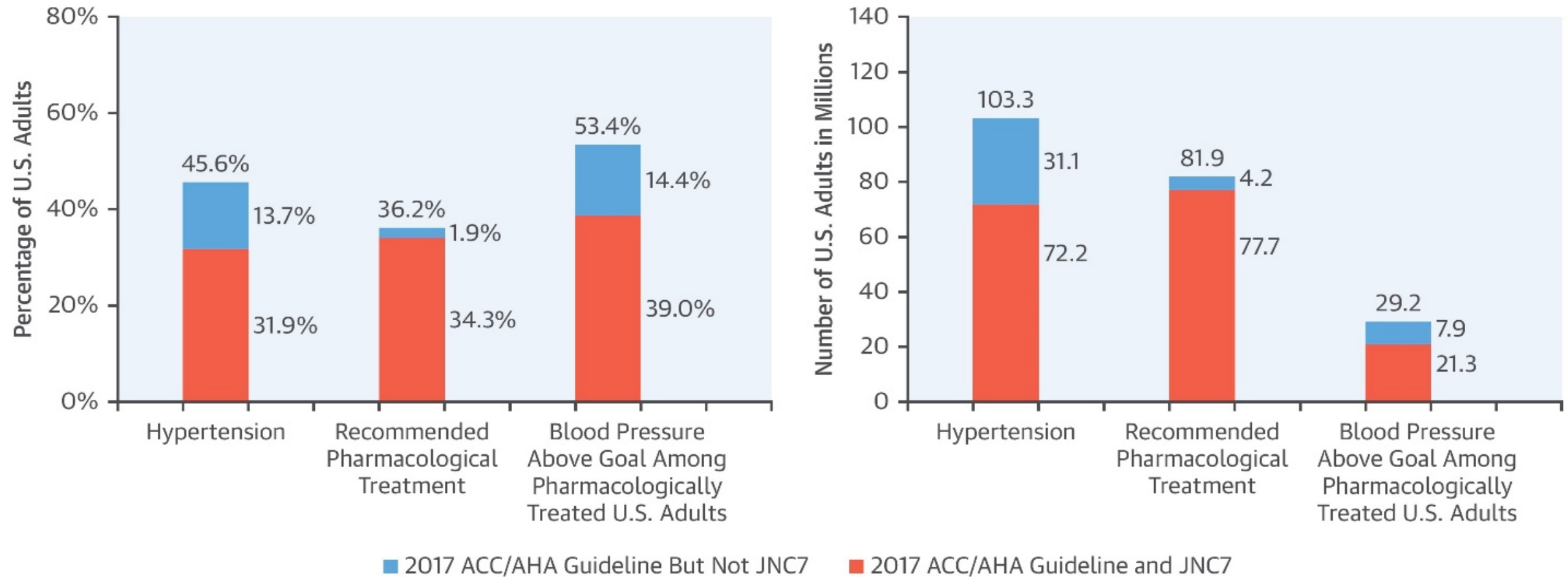
# Scary Result Post JNC-8 from CDC



## Change in SBP

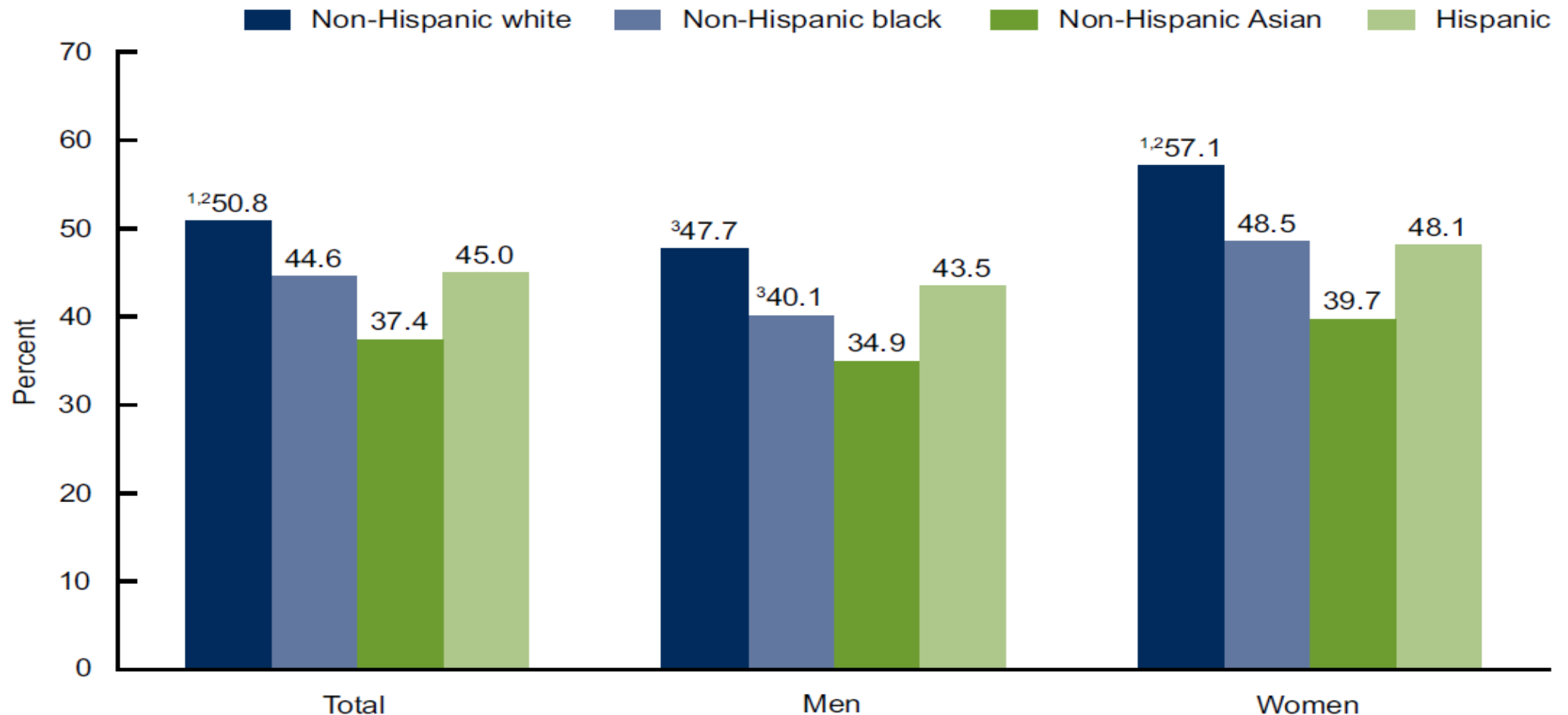
	1999-2000	2011-2012	2015-2016
M	135.7	132.8	135.3
W	139.7	131.9	134.4

## **CENTRAL ILLUSTRATION:** Prevalence of Hypertension, Recommendation for Pharmacological Antihypertensive Treatment, and Blood Pressure Above Goal Among U.S. Adults According to the 2017 ACC/AHA and the JNC7 Guidelines

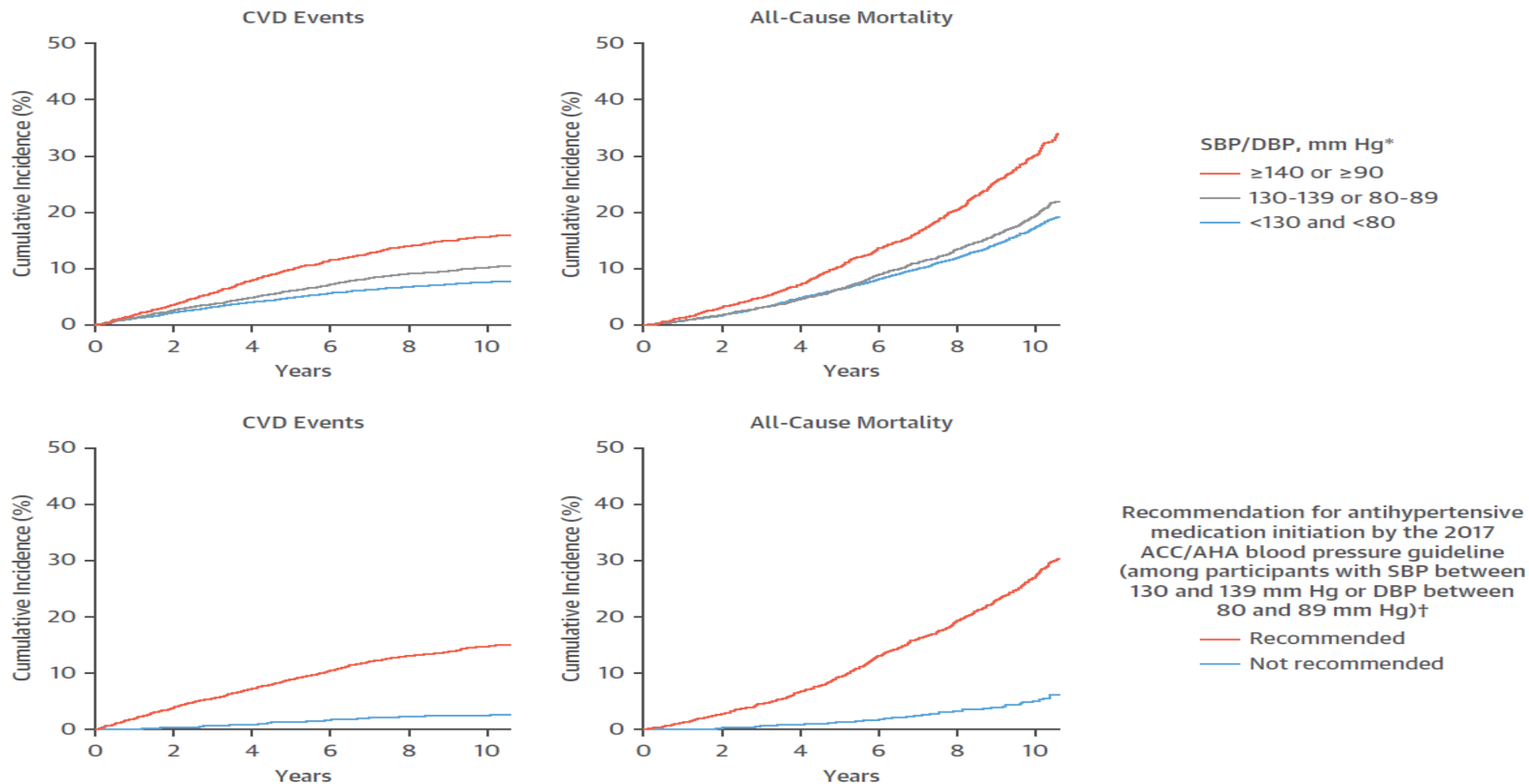


Muntner, P. et al. J Am Coll Cardiol. 2018;71(2):109-18.

# Age-adjusted prevalence of controlled hypertension among adults with hypertension aged 18 and over, by sex and race and Hispanic origin: United States, NHANES 2015–2016



**FIGURE 2** Cumulative Incidence of CVD Events and All-Cause Mortality Among REGARDS Study Participants Not Taking Antihypertensive Medication



Colantonio LD et al; JACC 2018; 72: 1187-97

# Projected Number of CVD Events Averted with the 2017 ACC/AHA and JNC7 Guidelines

	US Adults (95% CI)	CVD events expected with current SBP levels (95% CI)	Projected CVD events prevented with achieving guideline-recommended SBP goals (UR)		Difference (UR)
			JNC7	2017 ACC/AHA	
Not taking antihypertensive medication	74.3 (59.3-89.4)	7.2 (5.9-8.7)	0.8 (0.2-1.6)	1.0 (0.3-1.9)	0.2 (0.1-0.3)
Taking antihypertensive medication	48.7 (37.9-59.5)	9.8 (8.5-11.3)	1.7 (0.7-2.8)	2.0 (0.8-3.2)	0.2 (0.1-0.4)
Total	123.1 (97.2-148.9)	16.9 (14.3-19.5)	2.5 (0.9-4.4)	3.0 (1.1-5.1)	0.5 (0.2-0.7)

ACC: American College of Cardiology; AHA: American Heart Association; CI: confidence interval; CVD: cardiovascular disease; JNC7: Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; SBP: systolic blood pressure; UR: uncertainty range.

Numbers in the table represent millions.

Bress A, et al. Circ 2018;138:00–00. DOI: 10.1161



# Association of Hypertension Guidelines with CVD Events and Death in the US

- (1) Incidence of major CVD events & all-cause mortality by modeling 4 community-based cohort studies
- (2) Network meta-analysis (42 RCTs) to estimate HRs for outcomes and determine population-attributable risks and events reduced.

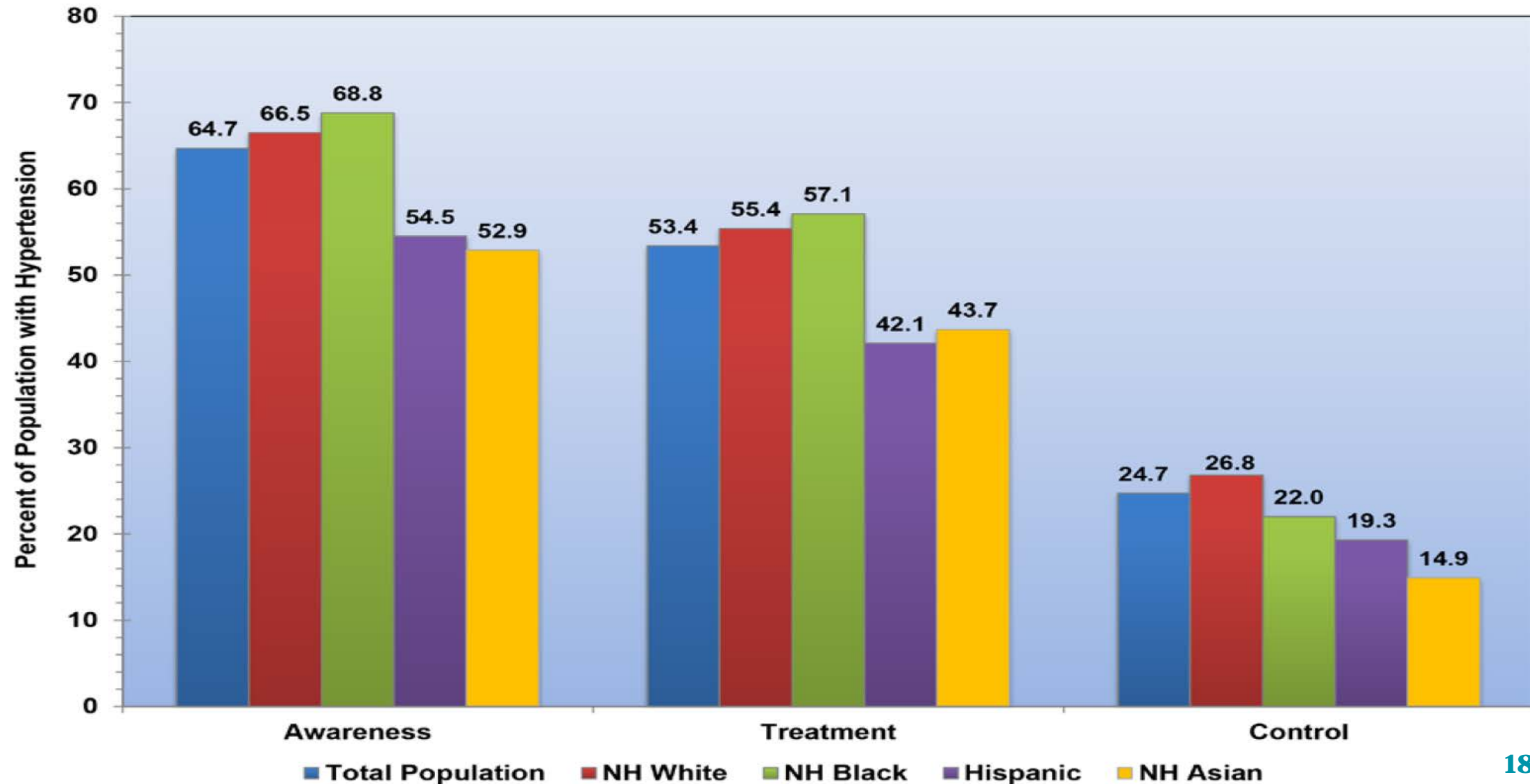


Characteristic	2014 Evidence-Based Guideline	2017 ACC/AHA Guideline
BP threshold for definition of hypertension	$\geq 140/90$	$\geq 130/80$
BP threshold for initiation of antihypertensive drugs	$\geq 140/90$ (<age 60) $\geq 150/90$ ( $\geq$ age 60)	$\geq 140/90$ (gen. population) $\geq 130/80$ (high CVD risk)
BP goal of treatment	$< 140/90$ (<age 60) $< 150/90$ ( $\geq$ age 60)	$< 130/80$
Annual CVD event reduction (adults $\geq$ age 40)	270,000	610,000 (NNT=70)
Annual reduction in death (adults $\geq$ age 40)	177,000	334,000 (NNT=129)

Bundy JD *et al.* *JAMA Cardiol.* 2018;  
doi:10.1001/jamacardio.2018.1240

# Hypertension awareness, treatment, and control (BP $\geq$ 130/80) in adults $\geq$ age 20 of age by race and ethnicity (NHANES 2013-16)

Benjamin EJ et al. Heart and Stroke Statistics 2019, Circ 2019; 130:e56-528



# Summary



- Data support use of a lower BP target <130/80 mm Hg in all ages and subgroups for most individuals and above which defines “uncontrolled BP”
- Nearly all national and international guidelines now recommend BP targets in this range (some recommend even lower). There is ample evidence to support it.
- Control rates to < 130/80mmHg at 24.8 is now < half of the previous control rates to < 140/90
- Note: This project and the latest HEDIS measure use a BP<140/90 target as the performance metric.
  - *However, a performance metric for a given population of patients or a practice differs from a clinical practice guideline for individual patients.*
- We have work to do to achieve the benefits hoped for our patients

Thank you!

Questions/Discussion

# Reminders

- A Post-Clinic Survey will be emailed to you.  
Please complete this survey as soon as possible.
- *The MetroHealth System is accredited by the Ohio State Medical Association to provide continuing medical education for physicians.*
- *The MetroHealth System designates this educational activity for a maximum of 1 AMA PRA Category 1 Credit(s)<sup>TM</sup>. Physicians should only claim credit commensurate with the extent of their participation in the activity.*