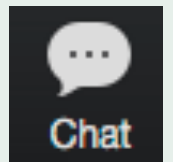
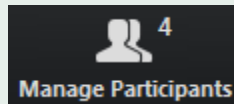




# Reminders



- 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
25 minutes	Didactic presentation, followed by Q&A
25 minutes	Case Study presentation and discussion
5 minutes	Wrap-up/Post-Clinic Survey completion



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# Cardi-OH ECHO Reducing the Burden of Hypertension

Thursday, March 12, 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.

# Special Populations and Hypertension: Older Patients and Patients with Disabilities



Jim Lamb, MD

Departments of Internal Medicine and Geriatrics

The Wright State University Boonshoft School of Medicine

# Objectives



- List two key features of guidelines for treatment of older patients with hypertension.
- List and describe strategies for treatment of hypertension among patients with mental illness or disabilities.
- List and describe strategies for treatment of hypertension among patients with lifelong physical disabilities.

# Why the Focus on HTN in People 65 and Older?

- Projected growth in the population of this age group
  - 80 yrs and older are expanding faster than any other age cohort
- High CV disease risk
- High Prevalence of HTN in this age group

“If you’ve seen one 80 yr-old,  
you’ve seen one 80 yr-old”

- Increasing heterogeneity as people age
- Chronologic age does not always equal biologic age
- Functional status can range from fit, active, independent to frail and dependent



# Life Expectancy



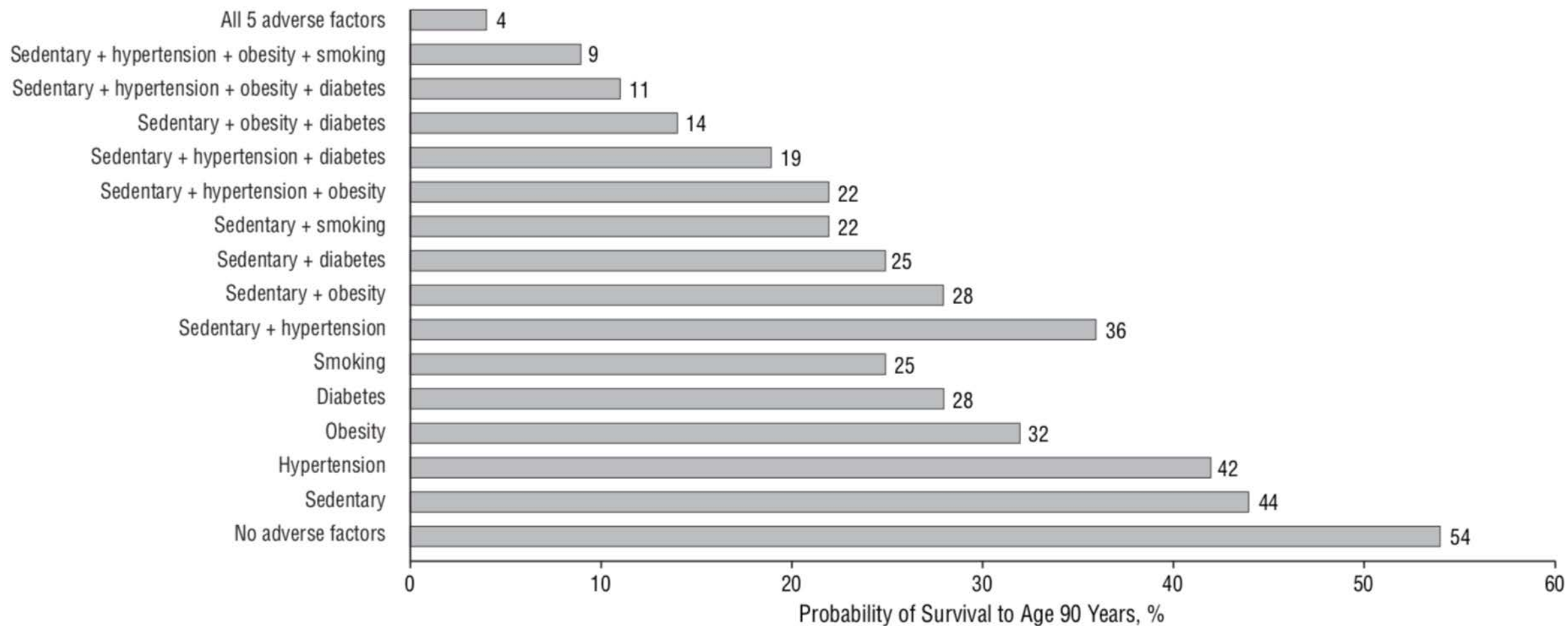
Age	Male (yrs)	Female (yrs)
65	18.0	20.6
75	11.2	13.0
85	5.94	7.01
90	4.08	4.85
95	2.83	3.37

# Exceptional Longevity in Men

*Modifiable Factors Associated With Survival and Function to Age 90 Years*

Arch Int Med 2008; 168(3): 284-290

- Modifiable nongenetic determinants of long life in elderly men (not as well studied as elderly women)
- Prospective cohort study (extension of Physicians' Health Study)
- Mean age 72 yrs followed for 25 yrs to ascertain determinants of survival to age 90 yrs
- 54% probability of a 72 yr-old to reach age 90 in the absence of 5 key adverse factors of smoking, diabetes, obesity, HTN, and sedentary lifestyle
- If all 5 factors present, the probability dropped to 4%
- The longer lifespan was accompanied by delayed occurrence of Ca and CVD and an increase in disability-free years



**Figure.** Probability of an additional 20-year survival to age 90 years for a 70-year-old man, according to the presence of 0 to 5 modifiable adverse factors at baseline, including smoking, diabetes, obesity, hypertension, and sedentary lifestyle, or their common clustering.

# HTN Tx in Older Persons- Challenges

- High degree of heterogeneity and comorbidity
- Polypharmacy and poor tolerability of meds
- Frailty
- Cognitive impairment
- Variable life expectancy
- J-shaped curve: harmful effects of BP-lowering interventions in people in whom mechanisms preserving BP homeostasis and vital organ perfusion may be more frequently impaired
- Concerns about fall risk

# HTN Tx in Older Persons- Challenges

- White-coat HTN
- Conversion of white-coat to sustained HTN
- Uncontrolled HTN
- Extreme nocturnal dipping
- Resistant HTN
- Orthostatic hypotension
- Postprandial hypotension

## Prevalence of Hypertension Based on 2 SBP/DBP Thresholds\*†



	SBP/DBP $\geq$ 130/80 mm Hg or Self-Reported Antihypertensive Medication†		SBP/DBP $\geq$ 140/90 mm Hg or Self-Reported Antihypertensive Medication‡	
<b>Overall, crude</b>	46%		32%	
	Men (n=4717)	Women (n=4906)	Men (n=4717)	Women (n=4906)
<b>Overall, age-sex adjusted</b>	48%	43%	31%	32%
<b>Age group, y</b>				
<b>20–44</b>	30%	19%	11%	10%
<b>45–54</b>	50%	44%	33%	27%
<b>55–64</b>	70%	63%	53%	52%
<b>65–74</b>	77%	75%	64%	63%
<b>75+</b>	79%	85%	71%	78%
<b>Race-ethnicity §</b>				
<b>Non-Hispanic White</b>	47%	41%	31%	30%
<b>Non-Hispanic Black</b>	59%	56%	42%	46%
<b>Non-Hispanic Asian</b>	45%	36%	29%	27%
<b>Hispanic</b>	44%	42%	27%	32%

The prevalence estimates have been rounded to the nearest full percentage.

\*130/80 and 140/90 mm Hg in 9623 participants ( $\geq$ 20 years of age) in NHANES 2011–2014.

†BP cutpoints for definition of hypertension in the present guideline.

‡BP cutpoints for definition of hypertension in JNC 7.

§ Adjusted to the 2010 age-sex distribution of the U.S. adult population.

BP indicates blood pressure; DBP, diastolic blood pressure; NHANES, National Health and Nutrition Examination Survey; and SBP, systolic blood pressure.



# SPRINT Trial

- 9361 patients
- At least 50 yr old to enter (mean age 67.9)
- SBP 130-189 (mean 139.7)
- At risk for CVD due to clinical/subclinical CAD, CKD, 10-yr Framingham risk score of at least 15%, age 75 or older
- Randomized to intensive SBP goal < 120 mm Hg or standard SBP goal < 140 mm Hg
- Intensive group mean SBP of 121.5 mm Hg (avg 3 drugs required)
- Std group mean SBP 136.2 mm Hg (avg 1.9 drugs)

# Intensive vs Standard BP Control and CVD Outcome in Adults Aged $\geq$ 75 yrs: A RCT

JAMA 2016; 315: 2673

- Exploratory analysis of 28% (2656  $\geq$  75 yr of age) of the patients in the SPRINT trial
- Mean age 79.8; mean BP 142/71; 74% white; 10% orthostatic hypotension
- Fit, less fit and frail pts included
- Results showed significant CV (34% reduction) and mortality (33% reduction) benefit from intensive treatment (SBP goal of 120 mm Hg)
- Older patients in the trial were able to tolerate the intensive treatment without serious, irreversible adverse events)
  - No difference in rates of injurious falls
  - Rates of withdrawal and loss to follow-up did not differ according to the treatment arm



# Number Needed to Treat (NNT)



- **Entire SPRINT Cohort**

- To Prevent 1 CV Event: 61 pts
- To Prevent 1 Death: 90 pts

- **SPRINT-75**

- To Prevent 1 CV Event: 27 pts
- To Prevent 1 Death: 41 pts

# SPRINT-80: Results



- 34% reduction in CV events
- 33% reduction in mortality
- 33% reduction in mild cognitive impairment
- 60% reduction in composite of CVD and mortality in persons with a higher baseline MoCA score (no benefit with lower MoCA scores)
- No difference in CVD, mortality outcome with respect to gait speed
- AKI increased, injurious falls no change in intensive rx group

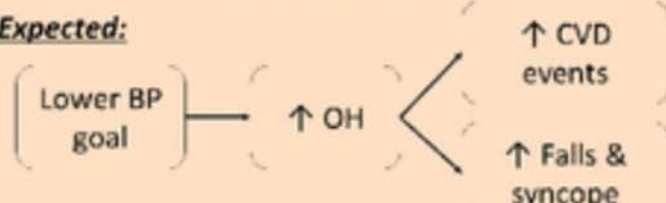
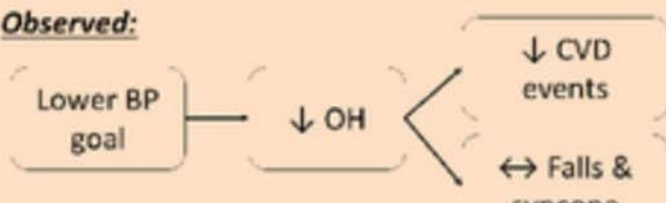
# Intensive vs Standard Blood Pressure Control in Adults 80 Years or Older: Secondary Analysis of SPRINT Trial

J Am Geriatr Soc 2020 Mar;68(3):496-504.



- **Conclusions:**
  - In adults 80 yrs of age and older, intensive BP control lowers the risk of major CV events, MCI and death, with increased risk of changes to renal function.
  - The CV and mortality benefits of intensive SBP control may not extend to older adults with lower baseline cognitive function

# Orthostatic hypotension, CV outcomes and Adverse Events: SPRINT (Hypertension 2020 Mar;75(3):660-667)

<p><b>Population</b></p> <p>N=8,792 with high CVD risk</p> <p><b>Eligible ranges of SBP</b></p> <p>Sitting: 130-180 mm Hg &amp; Standing: <math>\geq 110</math> mm Hg</p>	<p><b>Questions</b></p> <ol style="list-style-type: none"> <li>1. Is OH associated with CVD, falls, or syncope?</li> <li>2. Does a lower BP goal change the association between OH and CVD, falls, &amp; syncope?</li> </ol> <hr/> <p><b>Intervention</b></p> <p style="text-align: center;">BP Goal</p> <p style="text-align: center;"> <span style="margin-right: 40px;">Intensive (SBP &lt;120)</span> <span>Standard (SBP 135-139)</span> </p>
<p><b>Results</b></p> <p><u>Expected:</u></p>  <p><u>Observed:</u></p>  <p><i>OH = orthostatic hypotension</i></p>	<p><b>Conclusions</b></p> <ol style="list-style-type: none"> <li>1. OH is <b>not</b> associated with a <math>\uparrow</math> risk of CVD events, falls, or syncope.</li> <li>2. Intensive BP target did <b>not</b> alter the relationship between OH and risk of CVD event, falls, or syncope.</li> </ol> <p>➤ <b>OH should not be a reason to down-titrate hypertension medications, even in the setting of a lower BP goal.</b></p>

# Frailty

- Both HYVET (Hypertension in the Very Elderly Trial) and SPRINT included those who were frail but still living independently in the community and both were stopped early for benefit (HYVET after 1.8 years and SPRINT after 3.26 years). In fact, BP-lowering therapy is one of the few interventions shown to reduce mortality risk in frail older individuals.

# Geriatric Assessment



- Cognitive decline
- Functional decline
- Mobility/Falls
- Frailty
- Multimorbidity
- Polypharmacy
- Autonomy- partial or complete loss

# SPRINT-MIND (Memory and Cognition in Decreased HTN)



- Cognitive data collection from 8563 SPRINT participants
- Follow-up for 5.11 yrs
- 17% reduction in probable dementia in the intensive relative to standard group (NS)
- 19 % reduction in the occurrence of MCI (Mild Cognitive Impairment),  $p = 0.01$
- 15% reduction in the composite outcome of MCI or dementia,  $p = 0.02$

# Message of SPRINT-MIND



**WHAT IS GOOD FOR THE HEART  
IS GOOD FOR THE BRAIN !!!**



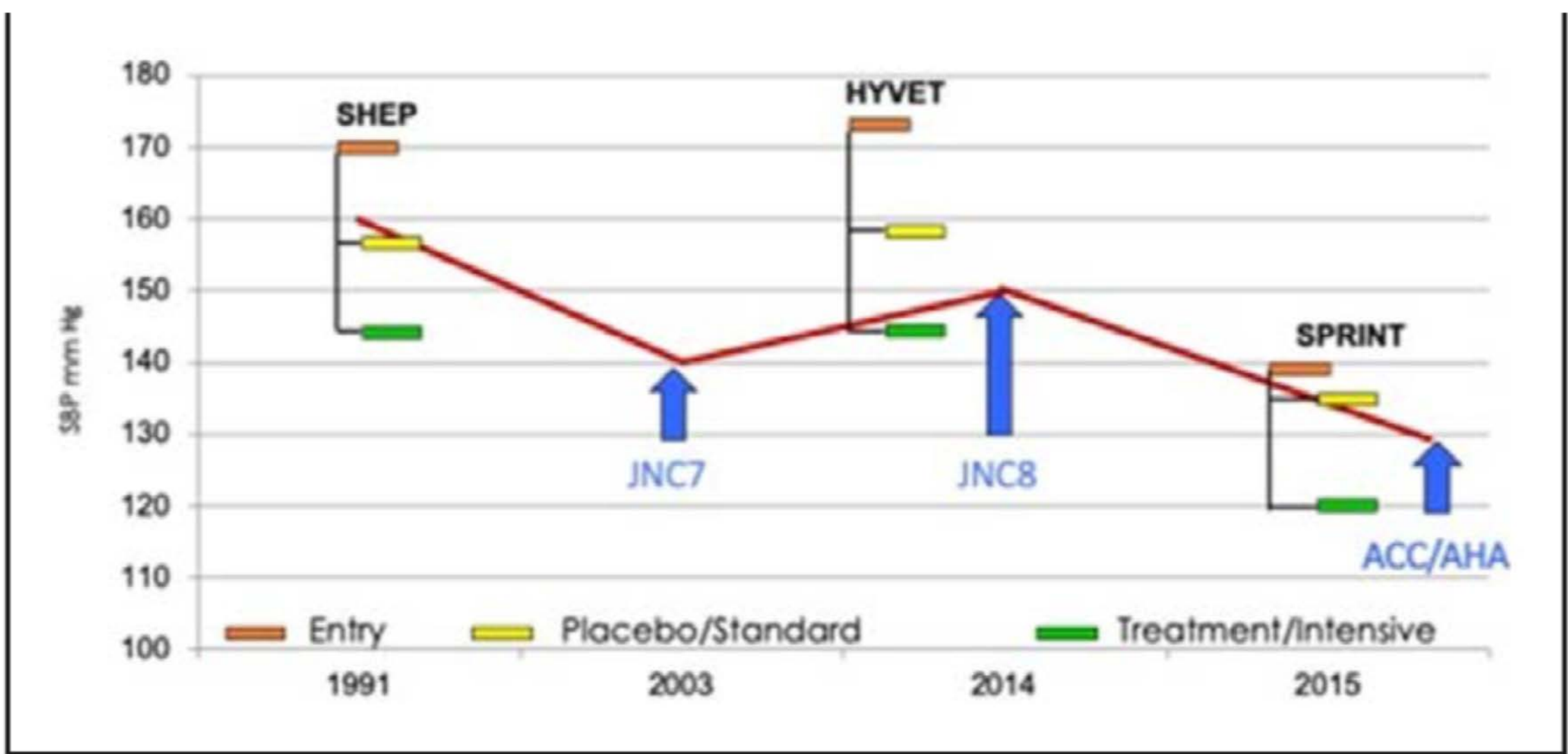
# What is the Target BP Level in an Older Person?

## Age-Related Issues



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COR	LOE	Recommendations for Treatment of Hypertension in Older Persons
I	A	Treatment of hypertension with a SBP treatment goal of less than 130 mm Hg is recommended for noninstitutionalized ambulatory community-dwelling adults ( $\geq 65$ years of age) with an average SBP of 130 mm Hg or higher.
IIa	C-EO	For older adults ( $\geq 65$ years of age) with hypertension and a high burden of comorbidity and limited life expectancy, clinical judgment, patient preference, and a team-based approach to assess risk/benefit is reasonable for decisions regarding intensity of BP lowering and choice of antihypertensive drugs.



**Figure.** Recommended systolic blood pressure (SBP) treatment goals for older individuals.

# Choice of Drug Therapy



- Low-to-moderate thiazide diuretics (chlorthalidone 12.5-25 mg/d), long-acting dihydropyridine CCBs (amlodipine), ACE-Is, ARBs all appropriate first-line choices
- BBs not considered primary therapy except in CAD and HFrEF
  - May not prevent stroke as well as first-line
  - Atenolol may be associated with higher death rate

# HTN Tx in Older Persons is Effective



- Over the past 3 decades, RCTs of antihypertensive therapy have included large numbers of older persons, and in every instance, including when the SBP treatment goal was <120 mm Hg, more intensive treatment has safely reduced the risk of CVD for persons over the ages of 65, 75, and 80 years



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# Hypertension and Patients with Disabilities



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# Treatment of HTN in Pts with Disability



- Assess effect of medication on function
- If pt not able to communicate effectively, use medication with the least chance for adverse effects
- If lab draws traumatic for the person with a disability, use medication (i.e., CCBs) that does not require frequent lab monitoring

# Final Thoughts



“BETWEEN THE PATIENT AND THE  
GUIDELINES THERE NEEDS TO BE A DOCTOR  
THAT IS USING HIS/HER BRAIN”

Joseph S. Alpert

TREAT PATIENTS, NOT NUMBERS !

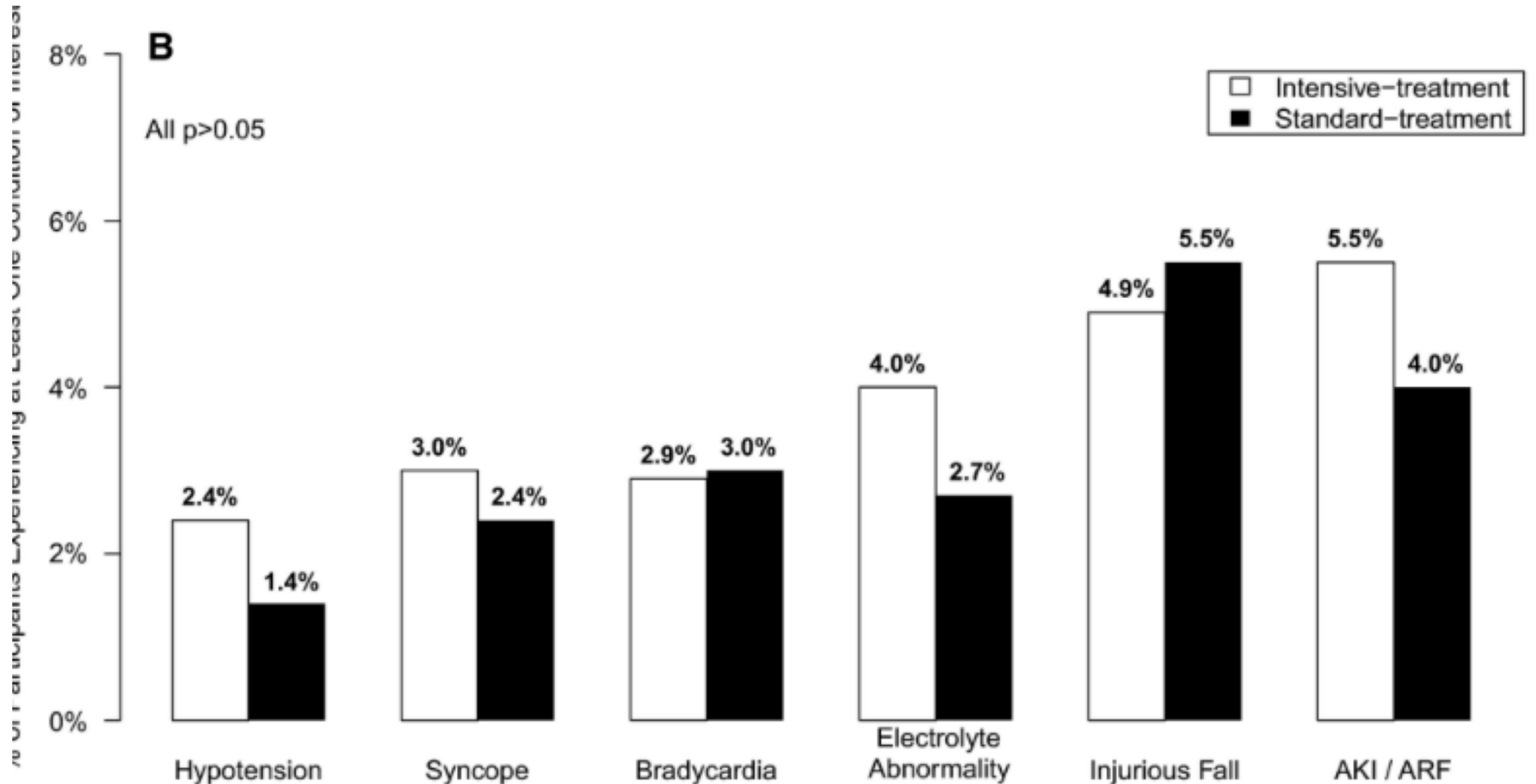


Thank you!

Questions/Discussion

# Applying the Systolic Blood Pressure Intervention Trial Results to Older Adults

(JAGS 2017; 65: 16)



# Limitations SPRINT-75

- Randomization in SPRINT was not stratified by categories of age
- Exclusions
  - Older adults residing in nursing homes
  - Prevalent dementia
  - SBP < 110 mm Hg after 1 minute of standing
  - Persons with Type 2 DM
  - Persons with stroke
  - Adults with symptomatic HF
  - Analyses of effect of intensive BP management on CV outcomes by frailty and gait speed were not prespecified in the trial protocol and were possibly underpowered

# Final ECHO Evaluations

- You will receive two surveys at the completion of this series:
  1. Week 12 Post-Clinic Survey (please complete by Friday, 04/03/20 at 5:00 PM)
  2. Exit Survey (please complete this series evaluation by Friday, 05/08/20 at 5:00 PM)
- To those who wish to claim CME credits:
  - You will receive a survey from the CME office through MyEvaluations.com on Tuesday, 04/07/19. You will need to register with MyEvaluations.com to begin this process. Please complete these evaluations by Friday, 05/08/20.

# Watch Previous ECHO Clinics



Register with Cardi-OH and watch all ECHO Reducing the Burden of Hypertension clinics

<https://www.cardi-oh.org/user/register>

<https://www.cardi-oh.org/echo/hypertension-spring-2020>

Cardi-OH ECHO Weight Manag

https://www.cardi-oh.org/weight-management-echo

renewat.

WATCH NOW

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Additional core principles

- Empathy
- Shared experience
- Collaborative
- Structure
- Time
- Recognition of successes
- Medicalization
- Reflection on recommendations

Obesity - Why it Falls in the Primary Care Domain

Communication: Core Principals

September 26, 2019  
Goutham Rao, MD  
Case Western Reserve University

Obesity - Why it Falls in the Primary Care Domain

September 19, 2019  
Goutham Rao, MD  
Case Western Reserve University



# Reminders



- A Post-Clinic Survey has been 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)™. Physicians should only claim credit commensurate with the extent of their participation in the activity.*