



AMERICAN
COLLEGE of
CARDIOLOGY

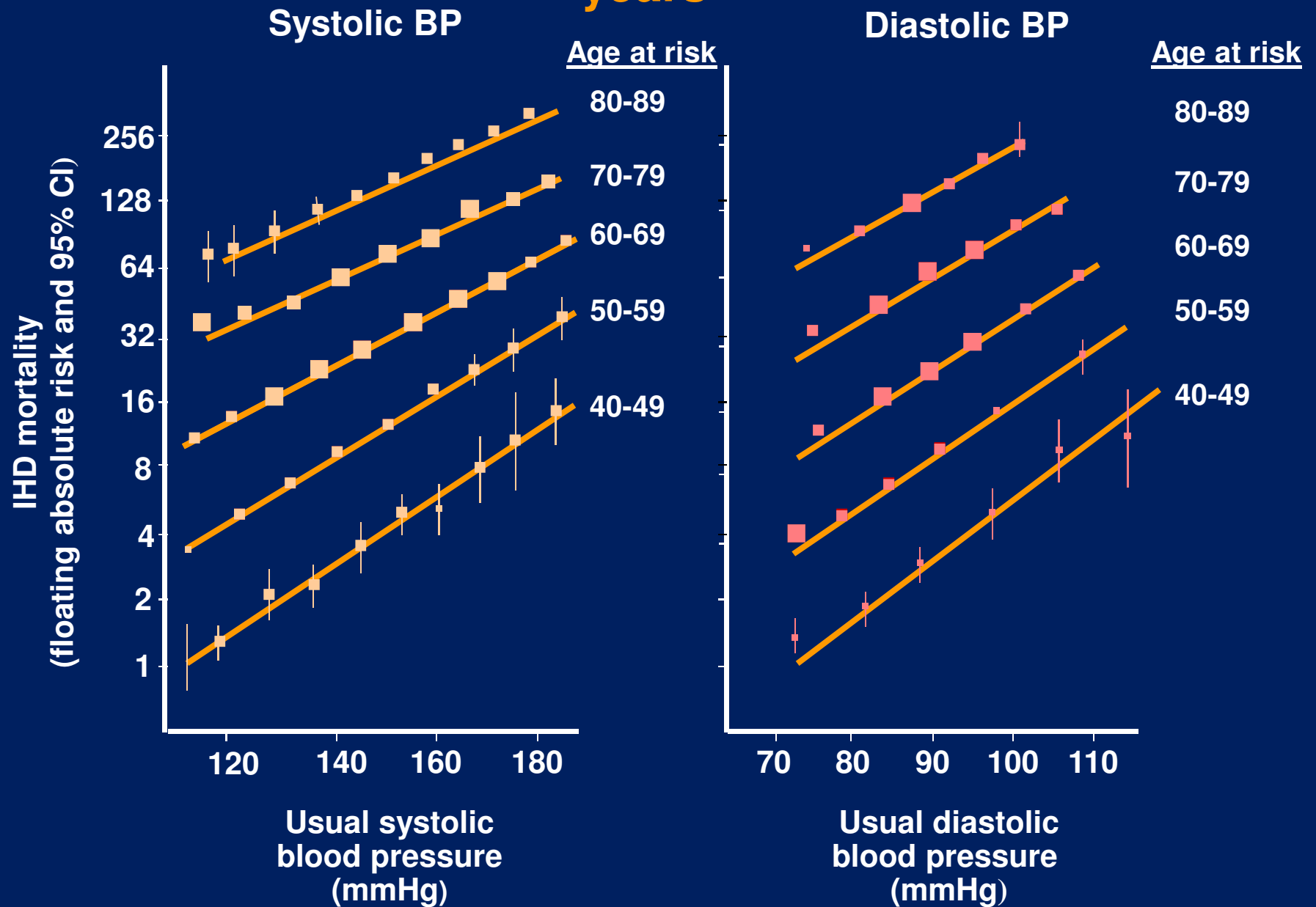
New Guidelines for Hypertension; Healthy Controversy?

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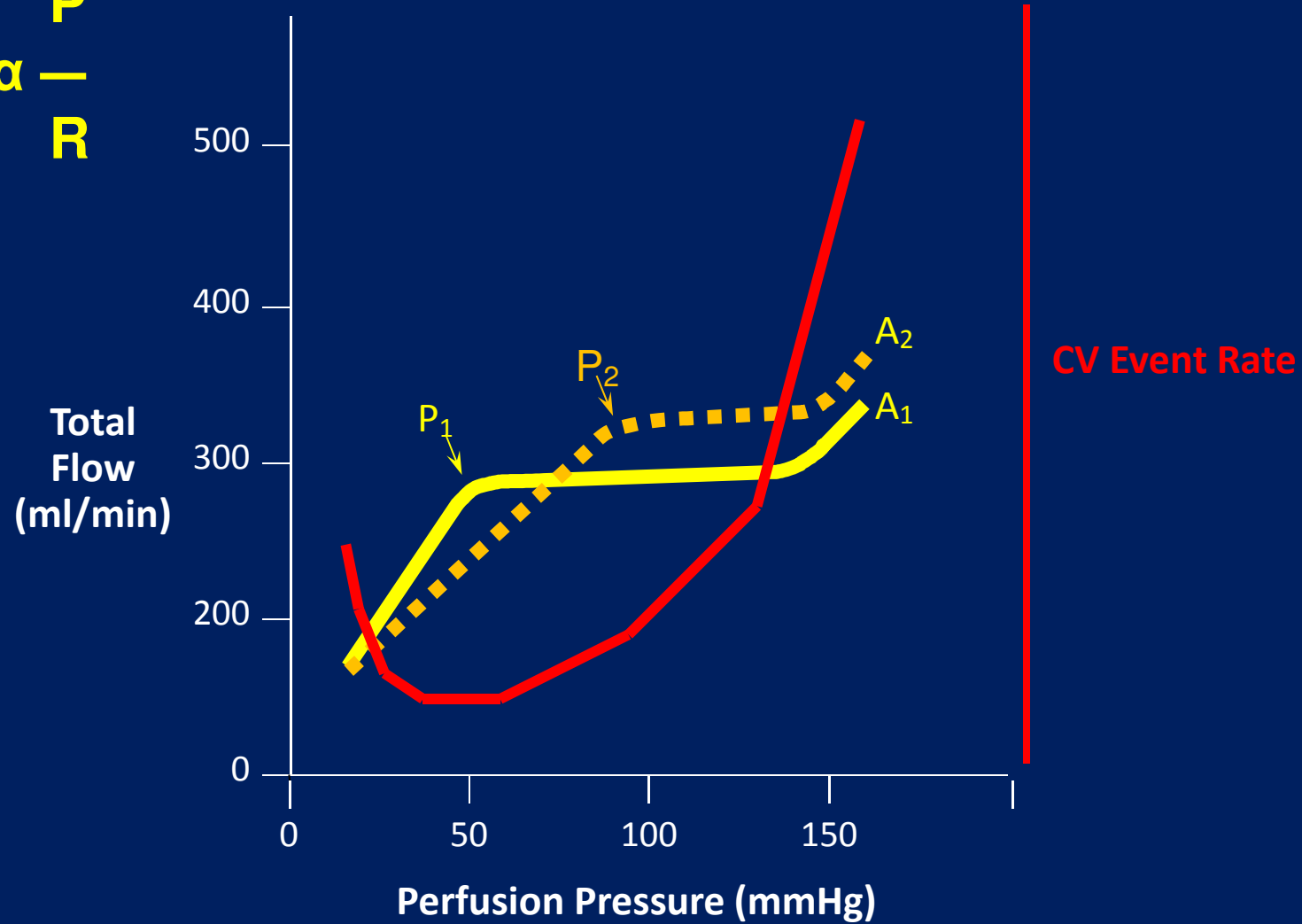
SOURCE	HT GOALS (mm Hg)			
	<60 years old	≥60 years old	≥80 years old	Diabetes/CKD
JNC-7 2003	<140/90			<130/80
AHA/ACC Elderly 2011	<140/90		<140/145 if tolerated; avoid low DBP	<130/80
AHA/ACC Go et al. 2013	<140/90		Not stated	<130/80
ESC/ESH 2013	<140/90		<150/90	<140/90
ASH/ISH	<140/90		<150/90	<140/90
“JNC-8” 2013	<140/90	<150/90	<150/90	<140/90 or <150/90
AHA/ACC/ASH HT and CAD 2015	<140/90, but <130/80 “may be appropriate”			

Prospective Studies Collaboration - 12.7 million person years



Lancet 2002;360:1903-13

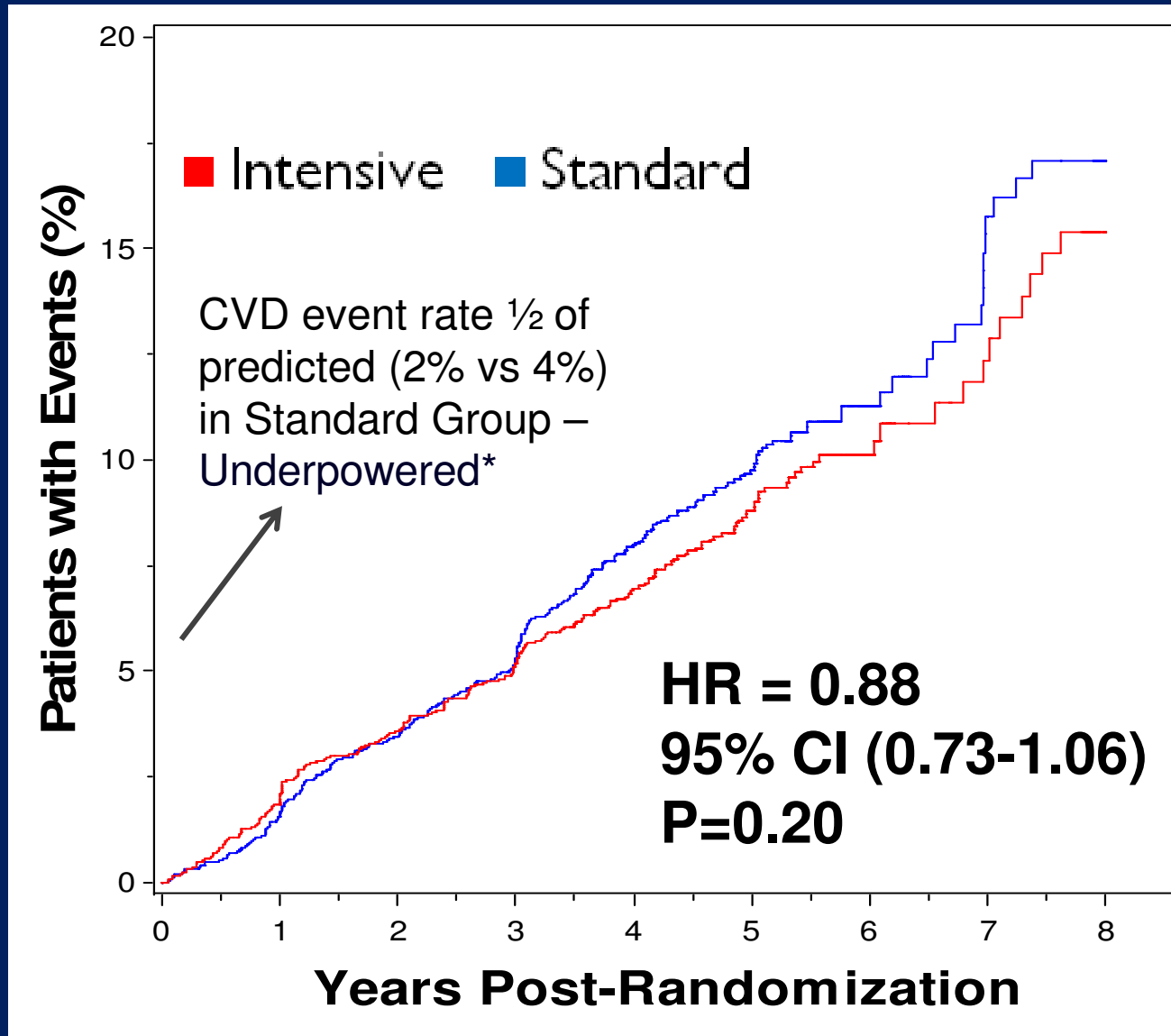
$$F \propto \frac{P}{R}$$



Rosendorff, In "Hypertension, A Companion to Braunwald's Heart Disease"
Ed. Black & Elliott, Elsevier 2013; 253-261

ACCORD - Primary Outcome

Nonfatal MI, Nonfatal Stroke or CVD Death



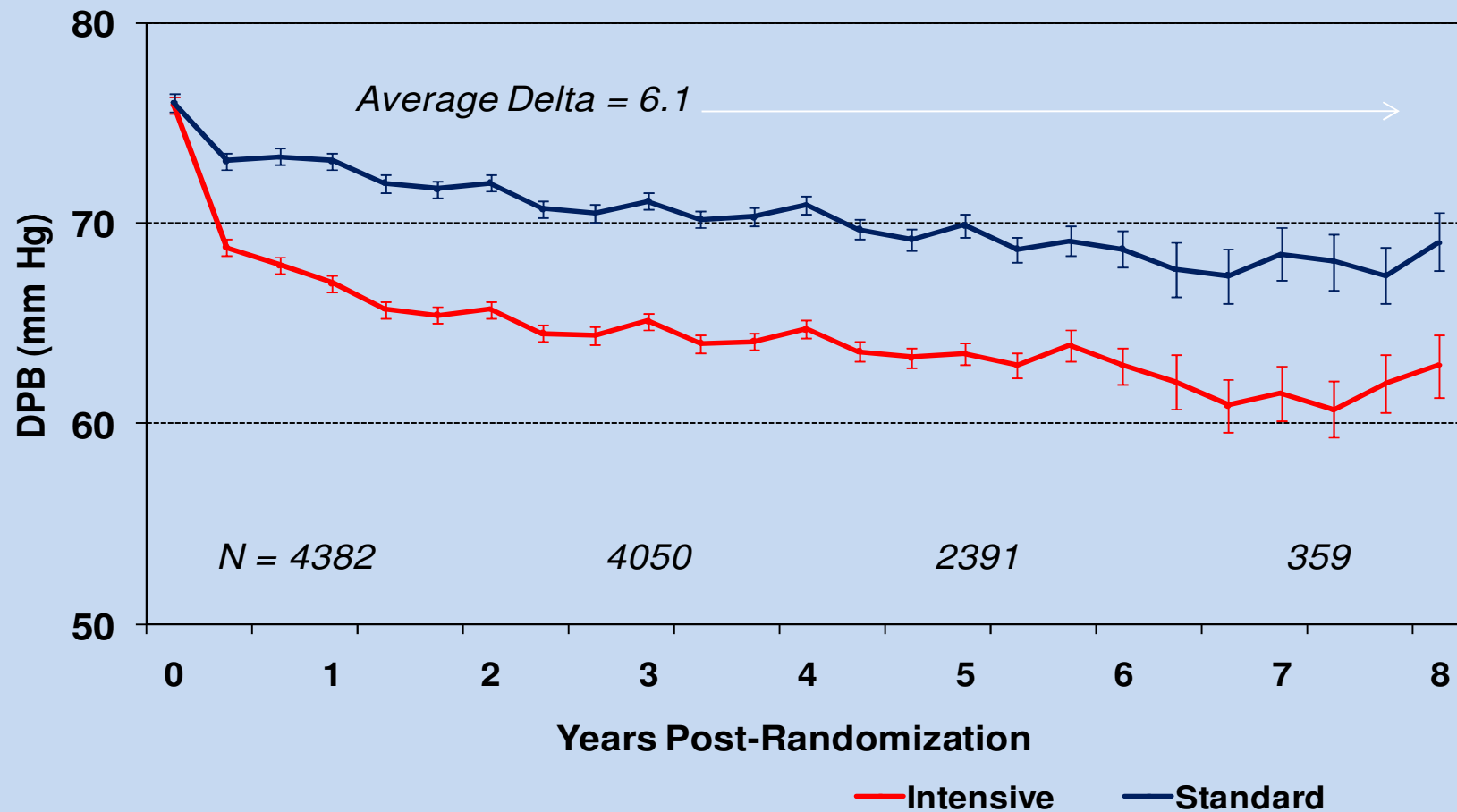
* Cr<1.5 excluded; Age<80 y; Low-HDL in Lipid Trial only

ACCORD

Diastolic Blood Pressure (mean $\pm$ 95% CI)

Mean # Meds

Intensive:	3.2	3.4	3.5	3.4
Standard:	1.9	2.1	2.2	2.3



ACCORD - Primary & Secondary Outcomes

	Intensive (%/yr)	Standard (%/yr)	HR (95% CI)	P
Primary Outcome	208 (1.87)	237 (2.09)	0.88 (0.73-1.06)	0.20
Nonfatal MI	126 (1.13)	146 (1.28)	0.87 (0.68-1.10)	0.25
Death from any cause	150 (1.28)	144 (1.19)	1.07 (0.85 – 1.35)	0.55
Cardiovascular deaths	60 (0.52)	58 (0.49)	1.06 (0.74-1.52)	0.74
Primary outcome + revascularization or HF	521 (5.10)	551 (5.31)	0.95 (0.84 – 1.07)	0.40
Major coronary disease event	253 (2.31)	270 (2.41)	0.94 (0.79 – 1.12)	0.50
Nonfatal stroke	34 (0.30)	55 (0.47)	0.63 (0.41-0.96)	0.03
Total stroke	36 (0.32)	62 (0.53)	0.59 (0.39-0.89)	0.01

The ACCORD Study Group. *N Engl J Med.* 2010;362:1575-85

ACCORD - Conclusion

- A significant decrease in the incidence of stroke.
- Diastolic pressures down to 60-65 mm Hg did not predispose to increased death or non-fatal myocardial infarction.
- Study underpowered to detect significant improvements in CV outcome, but trends favour intensive BP lowering.



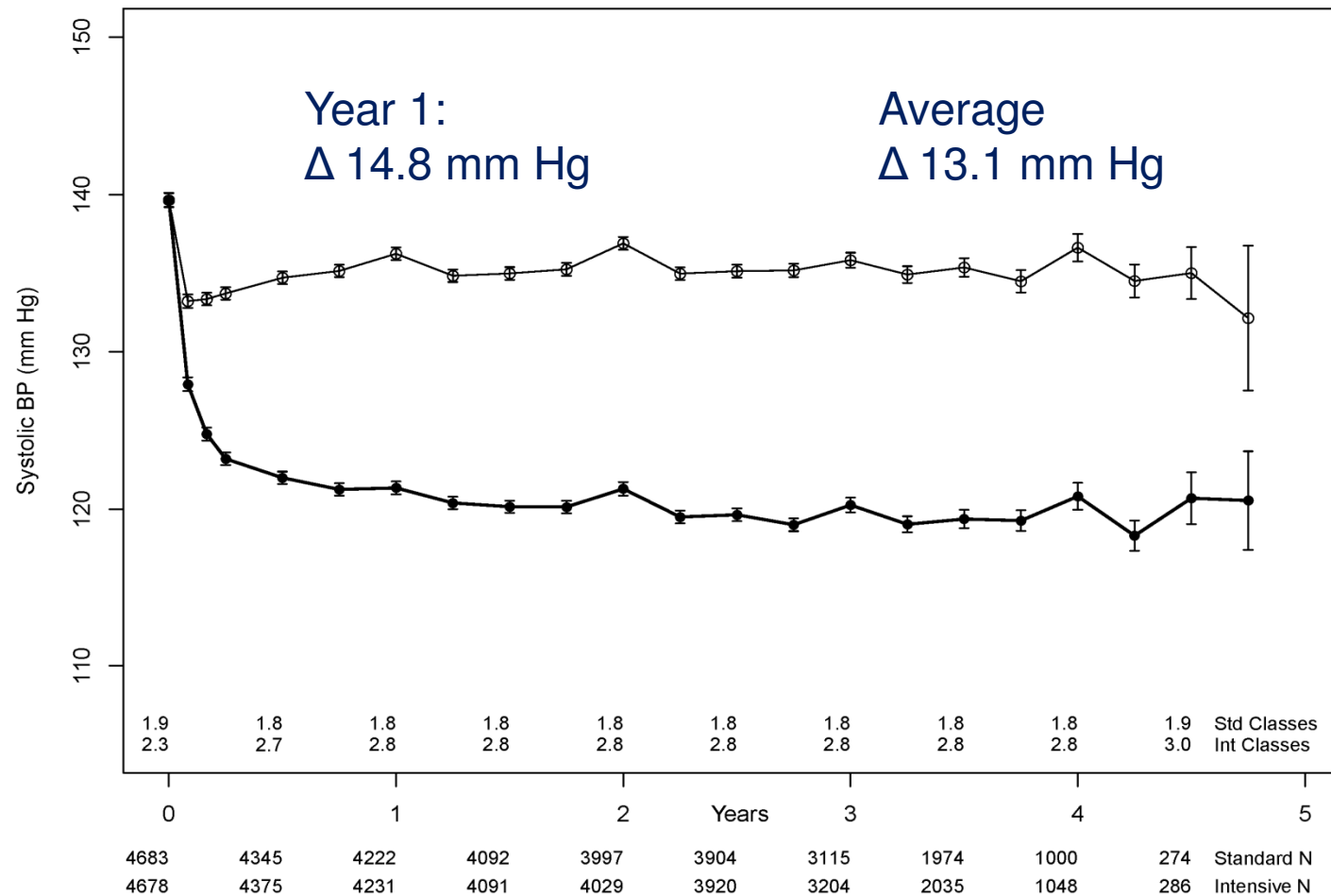
Systolic Blood Pressure Intervention Trial (SPRINT)

ACCORD vs. SPRINT

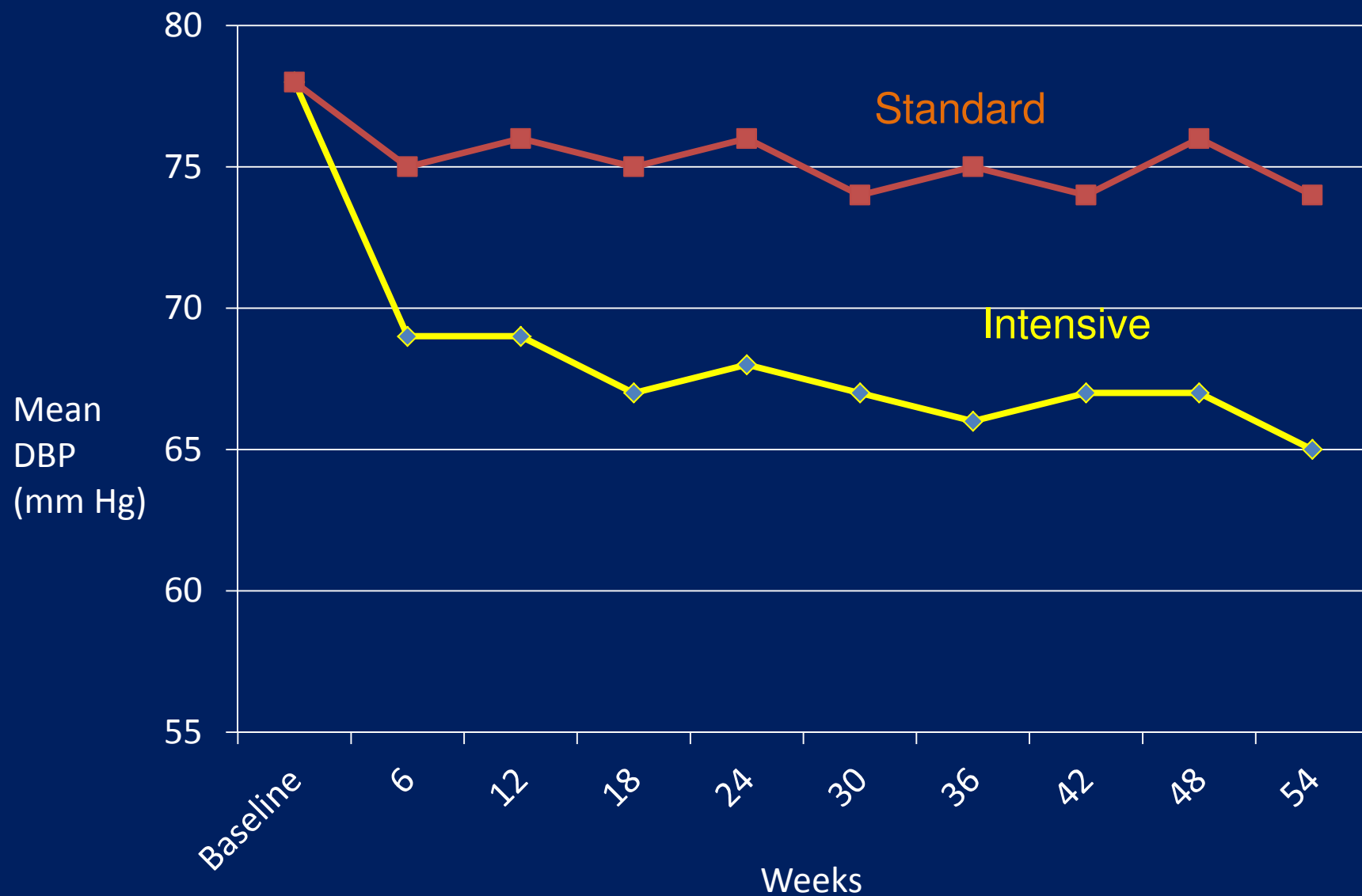
	ACCORD	SPRINT
SBP Target (mm Hg)	<120 vs <140	<120 vs <140
Inclusion	Diabetes SBP 130-180 mm Hg	No diabetes SBP 130-180 mm Hg
Age	Age $\geq$ 40 if CVD $\geq$ 55 if Atherosclerosis Albuminuria LVH $\geq$ 2 CV risk factors	Age $\geq$ 50 + CVD, CKD, FRS $\geq$ 15%, Age $\geq$ 75
Exclusion		Stroke
Primary Outcome	MI, Stroke, CV death	MI, ACS, Stroke, HF, CV death
Prespecified Secondary Outcomes	Primary + Revasc. or HF. Major coronary disease event HF	ACM Primary + ACM, $\geq$ 50% $\downarrow$ GFR (CKD), $\geq$ 30% $\downarrow$ GFR (non-CKD)

SPRINT; Achieved SBP Levels

Figure 1: Mean Systolic BP (95% CI)

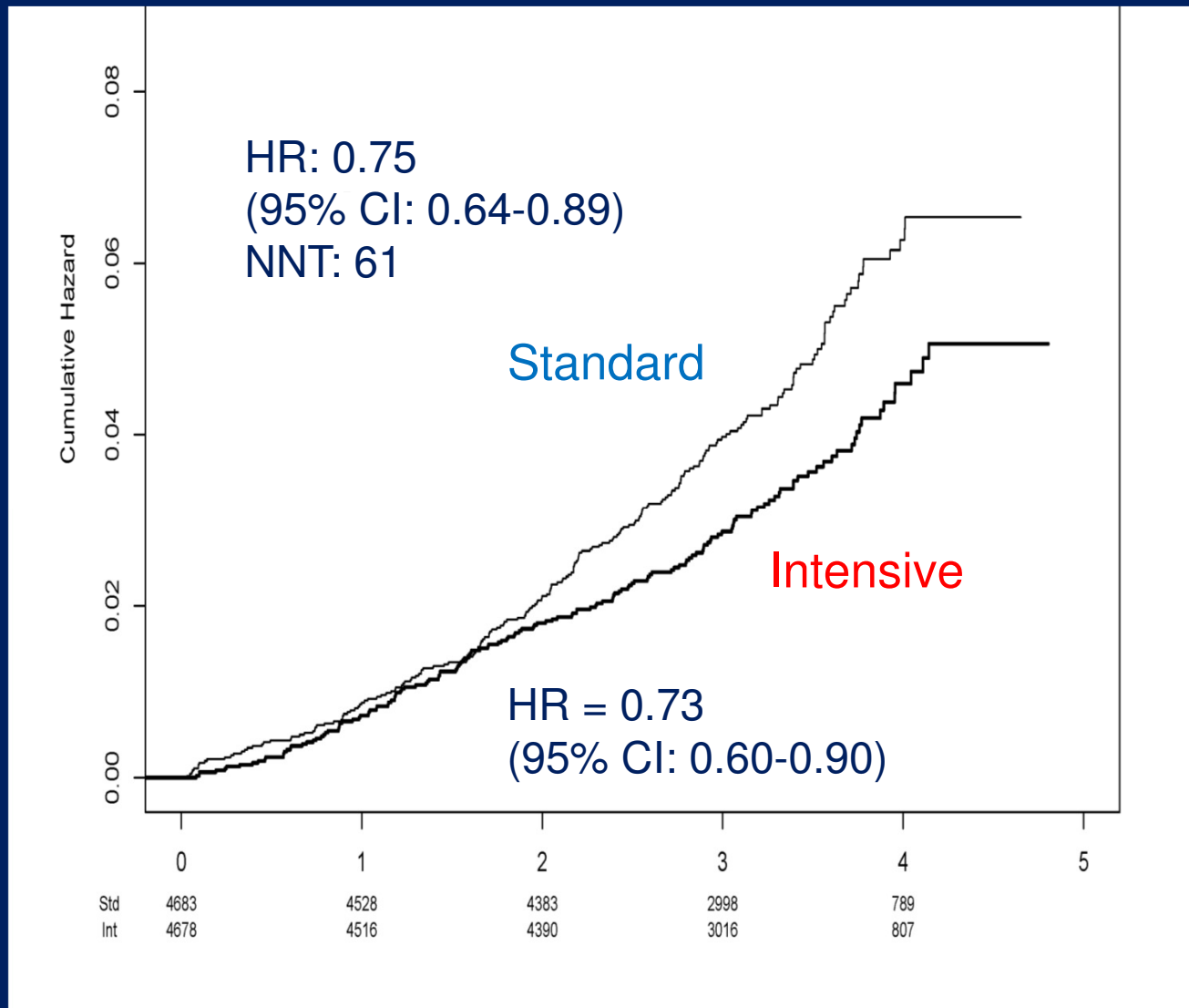


SPRINT; Achieved DBP Levels



SPRINT - Primary Outcome

MI, Non-MI ACS, Stroke, HF or CVD Death

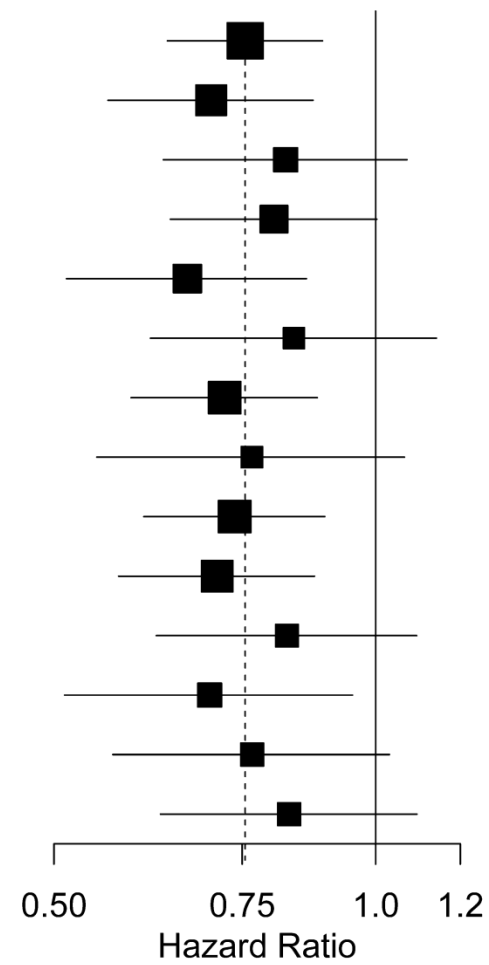


SPRINT

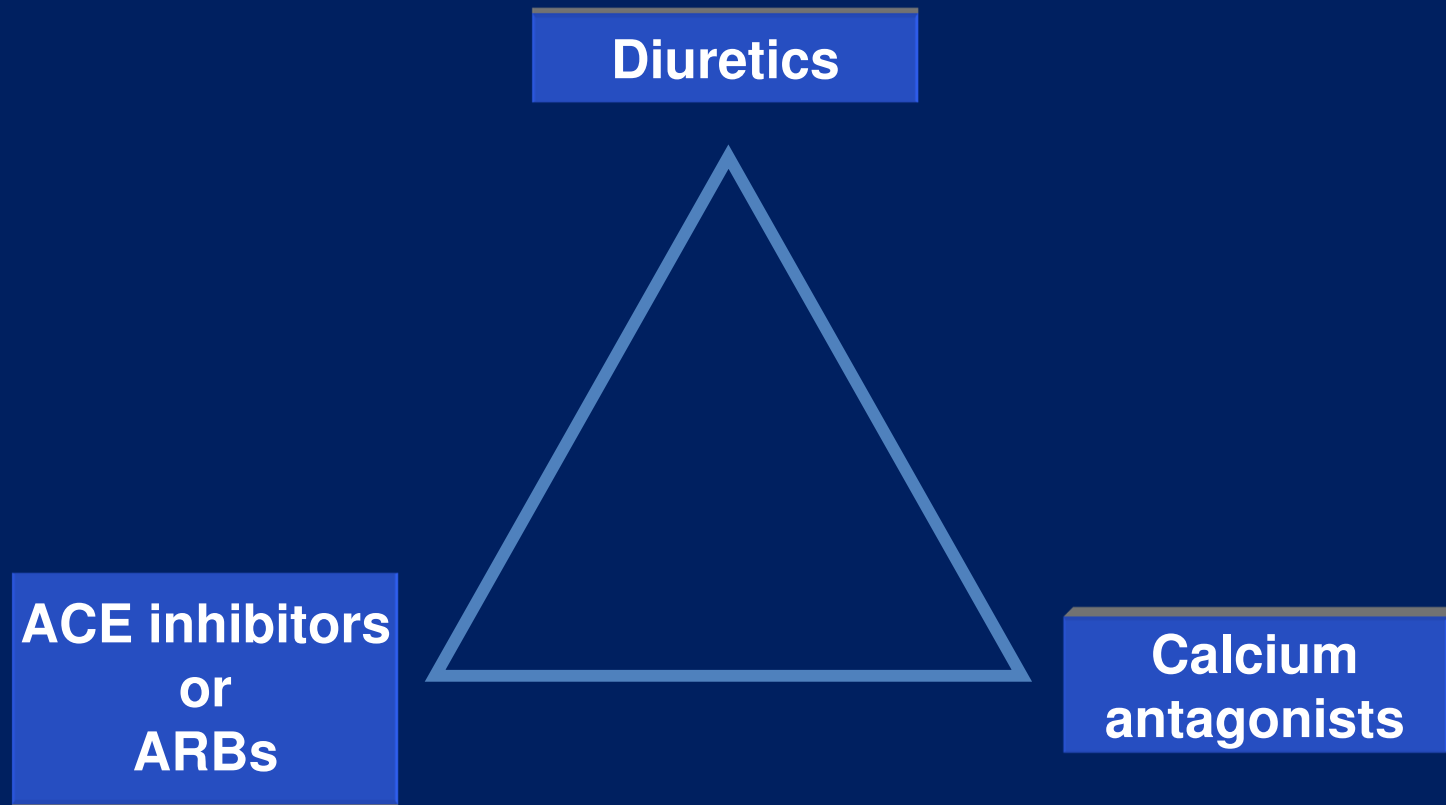
Primary Outcomes in the Six Pre-Specified Subgroups of Interest

Subgroup	HR	P*
Overall	0.75 (0.64,0.89)	
No Prior CKD	0.70 (0.56,0.87)	0.36
Prior CKD	0.82 (0.63,1.07)	
Age < 75	0.80 (0.64,1.00)	0.32
Age ≥ 75	0.67 (0.51,0.86)	
Female	0.84 (0.62,1.14)	0.45
Male	0.72 (0.59,0.88)	
African-American	0.77 (0.55,1.06)	0.83
Non African-American	0.74 (0.61,0.90)	
No Prior CVD	0.71 (0.57,0.88)	0.39
Prior CVD	0.83 (0.62,1.09)	
SBP ≤ 132	0.70 (0.51,0.95)	0.77
132 < SBP < 145	0.77 (0.57,1.03)	
SBP ≥ 145	0.83 (0.63,1.09)	

*Unadjusted for multiplicity



Initial Combinations of Medications for Uncomplicated Hypertension.



AHA/ACC/ASH Scientific Statement

Treatment of Hypertension in Patients With Coronary Artery Disease

**A Scientific Statement From the American Heart Association,
American College of Cardiology, and American
Society of Hypertension**

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William B. White, MD, FAHA, FASH;
on behalf of the American Heart Association, American College of Cardiology,
and American Society of Hypertension

J Am Coll Cardiol 2015;65(18):1998-2038; Circulation. 2015;131:e435-e470.
Hypertension. 2015;65:1372-1407; J Amer Soc Hypertens. 2015;9:453-458

DRUGS FOR THE TREATMENT OF HYPERTENSION IN PATIENTS WITH CAD

	ACEI/ ARB	DIUR.	β -ANTAG	NON- DHP CCB	DHP CCB	NITRATES	ALDO. ANT.	HYDRAL/ ISO
STABLE ANGINA	1* ←	1‡ ←	1	2† ←	2	1	2	
ACS	1* ←	1‡ ←	1§ ←	2† ←	2	2	2# ←	
HF	1	1‡ ←	1¶ ←			2	1# ←	2

* Prior MI, LV Syst. Dysf.
Diabetes, Proteinuria

¶ Carvedilol,
metoprolol,
bisoprolol.

† Not if
HF, not
with β -B

If LV
dysfunction,
HF.

‡ Chlorthalidone;
loop if NYHA 3/4 HF
or GFR <60 ml/min

§ Esmolol,
metoprolol/
bisoprolol

SUMMARY

1. BP Goals:

Lower is better for stroke.

2010 ACCORD: <140/90 (?);

2015 AHA/ACC/ASH HT and CAD: <140/90; <130/80 “reasonable”

2015 SPRINT: <120/- (?)

2. For primary prevention of CAD:

ACEI/ARB, CCB, diuretic, or combination.

β -Blockers not protective.

3. For established CAD, stable angina and ACS:

β -Blocker plus ACEI/ARB plus diuretic.

Add DHP CCB if needed.

Non-DHP CCB effective in angina instead of β -B, but not if HF.

4 For Ischemic Heart Failure:

β -Blocker plus ACEI/ARB plus diuretic

Aldosterone antagonist, hydralazine/isosorbide