HYPERTENSION CONTROL

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EPIDEMIOLOGY OF RESISTANT HTN AND/OR POOR BP CONTROL

Prevalence has increased over time

- Aging of population
- Higher rates of obesity
- Higher prevalence of comorbid conditions e.g. diabetes, hyperlipidemia
- Trend towards low doses of antihypertensives, esp diuretics
- Patient and provider non-adherence

Causes of Poor BP Control

- Improper BP measurement
- Excess sodium intake
- Medication
  - Inadequate diuretic therapy
  - Clinical inertia
  - Drug actions and interactions (e.g., nonsteroidal anti-inflammatory drugs (NSAIDs), illicit drugs, sympathomimetics, oral contraceptives)
  - Over-the-counter (OTC) drugs and herbal supplements
- Identifiable causes of HTN

Thiazide-type Diuretic Doses in Hypertension Morbidity Trials

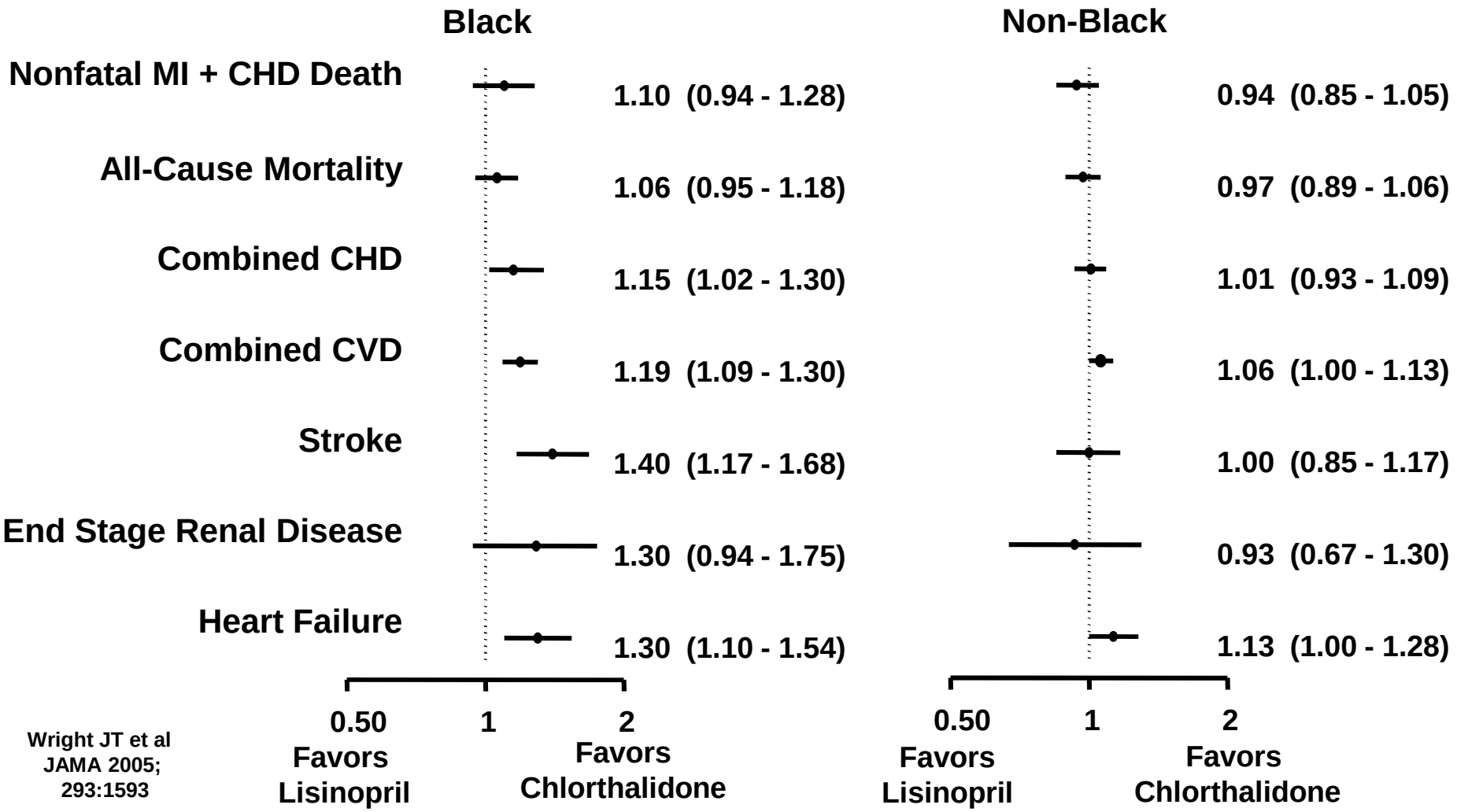
Trial	Drug	Dose of Thiazide (mg/d)
VA CSP M&M	HCTZ	100
HDFP	chlorthalidone	25-100
MRC I	bendroflumethiazide	10
HAPPHY	bendroflumethiazide	5-10
	HCTZ	50-100
EWPHE	HCTZ/triamterine	25-50
MRC Elderly	HCTZ/amiloride	25-50
SHEP	chlorthalidone	12.5-25
ALLHAT	chlorthalidone	12.5-25
ACCOMPLISH	HCTZ	12.5-25

Direct and Indirect Comparisons of Chlorthalidone & Nonchlorthalidone Treatments for 6 Outcomes Based on Placebo-Controlled Trials

Outcome	RR (95% CI)		Indirect
	Chlorthalidone	Nonchlorthalidone	Comparison, SI (95% CI)*
Coronary disease	0.74 (0.58-0.95)	0.72 (0.54-0.95)	1.03 (0.71-1.48)
Stroke	0.64 (0.51-0.80)	0.71 (0.60-0.85)	0.90 (0.70-1.17)
Heart failure	0.53 (0.39-0.73)	NA	NA
CVD events	0.70 (0.61-0.80)	0.76 (0.66-0.87)	0.92 (0.76-1.11)
CVD mortality	0.80 (0.61-1.04)	0.79 (0.65-0.94)	1.01 (0.74-1.39)
Total mortality	0.89 (.0.75-1.06)	0.91 (0.79-1.03)	0.98 (0.79-1.21)

Psaty BM, JAMA 2004; 292:42

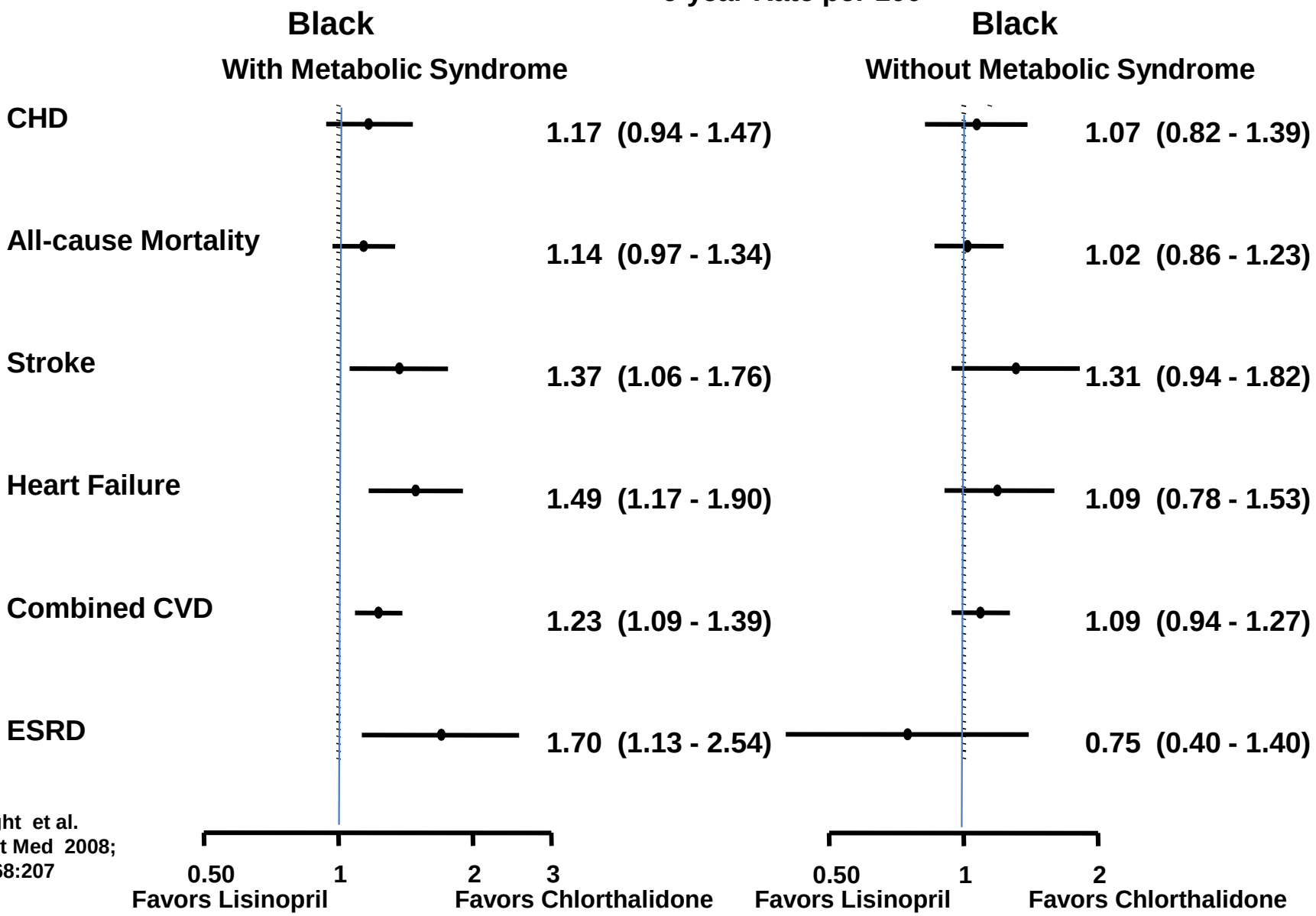
Black vs. Non-Black
Lisinopril/Chlorthalidone
Relative Risk and 95% Confidence Intervals



Wright JT et al
JAMA 2005;
293:1593

Lisinopril/Chlorthalidone

Relative Risk and 95% Confidence Intervals
6-year Rate per 100



Wright et al.
Arch Int Med 2008;
168:207

RAS INHIBITOR USE IN HYPERTENSIVE BLACKS

- β-blockers are indicated in hypertensives with HF, CHD, and when needed for additional BP ⇓
- Current clinical outcome data base does not support selection of β-blockers over THZ/CCB/RASI as initial Rx
- ACEIs/ARBs should be considered first in patients (including Blacks) with nephropathy (esp with proteinuria) and/or heart failure
- Available data suggest that RAS inhibitors (incl β-Blockers) are less effective in lowering BP in Black hypertensives in the absence of adequate doses of a diuretic or CCB *(and in preventing clinical outcomes)*
- ACEI also carry increased of angioedema, esp in Blacks
- In the absence of HF or CKD, particularly in Black hypertensives, beta blockers, ACEIs, and ARBs (and presently renin inhibitors) should be prescribed only in combination with thiazide-type diuretics or calcium channel blockers

ASSESSING PATIENTS ABOVE THEIR BP GOAL

- Confirm diagnosis (appropriate measurement, ABPM)
- Evaluate potential non-adherence *troubleshoot causes*
- Evaluate for treatable 2^0 causes of hypertension
- Evaluate potential causes of treatment resistance (e.g. drugs, herbs, etc.)

MANAGING PATIENTS ABOVE THEIR BP GOAL

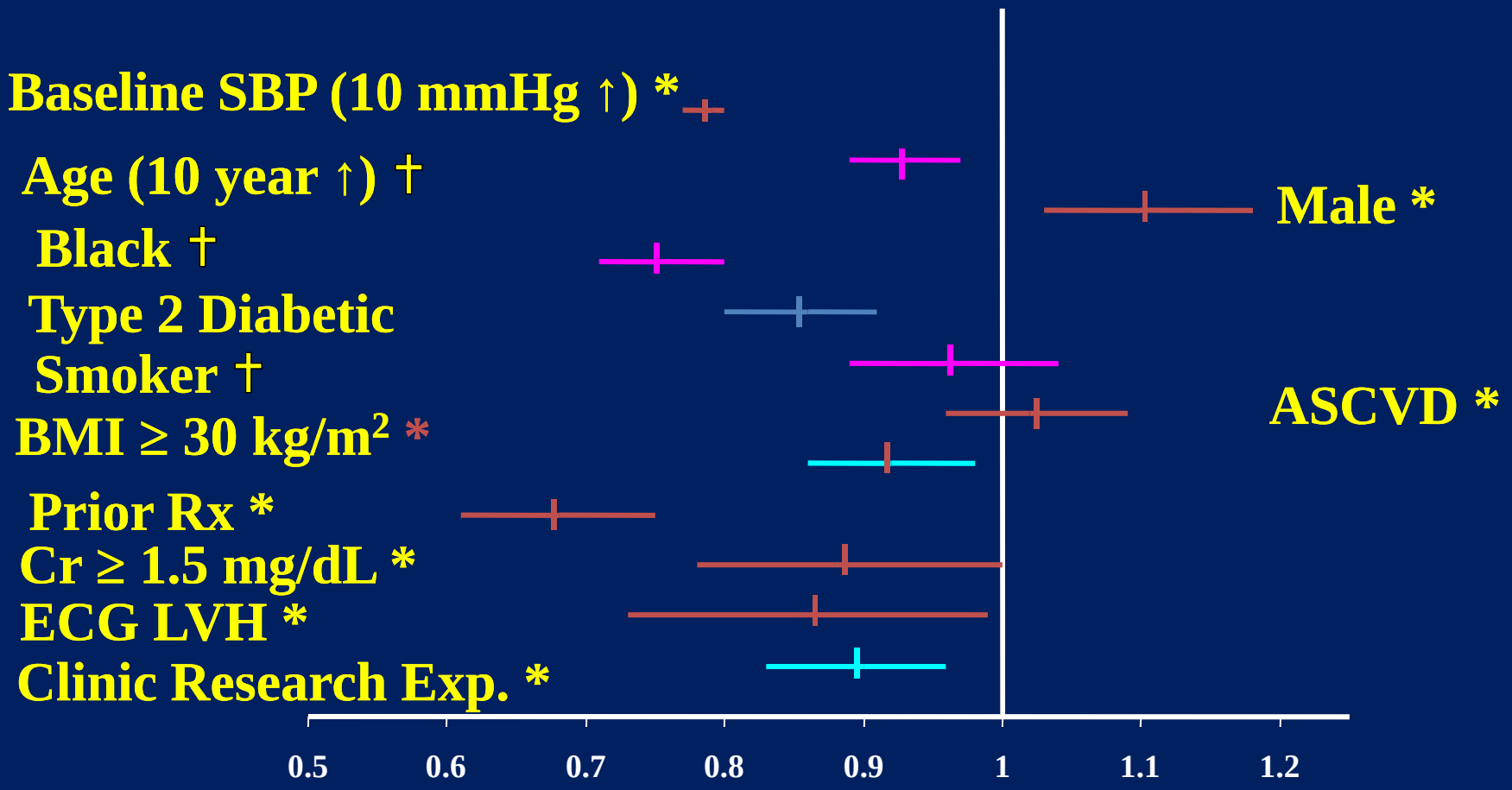
- Evaluate potential treatable causes after confirming dx
- Reinforce aggressive life-style intervention
- Focus on patient education of goals and rationale for Rx strategy
  - Emphasize need for multiple meds not unusual

MANAGING PATIENTS ABOVE THEIR BP GOAL

- Use agents with complementary BP lowering mechanisms
- Appropriate diuretic dose and type
  - HCTZ 12.5 mg is inadequate dose
  - Furosemide in patients with eGFR < 40
- Avoid oral clonidine
- Goal is BP< 140/90.
- Any visit where BP > goal must be associated with management plan other than repeat BP at next visit

ALLHAT

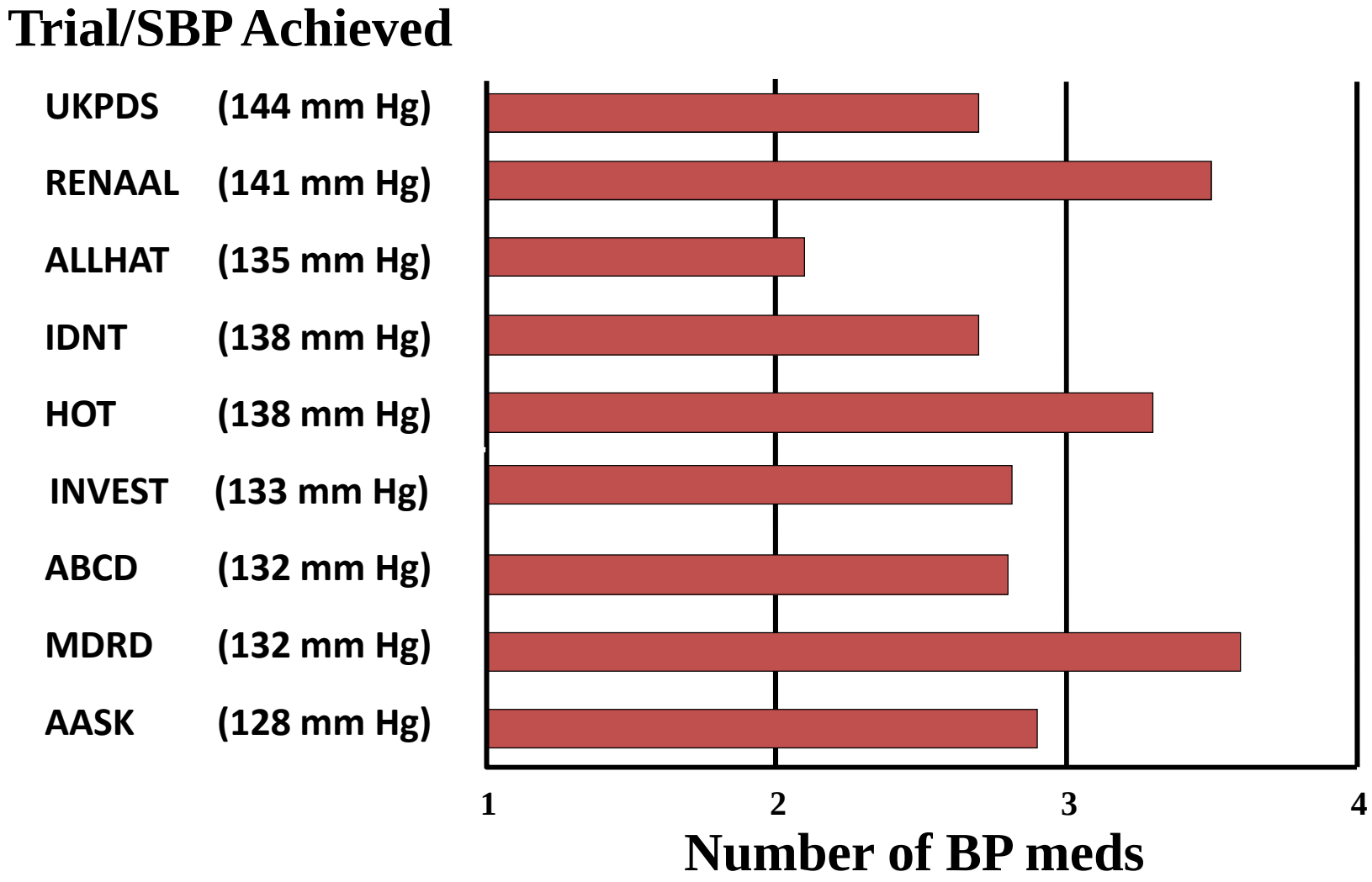
Multiple Logistic Regression Analysis: Relative Odds (95% CI) of BP Control at 36 Months



More (*) or less (†) likely to be on 2+ drugs

Cushman, et al. J Clinical Hypertens 2002; 4:393-404

Combination Therapy Needed to Achieve Target Systolic Blood Pressure (SBP) Goals



Updated from Bakris GL et al. *Am J Kidney Dis.* 2000;36:646-661.