

Getting Hypertension Under Control



Learning Objectives

- EXPLAIN the factors involved in patient medication non-adherence.
- OUTLINE the results of studies focusing on medication adherence issues in patients with hypertension and coronary artery disease (CAD)
- DESCRIBE the role that combination therapies can play in simplifying the patient's drug treatment strategy.
- DESCRIBE the active role that pharmacists can play in collaboration with patients and physicians in setting patient goals, monitoring progress, and improving adherence.

Agenda

- Background
- Epidemiology of medication adherence
- Factors impacting adherence
- Strategies for improving adherence
- Case Studies

Background

Terminology

■ Adherence

- Extent to which a patient's behavior—taking medication, following a diet, or making lifestyle changes—corresponds with agreed recommendations from a health care provider

■ Persistence

- Duration of treatment from initiation to discontinuation

Adherence measurements

- Patient self-reports or questionnaires
- Clinician perception
- Pill counts
- Electronic monitoring devices
- Biochemical measurement or pharmacologic tracers
- Electronic prescription refill records (refill rates)

Epidemiology of medication nonadherence

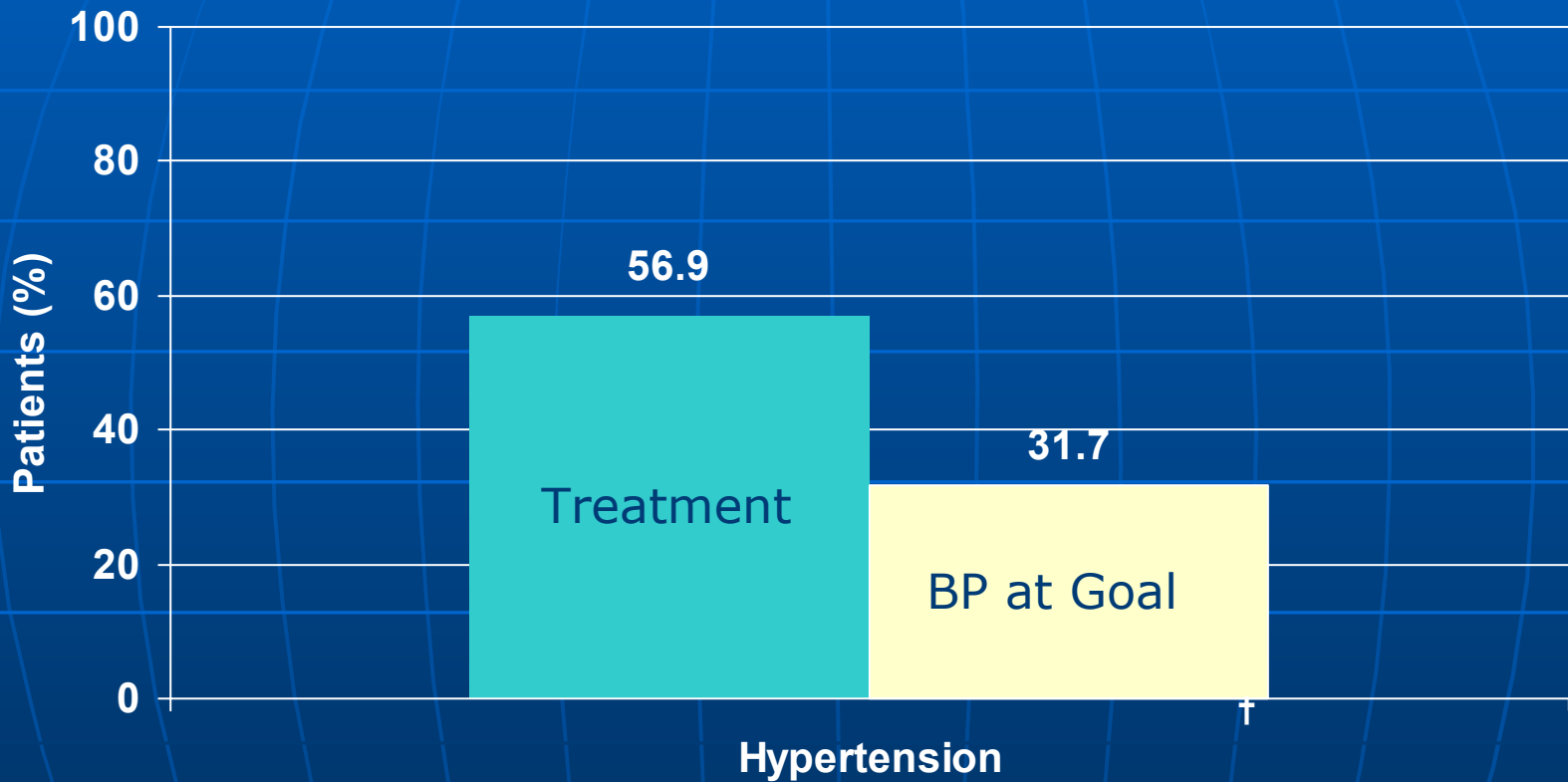
Blood pressure goals

Treatment guidelines in CV care

	Patient classification	Previous goals	Current goals
JNC	Without diabetes	SBP/DBP <140/90 mm Hg	SBP/DBP <140/90 mm Hg
	With diabetes or chronic kidney disease	SBP/DBP <130/85 mm Hg	SBP/DBP <130/80 mm Hg
ADA		BP <130/80 mm Hg LDL-C <100 mg/dL A1C <7%	BP <130/80 mm Hg LDL-C <100 mg/dL A1C <7%



BP goal attainment



*Among total with hypertension, 61.8 million.

†Among total with dyslipidemia, 78.3 million.

‡Among total with both hypertension and dyslipidemia, 38.7 million.

National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES) 1999-2002, Morning Fasting Examination subset, unweighted n=3655, Census 2004 US Adult Population: 211.1 Million, Age 20+.

Multiple antihypertensives required to achieve goal BP

Trial (BP goal)

HTN WITH OTHER Risk Factors

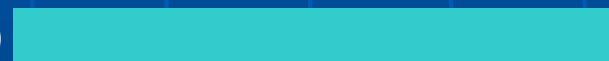
HOT (<80 mm Hg diastolic)



ALLHAT (<140/90 mm Hg)



ASCOT-BPLA (<140/90 mm Hg)



HTN WITH DIABETES

UKPDS (<85 mm Hg diastolic)

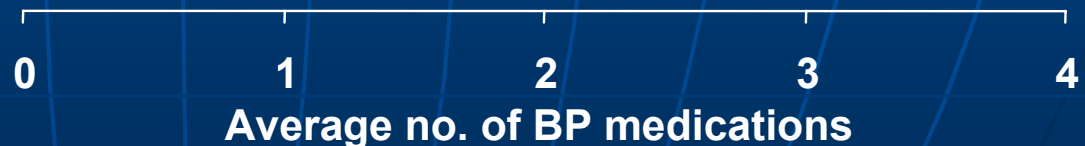


HTN WITH NEPHROPATHY

MDRD (<92 mm Hg MAP)



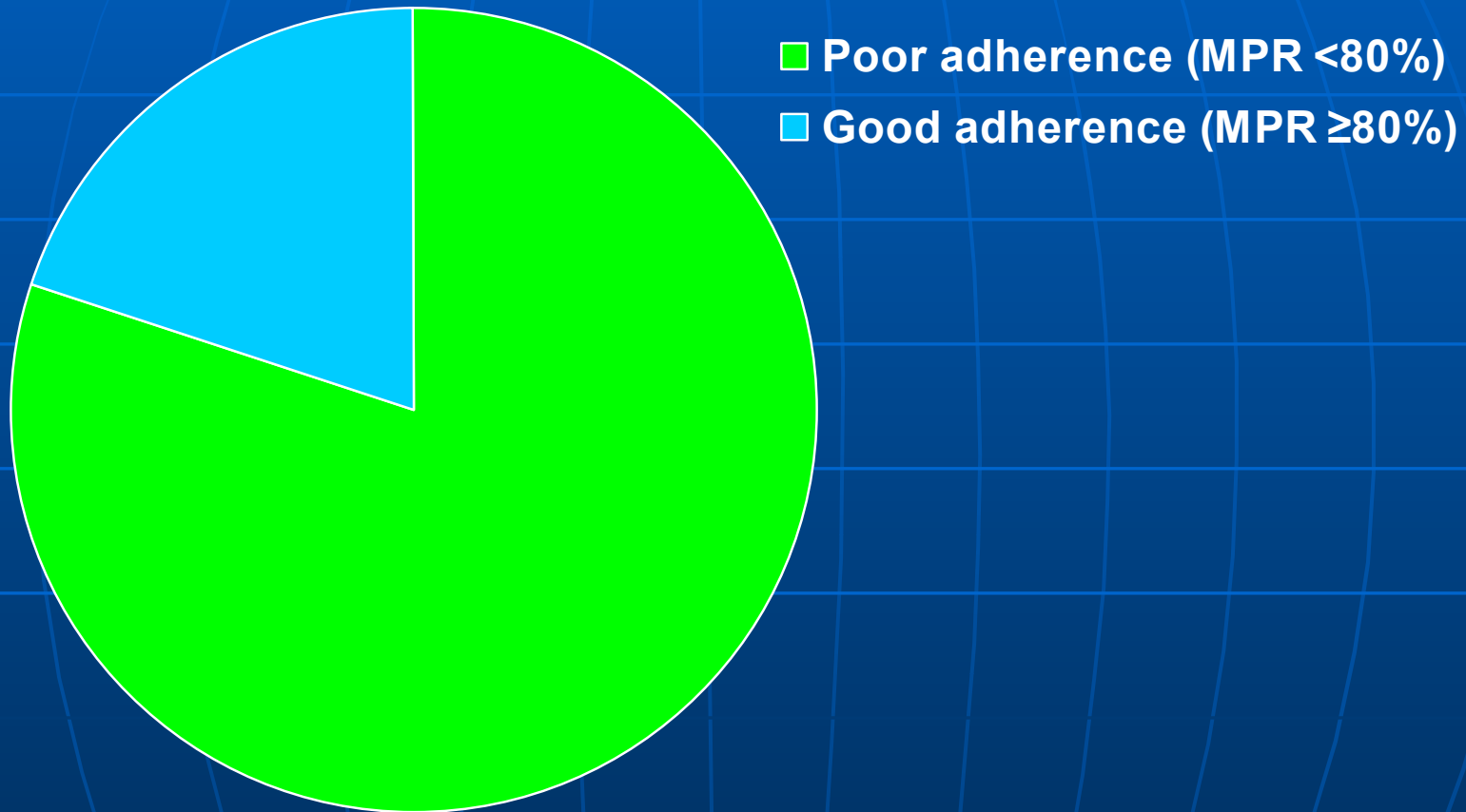
IDNT (≤135/85 mm Hg)



ALLHAT=Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial; ASCOT=Anglo-Scandinavian Cardiac Outcomes Trial; HOT=Hypertension Optimal Treatment; IDNT=Irbesartan Diabetic Nephropathy Trial; MDRD=Modification of Diet in Renal Disease; UKPDS=United Kingdom Prospective Diabetes Study.

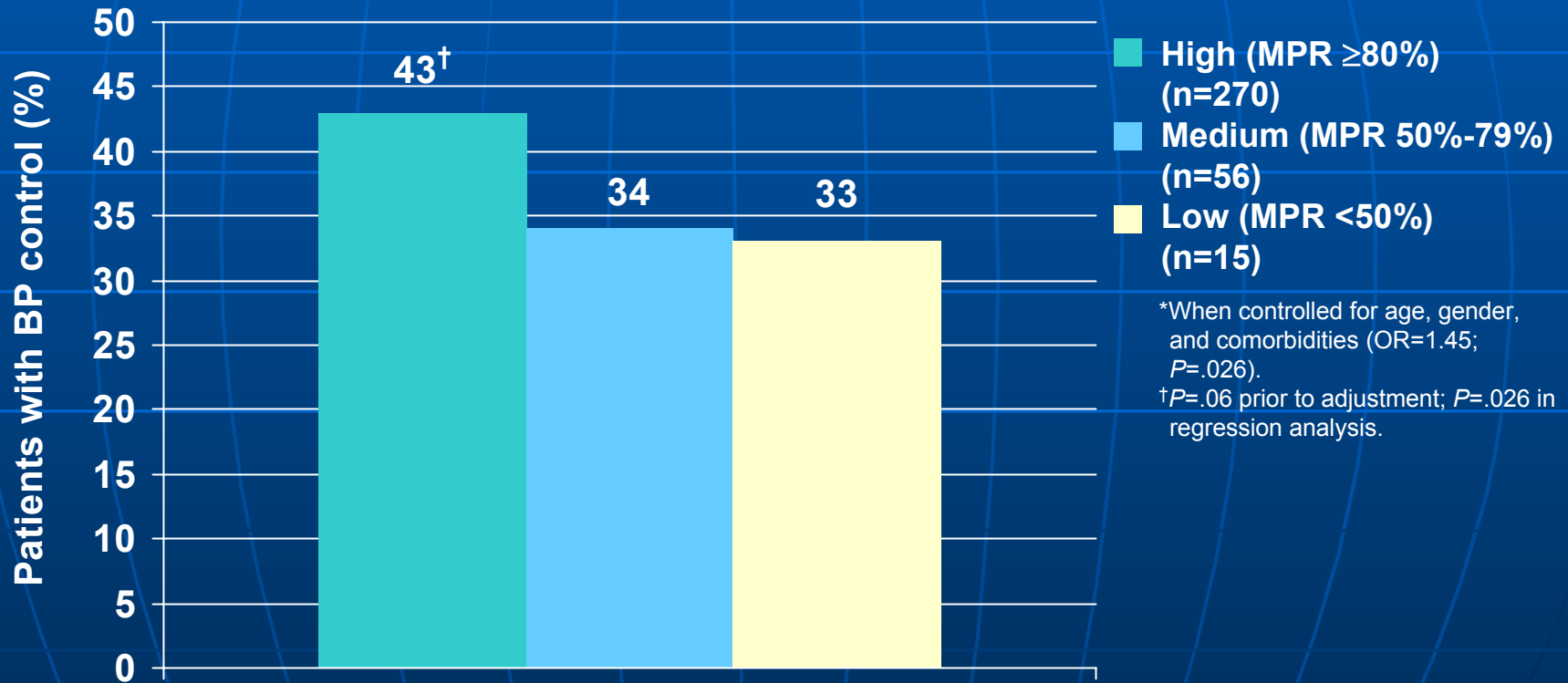
Dahlöf B, et al. *Lancet*; 2005;366:895-906; Bakris GL, et al. *Am J Kidney Dis*. 2000;36:646-661; Lewis EJ, et al. *N Engl J Med*. 2001;345:851-860; ALLHAT investigators. *JAMA*. 2002;288:2981-2997.

Only 1 in 5 patients adherent



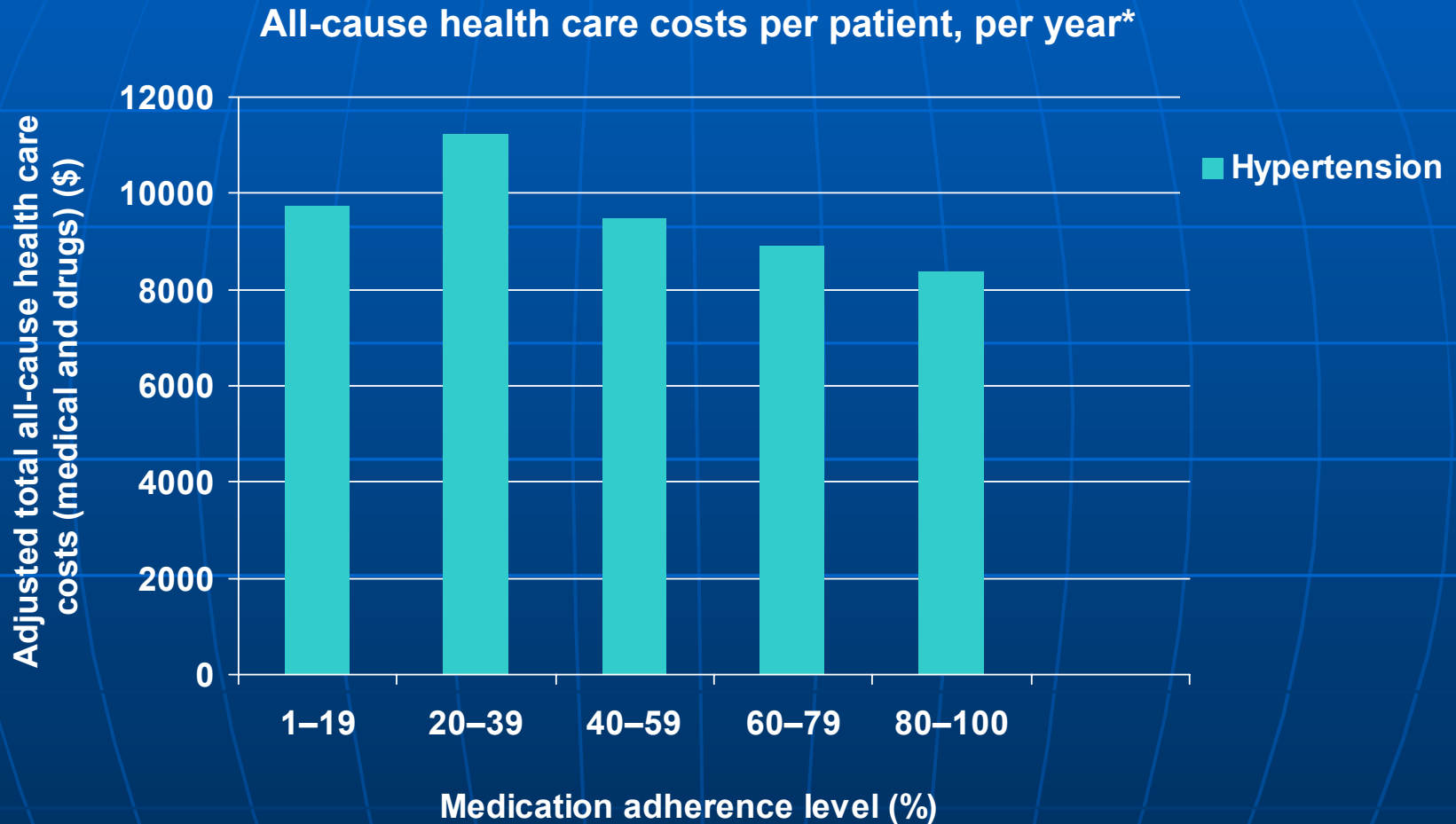
A retrospective analysis of claims data from NJ Medicaid and Medicare programs. N=8643 Medicaid beneficiaries aged ≥65 years. Adherence: proportion of days a patient had antihypertensive meds on hand. MPR=medication possession ratio. Good adherence: antihypertensive MPR ≥80% of days. Monane M, et al. *Am J Hypertens*. 1997;10:697-704.

Low adherence to antihypertensives associated with worse BP control



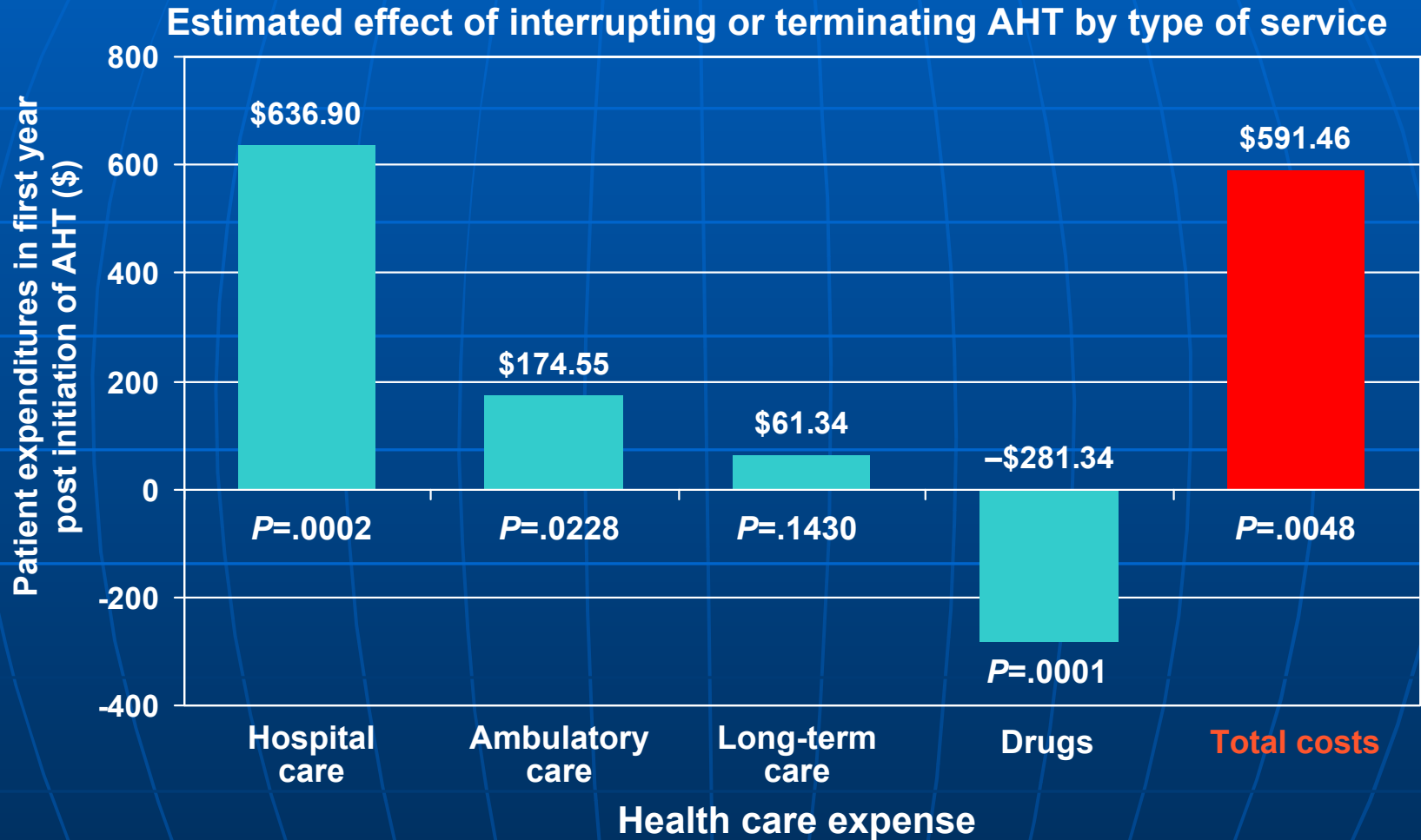
Retrospective, population-based study of medical and pharmacy claims from 13 health plans from 1999-2002 HEDIS data. N=840 patients who had received monotherapy or fixed-dose combination therapy during the time BP was measured; ≥ 3 AHT Rx prior to BP measurement; and ≥ 1 AHT Rx after BP measurement. MPR=medication possession ratio. Bramley T, et al. *J Managed Care Pharm.* 2006;12:239-245.

Lower adherence - Higher costs



*In the 12-month period following the index claim, the first of ≥ 2 dates of outpatient service for target condition or the first of ≥ 1 dates of inpatient or ER service.
Retrospective cohort study of population-based sample in the US. N=137,277 patients <65 years.
Adherence: % days with supply of ≥ 1 maintenance Rx. 12-month follow-up.
Sokol MC, et al. *Med Care*. 2005;43:521-530.

Nonadherence to AHT was associated with increased total health care costs



Retrospective study of MediCal paid claims data. N=6419 patients with ≥ 1 AHT Rx. 1994 US dollars.

Continuous therapy: filling each antihypertensive prescription within 30 days + 15-day grace period over the course of a year from date of initial dispensation.

McCombs JS, et al. *Med Care*. 1994;32:214-226.

Factors impacting adherence

Patient demographics are predictors of adherence

- Race
- Age
- Sex
- Comorbidities

Patient behaviors are predictors of adherence

- Health care system utilization
- Attitudinal factors
- Responses to cost



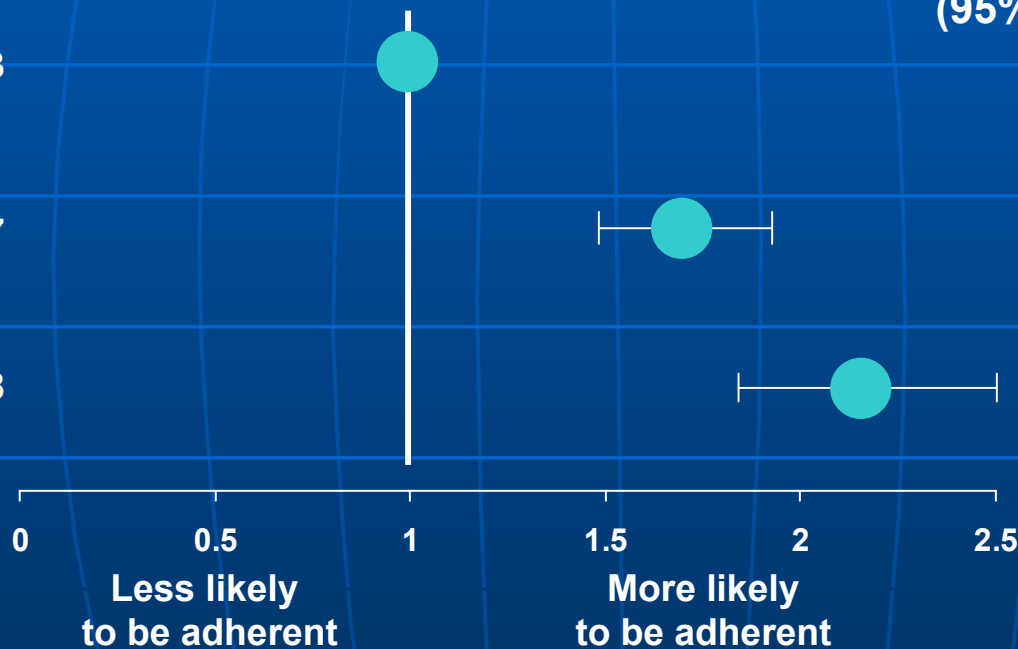
Physician office visits

Number of physician visits in past 120 days

1-3

4-7

≥8



Adjusted odds ratio for adherence (PDC ≥80%) (95% confidence interval)

1 (reference group)

1.7 (1.5-1.9)*†

2.2 (1.8-2.5)†

Less likely to be adherent

More likely to be adherent

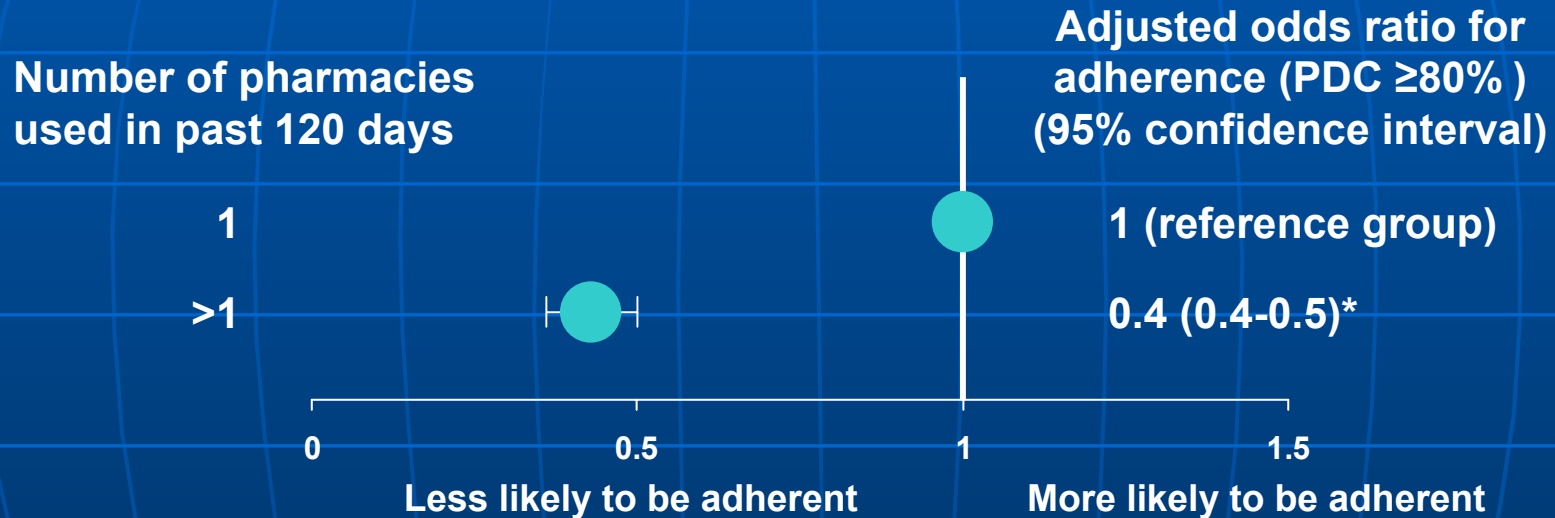
*Approximate measure.

†Statistically significant versus reference group.

Retrospective study of elderly (aged 65 to 99 years) members of the New Jersey Medicaid and Medicare programs (N=8643).

Monane M, et al. *Am J Hypertens.* 1997;10:697-704.

Multiple pharmacies

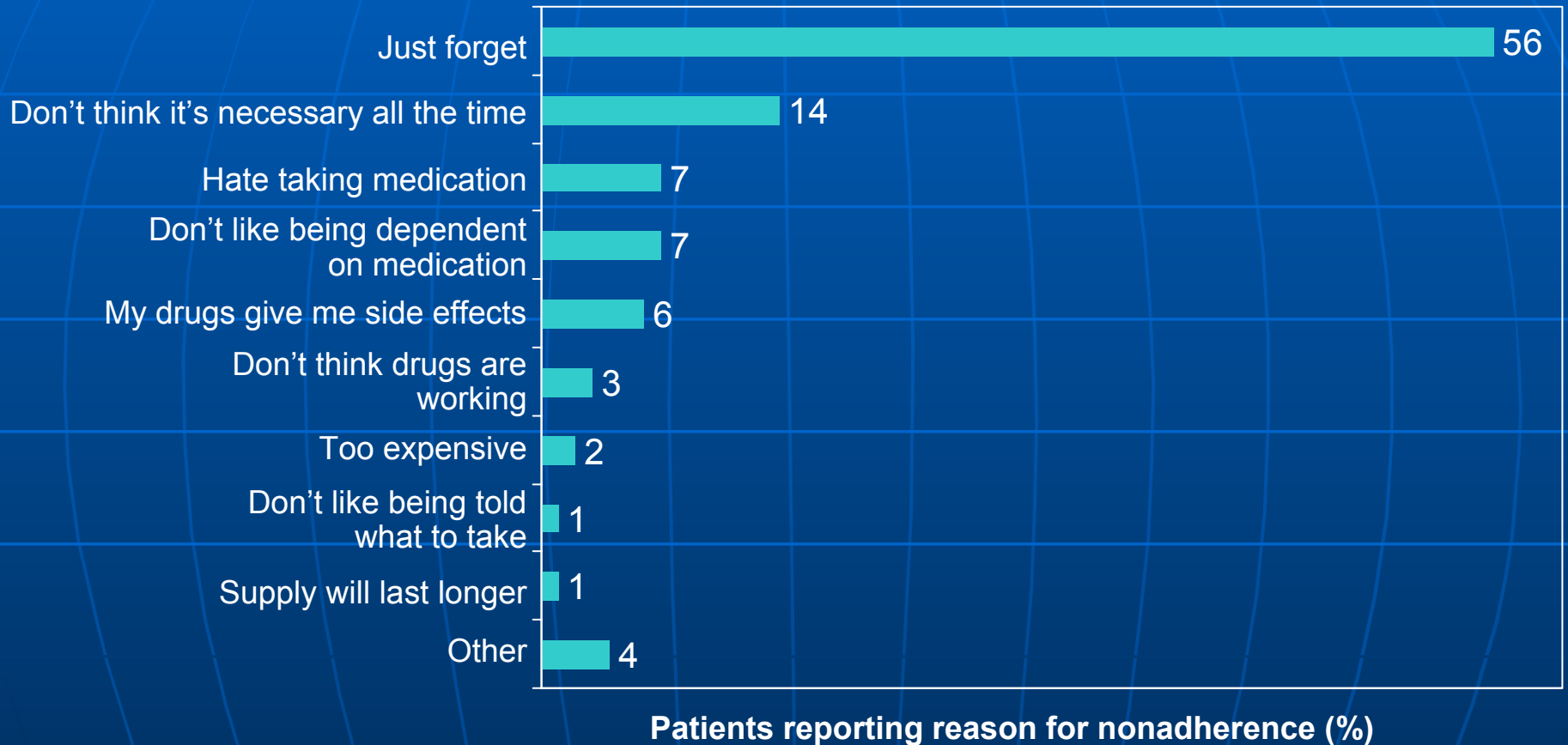


*Statistically significant versus reference group.

Retrospective study of elderly (aged 65 to 99 years) members of the New Jersey Medicaid and Medicare populations (N=8643).

Monane M, et al. *Am J Hypertens*. 1997;10:697-704.

Patients reasons

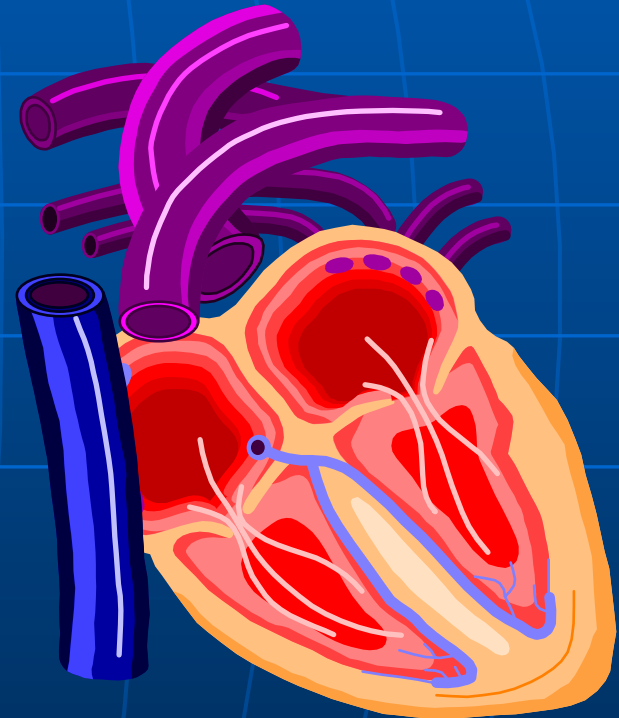


Prospective, open-label, interview-based study in metropolitan New York-area pharmacies (N=821).

Cheng JWM, et al. *Pharmacotherapy*. 2001;21:828-841.

Patient CHD risk and status are predictors of adherence

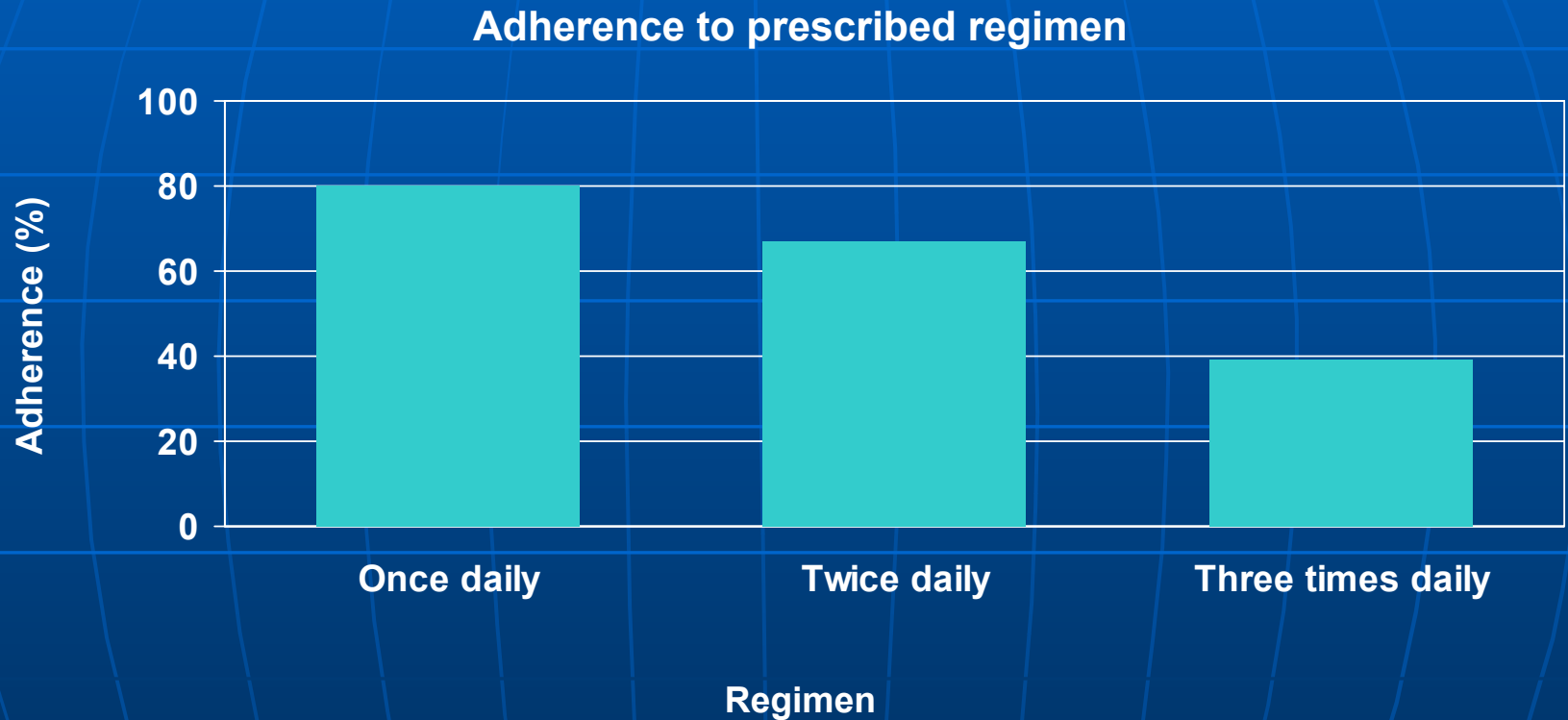
- Preventive therapy
- CHD risk status



CV regimen characteristics can affect adherence

- Dose frequency
- Overall pill burden
- Copayments
- Single-pill versus 2-pill therapy

Once-daily dosing



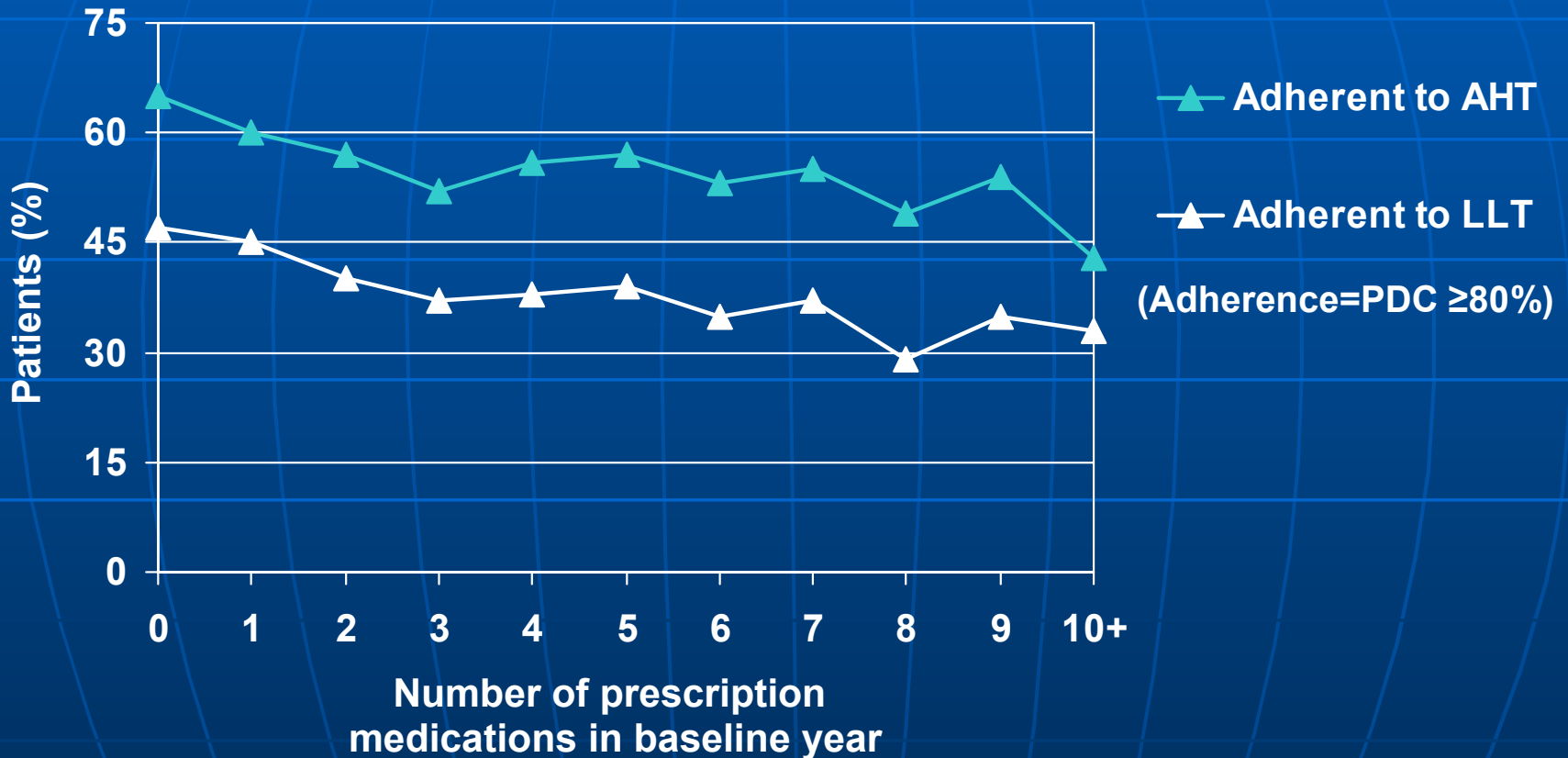
Differences among the 3 dosage regimens were significant ($P < .05$).

Prospective, Netherlands-based adherence study (N=91). Adherence: % of days in which the prescribed dose regimen was taken as prescribed.

Paes AHP, et al. *Diabetes Care*. 1997;20:1512-1517.

Pill burden

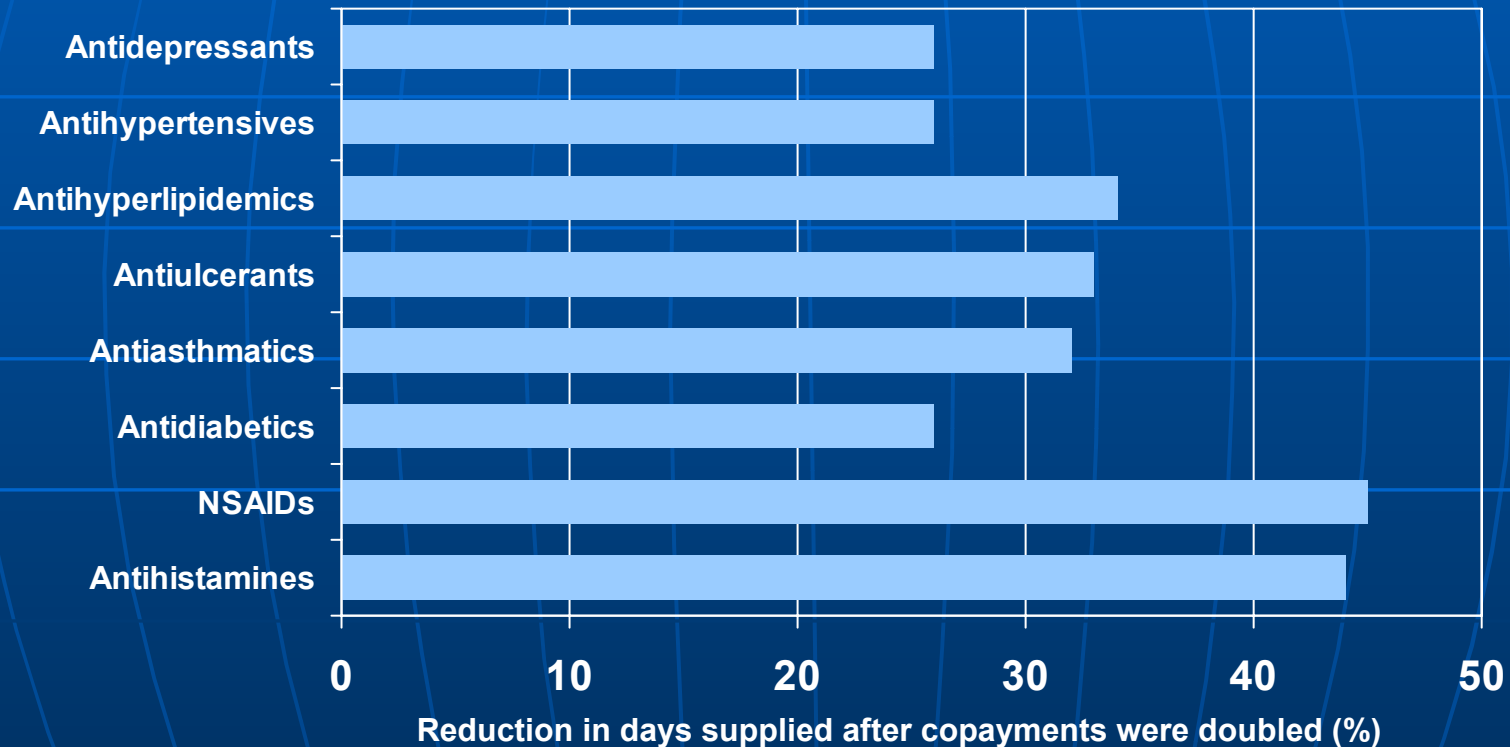
Percentage of patients who were adherent by level of pill burden



Retrospective cohort study using linked pharmacy and medical claims in a large US managed care population (N=5759). Adherence was defined as proportion of days covered (PDC) $\geq 80\%$ for both classes. Pill burden was defined as the total number of prescription medications taken in year prior to index date, initiation of the second drug.

Medication costs

Doubling copayments was associated with significant reductions in medication use across several widely prescribed therapeutic classes.

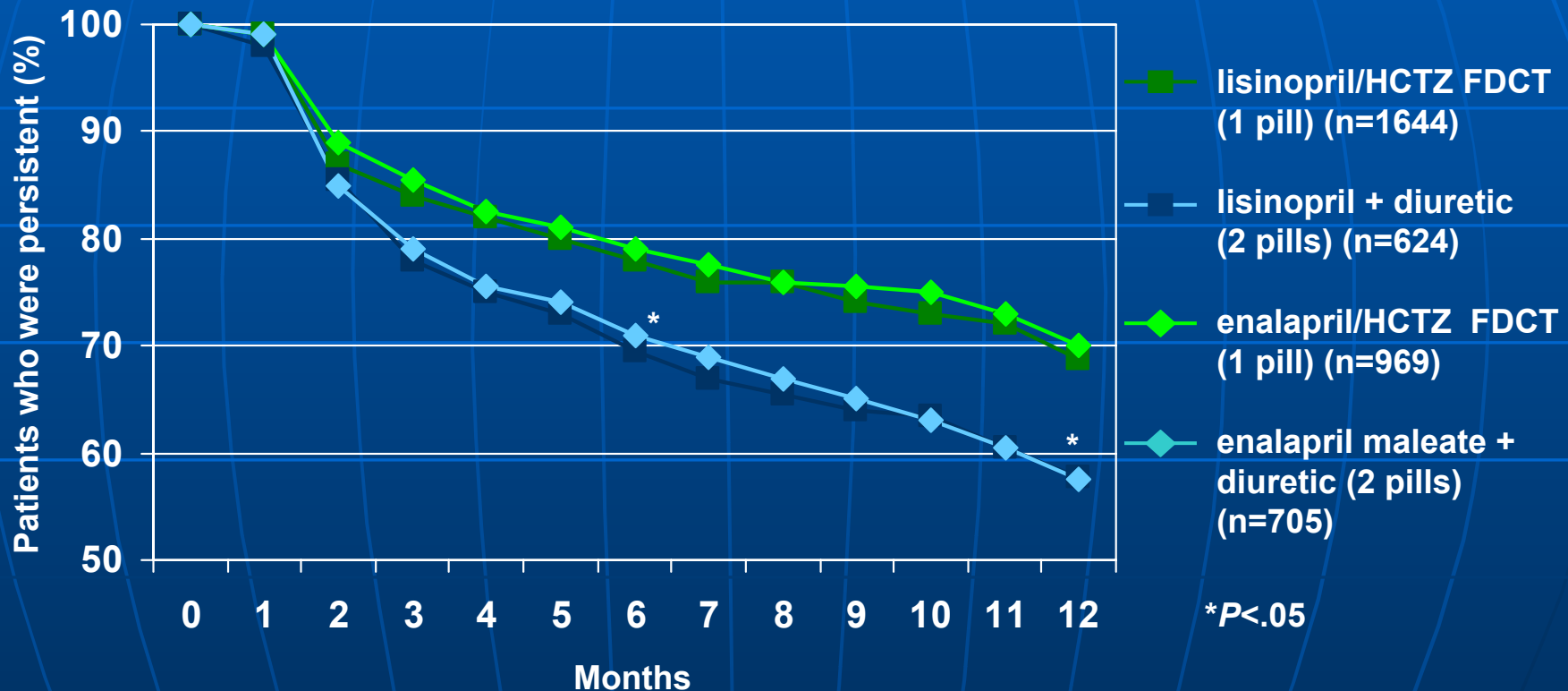


Retrospective study of pharmacy claims data and health plan benefit data from 30 employers and 52 health plans, 1997-2000. N=528,969 members aged 18-64 years.

Goldman DP, et al. *JAMA*. 2004;291:2344-2350.

Single-pill regimens

Persistence to equivalent therapies: 1 pill versus 2 pills



*P<.05

*P<.05 at months 6 and 12 for lisinopril/HCTZ FDCT versus lisinopril + diuretic and for enalapril/HCTZ FDCT versus enalapril maleate + diuretic.

Retrospective analysis of database records of a national commercial PBM. N=3951 patients new to AHT, ACE inhibitor plus diuretic via 2- or 1-pill dosing. Persistence: minimum Rx renewal within 3 times of days supplied. Not persistent: failure to obtain any 3 scheduled refills.

ACE=angiotensin-converting enzyme; HCTZ=hydrochlorothiazide; FDCT=fixed-dose combination therapy.

Dezii CM. *Manag Care*. 2000;9(suppl):S2-S6.

Summary: Medication regimens

- Lower dose frequency of antidiabetic medications was associated with *significantly higher likelihood of adherence*
- Lower pill burden was associated with *better adherence to AHT*
- Increases in out-of-pocket costs were associated with *decreased adherence*
- Single-pill regimens were associated with *significantly better persistence to ACE inhibitors, and diuretics*

Strategies for improving adherence

Multifaceted interventions

Less modifiable

More modifiable

Identify demographics that put patients at risk for nonadherence²⁻⁴

Address nonadherent behaviors with patients^{3,5-7}

Communicate patients' global risk^{8,9}

Prescribe treatment regimens that optimize adherence¹⁰⁻¹³

Demographics

- Demographics that have been associated with poorer adherence:
 - Race: African American patients¹
 - Age: younger patients²
 - Sex: women²
 - Poor health literacy
 - Comorbidities: patients treated for depression or dementia³

1. Bosworth HG, et al. *Am J Med.* 2006;119:70.e9-70e.15. 2. Schultz JS, et al. *Am J Manag Care.* 2005;11:306-312.

3. Benner JS, et al. *JAMA.* 2002;455-461.

Address nonadherent behaviors

- Behavioral characteristics associated with poorer adherence:
 - Forgetfulness¹
 - Lack of confidence in the treatment¹
 - Fear of medication dependency and side effects¹
 - Skipping doses or taking smaller doses to stretch supply^{1,2}
 - Inadequate health care system use^{3,4}

Recommend regimens that optimize adherence

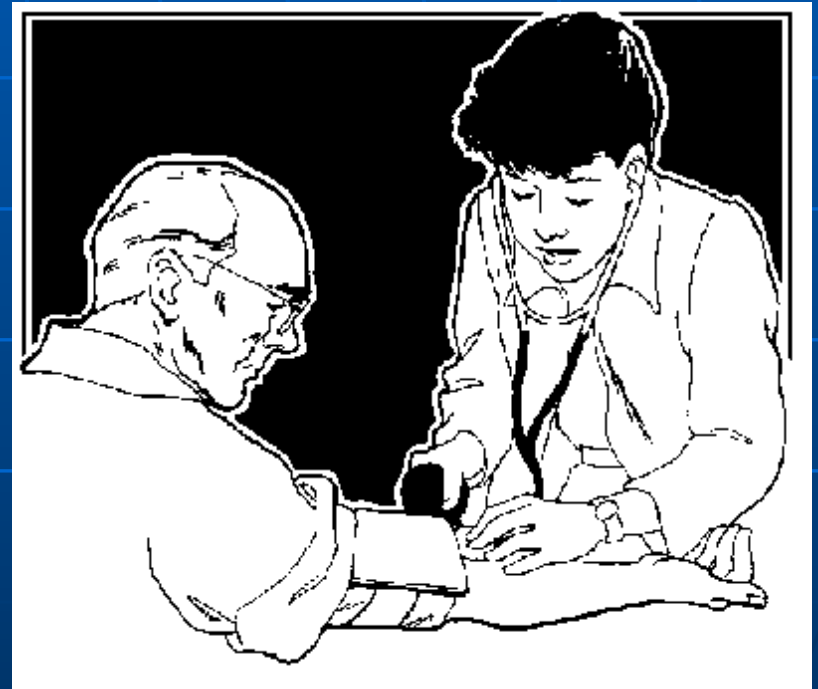
- Regimen characteristics associated with poorer adherence:
 - Higher pill burden¹
 - 2 pills (versus single-pill)^{3,4}
 - Increases in out-of-pocket copayments⁵

Overview of interventions

- Counseling (behavioral/personal)
- Prompting devices
- Home visits
- Compliance-enhancing packaging
- Prescribing reduced-dosing drugs
- Telephone counseling by pharmacist
- Case management by pharmacist
- Mailed refill and appointment reminders
- BP and medication diaries

Case Example

- 72 yo woman recently diagnosed with hypertension
- She presents to the pharmacy with a prescription for Brand name ARB which is Tier 3 in her prescription plan (co-pay of \$45/month)
- She asks you to check the price of this medication when she hands you the prescription



Case Example

- 63 yo man with hypertension, diabetes and dyslipidemia
- Medication History:
 - Lisinopril 20mg QD
 - HCTZ 12.5mg QD
 - Metformin 500mg QID
 - Pravastatin 40mg QHS
- Pt presents to the pharmacy for his refill of his lisinopril and you notice that he is about 2 weeks late.