



Integrating Clinical Best Practices to Prevent Heart Attack And Stroke

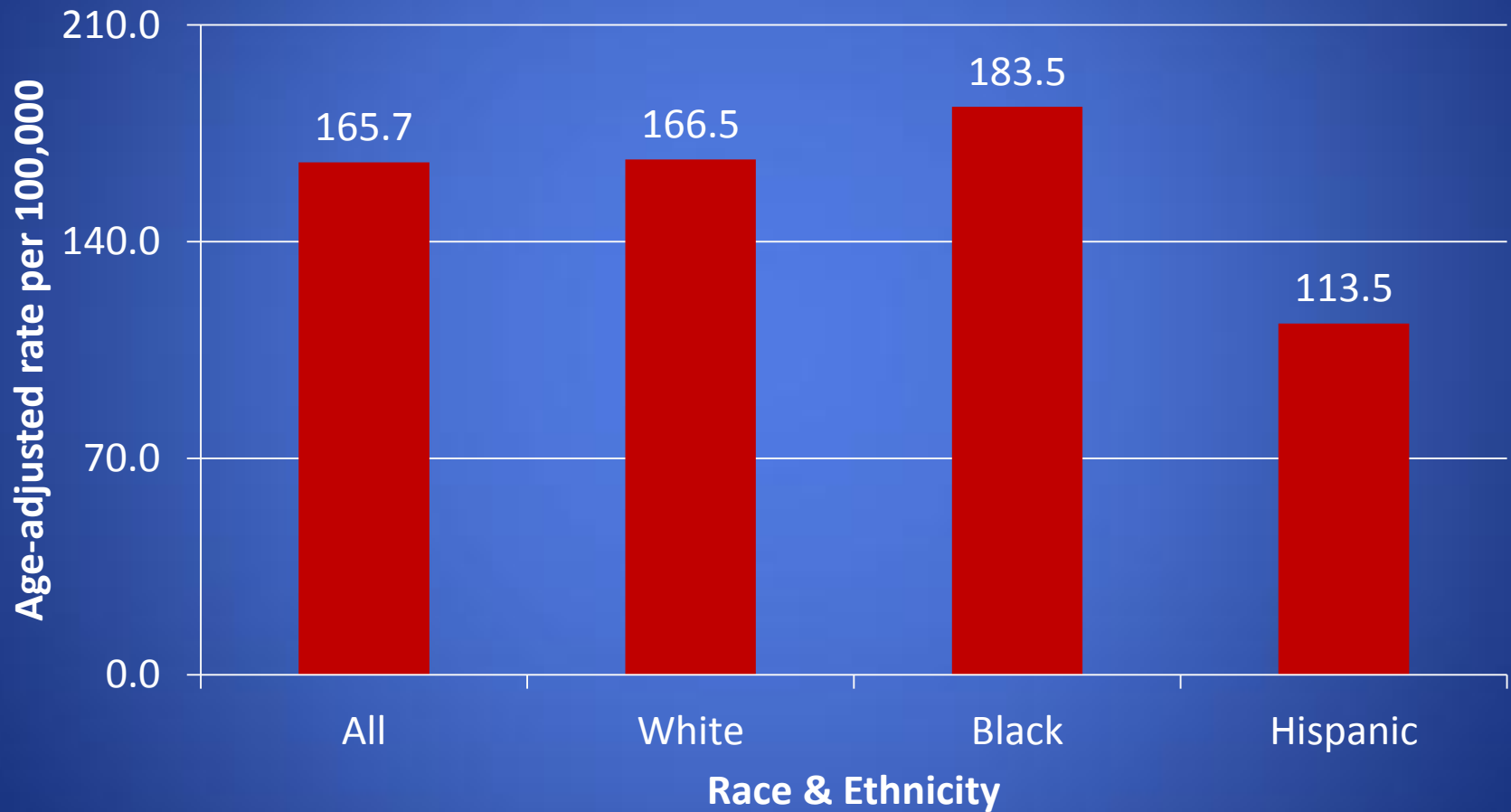
Mehul Dalal MD, MSc, MHS
Chronic Disease Director
Connecticut Department of Public Health

October 24th, 2012
New London County Health Collaborative

Leading Causes of Death in CT

Rank	Cause	Number
1	Heart Disease	7,300
2	Cancer	6,765
3	Chronic Lower Respiratory Disease	1,494
4	Cerebrovascular Disease	1,407
5	Unintentional Injuries	1,362
6	Alzheimer's Disease	831

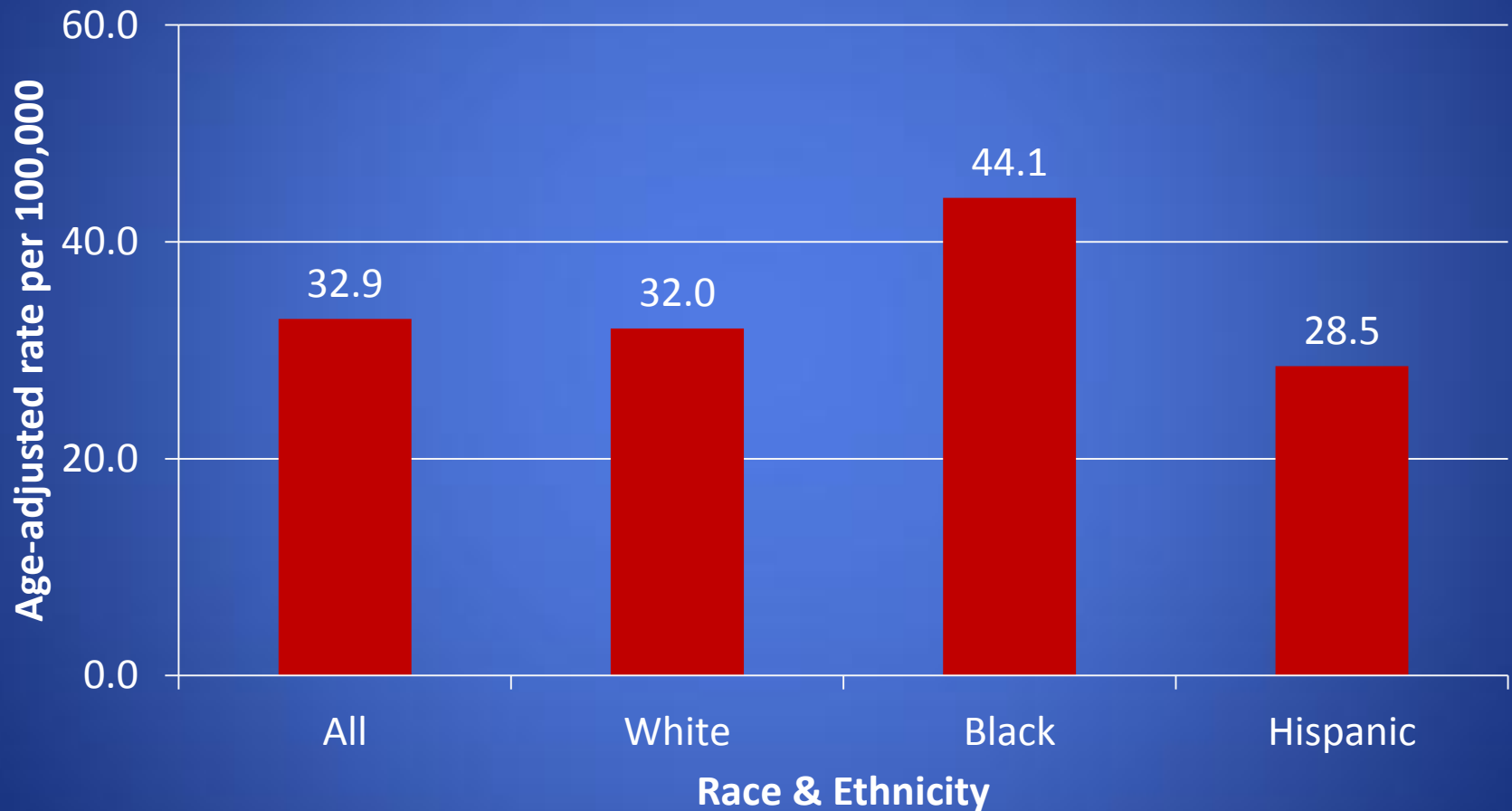
Age-Adjusted Death Rates – Heart Disease CT Residents by Race & Ethnicity, 2007-2009



Source: CT Department of Public Health. Vital Statistics Mortality Files, 2012.

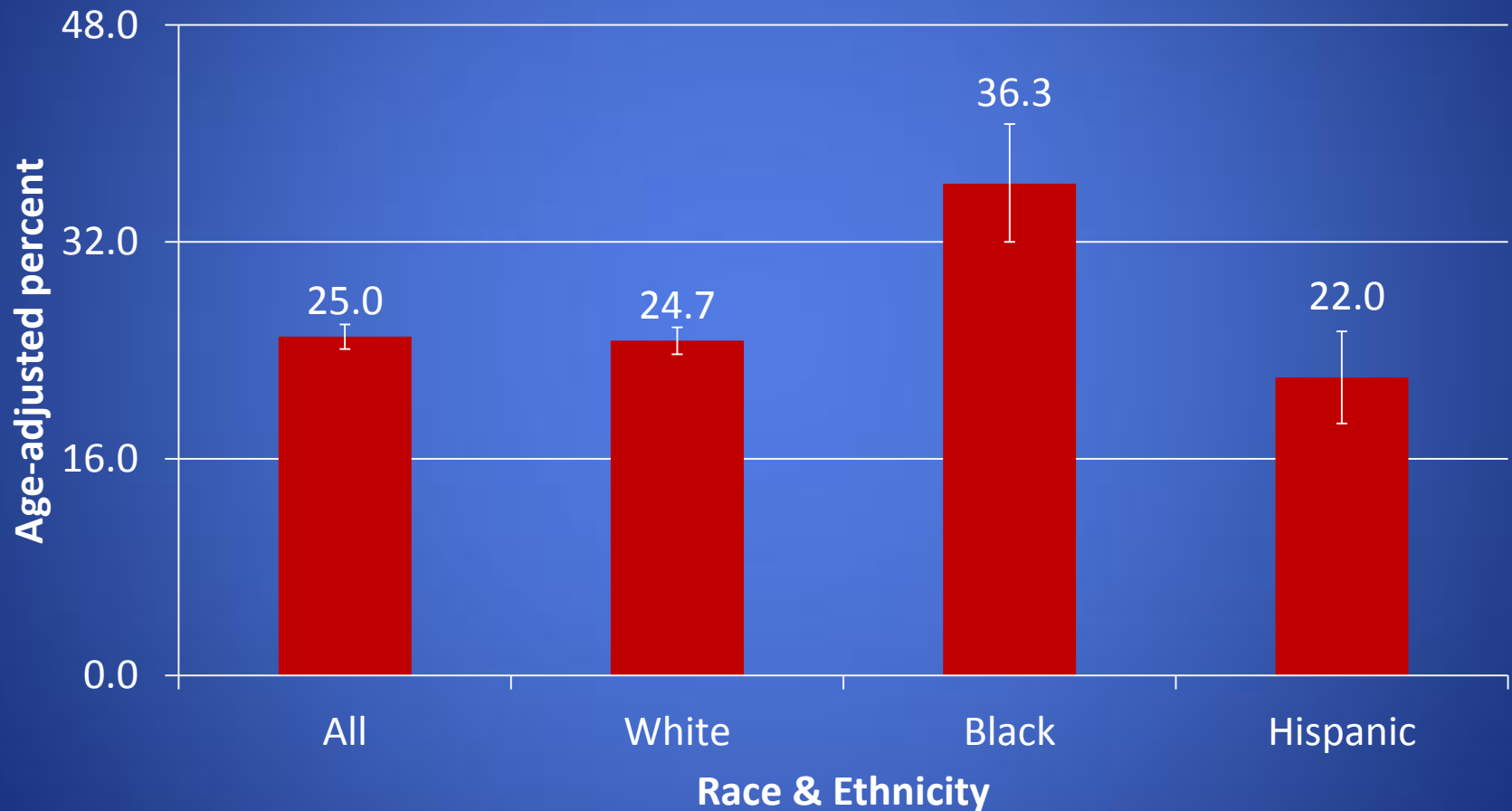
Age-Adjusted Death Rates – Stroke

CT Residents by Race & Ethnicity, 2007-2009



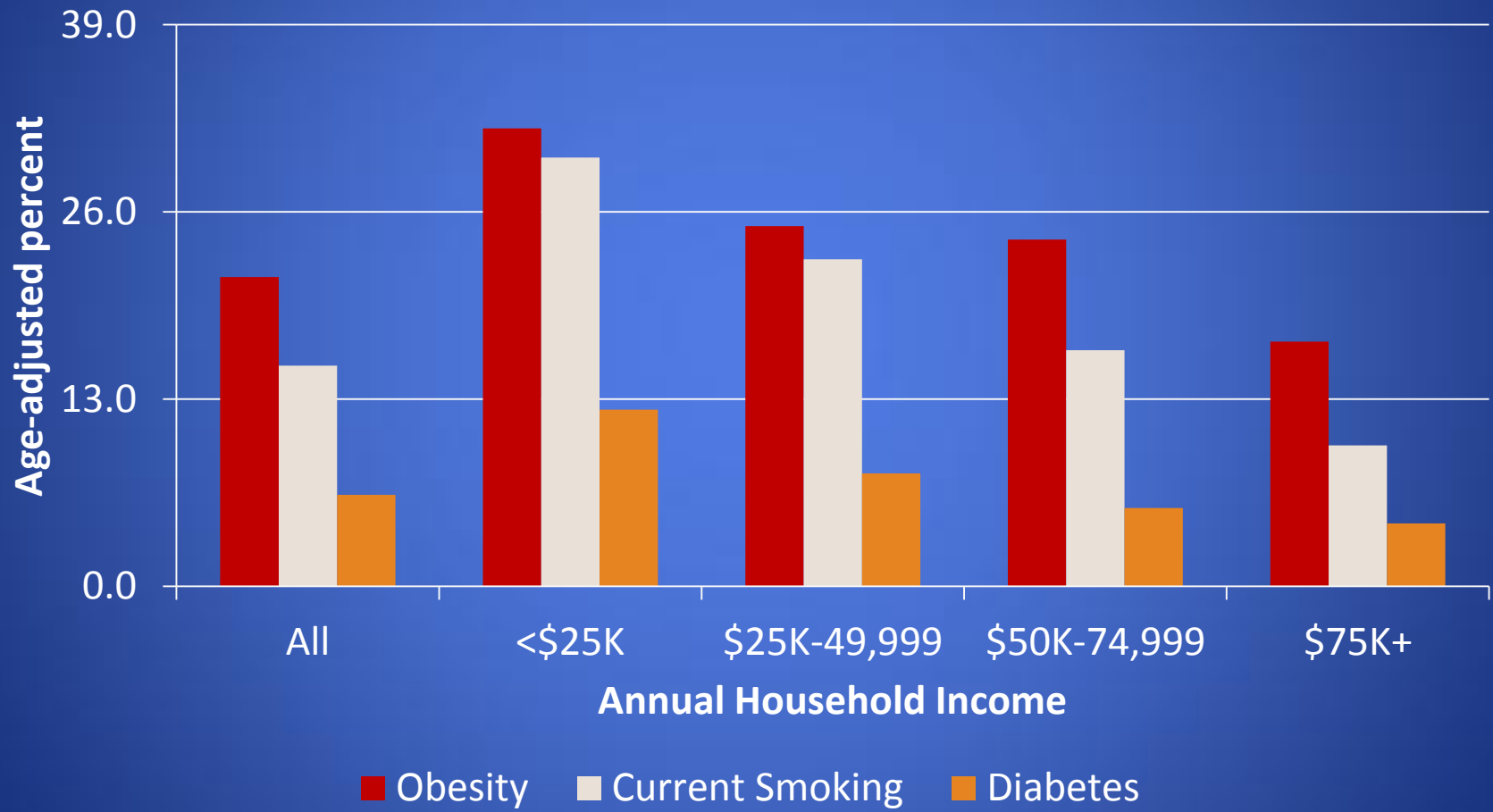
Source: CT Department of Public Health. Vital Statistics Mortality Files, 2012.

High Blood Pressure Prevalence CT Adults by Race & Ethnicity 2007-2009



Source: CT Department of Public Health.
Behavioral Risk Factor Surveillance System, 2011.

Prevalence of Selected Risk Factors CT Adults by Annual Household Income 2008-2010



Source: CT Department of Public Health.
Behavioral Risk Factor Surveillance System, 2012.

Preventing Premature CVD Deaths

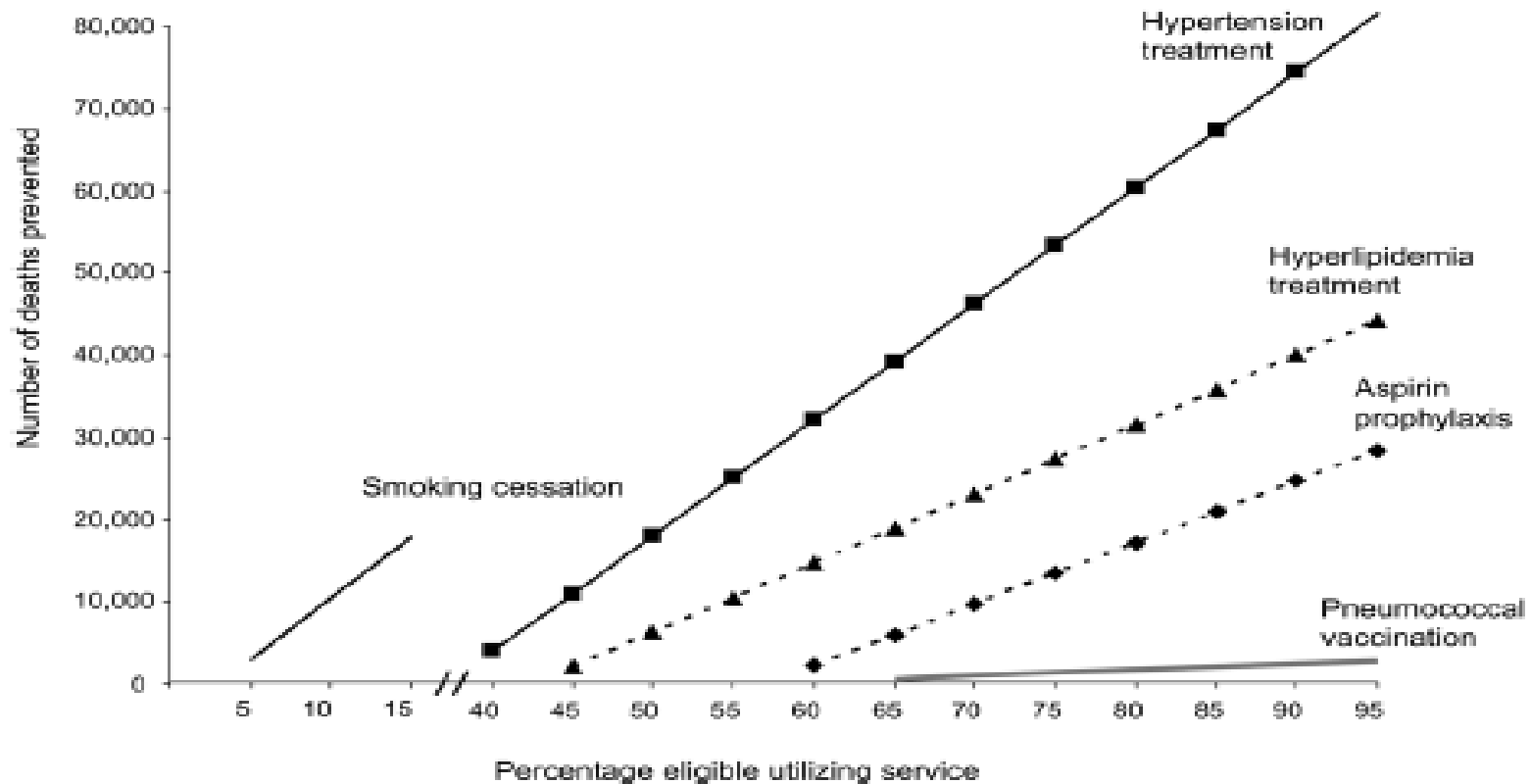


Figure 1. All-cause model results: estimated number of additional deaths prevented in those aged <80 years, per year, by increasing utilization of selected clinical preventive services to varying levels. Lines start at current utilization levels and extend beyond levels currently attained by highest-performing health systems.

Preventing Premature CVD Deaths

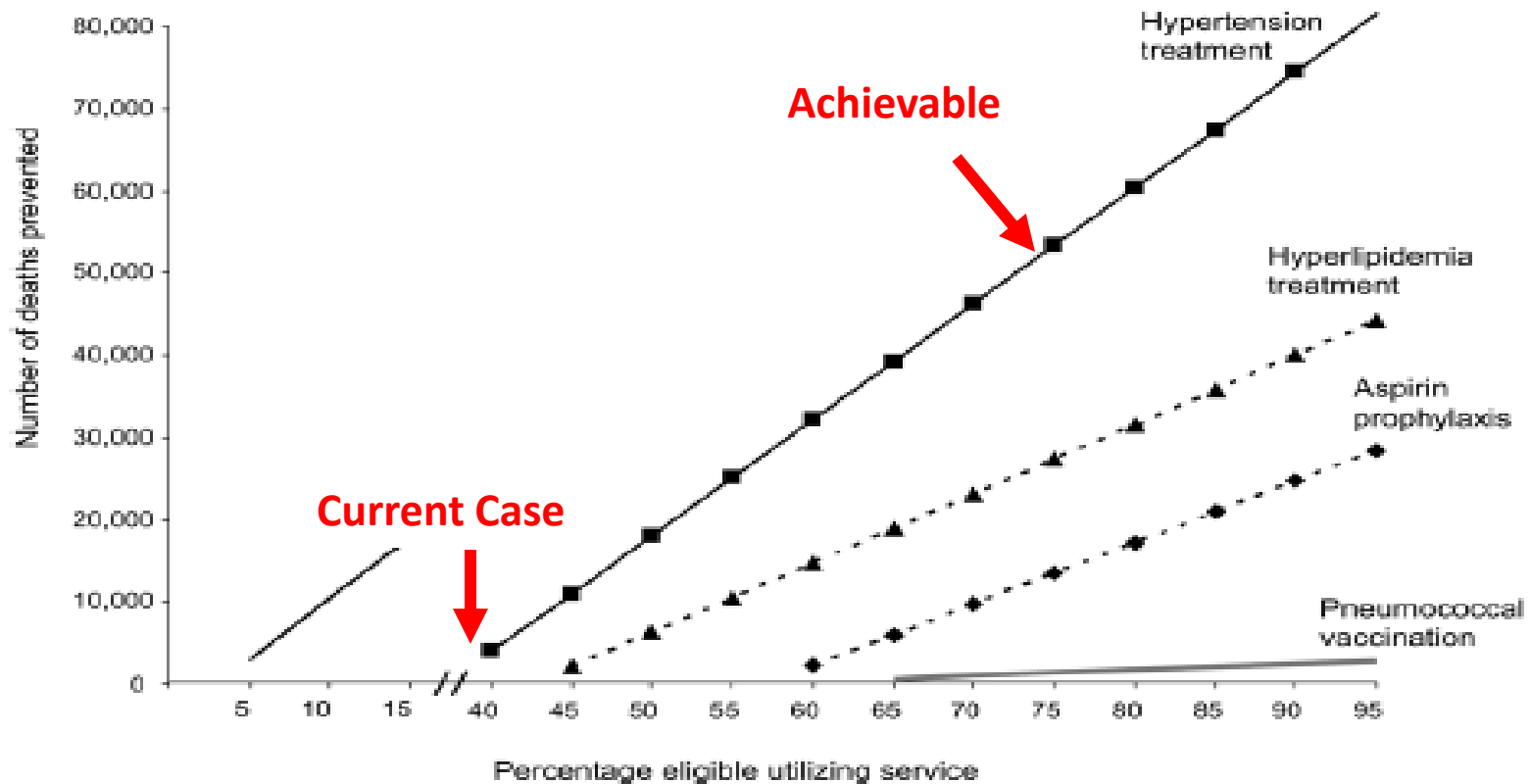


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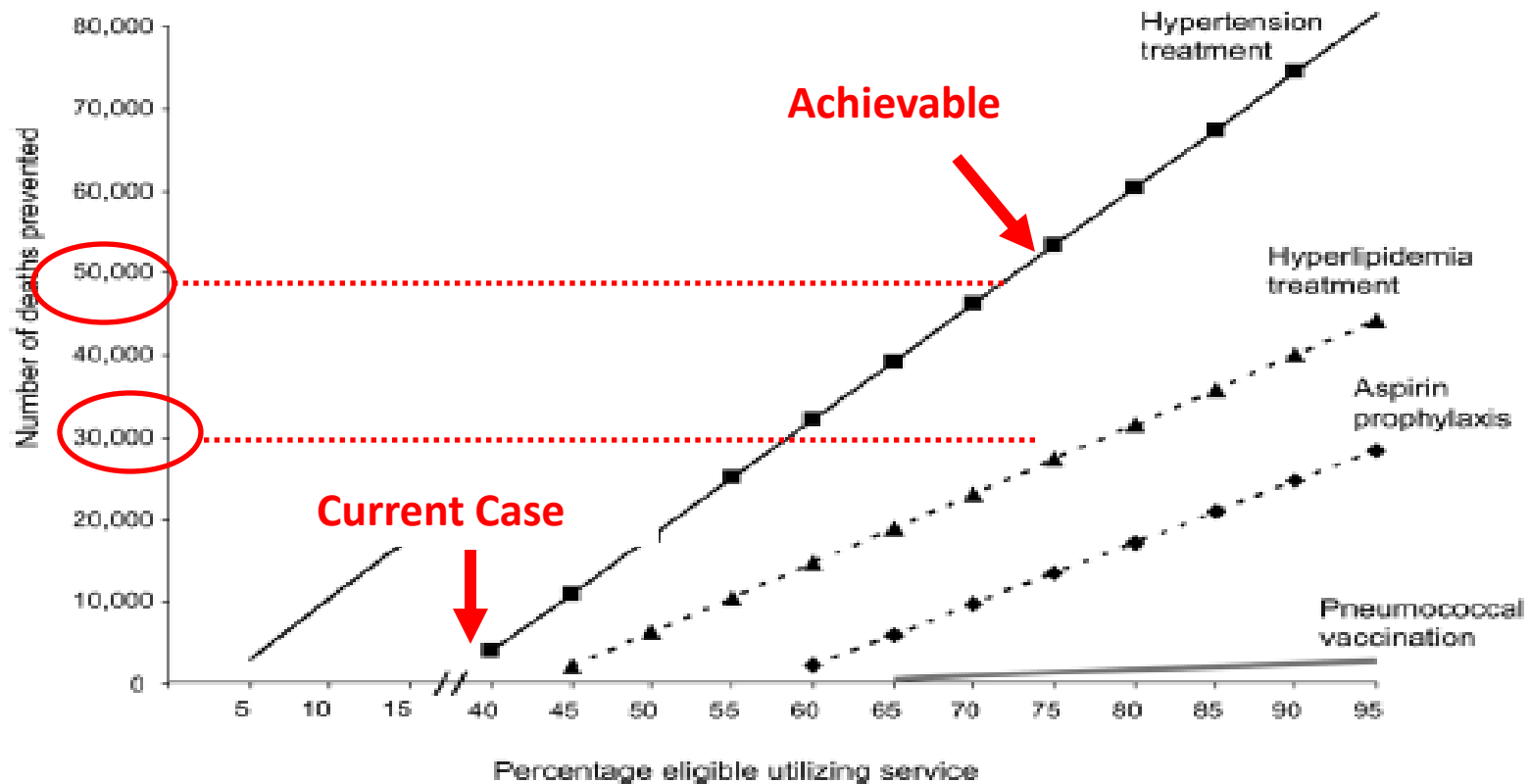


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Illustrative Strategies

- Self Blood Pressure Monitoring
- Medication Adherence
- Panel Management
- Team-Up



Self BP Monitoring (SBPM)

- Patients use a portable blood pressure monitor to take and record blood pressure outside the clinic



Expert Panels and Guidelines

AHA/ASH/PCNA Scientific Statement

Call to Action on Use and Reimbursement for Home Blood Pressure Monitoring

A Joint Scientific Statement From the American Heart Association, American Society of Hypertension, and Preventive Cardiovascular Nurses Association

Thomas G. Pickering, MD, DPhil, FAHA, Chair; Nancy Houston Miller, RN, BSN, FAHA; Gbenga Ogedegbe, MD, MPH, FAHA; Lawrence R. Krakoff, MD, FAHA; Nancy T. Artinian, PhD, RN, BC, FAHA; David Goff, MD, PhD, FAHA

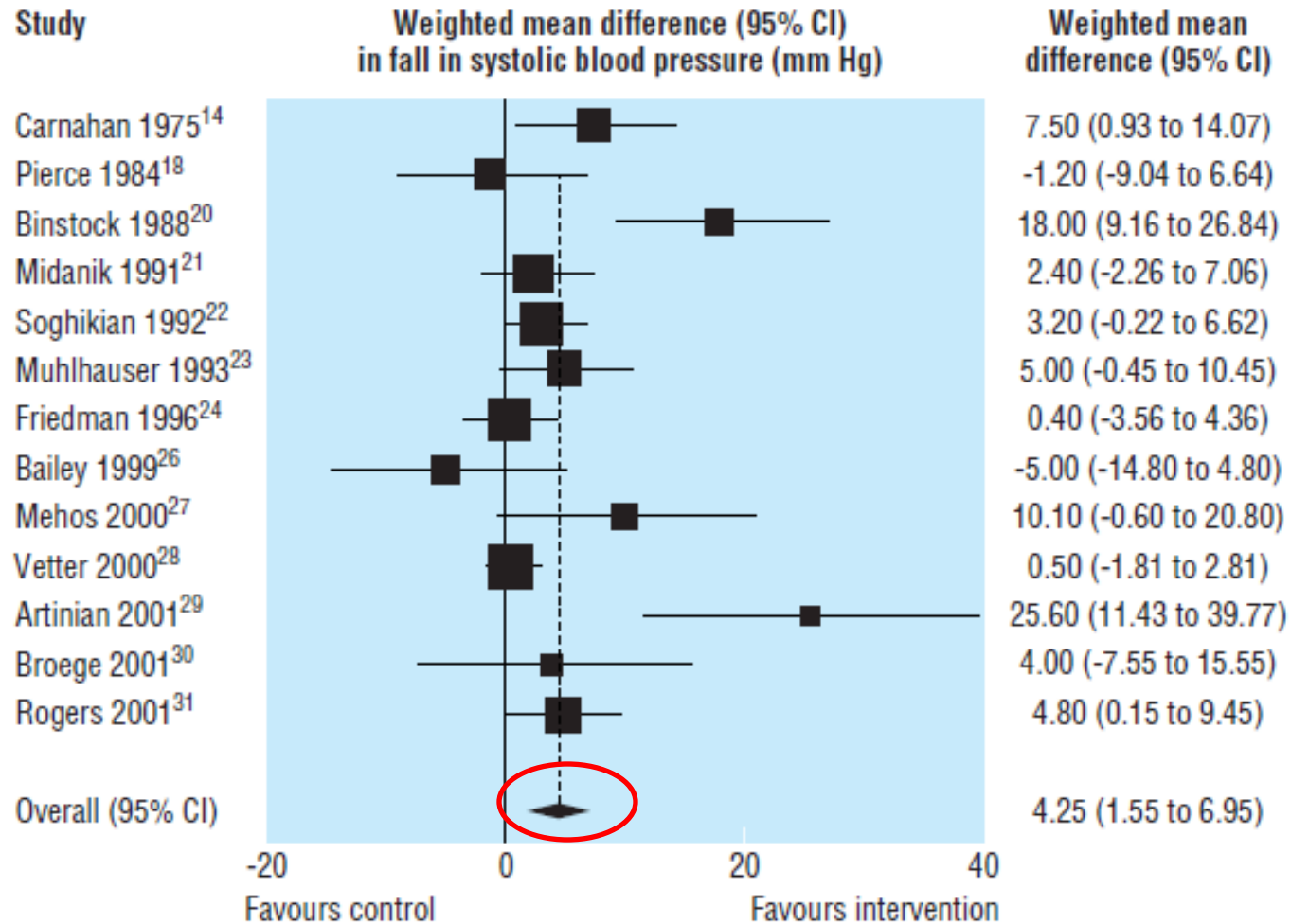
Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)

Benefits of SBPM

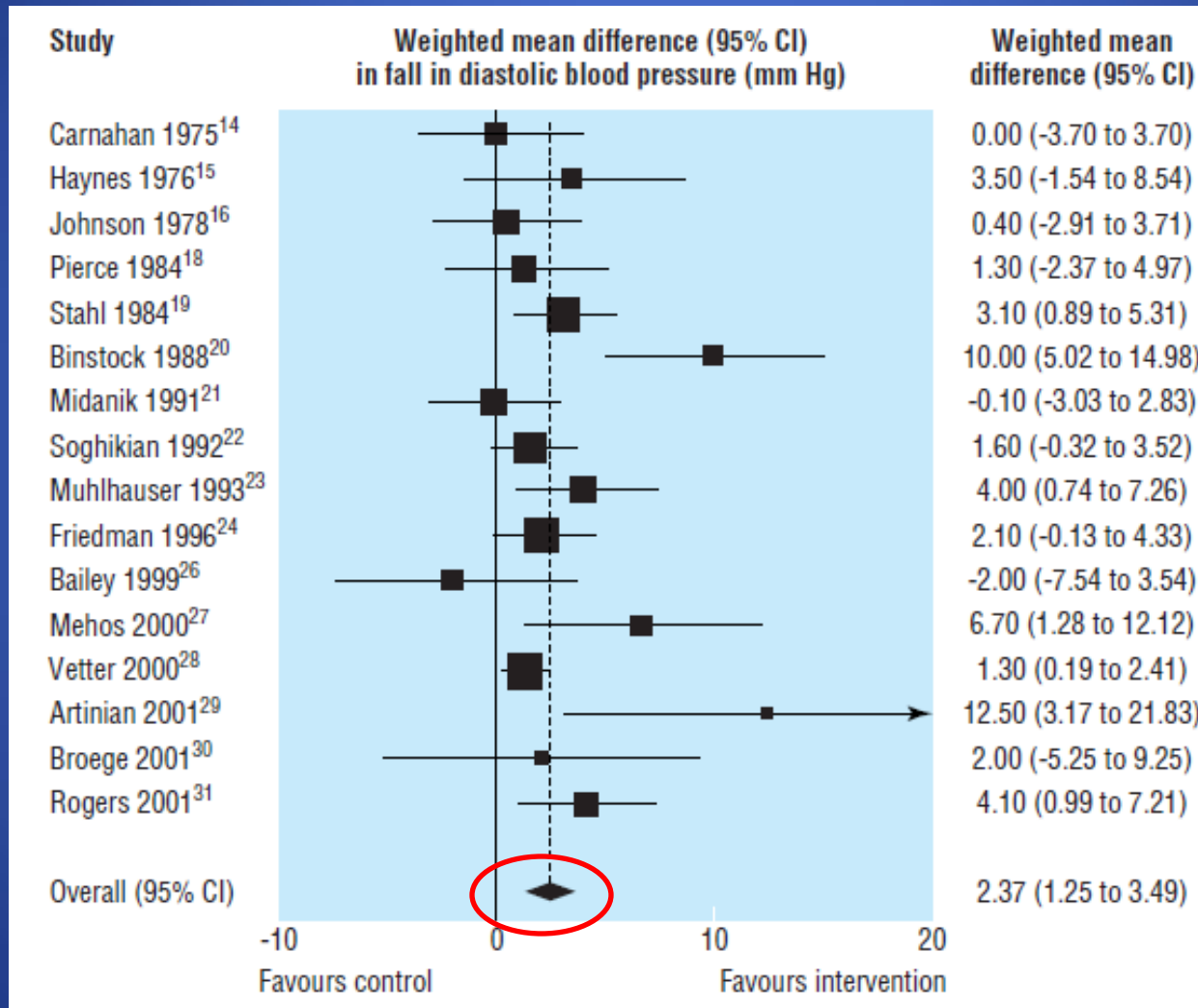
- **Outcomes:** Improves BP¹
- **Self Management:** Increases patient involvement in care
- **Management:**
 - Improves prediction of target organ damage, CV events or mortality²⁻⁴
 - Detects white coat effect and masked hypertension⁵⁻⁷

(1) Cappuccio et al, *BMJ* 2006; 329: 145-. (2) Bobrie et al, *JAMA* 2004; 291: 1342-1349 . (3) Ohkubo et al, *Hypertension* 1998; 16: 971-975. (4) Mule et al, *Journal of Cardiovascular Risk* 2002; 9: 123-129. (5) Stergio et al, *American Journal of Hypertension* 1998; 7: 820-7. (6) Chobanian et al, *Hypertension* 2003; 42: 1206-1252. (7) Stergio et al, *Blood Pressure Monitoring* 2007; 12: 391-392.

Effect of SBPM on Systolic BP



Effect of SBPM on Diastolic BP





Implementing SBPM

Select Patients Likely to Benefit

- Blood Pressure not well controlled
- Lifestyle modifications unsuccessful
- Mentally and physically capable
- Willing to participate

Recommending a Monitor

- Oscillometric
- Upper arm
- Digital read out
- Memory
- Cuff size



Verify 3rd Party Validation

- European Society Hypertension International Protocol



- British Hypertension Society



- Association for Advancement of Medical Instrumentation



Costs and Coverage

- Coverage varies by plan
- Out-of-pocket: \$30-\$100
- Consider providing monitors
 - Self-insured and capitated
 - Performance incentives



Verify Monitor Accuracy

- Have patient bring monitor to the office
- Check against the office mercury or aneroid sphygmomanometer
- If difference in SBP or DBP is $> 5\text{mmHg}$, don't use the monitor



Teach Proper Technique

- Monitor Assembly
- Self BP technique



Make a Plan

- What's my goal BP?
- How often do I take my BP?
- Should I write these down? Where?
- What should I do with the readings?

Follow up

MY BLOOD PRESSURE GOAL IS

____ / ____

I will check my blood pressure every

- day in the AM
 week PM

Special Instructions _____



Use this chart to keep track of your blood pressure. Talk with your healthcare provider about how often to take

DATE	AM/PM	BLOOD PRESSURE	DATE	AM/PM	BLOOD PRESSURE	DATE	AM/PM	BLOOD PRESSURE	DATE	AM/PM	BLOOD PRESSURE
	AM/PM	/		AM/PM	/		AM/PM	/		AM/PM	/
	AM/PM	/		AM/PM	/		AM/PM	/		AM/PM	/
	AM/PM	/		AM/PM	/		AM/PM	/		AM/PM	/
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	AM/PM	/		AM/PM	/		AM/PM	/		AM/PM	/

Consider titration to home BP 135/85

Track Outcomes

- Link with existing reporting requirements
- Implement as a QI project

Illustrative Strategies

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Medication Adherence



The NEW ENGLAND JOURNAL *of* MEDICINE

Perspective

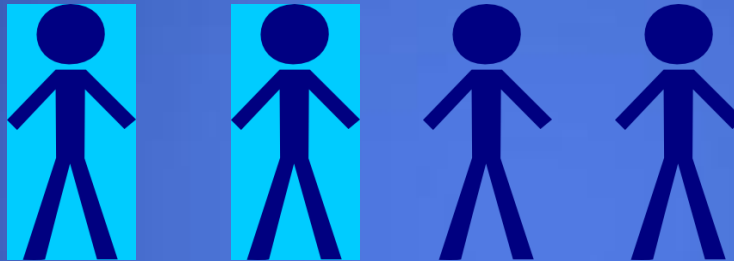
Thinking Outside the Pillbox — Medication Adherence as a Priority for Health Care Reform

David M. Cutler, Ph.D., and Wendy Everett, Sc.D.

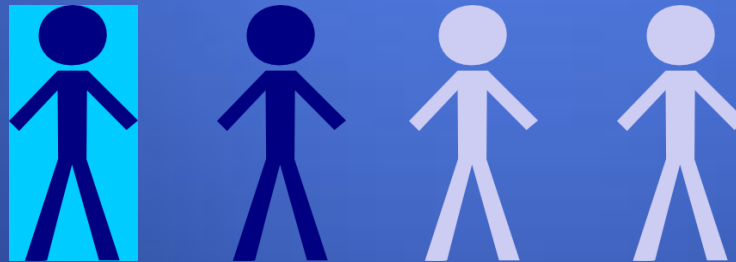
Poor adherence to treatment regimens has long been recognized as a substantial roadblock to achieving better outcomes for patients. Data show that as many as half of all patients do not adhere

Epidemiology of Nonadherence

- 50% of the US population is prescribed medication for chronic conditions



- Of those prescribed medication, only 50% are taking it as directed



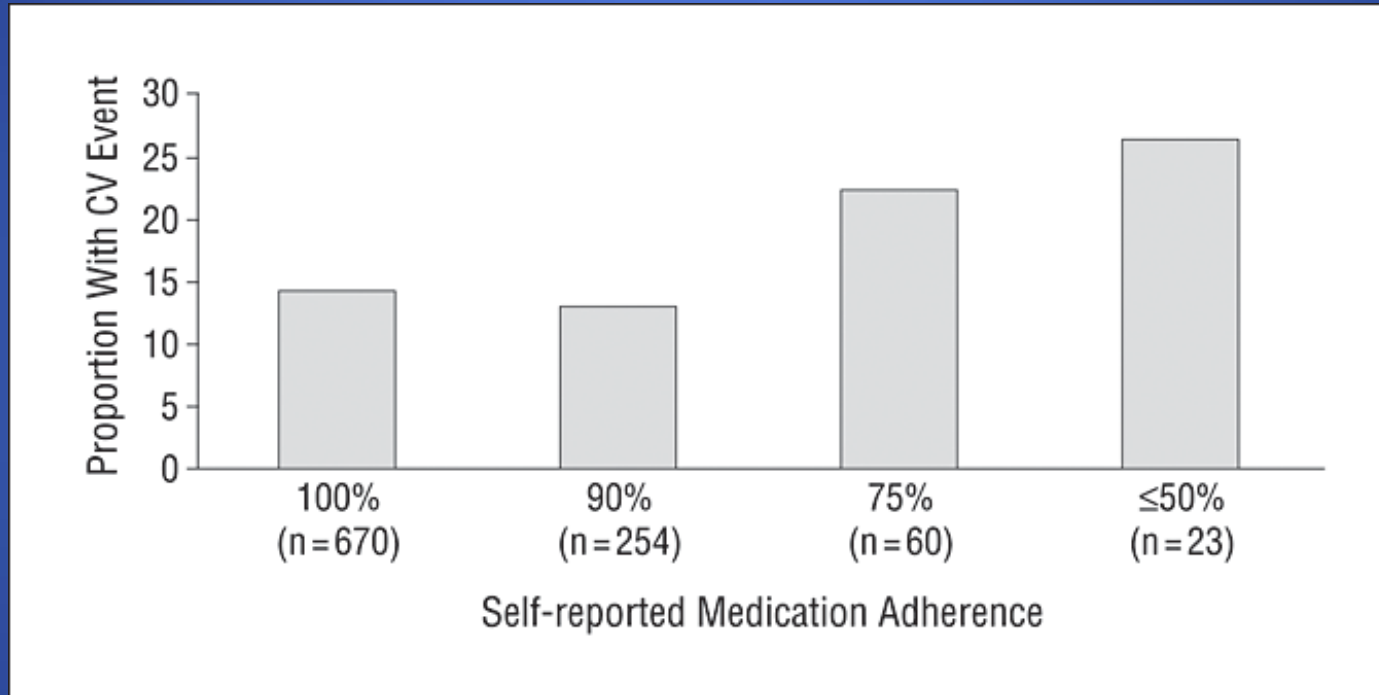
Adherence and Cost

17% report under-using medicine due to cost

1 out of 3 don't tell their provider



Adherence and CVD Events



Gehi, A. K. et al. Arch Intern Med 2007;167:1798-1803.

ARCHIVES OF
INTERNAL MEDICINE

Adherence and A1c

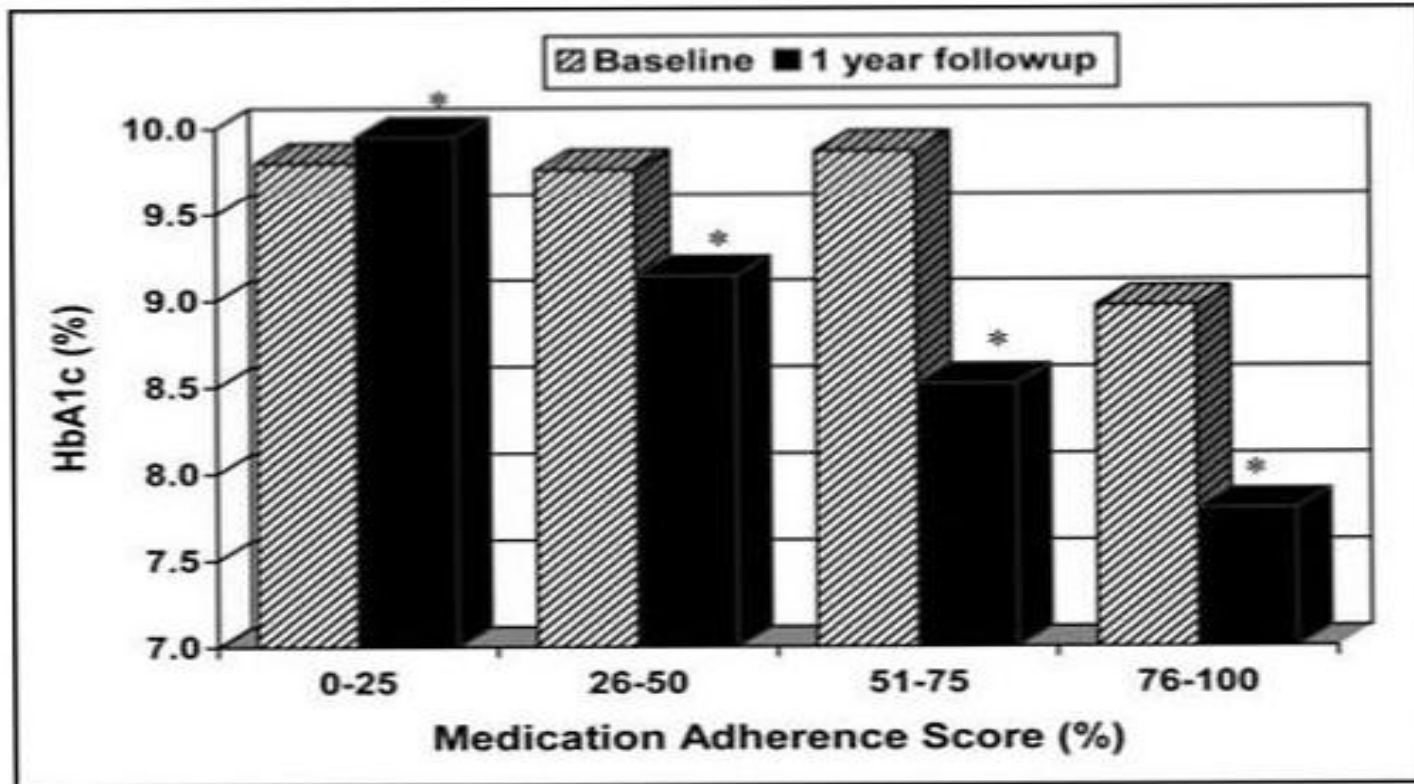
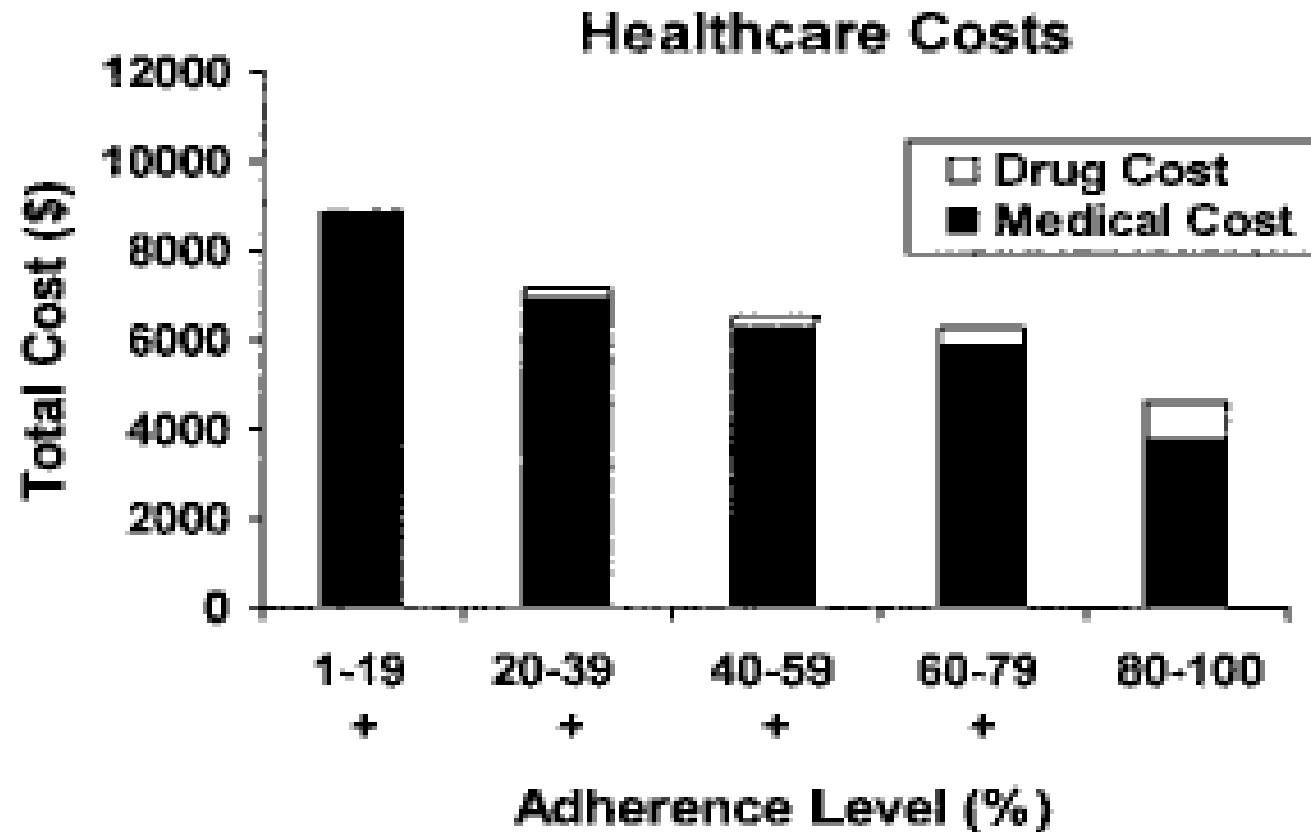


Figure 1. HbA1c at baseline and follow-up, stratified by medication adherence score.

* $P < .0001$ for trend.

Costs of Non-Adherence

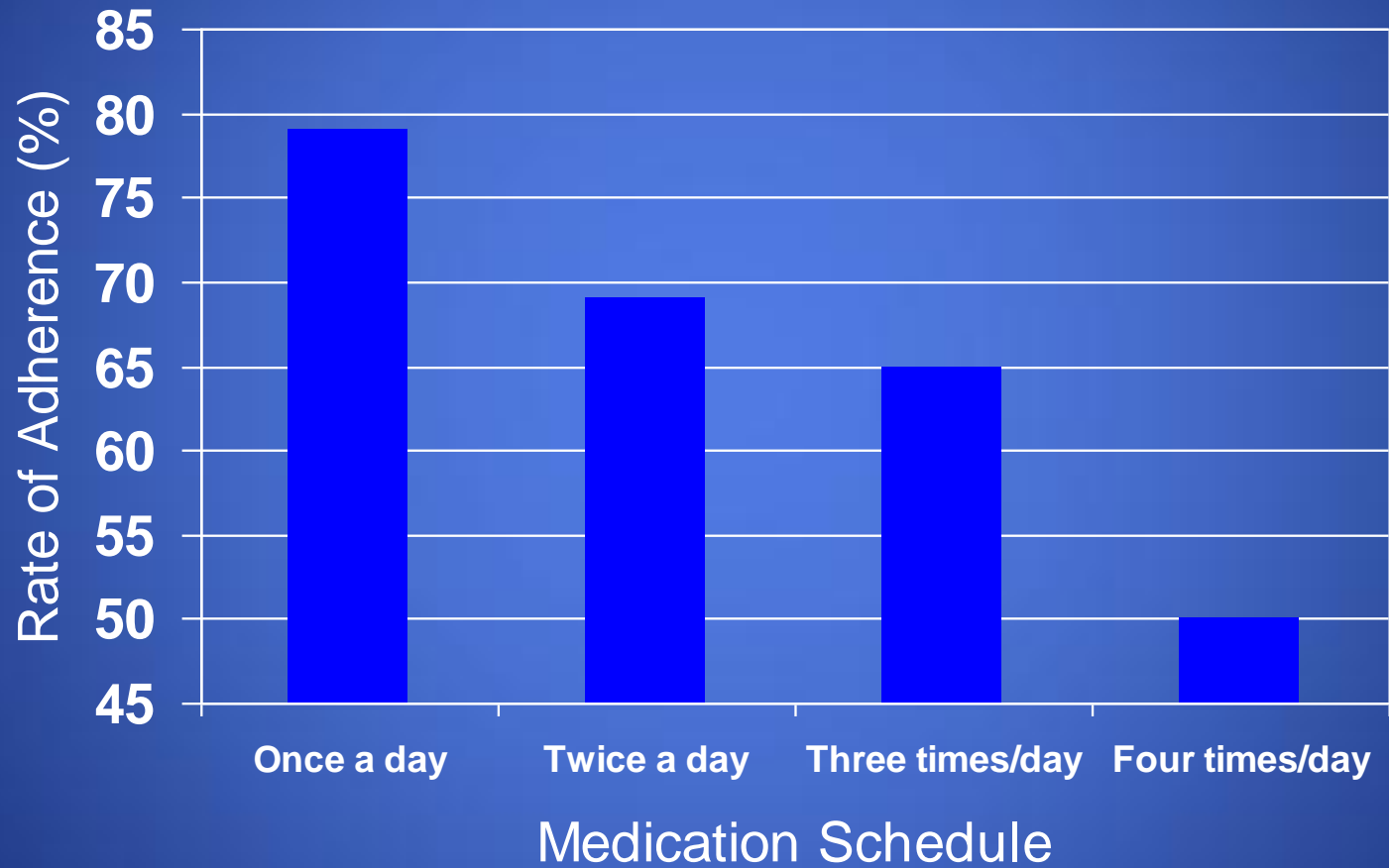


Tips: Normalizing Non-adherence



“Many people have trouble taking their medications. What gets in the way of taking your medications?”

Reduce Dosing Frequency



Prescribe Longer Lasting Supply

- Patients receiving 60-day supply (vs. 30-day) of statins are 40% more likely to be adherent
- Increasing prescription drug supply by 30 days is associated with a 5.7% increase in adherence

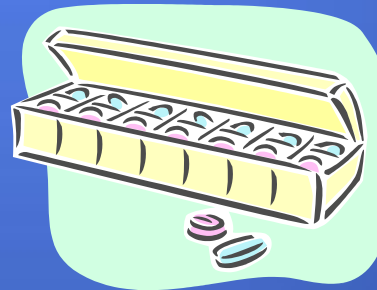




Use Clinical Tools



- Simple interventions can increase adherence by 11%
- Pill boxes and medication logs can improve adherence



Sources:

Sbarbaro JA. *Ann Allergy* 1990; 64(4): 325-331; Bainbridge JL and Ruscin JM. *Drugs & Aging* 2009; 26(2): 145-155

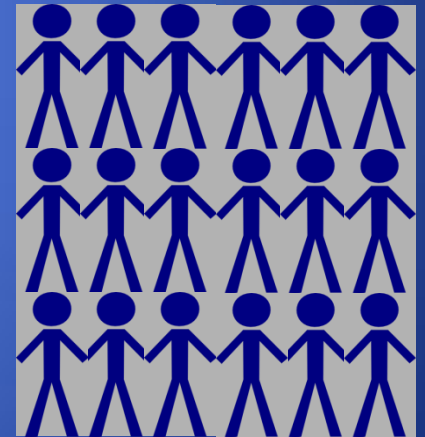
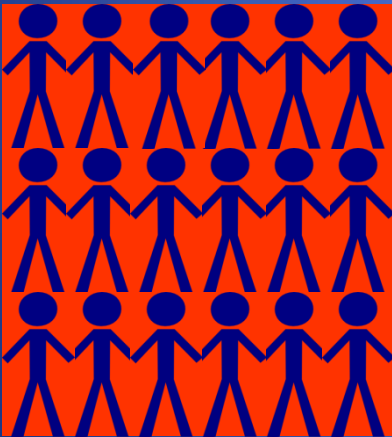
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Panel Management

“Using a systematic approach to identify and address members’ unmet chronic and preventive care needs.”

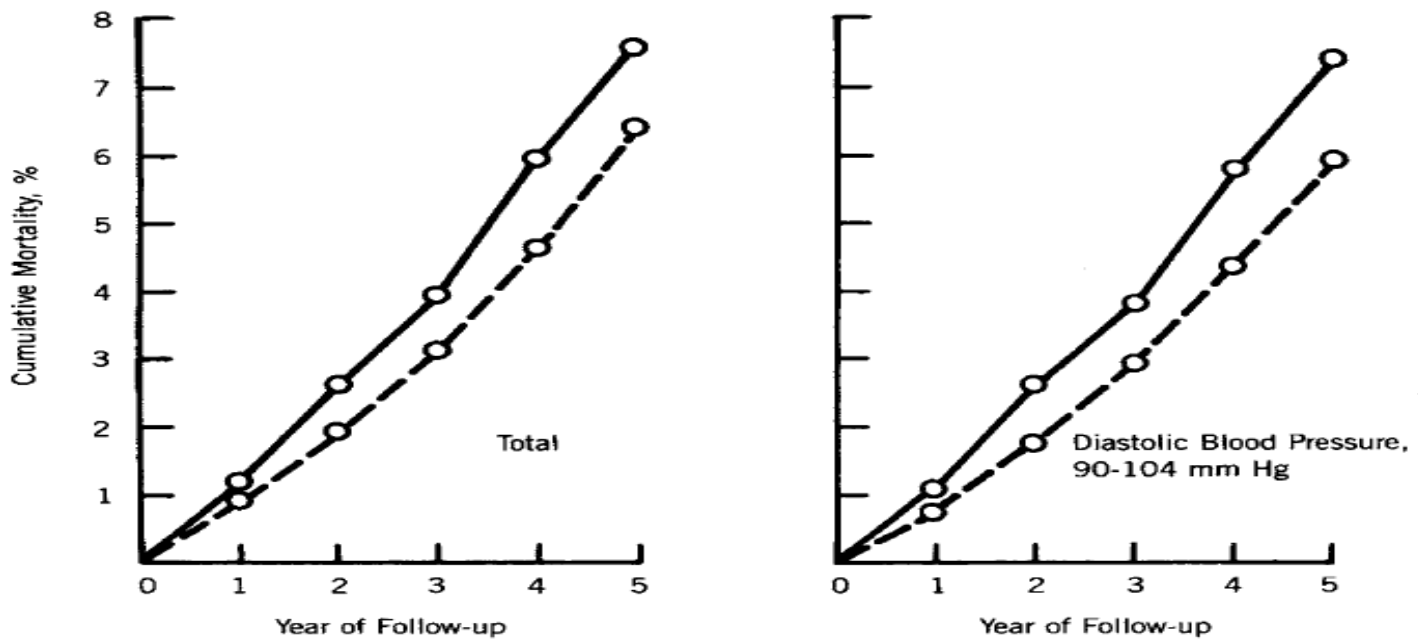


Cochrane Systematic Review of Interventions to reduce BP

- 72 RCTs
- Organized system of regular follow up and review of hypertensive patients
- allied to vigorous stepped care antihypertensive drug therapy
- significantly improved blood pressure and impacted survival

Benefits of Panel Management

Regular tracking and recall of patients with hypertension linked to protocol-driven treatment intensification can improve survival by 17%



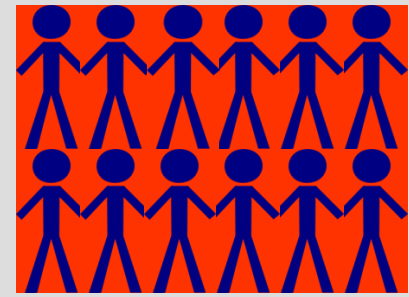
Hypertension Detection and Follow-up Program cumulative life table all-causes death rates, total and stratum I (diastolic blood pressure, 90 to 104 mm Hg). Dashed line indicates Stepped Care; solid line, Referred Care.

Select a Registry System

- EMR-based
- 3rd Party online registry services
- Office-based tracking system (MS Office)



Identify Patients not meeting BP Goals

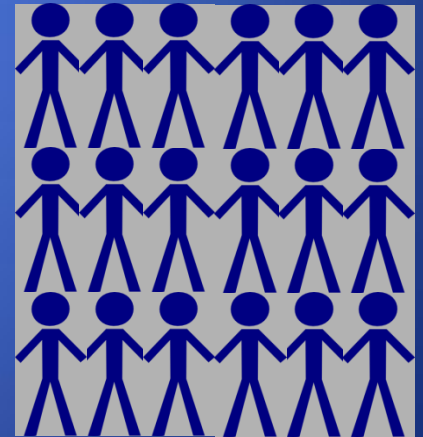
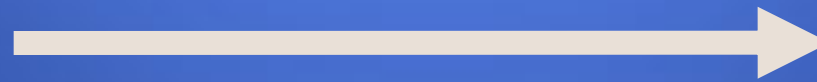
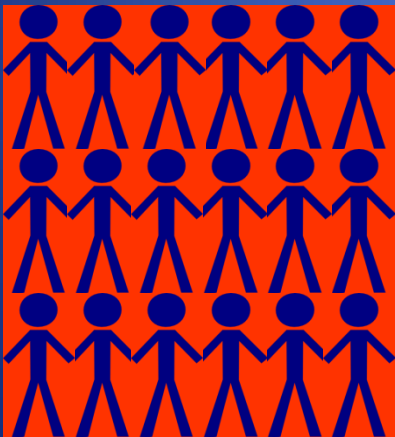


Deliver Appropriate Interventions



Considerations for the Practice

- Are there payment incentives?
- Is there technical support?
- Is there support from senior leadership?
- Can you re-train support staff?



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Team-Up

Physician and Pharmacist Collaboration to Improve Blood Pressure Control

Barry L. Carter, PharmD; Gail Ardery, PhD; Jeffrey D. Dawson, ScD; Paul A. James, MD; George R. Bergus, MD; William R. Doucette, PhD; Elizabeth A. Chrischilles, PhD; Carrie L. Franciscus, MA; Yinghui Xu, MS

Table 4. Unadjusted and Adjusted Effects of Intervention vs Control at 6 Months^a

Outcome	Unadjusted Effect (95% CI)	Adjusted Effect (95% CI)^b
BP, mm Hg		
Systolic	-11.9 (-21.6 to -2.2)	-12.0 (-24.0 to 0.0)
Diastolic	-3.6 (-10.7 to 3.4)	-1.8 (-11.9 to 8.3)
BP control odds ratio	4.2 (2.6 to 6.7)	3.2 (2.0 to 5.1)
24-h BP, mm Hg		
Systolic	-8.0 (-17.8 to 1.9)	-10.3 (-23.7 to 3.1)
Diastolic	-3.9 (-9.7 to 1.8)	-3.1 (-9.0 to 2.8)
Total guideline adherence score odds ratio	11.1 (0.4 to 21.7)	9.6 (-2.3 to 21.5)

Team Up



Community Preventive
Services Task Force
Recommends Team-Based
Care to Improve Blood
Pressure Control



[http://millionhearts.hhs.gov
/resources/teamuppressure
down.html](http://millionhearts.hhs.gov/resources/teamuppressure
down.html)

Wrap Up

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- Panel Management
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Thank You
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