

Quality Metrics in Cardiovascular Disease



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Disclosures

- Receive research support from:
 - STS Data Analytic Center
 - AHA GWTG Data Analytic Center
 - ACC NCDR Data Analytic Center
 - ACC-STS TAVR Data Analytic Center
 - National Heart Lung and Blood Institute
 - Life sciences:
 - Janssen; Amgen; Sanofi/Regeneron; Merck; AZ; Amerin; Alkili; Eli Lilly; Genentech; Novo Nordisk
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“Assessing CV Quality” ... 25 years later

MEDICINE AND PUBLIC POLICY | 1 JANUARY 1994

Scorecard Cardiovascular Medicine: Its Impact and Future Directions

Eric J. Topol, MD; Robert M. Califf, MD

Article, Author, and Disclosure Information

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Abstract

Public release of operator-specific data for cardiovascular procedures has set a new precedent, introducing the “scorecard” era. Justification exists for public disclosure, but the mechanics of appropriate data release are complex from a clinical, statistical, and logistic standpoint. Scorecard medicine may appropriately promote regionalization of medical centers and consolidation of services, but unless the process is directed effectively, it may impair the development of new treatments because of a more restrictive clinical practice environment.

We propose revamping our current system to facilitate rapid and accurate access to outcome data in the local practice environment so that improvement in practice occurs on a voluntary basis rather than in response to punitive restrictions. A rational plan needs to be developed for dealing with high-risk patients, perhaps through compensation in regression models used to calculate expected outcomes, and for the start-up of novice physicians. Special provisions are needed to promote clinical research. Before procedures are done, it would be ideal to provide

Measuring Quality in 2019

Why it remains so important



- **Variations in care and patient outcome remain issue**
- **'Big Data' gives us abilities to assess both care & patient outcomes as never before**
- **Reimbursement is shifting from FFS to bundled payments--may encourage 'under-treatment'**
- **New valued based care models**
 - Assume payment for quality
 - But how to quantify quality?

Definition of Quality in Health Care

“Degree to which health care services increase the likelihood of desired health outcomes and are consistent with current professional knowledge”

- Are you doing the right things?
- Are your patients better off for it?

Defining CV Quality

Donabedian's Triad

■ **Structure**

- Magnet nursing designation

■ **Process**

- Prescription of evidence-based medications

■ **Outcomes**

- Acute mortality
- 30-day Readmission

The IOM Definition of Quality Care

- **Timely:** Rapid identification and treatment
- **Effective:** with right drugs / procedures
- **Safe:** at right dose and / or done right
- **Equitable:** in all eligible pts
- **Patient centered:** But considering the risks and benefits for the individual patient
- **Cost-effective:** avoiding over-treatment

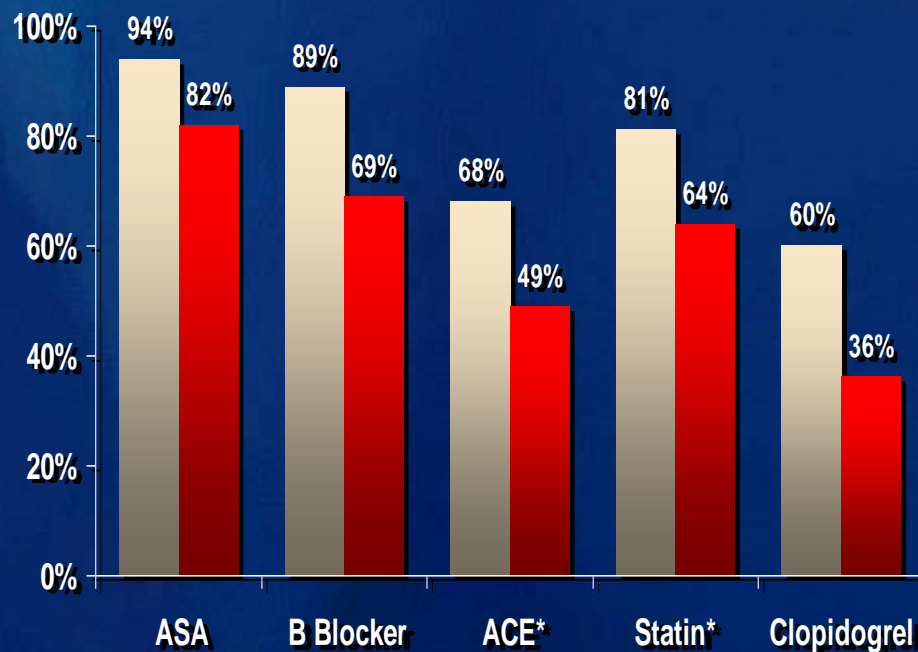
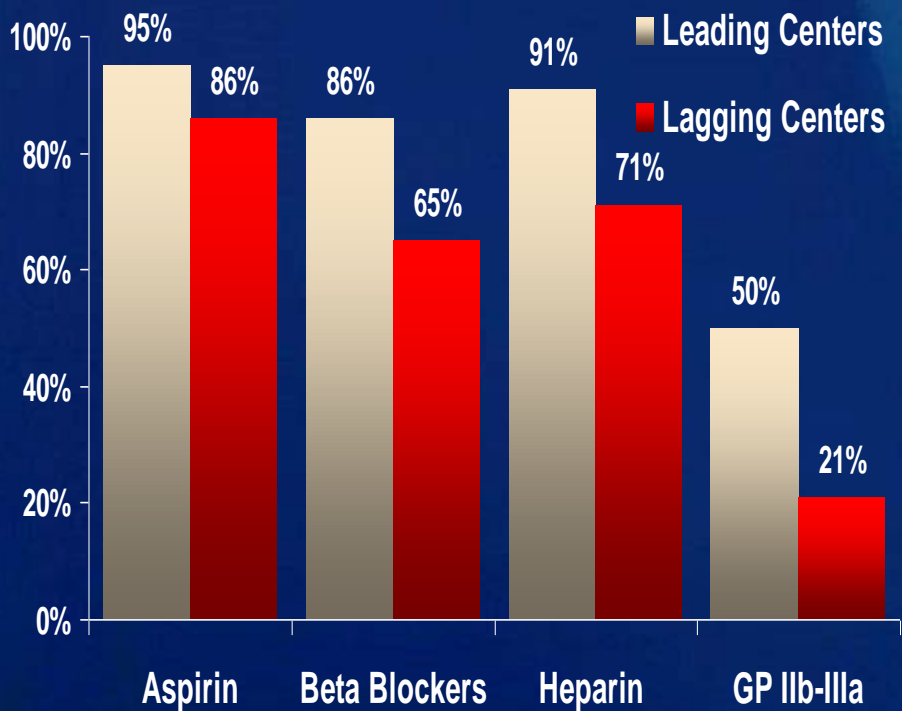


Measuring Quality: MI Care

430 US CRUSADE Hospitals

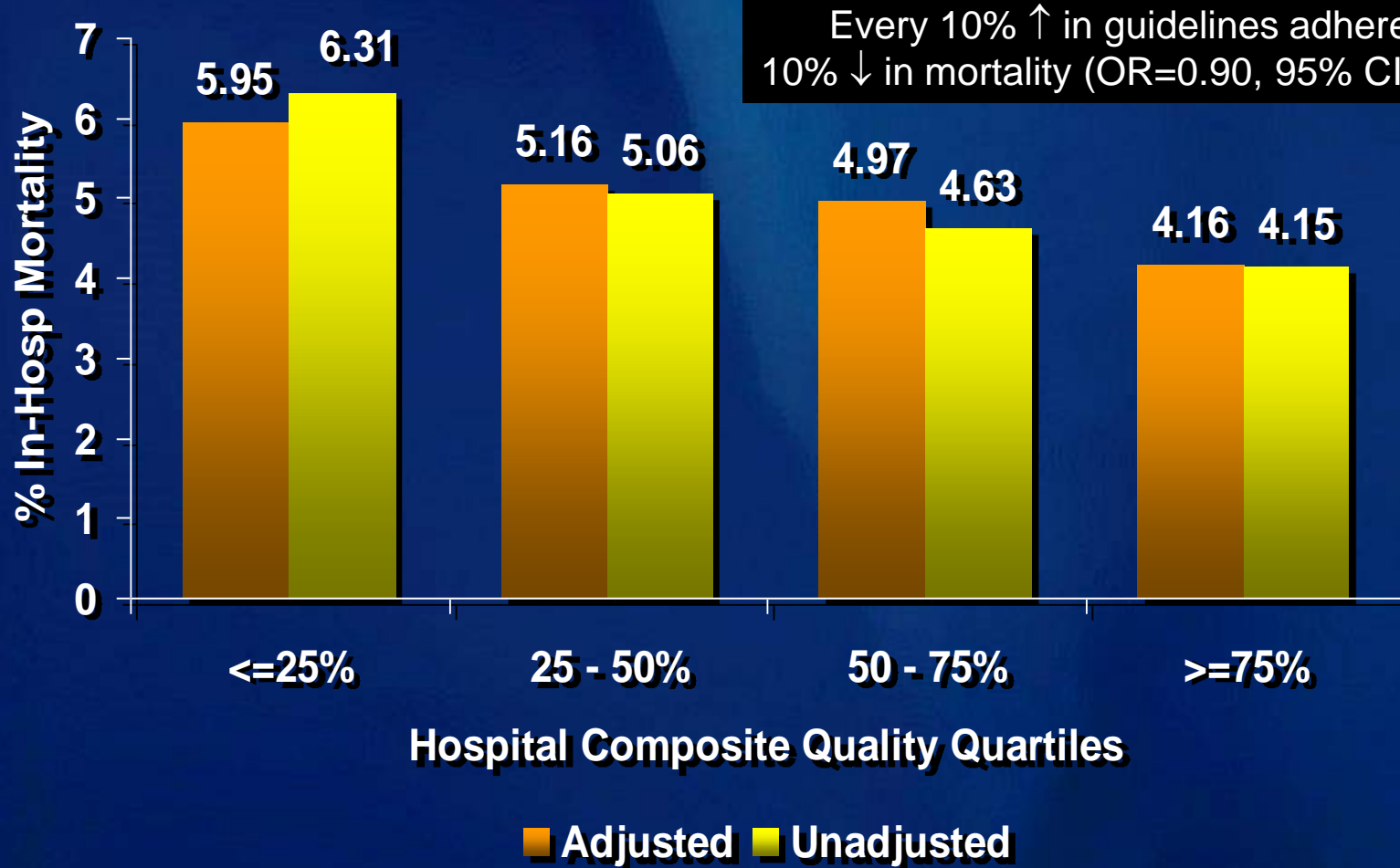
Acute

Discharge



Peterson JAMA 2006

Associations Between Guidelines Adherence and Mortality



Challenges: Quality Measures

- **Ceiling effects**
 - Those that we study improve; making our ability to differentiate quality challenging
- **Assess wrong processes**
 - Not all care recommendations are the same
- **Use vs safe use**
 - Over and under-dosing
- **Not all outcome metrics are the same**
 - Gaming
 - Readmissions

Choosing Based on Process

Which center is better?

	WAKEMED, RALEIGH [*]	UNIVERSITY OF NORTH CAROLINA [*]	DUKE UNIVERSITY HOSPITAL [*]
Heart Attack Patients Given Aspirin at Arrival	100%	99% ²	99%
Heart Attack Patients Given Aspirin at Discharge	100%	100% ²	100%
Heart Attack Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)	97%	91% ²	99%
Heart Attack Patients Given Smoking Cessation Advice/Counseling	100%	100% ²	100%
Heart Attack Patients Given Beta Blocker at Discharge	99%	100% ²	100%
Death Rate for Heart Attack Patients	No Different than U.S. National Rate	No Different than U.S. National Rate	No Different than U.S. National Rate

Process Outcome Mismatch

Association Between Performance Measures and Clinical Outcomes for Patients Hospitalized With Heart Failure

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 Mihai Gheorghiu, MD
 Barry H. Greenberg, MD
 Christopher M. O'Connor, MD
 Karen Pieper, MS
 Jie Lena Sun, MS
 Clyde Yancy, MD
 James B. Young, MD
 for the OPTIMIZE-HF Investigators
 and Hospitals

Table 4. Unadjusted and Risk-Adjusted Process-Outcome Links for ACC/AHA Hospital Performance Measures for Heart Failure

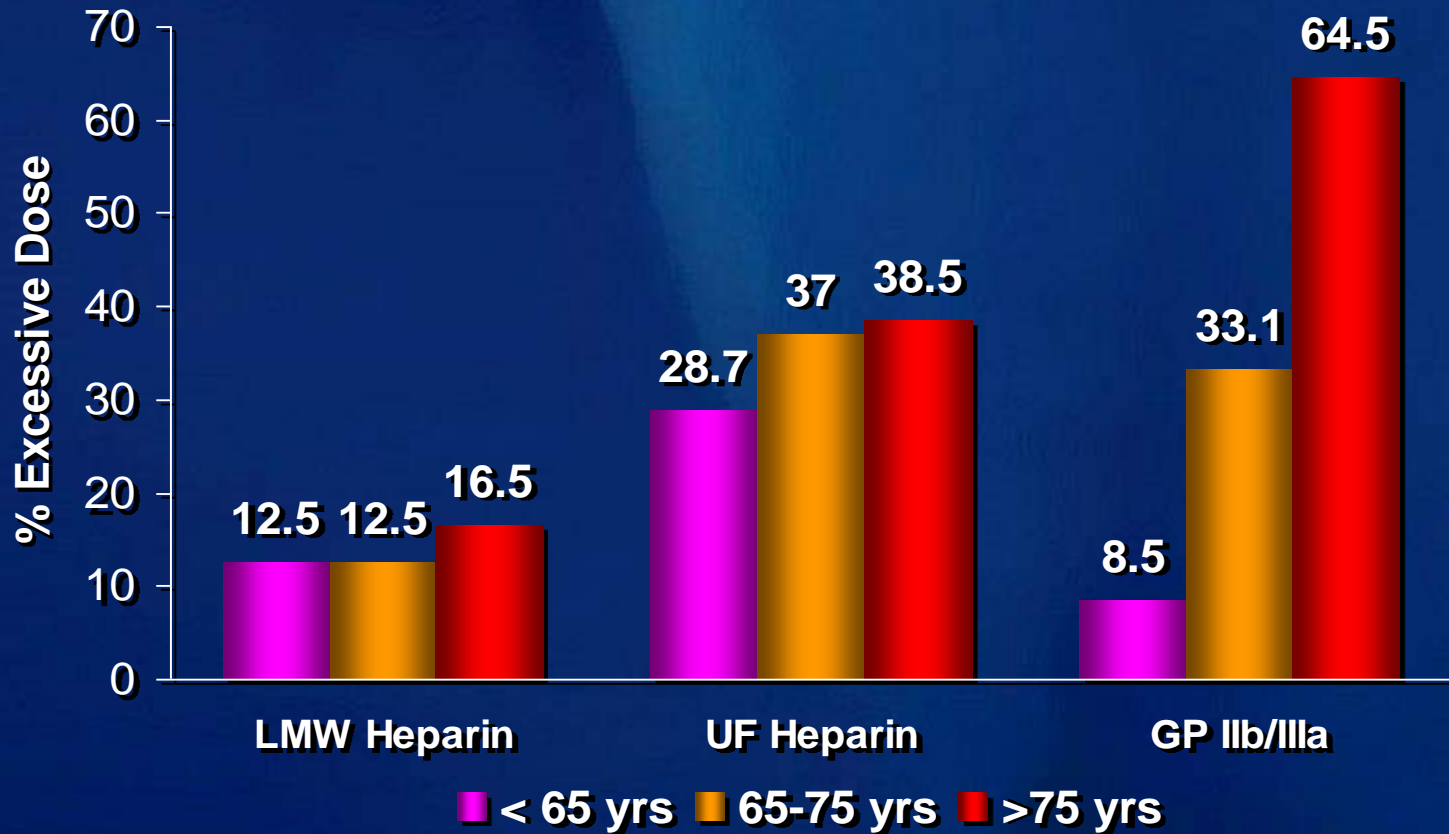
Performance Measures	Predictive of Mortality at 60- to 90-d Follow-up		Predictive of Mortality or Rehospitalization at 60- to 90-d Follow-up	
	Hazard Ratio (95% CI)	P Value	Odds Ratio (95% CI)	P Value
Unadjusted				
Discharge instructions	0.86 (0.66-1.13)	.29	0.97 (0.85-1.12)	.69
Evaluation of LV systolic function	0.75 (0.55-1.03)	.08	0.86 (0.71-1.04)	.11
ACE inhibitor/ARB for LV systolic dysfunction	0.48 (0.31-0.73)	<.001	0.55 (0.43-0.70)	<.001
Smoking cessation counseling	0.54 (0.30-0.96)	.04	0.67 (0.49-0.92)	.01
Warfarin for atrial fibrillation	0.81 (0.58-1.13)	.22	0.87 (0.71-1.07)	.18
β-Blocker at discharge	0.42 (0.27-0.63)	<.001	0.69 (0.52-0.91)	.008
Risk-adjusted				
Discharge instructions	0.90 (0.66-1.23)	.51	1.07 (0.89-1.28)	.46
Evaluation of LV systolic function	0.91 (0.65-1.28)	.59	1.06 (0.81-1.38)	.67
ACE inhibitor/ARB for LV systolic dysfunction	0.61 (0.35-1.06)	.08	0.51 (0.34-0.78)	.002
Smoking cessation counseling	0.75 (0.41-1.37)	.35	0.74 (0.50-1.09)	.12
Warfarin for atrial fibrillation	0.74 (0.50-1.09)	.13	0.83 (0.64-1.09)	.19
β-Blocker at discharge	0.48 (0.30-0.79)	.004	0.73 (0.55-0.96)	.02

Abbreviations: ACC/AHA, American College of Cardiology/American Heart Association; ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; CI, confidence interval; LV, left ventricular.



Use vs Safe Use

Excessive Antithrombotic Dosing

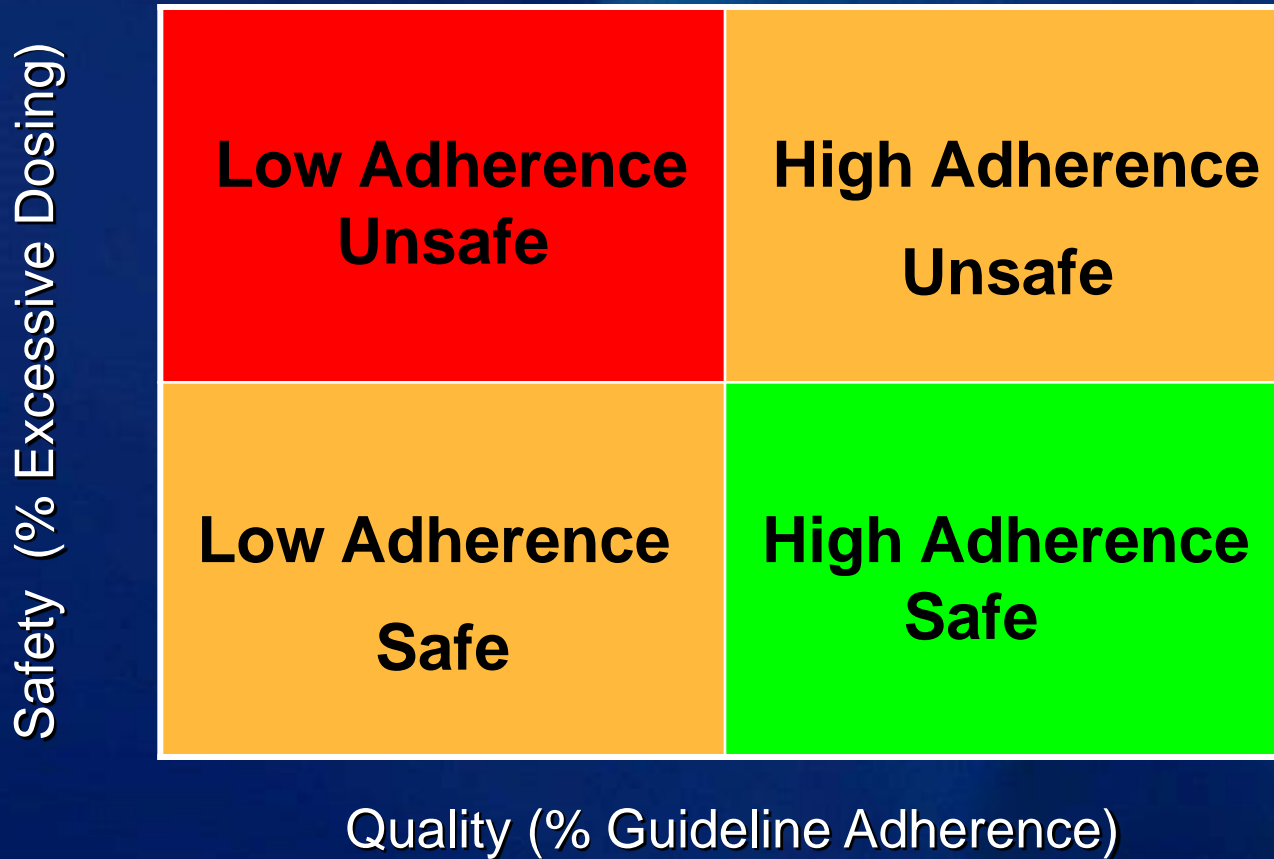




Effective and Safe Use

Both Needed

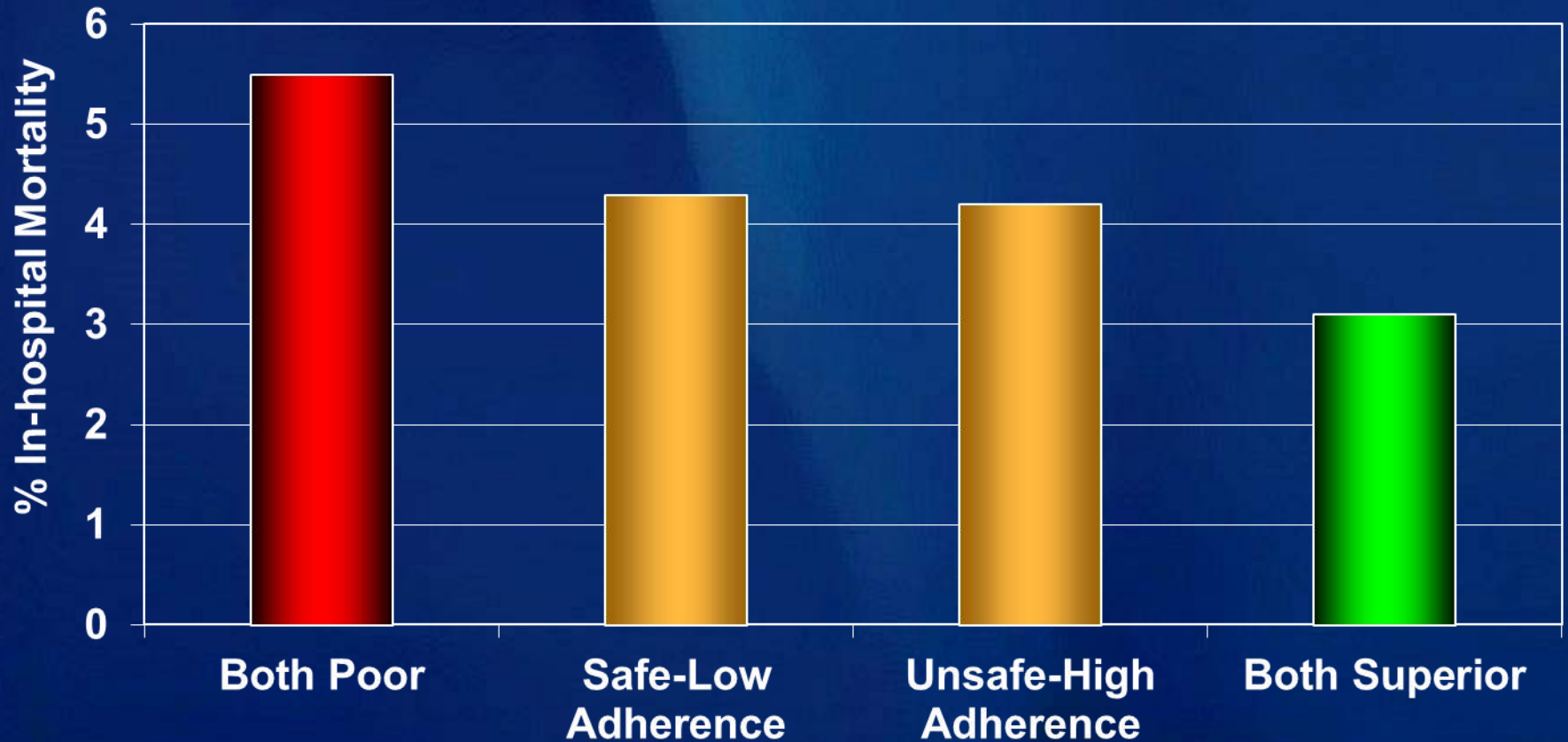
Hospital Performance Scorecard





Hospital Safety, Quality, and Outcomes

N=318 Hospitals; 56,245 Patients



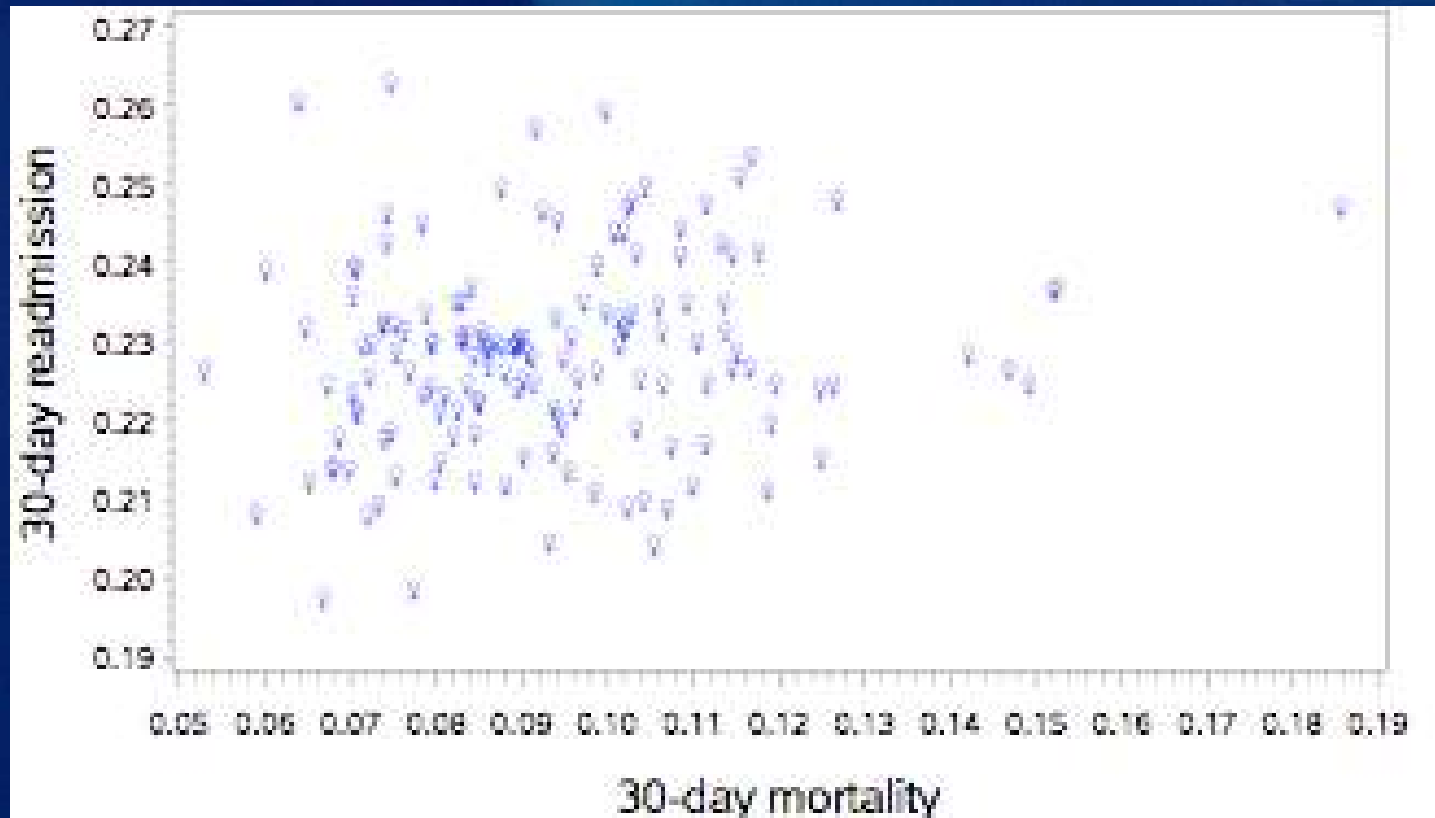
- Peterson ACC 2006

How do hospital administrations response to poor outcomes data?

- **Mandatory coding training (up-code diagnoses)**
- **Denominator control**
 - Reduction in treatment of very sick
 - Less shock pts to cath lab
 - Less sick pts to OR (or transplant etc)
- **Better numerator control**
 - Obs care vs admission (HF)
 - Palliative care unit svcs in-pt mortality (CABG)
- **Fundamentally address care practices**

The Problem: Which Outcomes Matter?

Hospital 30 Day HF Mortality vs. Readmission



Correlation Kappa=0.14 (poor)

The Future of Quality Measurement

Patient-centric & Shared Accountability Metrics

- **Patient perspective**
 - Functional outcomes
 - Satisfaction with care
- **Payer perspective**
 - Costs/Appropriateness
- **Population perspective**
 - Lifestyle and treatment adherence
 - Disease prevention

Affecting Quality and Functional Outcomes

CABANA Atrial Fibrillation



QUESTION What is the effect of catheter ablation, compared with medical therapy, on quality of life in patients with symptomatic atrial fibrillation (AF)?

CONCLUSION This randomized trial of patients with symptomatic AF found that catheter ablation led to clinically important and significant improvements in quality of life at 12 months.

POPULATION

1385 Men
819 Women



Symptomatic patients with AF aged >65 or ≤65 with ≥1 risk factor for stroke

Median age: 68 years

LOCATIONS

10 Countries
126 Centers



INTERVENTION



1108
Ablation
Pulmonary vein isolation ablation

2204 Patients randomized



1096
Drug therapy
Standard rhythm or rate control drug according to investigator discretion

CO-PRIMARY OUTCOMES

Prespecified co-primary quality of life (QOL) end points at 12 mo
Atrial Fibrillation Effect on Quality of Life (AFEQT) Summary Score (0=complete disability, 100=no disability; patient-level clinically important difference ≥5 points)
Mayo AF-Specific Symptom Inventory (MAFSI) Frequency Score (0=no symptoms, 40=maximum symptoms; patient-level clinically important difference <-1.6 points)
and Severity Score (0=no AF symptoms, 30=most extreme AF symptoms; patient-level clinically important difference ≤-1.3 points)

FINDINGS

QOL score differences (baseline to 12 mo)

	Ablation	Drug therapy
AFEQT	23.5 points	17.8 points
MAFSI Frequency	5.4 points	3.8 points
MAFSI Severity	4.3 points	2.8 points

Adjusted differences (95% CIs)

AFEQT: **5.3** points (3.7 to 6.9)

MAFSI Frequency: **-1.7** points (-2.3 to -1.2)

MAFSI Severity: **-1.5** points (-2.0 to -1.1)

All outcomes were significant for the ablation group vs drug therapy

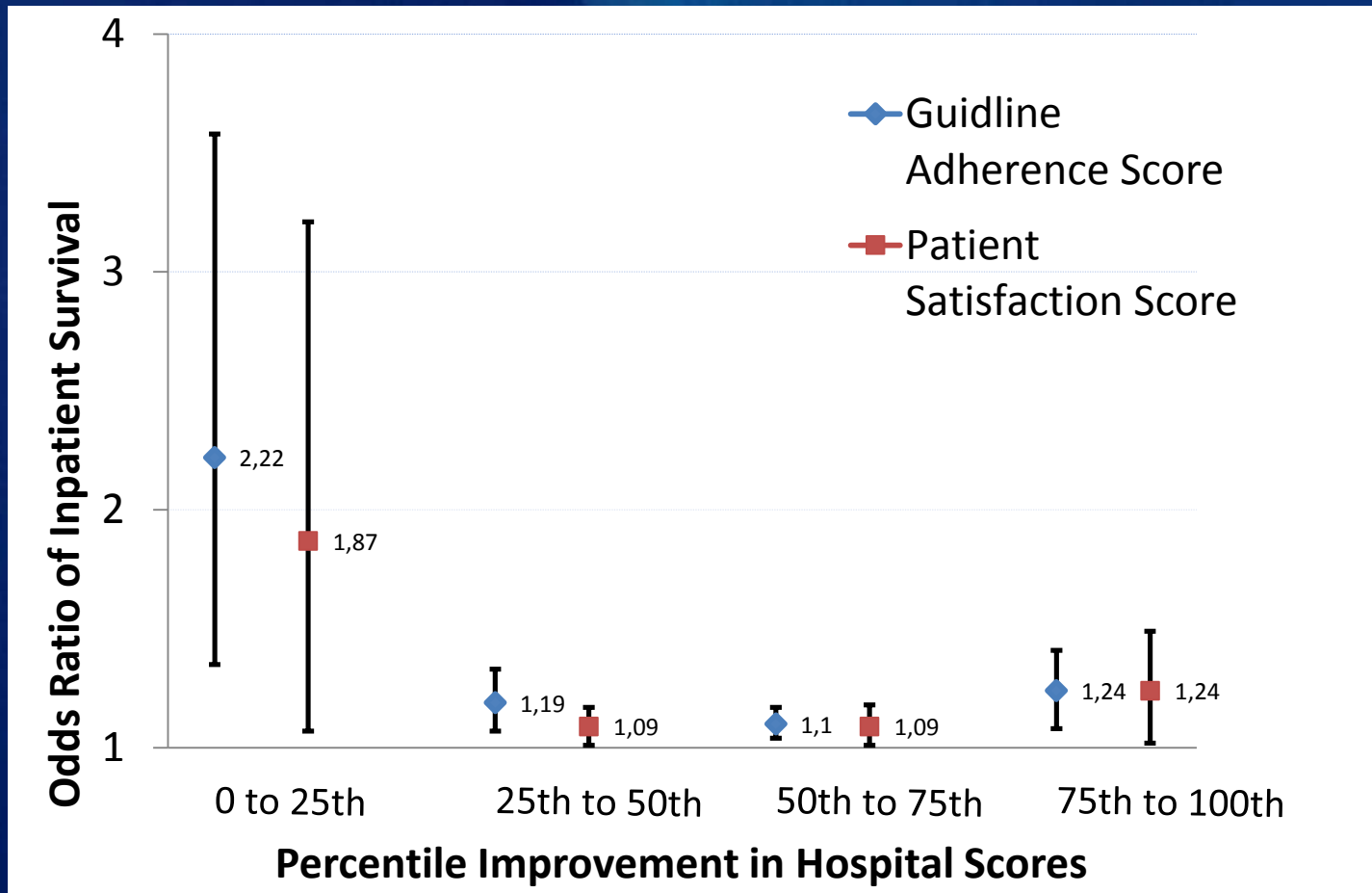
© AMA

Mark DB, Anstrom KJ, Sheng S, et al; for the CABANA Investigators. Effect of catheter ablation vs medical therapy on quality of life among patients with atrial fibrillation: the CABANA randomized clinical trial [published online March 15, 2019]. *JAMA*. doi:10.1001/jama.2019.0692

JAMA. 2019;321(13):1275-1285.
doi:10.1001/jama.2019.0692

Is Patient Satisfaction a Valid Metric?

Association of Satisfaction, Quality + Outcomes



Increased Price and Cost Pressure

Overcoming the Pricing Power of Hospitals

Bob Kocher, MD

Ezekiel J. Emanuel, MD, PhD

AMID A PERIOD OF UNPRECEDENTED CHANGE AND IMPROVEMENT in the US health system, the changes leading to larger local hospitals and health systems, including academic medical centers, are a cause for concern. For decades, the dominance of local hospitals and health systems in local and regional market share and use of their power to increase prices charged to private payers has been a

This model has been successful because hospitals must select health plans that satisfy the

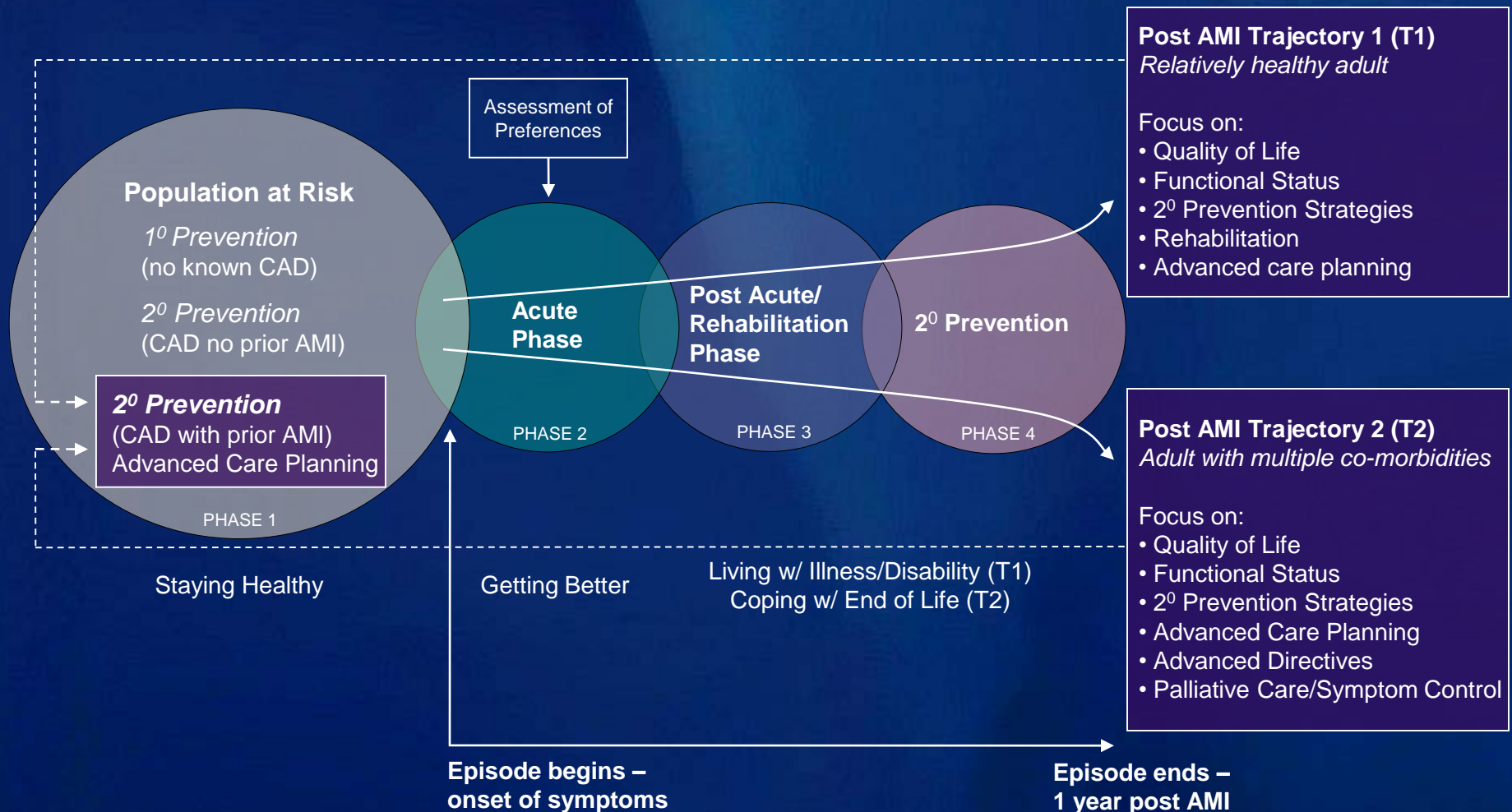
decline in inpatient hospital use means there are too many hospital beds and low occupancy rates in many communities.

Health care reform has stimulated additional consolidation as well as having hospitals purchasing physician practices. Hospitals now employ a majority of physicians.³ Hospitals justify this consolidation as necessary to support integrated care, investments in health information technology, and new payment models like accountable care org-

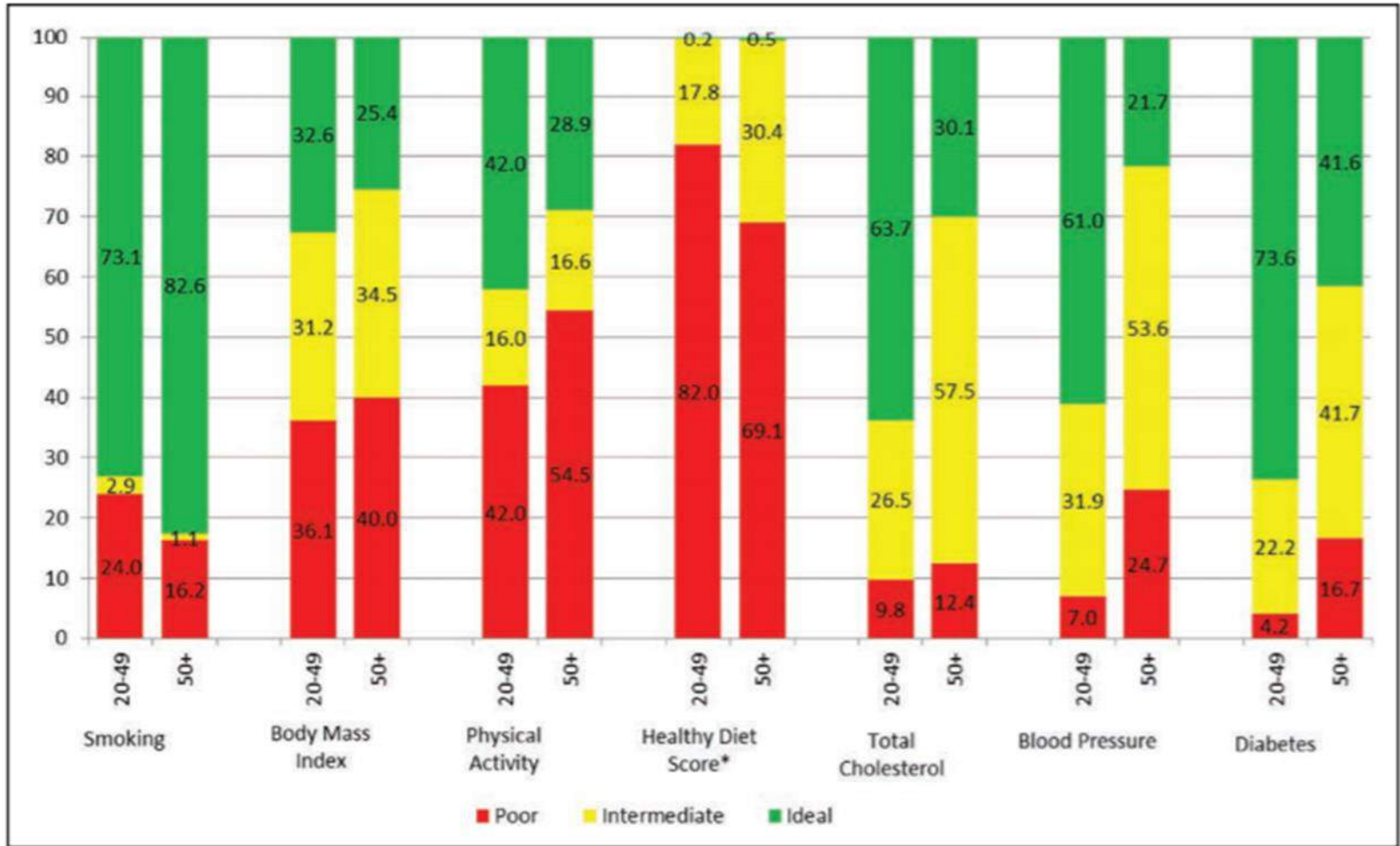
■ Recommendations:

- Incentivize MDs to Be Sensitive to Hospital Prices
- Support Pricing Transparency
- Bundled Payments

Importance of a Longitudinal Perspective in Quality Assess

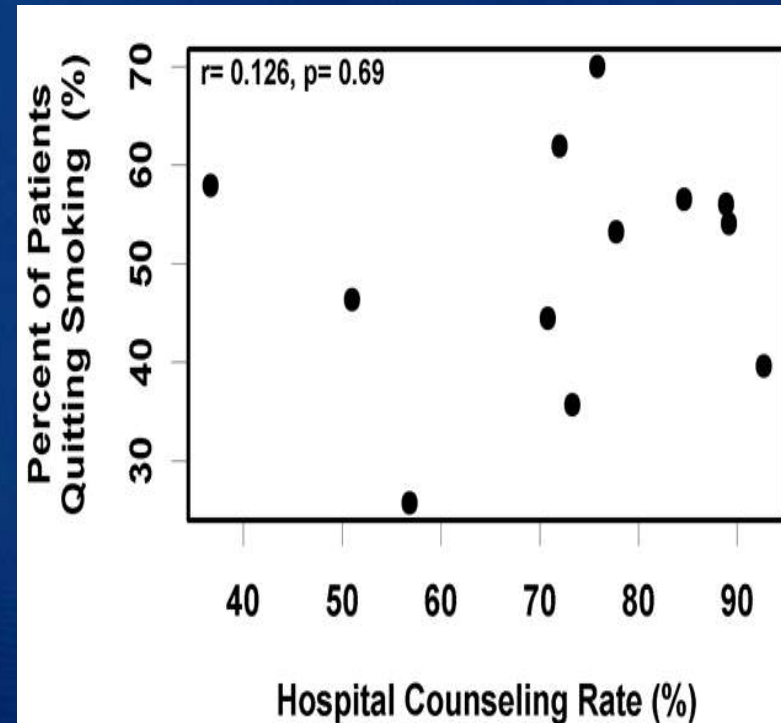
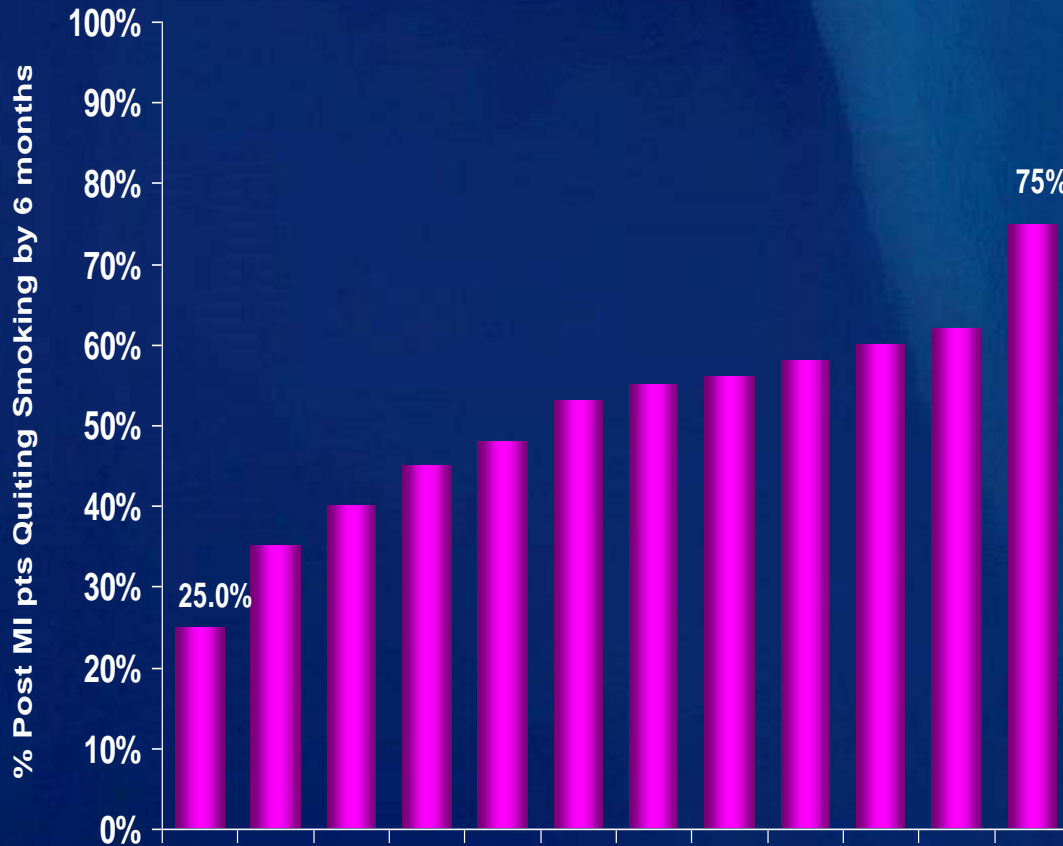


Lifestyle Modification



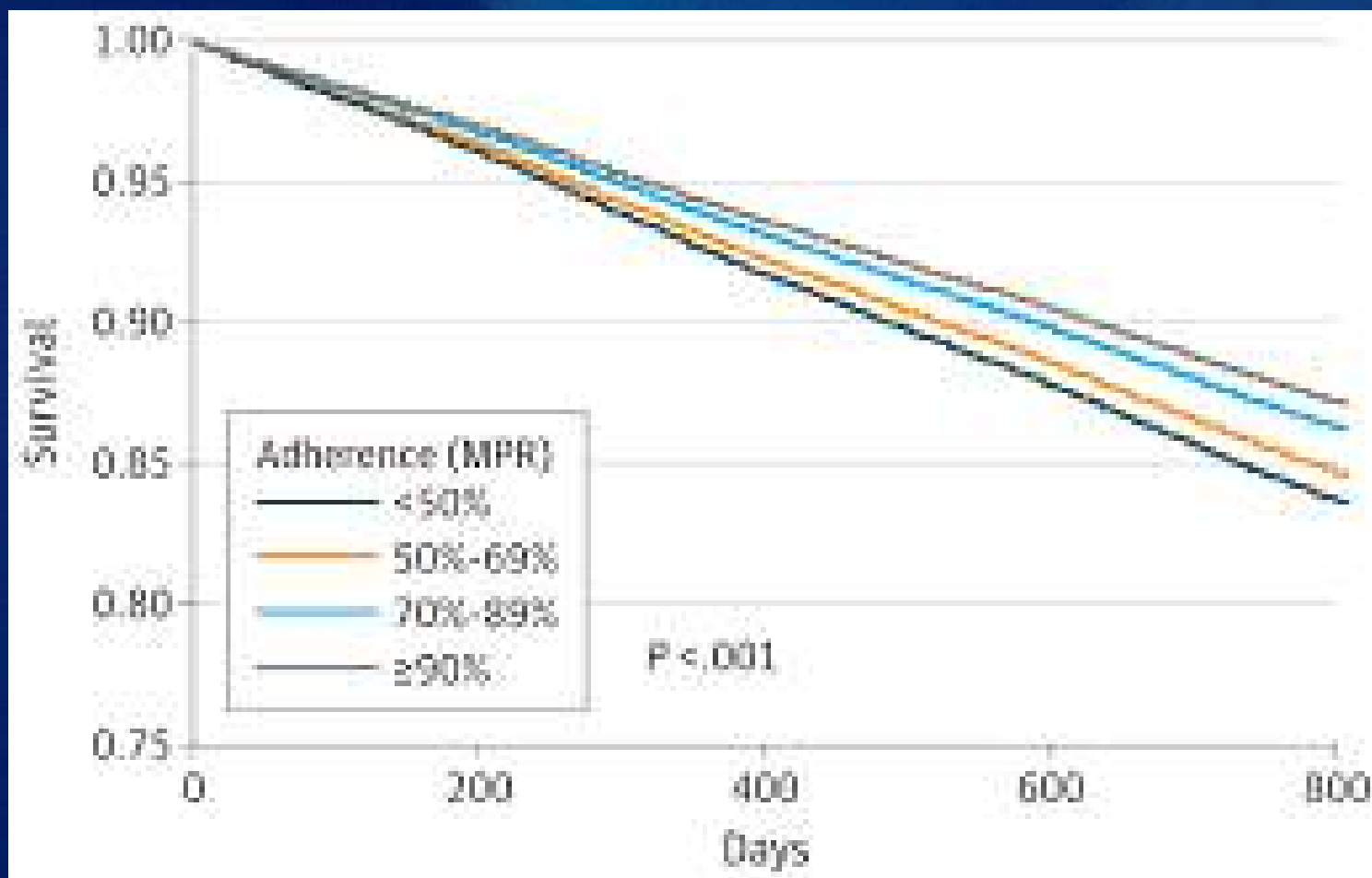
The Problem:

Measuring Effective Lifestyle Modification



Reeves GR et al *Arch Intern Med*
2008;168:2111-2117.

Statin Adherence and Mortality



Conclusions

- CV quality measurement remains as or more important than ever before
- Existing quality metrics are imperfect
- Future metrics should include
 - Patient functional outcomes/QOL/satisfaction
 - Care appropriateness/Costs
 - Longitudinal adherence + Risk modification
- Measuring and improving these CV quality metrics is challenging...But our patients deserve this

