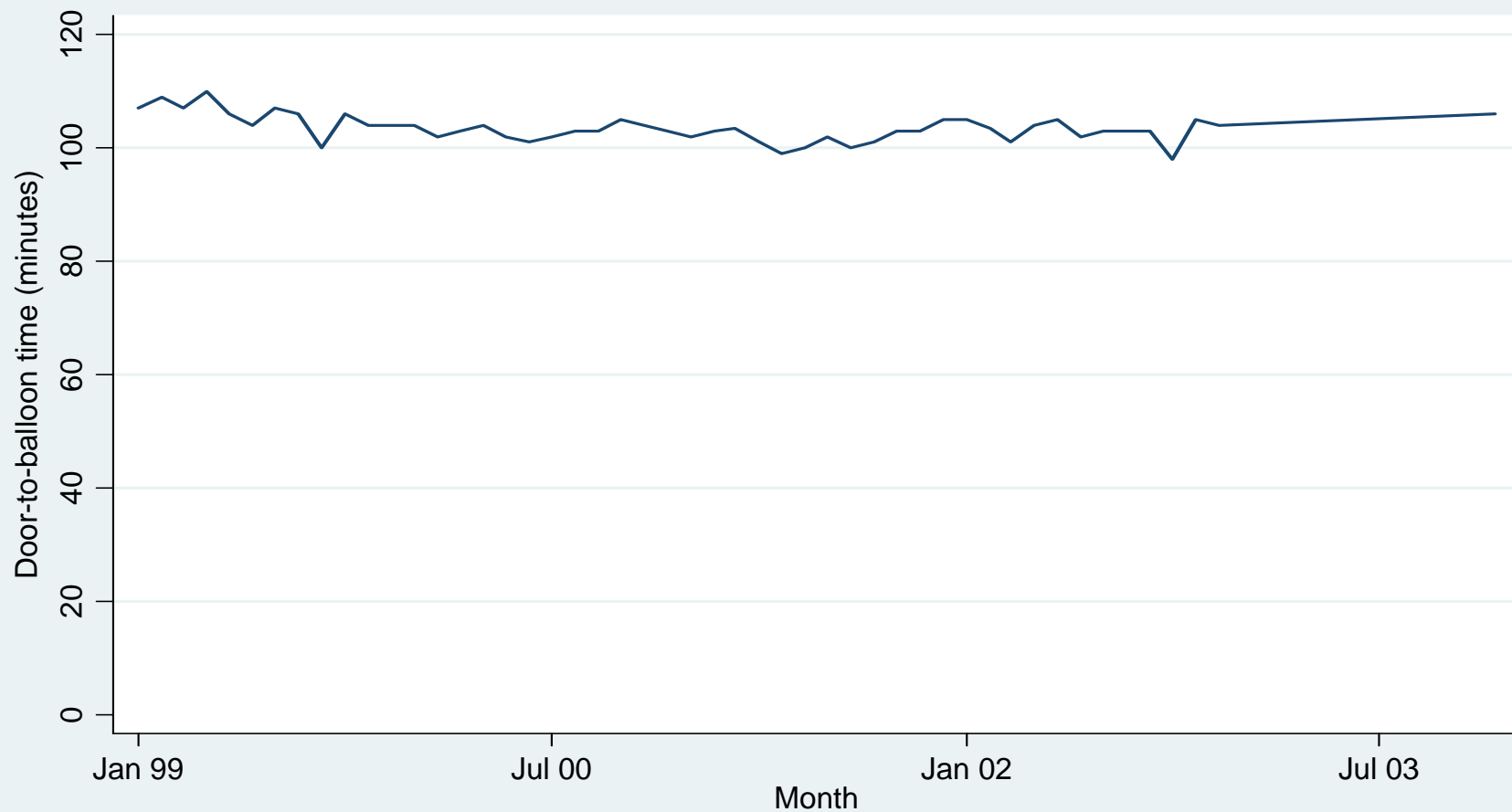# Core Measures to STEMI Systems That Work: Guidelines Update

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Disclosures

- No financial disclosures
- No conflicts of interest
- No off-label use

Was D2B performance flat-line?

CMS/Joint Commission Core Measures Door-to-Balloon Time

- Current criteria instituted January 2006
  - www.hospitalcompare.hhs.gov
- Median time from hospital arrival to PCI in patients with ST-elevation or LBBB on the ECG performed closest to hospital arrival time
- Proportion of patients receiving PCI within 90 minutes

ACC NCDR Cath-PCI Registry & D2B <90 min
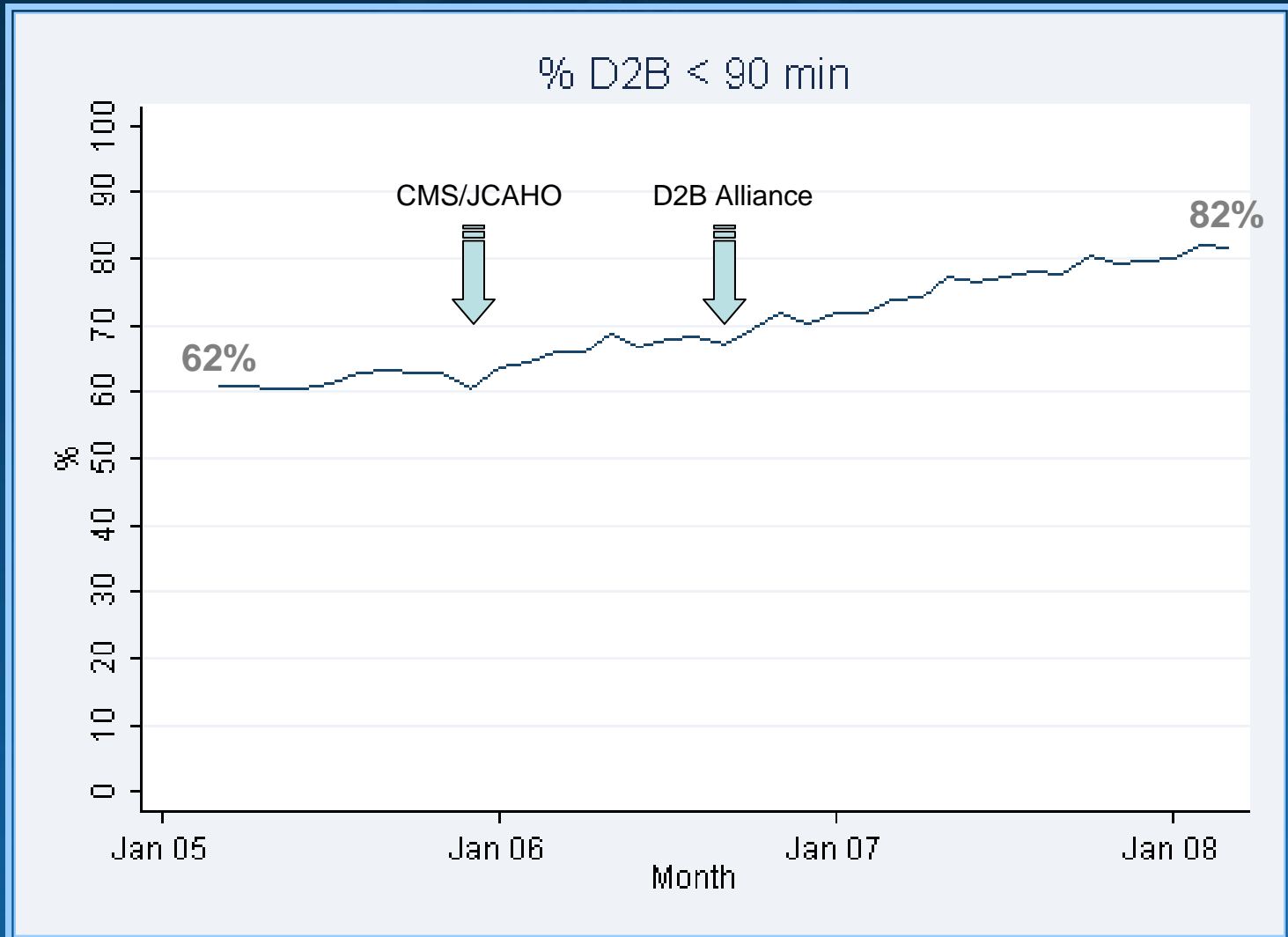
Shortcomings of Door-to-Balloon Measure

- Those who are excluded
  - ST elevation or new LBBB on subsequent ECG
  - In-hospital STEMI
  - Transferred patients
  - No reperfusion
  - Documented patient-related reason for delay (comfort measure, patient/family preference, cardiac arrest, critical diagnostic testing, vascular access)
- Assesses "process" of care (time to first balloon or device), not "outcome" of care (restoring normal flow)

STEMI FOCUSED UPDATE

2007 Focused Update of the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the Canadian Cardiovascular Society

Endorsed by the American Academy of Family Physicians

...roup to Review New Evidence and Update the
... Management of Patients With ST-Elevation Myocardial Infarction,
...n Behalf of the 2004 Writing Committee

...HA,
...Chair
...HA‡§

...HA**
...HA††

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*Chair of 2004 Writing Committee;
†Recused from voting on Section 8: Anticoagulants as Ancillary Therapy and Section 10: Anticoagulants;
‡Recused from voting on Section 5: Facilitated PCI;
§Canadian Cardiovascular Society Representative;
∥American Academy of Family Physicians Representative;
¶American College of Physicians Representative;
**Recused from voting on Section 7: PCI After Fibrinolysis or for Patients Not Undergoing Primary Reperfusion;
††Performance Measures Liaison;
§§Recused from voting on Section 13: Antiplatelet Therapy

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<u>2004 Guidelines</u>
52 pages; 207 references
220 Class I recommendations

<u>2007 Focused Update</u>
37 pages; 90 references
50 Class I recommendations

Guidelines provide "Recommendations" for care based on "Level of Evidence"

Class I	Class IIa	Class IIb	Class III
Benefit >>> Risk	*Benefit >> Risk* *Additional studies with focused objectives needed*	*Benefit ≥ Risk* *Additional studies with broad objectives needed; Additional registry data would be helpful*	*Risk ≥ Benefit* *No additional studies needed*
Procedure/Treatment **SHOULD** be performed/administered	**IT IS REASONABLE** to perform procedure/administer treatment	Procedure/Treatment **MAY BE CONSIDERED**	Procedure/Treatment should **NOT** be performed/administered **SINCE IT IS NOT HELPFUL AND MAY BE HARMFUL**

Level A:	Recommendation based on evidence from multiple randomized trials or meta-analyses Multiple (3-5) population risk strata evaluated; General consistency of direction and magnitude of effect
Level B:	Recommendation based on evidence from a single randomized trial or non-randomized studies Limited (2-3) population risk strata evaluated
Level C:	Recommendation based on expert opinion, case studies, or standard-of-care Very limited (1-2) population risk strata evaluated

PERFORMANCE MEASURES

ACC/AHA 2008 Performance Measures for Adults With ST-Elevation and Non–ST-Elevation Myocardial Infarction

A Report of the American College of Cardiology/American Heart Association
Task Force on Performance Measures (Writing Committee to Develop
Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction)

...the American Academy of
...College of Emergency Physicians

...ociation of Cardiovascular and Pulmonary Rehabilitation,
...ography and Interventions, and Society of Hospital Medicine

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David M. Shahian, MD, FACC

2008 Performance Measures
56 pages; 67 references
13 Performance Measures

Performance Measures

Rationale for performance measures:

1. The most important aspects of care related to patient outcomes (extending or enhancing life)
   - Simply a Class I (A) guideline recommendation not sufficient to be considered a performance measure

2. To be used for quality improvement
   - point out current gaps in quality of care
   - facilitate providers to implement strategies to improve quality of care

3. To be used for public reporting, external comparisons, or pay-for-performance programs

Ideal Attributes of Performance Measures

1. Evidence-based
    *   Scientific basis is well-established and confirmed by explicit reference to published practice guideline
2. Interpretable
    *   Degree with which a provider can clearly understand what the results mean
3. Actionable
    *   Degree with which a provider is empowered to take action and improve the system

Ideal Attributes of Performance Measures

4. Numerator and denominator are well-defined
5. Valid
   - Face validity: measures what it is intended to
   - Content validity: captures most meaningful aspects of care
   - Construct validity: correlates well with other measures of the same aspect of care
6. Reliable
   - Reproducible across organizations and delivery settings
7. Feasible
   - Data can be collected by data abstractors with reasonable effort, cost, and time period

2008 Performance Measures

MODIFIED MEASURES

1. Aspirin at arrival (within 24hrs)
2. Aspirin at discharge
3. β-blocker at discharge
   - ➢ β-blocker at arrival deleted
4. Statin at discharge
5. ACE-I or ARB at discharge for LVEF <40%
6. Smoking cessation counseling in-hospital
7. Door-to-drug ≤30min for fibrinolytic therapy
8. Door-to-balloon ≤90min for primary PCI

NEW MEASURES

9. Evaluation of LVEF
10. Cardiac rehab referral from in-hospital setting
11. Percentage receiving any reperfusion therapy (lytic, primary PCI, or transferred for primary PCI)
12. Door-in-door-out <30 min for patients transferred for primary PCI
13. First door-to-balloon <90min for patients transferred for primary PCI

Shortcomings of Door-to-Balloon Measure

- Those who are excluded
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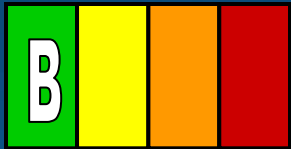
Patients Transferred for Primary PCI

Chakrabarti, A, J Am Coll Cardiol 2008;51:2442-2443
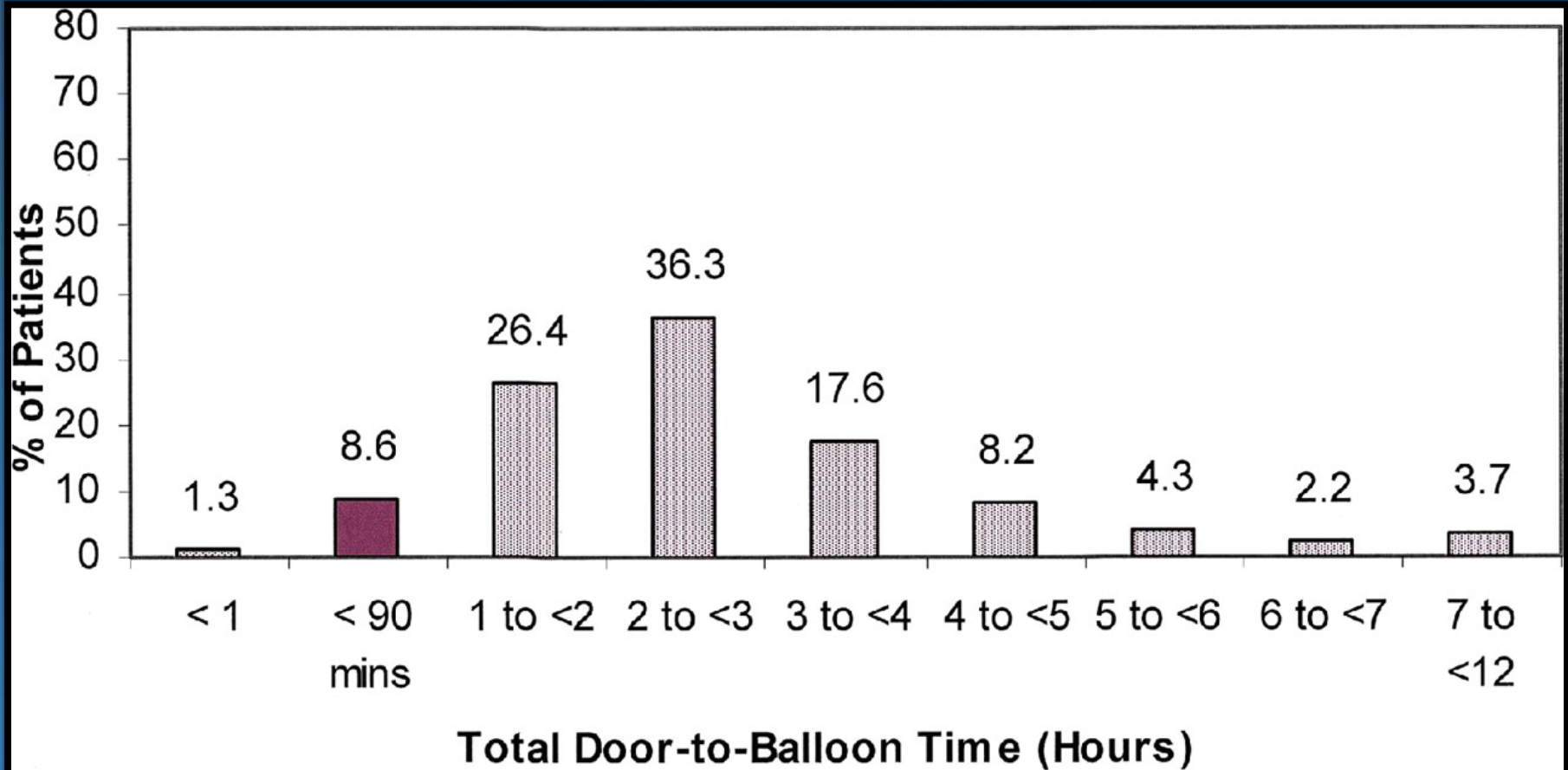
New Primary PCI Guidelines

I IIa IIb III

A
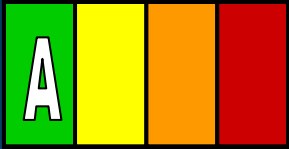
STEMI patients presenting to a <u>hospital with PCI</u> capability should be treated with primary <u>PCI within 90 min of first medical contact</u> as a systems goal.

I IIa IIb III

B

STEMI patients presenting to a <u>hospital without PCI</u> capability, and who cannot be transferred to a PCI center and undergo <u>PCI within 90 min of first medical contact</u>, should be treated with fibrinolytic therapy within 30 min of hospital presentation as a systems goal, unless fibrinolytic therapy is contraindicated.

New Performance Measures for Reperfusion Therapy

For patients transferred for Primary PCI:

1. "Door-in-door-out time" <30 min
   - Attributed to the transfer-out hospital
2. "1st door-to-balloon time" <90 min
   - Attributed to both the transfer-out and transfer-in hospitals
3. Report above measures separately for those patients with versus without contraindication to fibrinolytics

Shortcomings of Door-to-Balloon Measure

- Those who are excluded
    - ST elevation or new LBBB on subsequent ECG
    - In-hospital STEMI
    - Transferred patients
    - No reperfusion
    - Documented patient-related reason for delay (comfort measure, patient/family preference, cardiac arrest, critical diagnostic testing, vascular access)

% Eligible Patients Receiving any Reperfusion

Unadjusted and Adjusted Rates of Receiving Reperfusion Therapy Across the 3 Time Periods

Nallamothu BK, Am J Med 2007;120:693-699
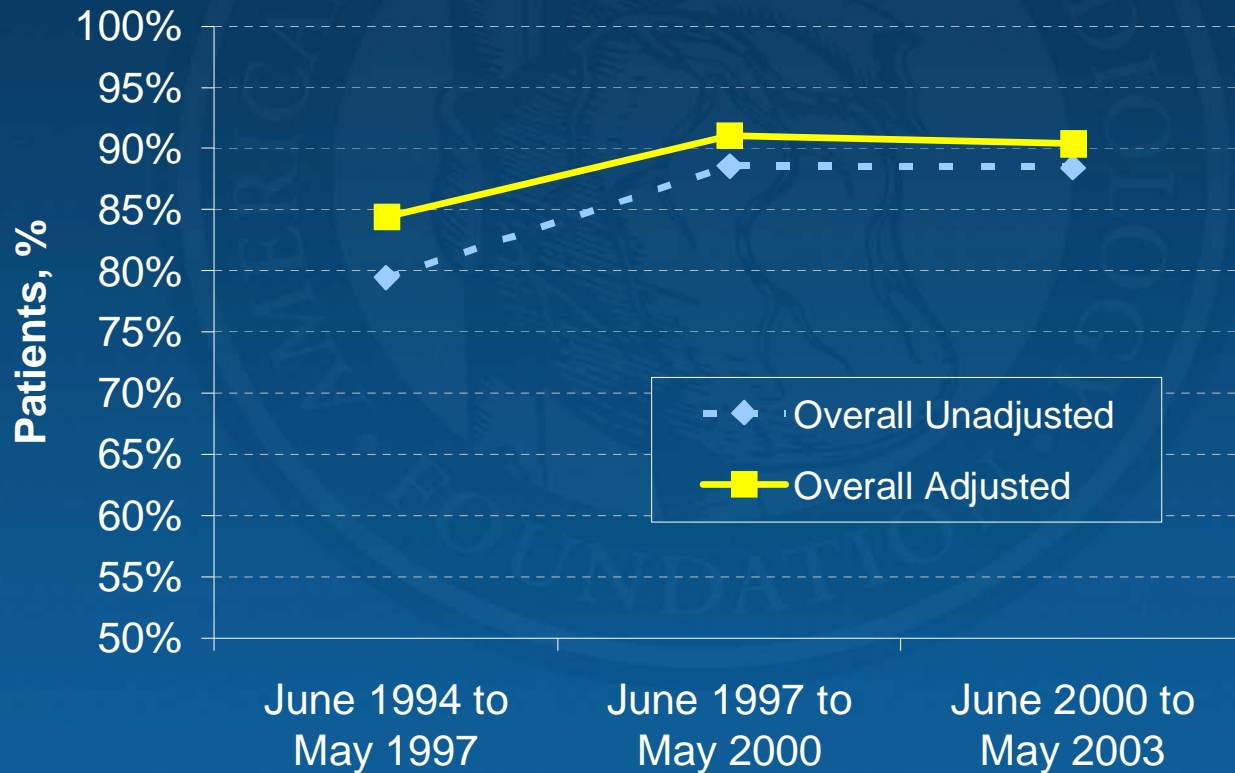
Numerator versus Denominator – What are we reporting?

- All STEMI patients (N=1000)
- Those who survive to hospital door (0.7xN=700)
- Those who get any reperfusion (0.9x0.7xN=630)
- Those who get 1° PCI (0.8x0.9x0.7xN=504)

Future Challenges Performance Measures

1. How to attribute to accountable parts of the system
2. Appropriateness of reperfusion
   - Underuse (no reperfusion)
   - Overuse (fibrinolytic in a NSTEMI)
   - Misuse (DTB >90min or >120 min in a lytic-eligible patient)
3. Time from first medical contact to reperfusion
4. Time to reperfusion for in-hospital STEMI
5. Gaming and creative documentation

The Next Frontier in Quality

Assessing Dimensions of Quality

1.   Structure
2.   Process
3.   Outcomes
4.   Efficiency

The Next Frontier in Quality

Assessing Dimensions of Quality
1. Structure
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Outcomes

1.   30-day risk-stratified mortality rate
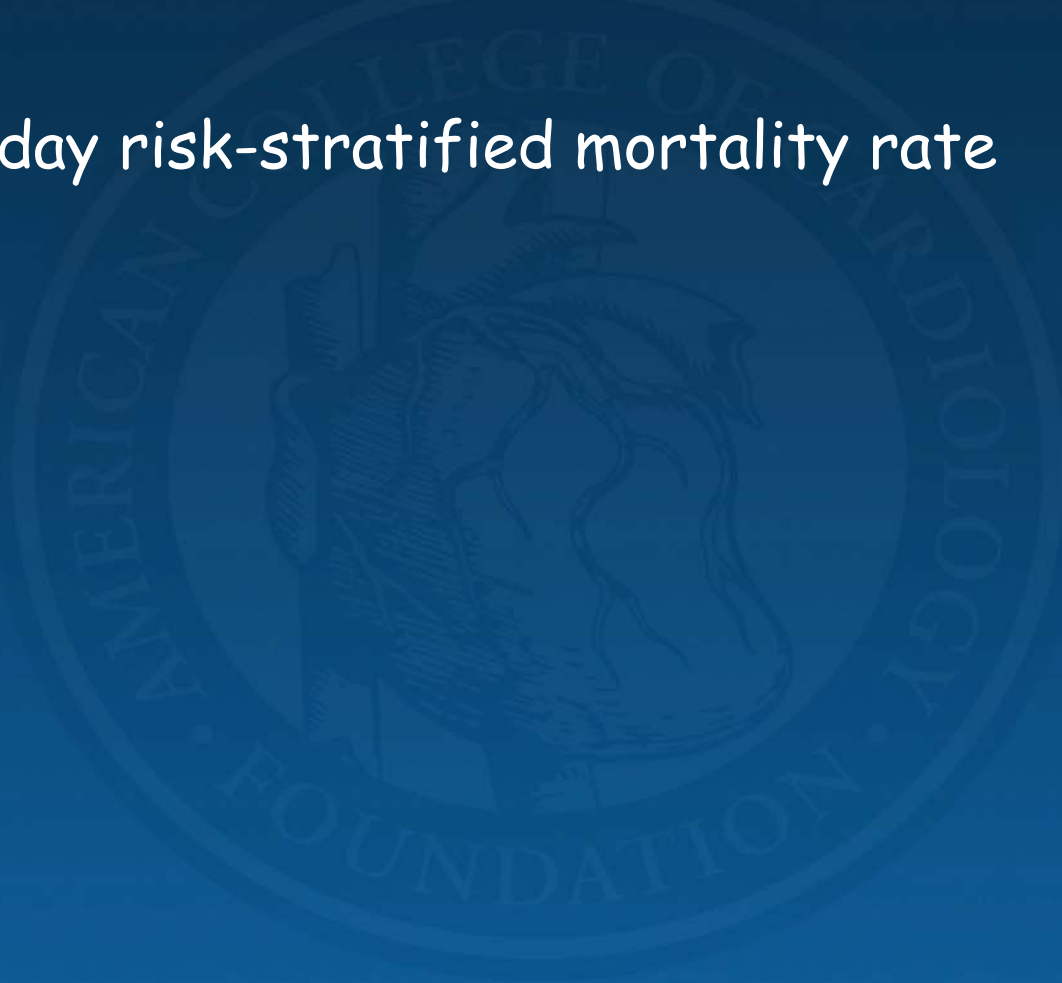
# 30-day Risk-Stratified Mortality Rates (2006-2007)
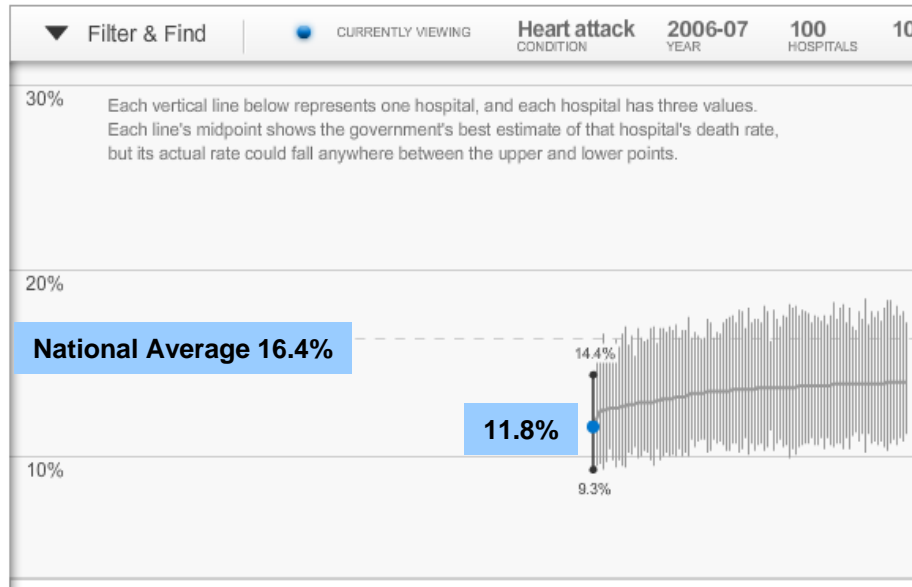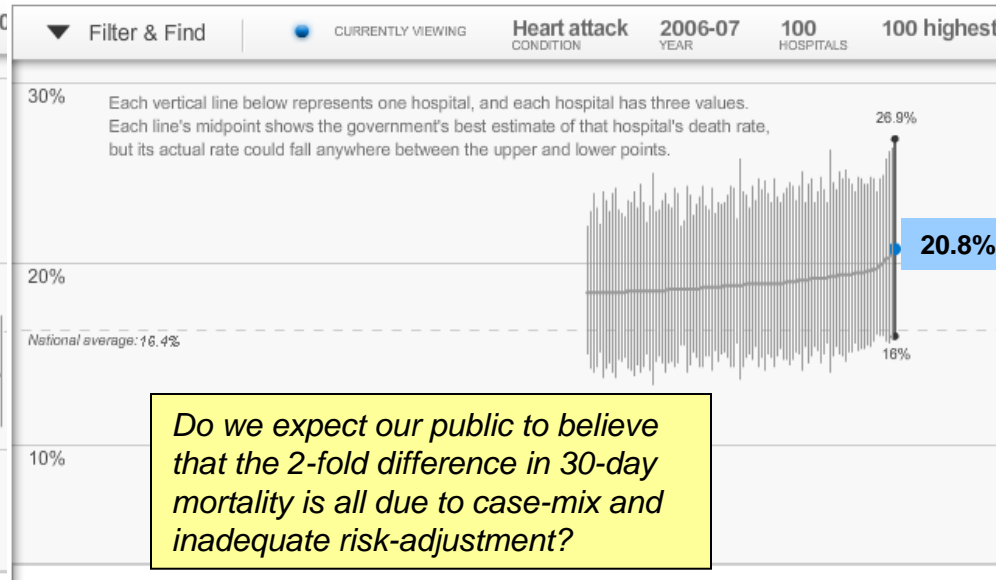
Efficiency

1. Efficiency = Benefit to Customer / Cost / Time
2. We often cannot agree on "what" & "how" to measure benefit (quality, safety, outcomes, or service) – But measures of costs, resources used, or time (length of stay) associated with an episode of care are readily available
3. At the system- and provider-level

Efficiency

4. Current problems with efficiency measures:
    - Multiplicity of perspectives (patients, providers, payers, purchasers, and regulators)
    - Gap between peer-reviewed measures versus those in use
    - Silence of the quality dimension in efficiency measures
    - Dearth of validation and evaluation

Efficiency

1. 30-day risk-stratified re-hospitalization rates (AMI, CHF, PCI)
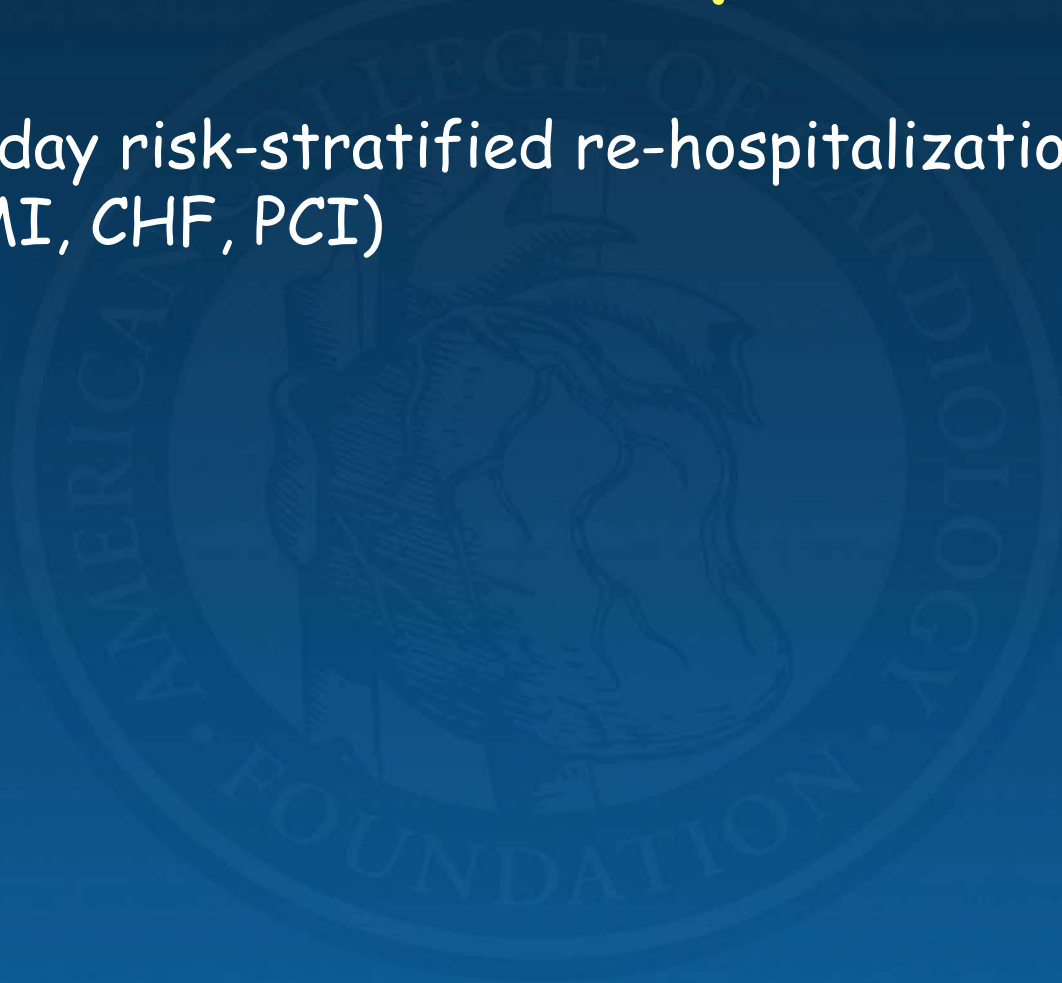
Delivery System Models for Care Coordination
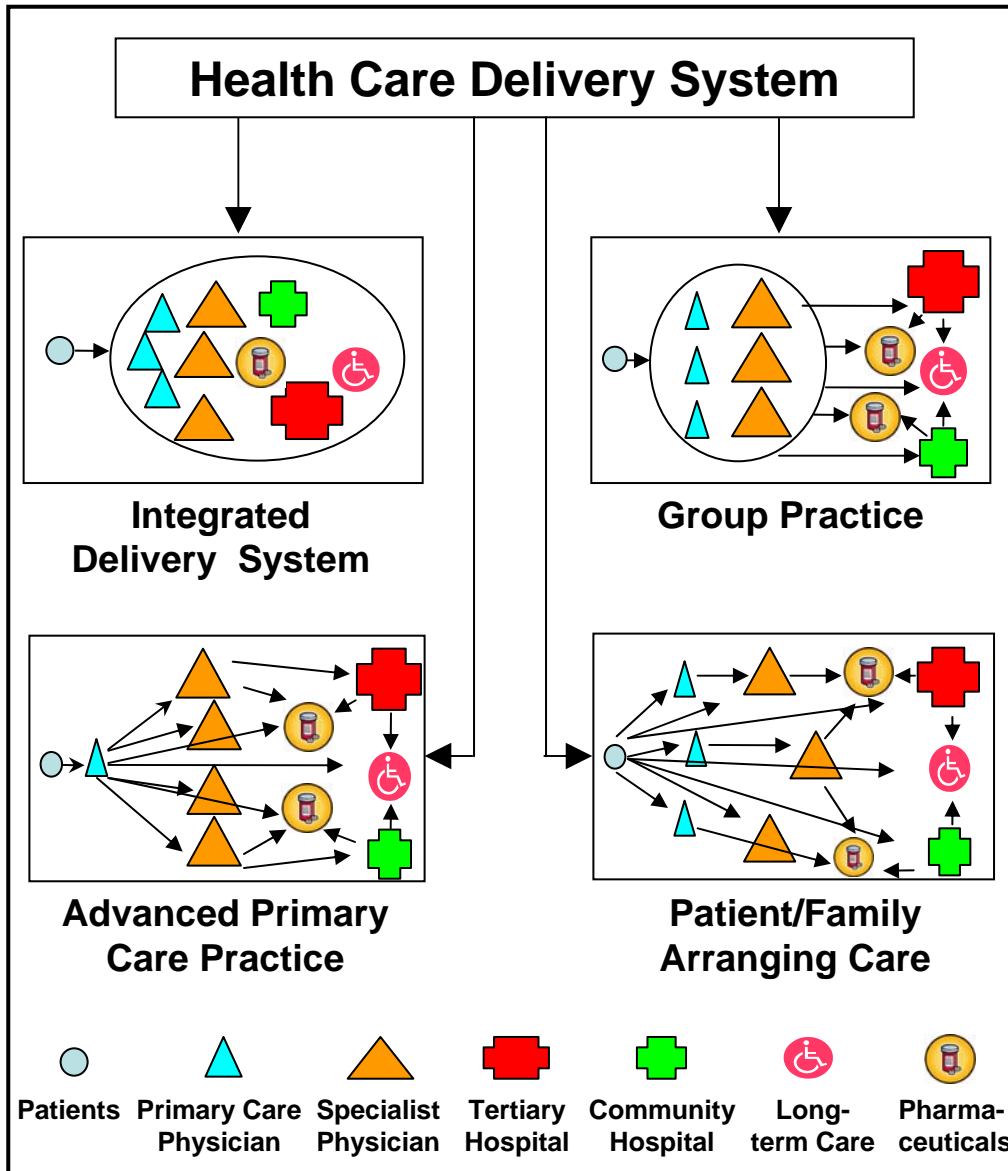
- **Incentives for public and private insurance enrollees to designate medical home with:**
  - **an advanced primary care practice;**
  - **a group practice; or**
  - **an integrated delivery system**

- **New payment methods for delivery systems assuming accountability for total patient care, patient outcomes, and resource use**

- **Performance standards for each of these delivery systems**

- **Funding for regional or state efforts to provide primary care practices with:**
  - **IT network portal and IT support;**
  - **case management support;**
  - **after-hours access;**
  - **QI and care redesign; and**
  - **data reporting and profiling feedback**

Karen Davis. *The Path to a High Performance U.S. Health System: A 2020 Vision and the Policies to Pave the Way*, February 2009