

# Public Reporting on Provider Quality:

## What We Know

## What We Need to Know

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# USA: The role of public reporting

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Market-oriented versus public service-oriented goals:

- ◆ Empower consumers to demand better health care, making better informed choices that maximize their utility (directly or through primary care physicians)
- ◆ Provide information so “smart purchasers” and/or “smart payers” can make informed choices on behalf of consumers
- ◆ Encourage professionals to recognize and fix deficiencies in health care quality (self-regulatory behavior)

# Empowering consumers

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Evaluations of the impact of hospital report cards on hospital volume have generally shown modest effects:

- ◆ **Vladeck et al:** No changes in occupancy rates in NYC hospitals after 1985 HCFA mortality release (14 high-mort, 9 low-mort).
- ◆ **Mennemeyer et al:** No effect of outlier status in 1986-92 HCFA mortality releases, but doubling the ISMR was associated with 46 fewer discharges/yr (<1% decrease) in a fixed effects model with a lagged dependent variable (vs. 9% decrease after press reports).
- ◆ **Mukamel & Mushlin:** No significant effects of 1990-92 NY CABG reports on hospital market share, but 1% higher mortality rate was associated with 7.0% (1991-92) or 2.7% (1992-93) loss of market share for surgeons.

# Do Well-Publicized Risk-Adjusted Outcomes Reports Affect Hospital Volume? (Romano and Zhou)

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Consider outcomes of hospital report cards in CA and NY:

- ◆ Do hospitals publicly recognized for good or poor performance experience volume changes in the year after publication?
  - Are these volume effects immediate or delayed?
  - Are these volume effects transient or persistent?
- ◆ Do favorable outliers attract more patients with related conditions ("spillover") and more patients from outside their usual catchment areas ("bypass")?
- ◆ Are socioeconomically disadvantaged persons less responsive to report cards?

# Methods: Target, Related, Unrelated Conditions

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## ◆ **Acute myocardial infarction (CA; 1993, 1996)**

Target – AMI

Related – CABG, PTCA, CHF

## ◆ **Diskectomy (CA; 1993)**

Target – Cervical, Lumbar

Related – Other back/neck procedures w/out diskectomy, medical back admissions, TKA, THA

## ◆ **Coronary artery bypass surgery (NY; 1992-96)**

Target – CABG

Related – AMI, PTCA, CHF

# Methods: Regression Models

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- ◆ Estimated hospital-level time-series models based on months prior to each report; then estimated expected volume for each later month based on values of independent variables in those months
- ◆ Used OLS models in NY; both OLS and autoregressive models in CA due to significant first order autocorrelation
- ◆ Stratified volume by age, race/ethnicity, insurance status, catchment area (2 definitions based on zip of residence)
- ◆ Adjusted for statewide hospital volume in that month (prevalence), hospital effects, unrelated volume in that hospital-month (reflecting overall market and referral network characteristics), hospital charges (marginal and inconsistent effects), and interactions.

# Mean difference between actual and OLS predicted monthly patient volume for outlier hospitals after 3 CABG report cards, NY

Condition	Month 1	Month 2	Month 3	Month 4
CABG (Better)	<b>13.45</b>	5.55	6.73	2.96
CABG (Worse)	-4.04	<b>-7.11</b>	-2.66	-0.93
AMI (Better)	-4.93	-1.44	-1.95	0.55
AMI (Worse)	<b>-4.53</b>	-1.24	-1.61	<b>-6.00</b>
PTCA (Better)	3.75	1.12	0.60	-1.15
PTCA (Worse)	-2.62	-1.43	0.36	-2.07
CHF (Better)	-2.81	-3.97	-0.52	-1.72
CHF (Worse)	-0.98	-1.97	-1.73	-0.07

# Summary of effects: NY

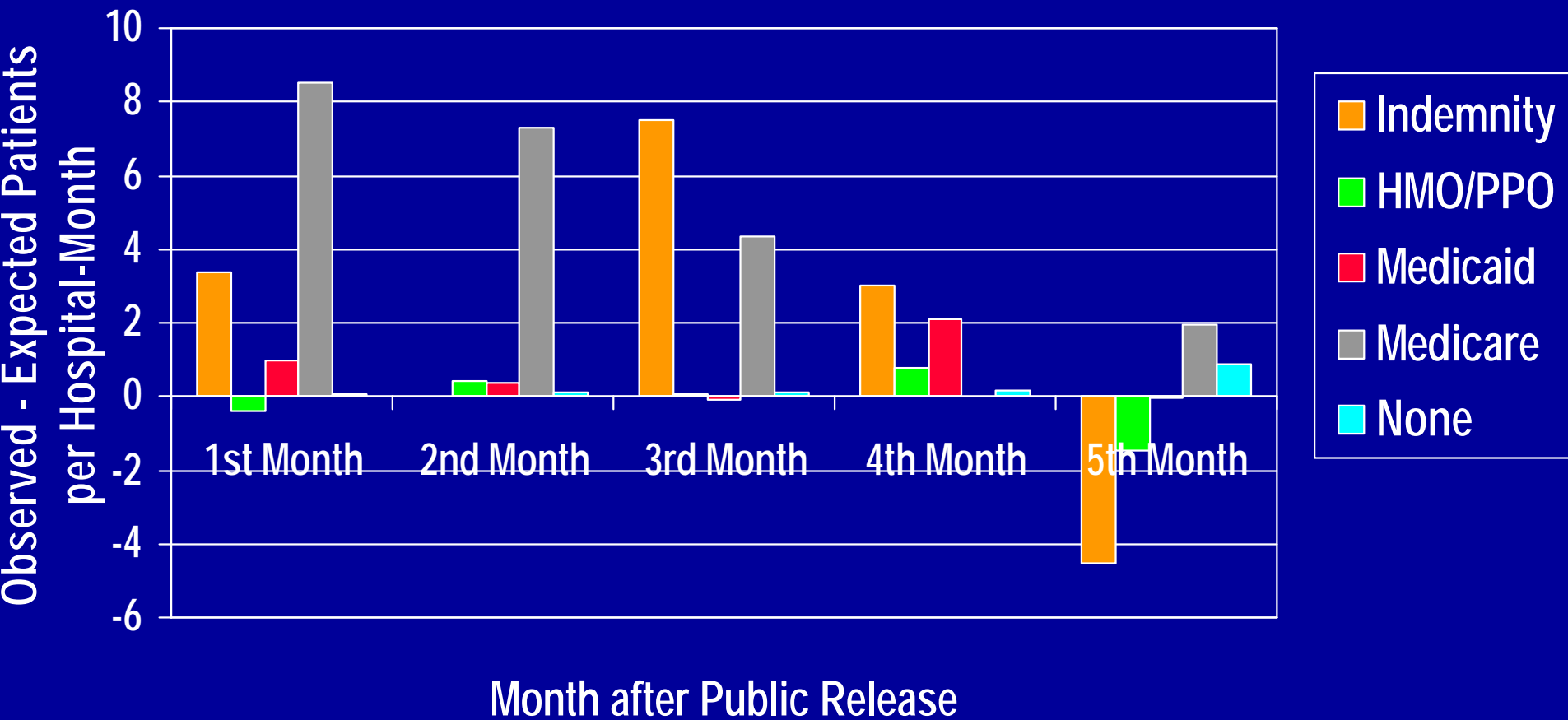
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- ◆ **Good CABG outliers:** The average hospital admitted 74.5 CABG patients during the 1<sup>st</sup> month after release, versus 61.1 expected by OLS (22% increase; net effect +24 pts)
- ◆ **Poor CABG outliers:** The average hospital admitted 56.7 CABG patients during the 1<sup>st</sup> and 2<sup>nd</sup> month after release, versus 67.8 expected by OLS (16% decrease)
- ◆ **Spillover effect only for AMI admissions at poor CABG outliers:** The average hospital admitted 104.3 AMI patients during the first 6 months after release, versus 86.0 expected by OLS (18% decrease)



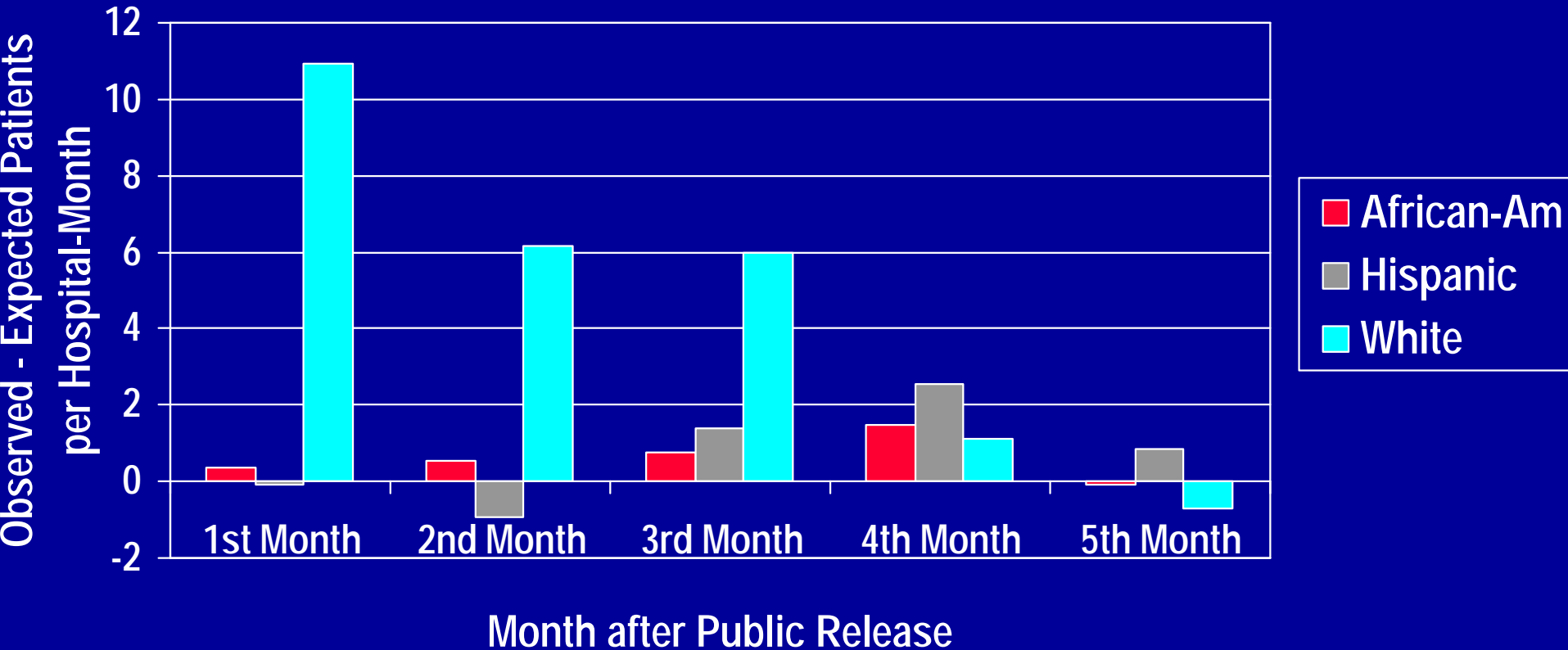
# Volume effects by patient characteristics

NY, CABG volume, low-mortality hospitals, OLS model



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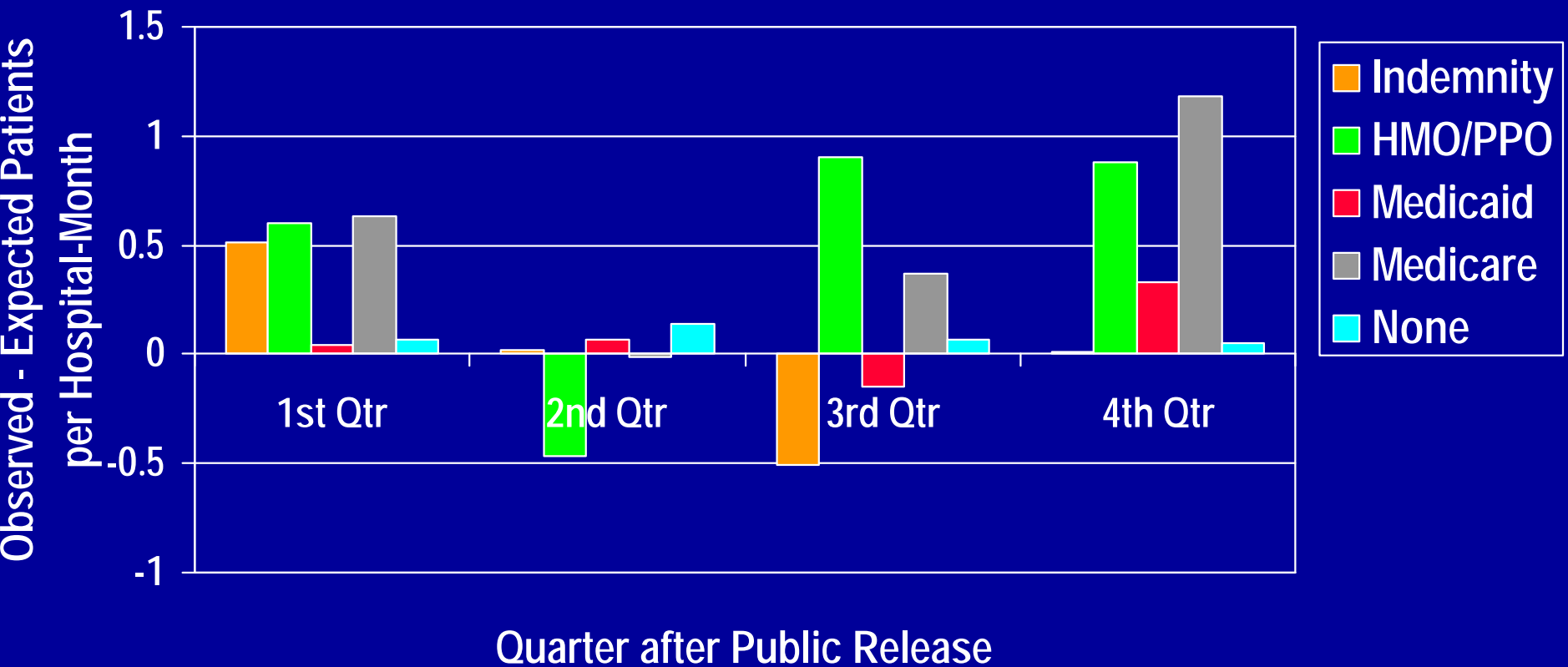


# Mean difference between actual and ARIMA predicted monthly patient volume for outlier hospitals after 3 AMI report cards, CA

Condition	Quarter 1	Quarter 2	Quarter 3	Quarter 4
AMI (Better)	1.93	-1.14	-0.56	1.12
AMI (Worse)	0.67	1.04	0.03	0.65
AMI-related (Better)	-1.10	4.19	3.75	-0.07
AMI-related (Worse)	1.04	0.36	-0.38	-0.97
Cervical (Better)	0.22	-0.30	-1.61	-0.59
Cervical (Worse)	-0.97	0.34	1.07	0.86
Lumbar (Better)	<b>0.58</b>	0.30	0.52	<b>0.78</b>
Lumbar (Worse)	-0.13	-0.13	-0.31	-0.52
Disk-related (Better)	0.36	-0.87	-1.15	0.36
Disk-related (Worse)	<b>-1.37</b>	0.18	0.03	0.24

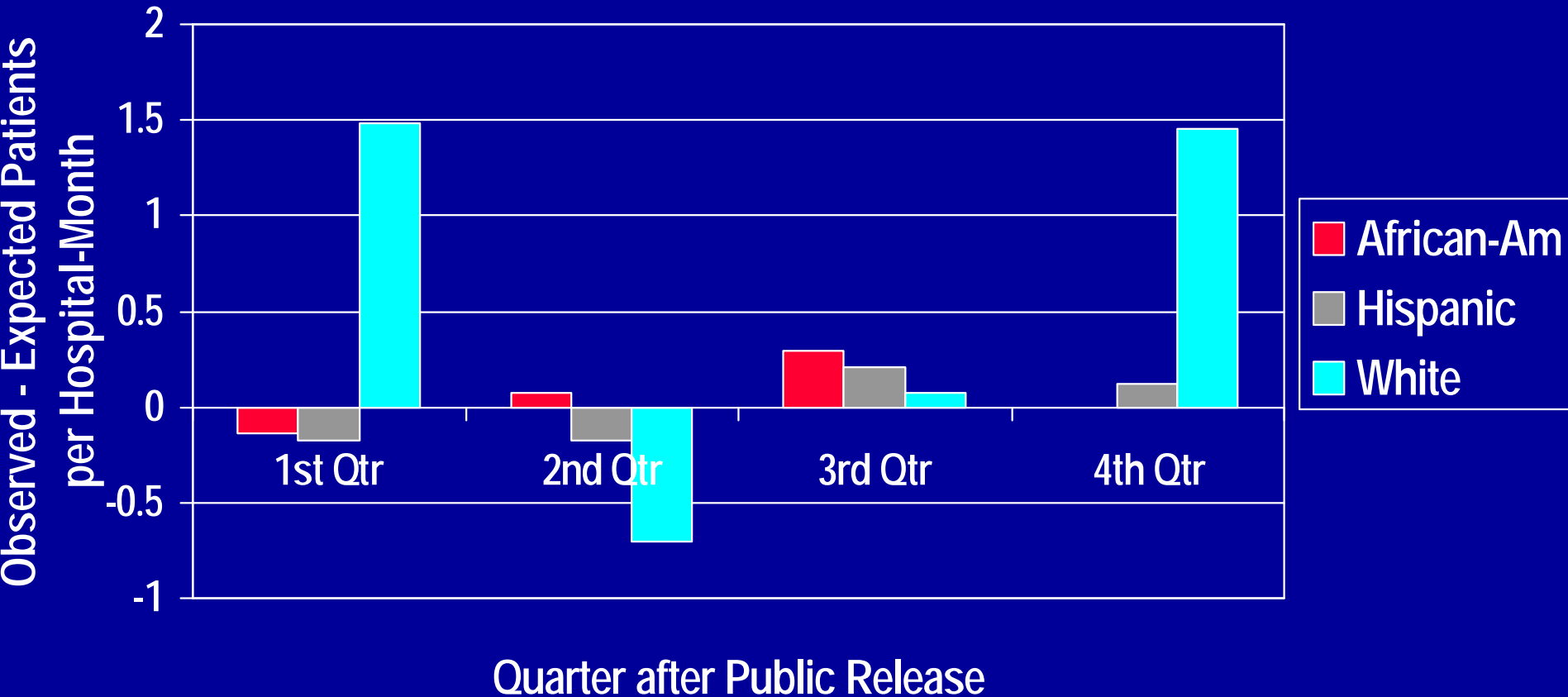
# Volume effects by patient characteristics

CA, AMI volume, low-mortality hospitals, ARIMA model



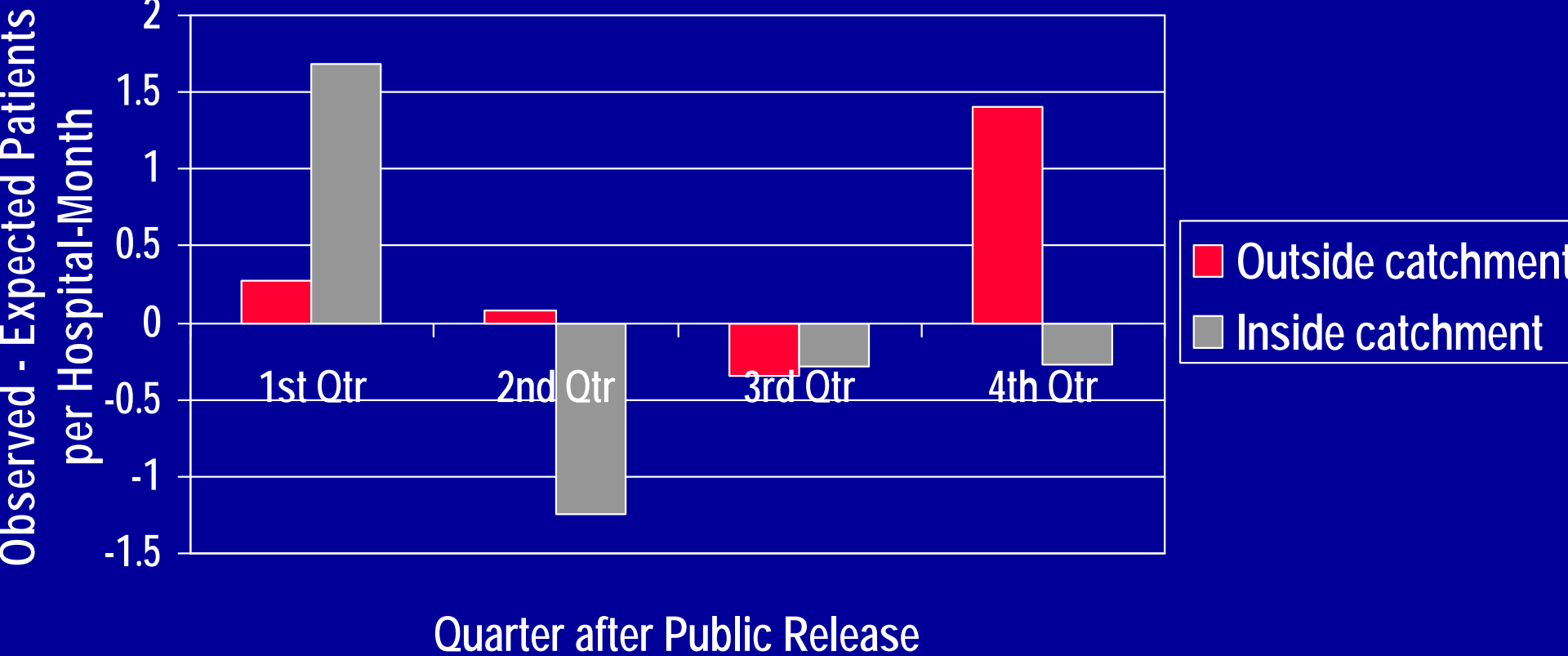
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CA, AMI volume, low-mortality hospitals, ARIMA model



## Empowering consumers: The BHCAG experience

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Members of the Buyers' Health Care Action Group (BHCAG) select from among 16 competing care systems in the Minneapolis-St. Paul area ("Choice Plus").

- ◆ Fowles (randomized controlled field trial with volunteer participants): BHCAG care system report card increased self-reported knowledge and anticipated switching to care systems rated above average, but did not affect the overall likelihood of switching care systems. Report card recipients were more likely to report that information about cost was "not very important" in selecting a care system.

# Reaching consumers: what works

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- ◆ Comprehension contributes to perceived salience (i.e., undesirable event indicators)
- ◆ Problems of agency: who is responsible for what?
- ◆ Credibility of source
- ◆ Context information important, especially negative framing
- ◆ Efficacy messages may help less educated consumers
- ◆ Evaluability of information (visual cues, ordering, discriminating performance levels, summarization vs. disaggregation)
- ◆ Cost and covered benefits may still dominate quality



# How smart can smart purchasers be?

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- ◆ **Gabel et al:** "Objective information about quality, such as accreditation and HEDIS data, is rarely used by employers when making health care purchasing decisions."
- ◆ **Hibbard et al:** Purchasers in CA, NY, PA, and Cleveland used HEDIS (50-60%), CAHPS-type data (43-83%), and NCQA accreditation (43-67%), but not hospital report cards (0-20% except Cleveland). They expressed concerns about timeliness and validity, and preferred to let health plans monitor providers.
- ◆ **Dudley et al:** Purchasers suffer from confusion about multiple goals, uncertainty about best quality measures, difficulty interpreting data, skepticism about steerage and economic incentives, changing balance of power and variable clout.

# Are health plans contracting based on quality?

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- ◆ **Schulman et al:** In a case study of 3 markets, only the most “mature” (49% HMO penetration) had “sophisticated” contracting arrangements in which HMOs selected hospitals for tertiary care based on both price and quality, using data from multiple sources.
- ◆ **Mukamel et al:** 60% of MCOs in NY say quality is “most important factor” in selecting cardiac surgeons, but only 66% of those reviewed CABG reports and only 47% would pay \$1,000. Contracting choices were random wrt RAMR, but showed slight (8%) preference for high-quality outliers.

# Mean ratings (0-5) of the importance of factors in contracting decisions by health plan executives in CA (n=30, 64% response)

<b>Factor</b>	<b>Mean</b>	<b>% very important</b>
JCAHO accreditation status (full, provisional)	4.80	100
Hospital location (ease of access for members)	4.60	100
Price (negotiated payment rate)	4.33	96
Disciplinary actions by federal/state (e.g. HCFA)	4.33	90
Reputation of the hospital	4.13	83
Commitment to quality improvement processes	4.03	80
Member satisfaction with hospital	3.97	67
Long-standing relationship with hospital	3.73	67
Frequency of malpractice judgements	3.70	67
Readmission rates	3.67	63
Organ transplant success rates	3.63	70

# Mean ratings (0-5) of the importance of factors in contracting decisions by health plan executives in CA (n=30, 64% response)

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Factor	Mean	% very important
Average length of stay	3.57	57
Accuracy of claims submitted	3.53	46
Mortality rates following AMI, CABG, other	3.50	57
Performance on HEDIS 3.0 indicators	3.20	43
Incidence of procedures that may be overused	3.20	43
Development and adherence to practice guidelines	3.07	37
Rates of preventable complications	3.03	27
Process of care info (e.g., thrombolytic use)	2.93	23
Membership in multi-hospital system or network	2.80	17
Recommendation of a consultant	2.27	17
INDEX of 5 data-based hospital quality indicators	3.39	50

# Hospitals and doctors pay attention

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- ◆ **Schneider & Epstein:** All cardiac surgeons and most cardiologists aware of CABG reports, but they complain about methods and report minimal (2%) influence on referrals and few discussions with patients. Discrimination against sickest patients reported by both cardiologists and surgeons.
- ◆ **Hannan; Burack:** Cardiologists and cardiac surgeons familiar with CABG reports, but raise concerns. 22% of cardiologists routinely discuss with patients, 38% report some effect on referrals.
- ◆ **Bentley & Nash:** PA hospitals more likely than NJ hospitals to use performance data to recruit surgeons and monitor their performance, but both reported using data to make operational changes to improve clinical care for cardiac surgery patients.

# Mean ratings (0-4) of the overall quality of the 1996 CHOP AMI report among 274 hospital administrators in CA (73% response)

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## Mortality outlier status

Low (p<.01)	2.2
Nonoutlier	1.4*
High (p<.01)	0.9

## AMI volume (1991-93)

Low (<87 pts)	1.5
Medium (87-206 pts)	1.5
High (>206 pts)	1.3

\* differs from low-mortality and high-mortality hospitals, p<.001

# Mean knowledge scores regarding risk-adjustment methods (0-4) among 274 hospital administrators in CA (73% response)

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## Mortality outlier status

Low (p<.01)	2.9*
Nonoutlier	2.0
High (p<.01)	1.7

## AMI volume (1991-93)

Low (<87 pts)	1.6**
Medium (87-206 pts)	2.1
High (>206 pts)	2.2

\* differs from nonoutlier and high-mortality hospitals, p<.004

\*\* differs from medium and high volume hospitals, p<.01

# Semi-structured telephone interviews with 39 CQI leaders in CA hospitals after the 1996 CHOP AMI report (84% response)

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Two-thirds of hospitals took no specific action besides reviewing, disseminating, and/or discussing the report/data

Examples of specific actions taken:

- ◆ Review of AMI cases, which led to new or refined critical pathways, with protocols for rapid evaluation and treatment in the ER
- ◆ Evaluation of use and timeliness of thrombolysis in the ER (n=3)
- ◆ Change of medical staff assigned to treating AMI in the ER (n=2)
- ◆ Activities to improve coding (e.g., review cases, hire consultant, advise physicians on improved documentation) (n=3)



# Observational studies of impact on provider outcomes

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- ◆ **Longo et al:** MO obstetric consumer guide stimulated increases in specific services (follow-up, car seats, lactation educator), especially in competitive markets and hospitals with low satisfaction ratings
- ◆ **Hannan et al:** 41% decrease in risk-adjusted CABG mortality 1989-92 in NY (21% decrease in actual mortality)
- ◆ **O'Connor et al:** 24% decrease in risk-adjusted CABG mortality after NNE program (without public reporting)
- ◆ **Ghali et al:** Similar decrease in CABG mortality in MA, without reporting
- ◆ **Peterson et al:** 33% decrease in unadjusted 30-day Medicare CABG mortality in NY vs. 19% nationwide
- ◆ **Baker et al:** Decreased in-hospital mortality for medical conditions in Cleveland, but decreased LOS and no change in 30-day mortality

# Newest studies of impact on providers

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- ◆ **Kessler & Dranove:** Public reporting on CABG in NY and PA associated with decreased mean severity (crudely measured), decreased hospital-level heterogeneity in severity, increased severity (CABG, AMI) at teaching hospitals, increased use of CABG after AMI in low-risk patients, decreased 30-day mortality
- ◆ **Hibbard et al:** Public reporting associated with significantly more obstetric QI activities (among subset with poor scores in public report), special focus on reducing postpartum hemorrhage, and significantly more QI activities to reduce cardiac complications. Private reporting associated with modest effect.

# Conclusions for consumers

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- ◆ Observed effects of report cards on consumer choice are small, transient, and hard to demonstrate in practice.
- ◆ Matching of high-risk patients may improve, but disparities may increase.
- ◆ Consumers may not have access to the information when it is needed, because of brief/ineffective publicity surrounding each public release.
- ◆ Consumers may not view risk-adjusted mortality as salient, because they do not have the condition or do not perceive themselves to be at risk.
- ◆ Consumers may be more inclined to believe information obtained from such trusted sources as physicians, friends, and family members.
- ◆ Consumers may misinterpret mortality data and accept defensive arguments put forward by poorly rated hospitals.
- ◆ Consumers may reject the premise that quality varies across hospitals.
- ◆ Consumers may not be able to express voluntary choice because of established relationships, limited networks, and geographic constraints.

# Conclusions for purchasers/payers

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- ◆ There are significant barriers to the use of hospital performance information by managed care organizations.
- ◆ In some markets, MCOs face pressure from employers and consumers to offer maximum choice by contracting with all hospitals. Other MCOs are inherently tied to specific hospitals.
- ◆ It is unclear whether employers are actually delegating health plans the responsibility for steering consumers to higher quality hospitals.
- ◆ If employers select health plans based on price, member satisfaction, and network size, then it's not surprising that health plans choose hospitals in a similar manner.

# Conclusions for providers

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- ◆ Hospital leaders have grown to accept (grudgingly) public disclosure of risk-adjusted outcomes data, although they often assume that these data are not adjusted for age, comorbidities, and other factors.
- ◆ Hospitals that are poorly rated often criticize the messenger and attempt to discredit the report, instead of examining their own practices.
- ◆ Publicly reported outcomes data have stimulated hospitals to develop QI activities and improve quality of care for future patients, but population benefits have been more difficult to demonstrate.
- ◆ Selection effects remain controversial.
- ◆ Current hospital outcomes reports do not meet the informational needs of the individuals on the front lines, due to time delays and failure to integrate process and outcomes data.

# What we need to know

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- ◆ **Consumers:** How will consumers use information about physicians? How do consumers use report cards when they are making real decisions in real-world experiments? Are the measures and formats that appear to have greatest salience and evaluability in laboratory experiments actually the most influential?
- ◆ **Purchasers and health plans:** How can we increase perceived importance and usefulness of quality reports? How can we overcome adverse market conditions?
- ◆ **Providers:** Are QI efforts "real" or "show"? Are these QI efforts causally related to better outcomes? Are there unanticipated negative consequences? How can we motivate all providers to pay attention, overcome the defensiveness of low-scoring providers, and promote linkages with modifiable processes of care?