

# HQID Hospital Performance Update & Analysis of Quality, Cost and Mortality Trends Fact Sheet

## I.) Performance of Hospitals in the Hospital Quality Incentive Demonstration over 15 Quarters\* (pages 2-5)

Launched in October 2003 by the Premier healthcare alliance and the Centers for Medicare and Medicaid Services (CMS), the Hospital Quality Incentive Demonstration (HQID) pay-for-performance project is the first national project of its kind designed to determine if economic incentives to hospitals are effective at improving the quality of inpatient care.

The more than 250 participating hospitals report process and outcome measures in five clinical areas – acute myocardial infarction (AMI), congestive heart failure (CHF), coronary artery bypass graft (CABG), pneumonia, and hip and knee replacement.

Performance by the HQID hospitals is also compared to non-HQID hospitals that publicly report on 19 overlapping, publicly reported quality indicators over two years.

*\* Last 7 quarters awaiting CMS validation*

## II.) Quality, Cost, Mortality Trend Analysis over 12 Quarters of the Hospital Quality Incentive Demonstration (pages 6-7)

The second study assesses the association between quality improvement and cost and mortality within participating HQID hospitals.

This research found an association between quality improvement and reduction in mortality as well as costs. According to Premier's analysis, if all hospitals nationally were to achieve the three-year cost and mortality improvements found in HQID participants for pneumonia, heart bypass, heart failure, heart attack (acute myocardial infarction), and hip and knee replacement patient populations, it could have resulted in:

- Nearly 70,000 fewer deaths annually;
- A reduction in hospital costs by as much as \$4.5 billion annually.

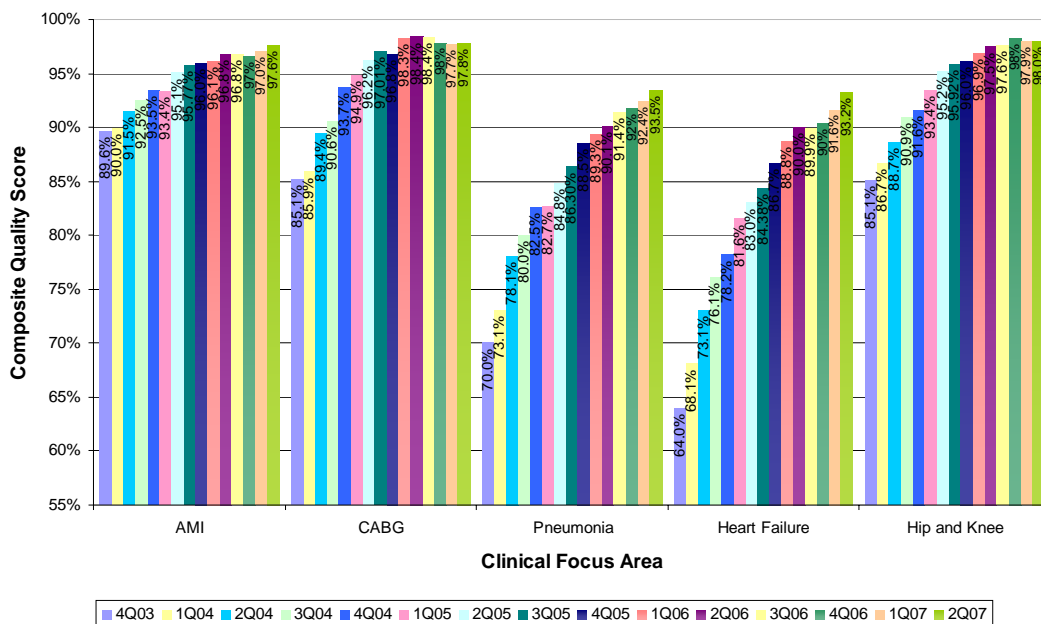
# HQID Hospital Performance Update

## Composite Quality Scores for 15 Quarters

For hospitals participating in the Premier healthcare alliance, Centers for Medicare and Medicaid Services (CMS) Hospital Quality Incentive Demonstration (HQID) pay-for-performance project, the median composite quality scores (CQS), a combination of clinical quality measures and outcome measures, improved significantly between the inception of the program in October 1, 2003 through June 30, 2007 (15 quarters) in all five clinical focus areas:

Clinical Area	# of Patients	Start (Oct 03)	End (June 07)	Absolute Increase	Percent Increase	Percent of Total Improvement Opportunity'
AMI (heart attack)	277,090	89.6%	97.6%	8.0%	8.9%	77%
CABG (Bypass)	118,851	85.1%	97.8%	12.7%	14.9%	85%
Pneumonia	462,161	70.0%	93.5%	23.5%	33.6%	78%
Heart Failure	409,401	64.0%	93.2%	29.3%	45.8%	81%
Hip and Knee	173,623	85.1%	98.0%	12.8%	15.1%	86%
Overall	1,441,126	78.8%	96.0%	17.3%	21.9%	81%

**CMS/Premier HQID Project Participants Composite Quality Score:**  
**Trend of Quarterly Median (5th Decile) by Clinical Focus Area**  
 October 1, 2003 - June 30, 2007 (Year 1 and 2 Final Data; Year 3 and 4 Preliminary Data)

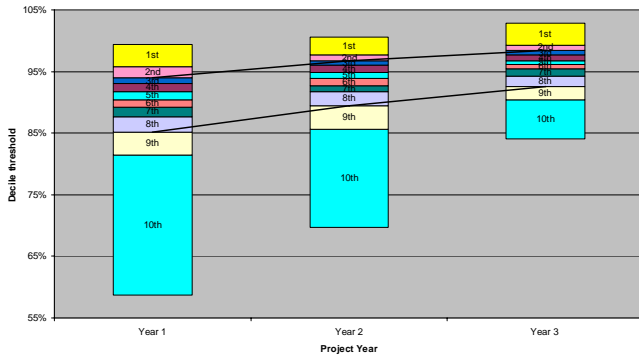


# HQID Hospital Performance Update

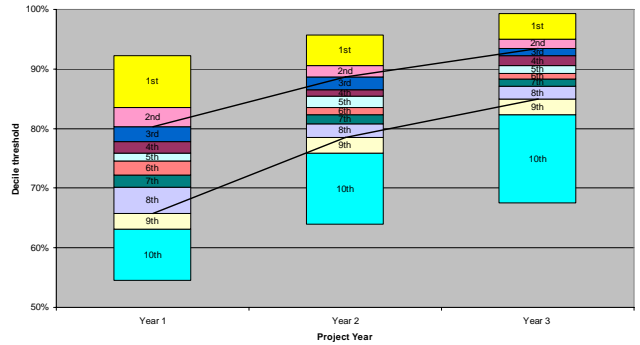
## Changes in Overall Performance for 15 Quarters

In addition, the range of variance among HQID participating hospitals is closing, as those hospitals in the lower deciles continue to improve their quality scores and close the gap between themselves and the demonstration's top performers. Graphs showing the changes in the decile thresholds across the first three years of the project for each of the five clinical areas are showing below.

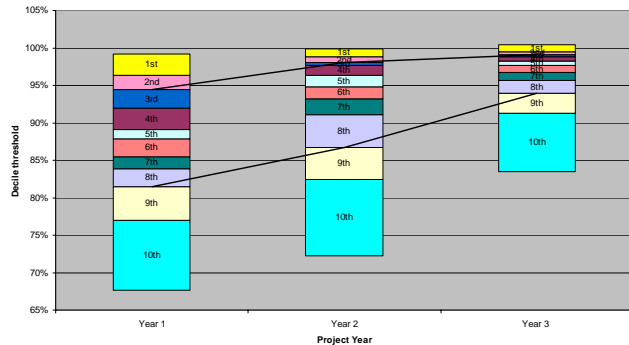
**AMI Composite Quality Score Decile Threshold Change**  
 CMS/Premier Hospital Quality Demonstration Project  
 October 1, 2003 - September 30, 2006  
 Year 1 and Year 2 Final Data; Year 3 Preliminary Results



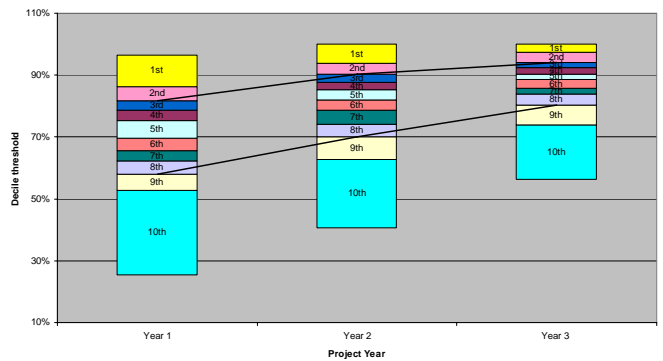
**Pneumonia Composite Quality Score Decile Threshold Change**  
 CMS/Premier Hospital Quality Demonstration Project  
 October 1, 2003 - September 30, 2006  
 Year 1 and Year 2 Final Data; Year 3 Preliminary Results



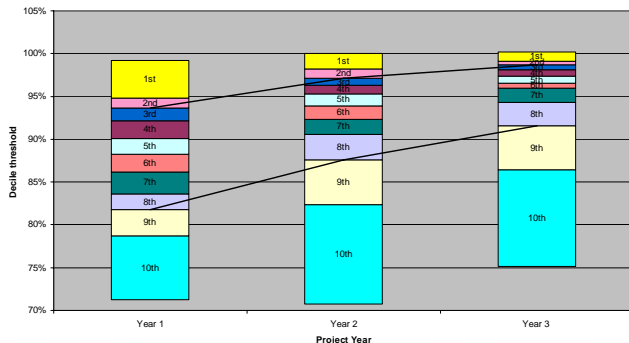
**Coronary Artery Bypass Graft Composite Quality Score Decile Threshold Change**  
 CMS/Premier Hospital Quality Demonstration Project  
 October 1, 2003 - September 30, 2006  
 Year 1 and Year 2 Final Data; Year 3 Preliminary Results



**Heart Failure Composite Quality Score Decile Threshold Change**  
 CMS/Premier Hospital Quality Demonstration Project  
 October 1, 2003 - September 30, 2006  
 Year 1 and Year 2 Final Data; Year 3 Preliminary Results



**Hip and Knee Composite Quality Score Decile Threshold Change**  
 CMS/Premier Hospital Quality Demonstration Project  
 October 1, 2003 - September 30, 2006  
 Year 1 and Year 2 Final Data; Year 3 Preliminary Results



# HQID Hospital Performance Update

## Appropriate Care Scores for 15 Quarters

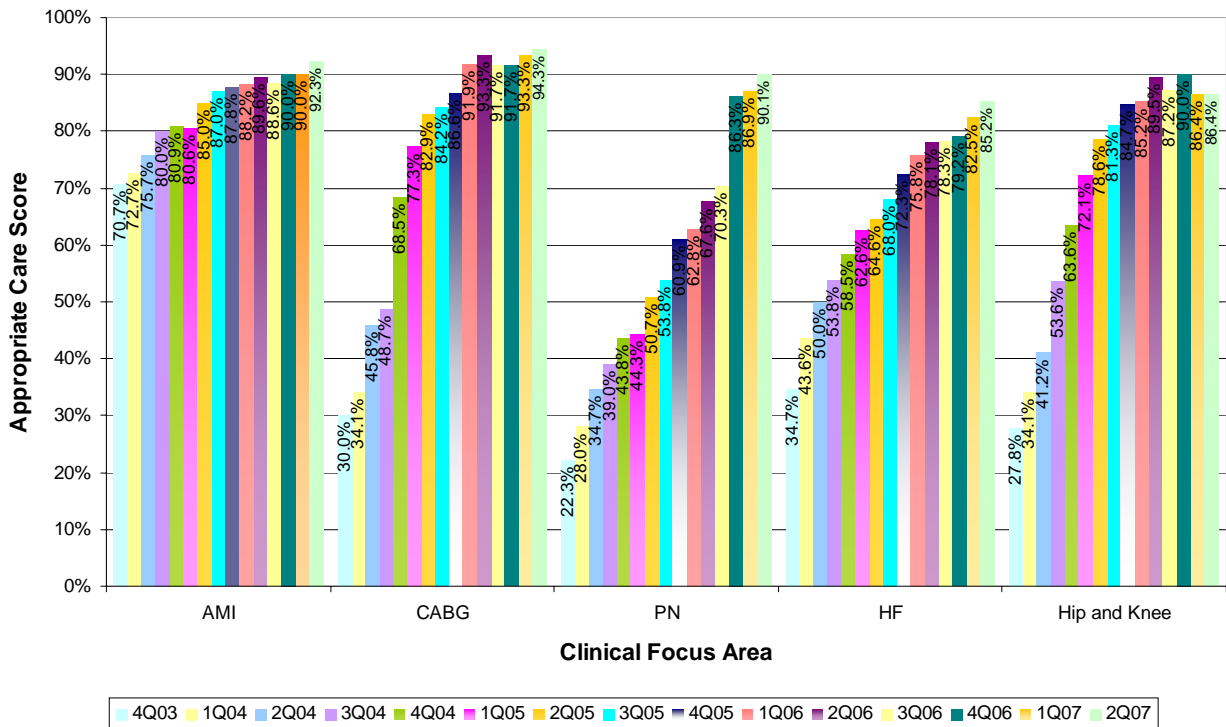
The median appropriate care score (ACS), also referred to as “perfect process or “all or nothing” to designate when a patient receives all possible care measures within a clinical area, improved significantly between the inception of the HQID project in October 1, 2003 through June 30, 2007 (15 quarters) in all five clinical focus areas for project participants:

Clinical Area	# of Patients	Start (Oct 03)	End (June 07)	Absolute Increase	Percent Increase	Percent of Total Improvement Opportunity'
AMI (heart attack)	277,090	70.7%	92.3%	21.6%	30.5%	74%
CABG (Bypass)	118,851	30.0%	94.3%	64.3%	214.0%	92%
Pneumonia	462,161	22.3%	90.1%	67.8%	304.9%	87%
Heart Failure	409,401	34.7%	85.2%	50.5%	145.5%	77%
Hip and Knee	173,623	27.8%	86.4%	58.6%	210.9%	81%
Overall	1,441,126	37.1%	89.7%	52.6%	141.7%	84%

### CMS/Premier HQID Project Participants Appropriate Care Score:

#### Trend of Quarterly Median (5th Decile) by Clinical Focus Area

October 1, 2003 - June 30, 2007 (Year 1 and Year 2 Final Data, and Year 3 and Year 4 Preliminary)



# Comparison Between HQID and non-HQID hospitals on 19 Quality Indicators

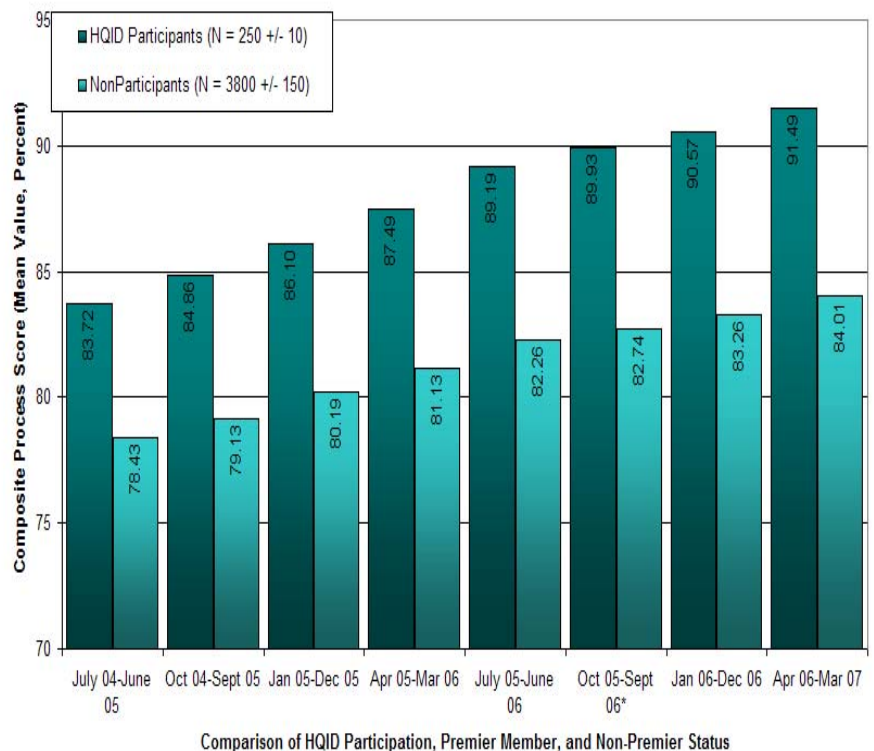
A composite of 19 measures shared in common between HQID and Hospital Compare shows P4P hospitals performing above the nation as a whole over two years

- HQID participants avg. 6.5% higher than Non-Participants
- Avg. improvement for HQID participants = 7.8%
- Avg. improvement for Non-participants = 5.6%
- A composite of 14 measures shared in common between HQID and the Joint Commission Comparative for 4<sup>th</sup> qtr 2003 shows HQID hospitals performing below the nation as a whole (77.88% compared to 78.96%).
- New England Journal of Medicine publication by Lindenauer et al. (February 2007) found that hospitals engaged in P4P achieved quality scores 2.6 to 4.1 percentage points above other hospitals due solely to the impact of P4P incentives.

HQID hospitals have higher quality ratings\* than national hospitals overall

\*Composite process score

Premier Engagements Compared to National Group Trend  
Hospital Compare Data  
19 Process Measures Aggregated to Overall Composite Process Score



\*Beginning with Oct 05-Sept 06 the influenza vaccination measure became unsuppressed and the number of process measures increased from 18 to 19

# Association Between Quality and Cost

## Based on Premier analysis of 1.1 million patients

Hospital costs and mortality rates are declining among participants in the Centers for Medicare and Medicaid Services (CMS), Premier Hospital Quality Incentive Demonstration (HQID) pay-for-performance (P4P) project, according to a recent analysis by the Premier Inc. healthcare alliance of over 1.1 million patient records from Premier's Perspective™ database.

### Hospital Cost Trends

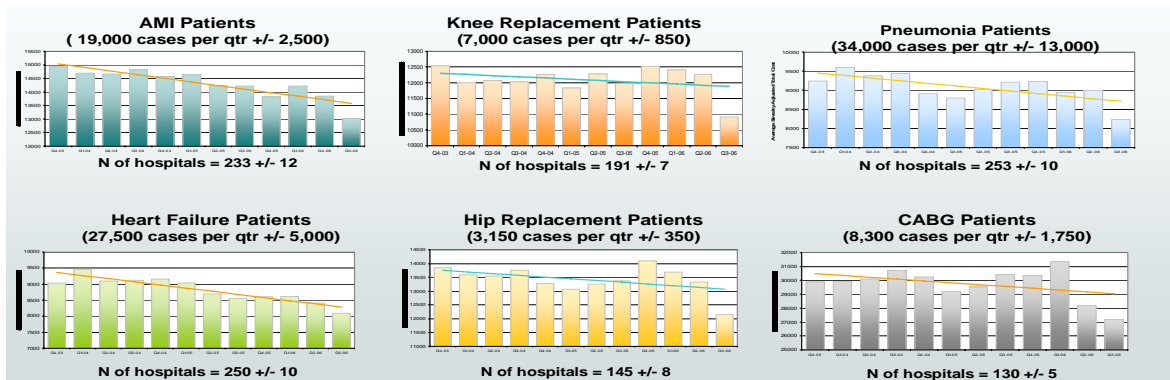
The average hospital cost decreased significantly from October 1, 2003 through September 30, 2006 (12 quarters) for project participants in three of six clinical areas:

Clinical Area	# of Patients (12 quarters)	Start (Oct 03)	End (Sep 06)	Absolute Reduction	Percent Reduction	National Discharges (annual)	National Savings (millions)
AMI (heart attack)	228,122	\$15,173	\$13,574	\$1,599	10.5%	655,939	\$1,049
CABG (Bypass)	100,529	\$30,619	\$29,040	\$1,579	5.2%	504,548	\$797
Pneumonia	375,773	\$9,523	\$8,712	\$811	8.5%	1,328,738	\$1,077
Heart Failure	334,154	\$9,463	\$8,282	\$1,181	12.5%	1,134,149	\$1,339
Hip Replacement	42,152	\$13,818	\$13,074	\$744	5.4%	345,690	\$257
Knee Replacement	86,438	\$12,342	\$11,879	\$463	3.7%	498,169	\$230
<b>Combined</b>	1,125,016			\$1,063		4,467,233	<b>\$4,750</b>

The graphs showing the declining cost trend along with the number of hospitals and cases for each clinical area is below.

## Hospital Level Cost Trend Emerges Over 3 Years

### Median Severity Adjusted Cost per Case from October 2003 – September 2006



Statistical Significance: Cost -- AMI (p<0.01), HF (p<0.001), PN (p<0.05).

# Association Between Quality and Mortality

## Based on Premier analysis of 1.1 million patients

### Hospital Mortality Trends

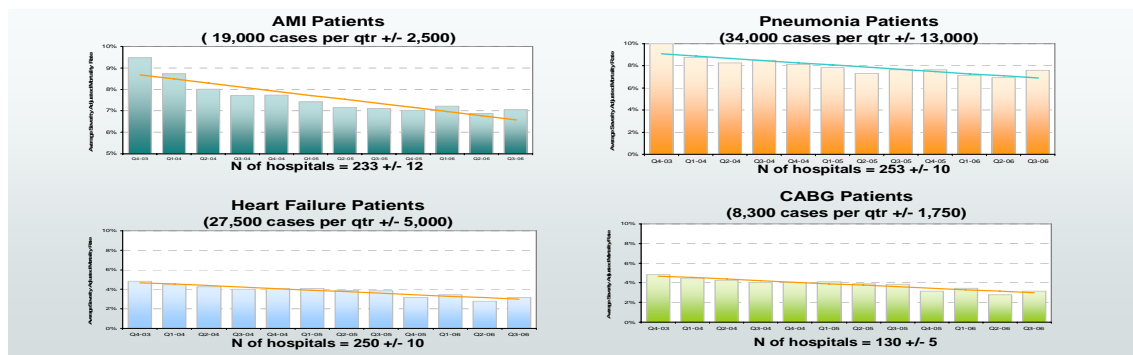
The average mortality rate decreased significantly from October 2003 through September 2006 (12 quarters) in all clinical focus areas:

There were insufficient mortalities in the hip and knee replacement clinical areas for analysis. The graphs showing the declining trend in mortality rate along with the number of hospitals and cases for each clinical area is below.

Clinical Area	# of Patients (12 quarters)	Start (Oct 03)	End (Sep 06)	Absolute Reduction	Percent Reduction	National Discharges (annual)	Lives Saved
AMI (heart attack)	228,122	8.86%	6.59%	2.27%	25.7%	655,939	14,907
CABG (Bypass)	100,529	2.51%	1.55%	0.95%	38.1%	504,548	4,817
Pneumonia	375,773	9.28%	6.89%	2.39%	25.8%	1,328,738	31,776
Heart Failure	334,154	4.84%	2.99%	1.86%	38.3%	1,134,149	21,058
<b>Combined</b>	<b>1,038,578</b>			<b>1.87%</b>		<b>3,623,374</b>	<b>72,559</b>

## Hospital Level Mortality Trend Emerges Over 3 Years

### Median Severity Adjusted Mortality from October 2003 – September 2006



Statistical Significance: Mortality -- AMI ( $p < 0.001$ ), HF ( $p < 0.001$ ), PN ( $p < 0.001$ ), CABG ( $p < 0.01$ ).  
Hip and knee replacements had insufficient mortalities for analysis

HQID based on 3M APR-DRG severity-adjustment

# Correlation between Quality and Mortality and Cost Based on Premier analysis of 1.1 million patients

We calculated the correlation between the improvement in quality and the reduction in mortality and costs for patients in the HQID hospitals. The strongest correlations are for AMI, Pneumonia, and heart failure.

The correlation calculations are as follows:

## Correlation Between Quality Improvement and Cost Reduction

Clinical Area	Appropriate Care Score	Composite Quality Score
AMI (heart attack)	-0.79	-0.82
CABG (Bypass)	-0.29	-0.27
Pneumonia	-0.65	-0.64
Heart Failure	-0.83	-0.83
Hip	-0.37	-0.39
Knee	-0.20	-0.24

## Correlation Between Quality Improvement and Mortality Reduction

Clinical Area	Appropriate Care Score	Composite Quality Score
AMI (heart attack)	-0.94	-0.94
CABG (Bypass)	-0.63	-0.66
Pneumonia	-0.88	-0.91
Heart Failure	-0.94	-0.93