

# 15 TOP HEALTH SYSTEMS NATIONAL BENCHMARKS REPORT, 2012

PREPARED FOR:  
Any Health System  
Any City, US



THOMSON REUTERS

## PERFORMANCE REPORT NOTES

### HEALTH SYSTEM SELECTION

In the Thomson Reuters 15 Top Health Systems study, we identify health systems as follows:

- Must have at least two acute care hospitals
- Must report a parent or related organization relationship on the hospital Medicare cost report

We also include Cardiac and Orthopedic hospitals, as well as Critical Access Hospitals in the system analysis.

If a health system has separately reported subsystems as members, we rank each subsystem's performance independent of its parent, as well as including it in its parent system. A hospital may be included in both a parent system and a subsystem analysis.

### HEALTH SYSTEM COMPARISON GROUPS AND WINNERS

We divide health systems into three comparison groups to develop more actionable performance benchmarks. Total operating expense was used to classify:

Comparison Group	Tot Operating Expense	Winners
Large Health System	> \$1.5 billion	5
Medium Health System	\$750 million - \$1.5 billion	5
Small Health System	< \$750 million	5
<b>Overall</b>		<b>15</b>

We select 15 **Benchmark health systems** (winners) based on overall performance across all included measures, in the most recent year of data available. Overall performance is determined by ranking each measure individually, by comparison group, summing the ranks and re-ranking overall.

**Peer health systems** include all U.S. health systems in our study database, *excluding* benchmark systems.

### HEALTH SYSTEM MEASURE CALCULATION

We produce health system measures by aggregating patient level and hospital data to the health system level. See study Abstract for details.

### METHODOLOGY NOTES

Present on Admission (POA) coding was used in the risk models for mortality, complications, AHRQ Patient Safety Indicators (PSIs) and average length of stay. POA coding was available only in 2009 and 2010 MedPAR, so risk-models without POA were used in Matrix Graph 2006-2010 rate of improvement trending.

### RANK WEIGHTS AND PUBLIC DATA SOURCES

Measures	Rank Wt	Source
Risk-Adjusted Mortality	1	MedPAR FFY <sup>1</sup> 2005-2010
Risk-Adjusted Complications	1	MedPAR FFY <sup>1</sup> 2005-2010
Risk-Adjusted Patient Safety	1	MedPAR FFY <sup>1</sup> 2005-2010
Core Measures Mean Percent	1	CMS Hospital Compare FFY <sup>1</sup> 2006-2010
30 Day Mortality <sup>2</sup> (AMI,Heart Failure,Pneumonia)	1/2	CMS Hospital Compare July 1, 2007 - June 30, 2010
30 Day Readmissions <sup>2</sup> (AMI,Heart Failure,Pneumonia)	1/2	CMS Hospital Compare July 1, 2007 - June 30, 2010
Severity-Adjusted Average Length of Stay	1	MedPAR FFY <sup>1</sup> 2006-2010
HCAHPS	1	CMS Hospital Compare FFY <sup>1</sup> 2007-2010

<sup>1</sup>Federal Fiscal Year is Oct 1 through Sep 30.

<sup>2</sup>Five year trend data not available for 30 Day Mortality rates and 30 Day Readmission rates. No Matrix data points can be graphed.

### FOR MORE INFORMATION

For a Study Abstract, with full details on performance measures, methods used and winner list, visit [www.100tophospitals.com](http://www.100tophospitals.com).

## 15 TOP HEALTH SYSTEMS PERFORMANCE MATRIX

### INTEGRATED SYSTEM PERFORMANCE COMPARISON

The 15 Top Health Systems Performance Matrix, in a single view, compares your system's current level of achievement and 5 year rate of improvement in percentiles. These percentiles are based on your rank, by measure and overall, versus all other health systems in your comparison group. This integrated performance comparison provides insight into the success of your performance improvement strategies relative to other similar health systems.

### INTERPRETING SYSTEM PERFORMANCE

Overall health system performance is a composite score based on the sum of the ranks of individual measures. This sum is used to rank your health system versus your comparison group. The matrix "Overall" dot integrates your national rank percentile for current overall performance with your national rank percentile for five-year overall rate of improvement. Rank percentiles for each individual measure are also graphed. Measures may fall into any one of four quadrants: Declining, Improving, Leading, or At Risk.

15 Top Health Systems award winners are selected based on highest overall current performance achievement. Winners fall into either the "Leading" or "At Risk" quadrants, depending on their five-year rate of improvement performance. Those with high rate of improvement will be "Leading" performers and those who have fallen behind the median rate of improvement are "At Risk".

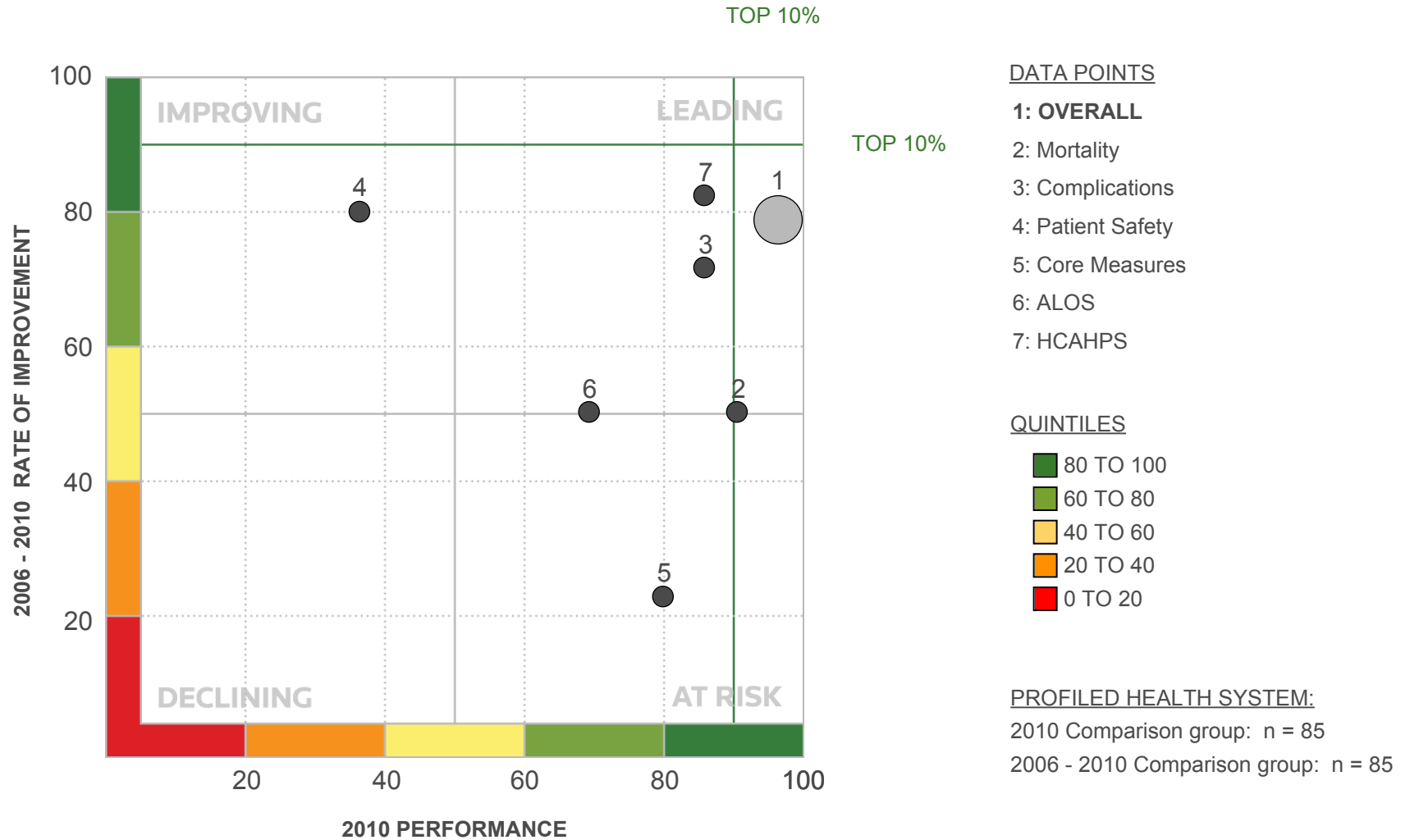
### PERFORMANCE MATRIX NOTES

#### Missing Matrix Graph

Your health system will have no matrix graph if one or more performance measures could not be trended due to missing data points. A minimum of three data points is needed to calculate the trend statistic used for ranking performance.

# 15 TOP HEALTH SYSTEMS PERFORMANCE MATRIX

## 2010 PERFORMANCE AND 5-YEAR RATE OF IMPROVEMENT COMPARED WITH LARGE HEALTH SYSTEM QUINTILES



## 15 TOP HEALTH SYSTEMS TREND PROFILE

### TREND PROFILE

The 15 Top Health Systems Trend Profile analyzes your health system's rate of performance improvement over five years, using a balanced scorecard of critical performance metrics:

- Risk-Adjusted Mortality (in-hospital)
- Risk-Adjusted Complications
- Risk-Adjusted Patient Safety
- Core Measures Mean Percent
- Severity-Adjusted Average Length of Stay
- HCAHPS Score (Patient Overall Hospital Rating)

### UNDERSTANDING THE GRAPHS

#### Performance Trends by Measure (Regression Line Graphs)

This section of the Profile contains graphs for each individual performance measure. Regression lines, calculated from five years of data, are displayed for your health system and the benchmark and peer health systems in your comparison group.

A statistical significance note is also displayed for each graph, indicating whether your performance is **improving, not changing, or worsening** (95% confidence) over the five years. You can easily identify the consistency of your rates of improvement across all measures from these graphs. In addition, you can compare your rates of performance improvement to benchmark rates to identify areas of greatest opportunity.

#### Performance Trends Versus Comparison Group Quintiles (Color Quintile Graphs)

This section of the Profile contains graphs for each individual performance measure showing your health system's actual data points

for each year. These data points are displayed against a background of quintile ranges for the data points of all health systems in your comparison group. Each range is color-coded to indicate level of performance, from dark green (best quintile) to red (worst quintile). You can use these graphs to see whether you are moving ahead of or falling behind other similar health systems.

### REPORT NOTES

#### Use of Median Values

For each data year, when individual core measures are missing or the reported value is insufficiently precise (patient count too low) to be included, the median value of your comparison group is substituted. Median values are not displayed on the Color Quintile Graphs.

#### Regression Line Graphs - Missing Line

No health system trend line is displayed on the Regression Line Graphs if fewer than three data points are available. Benchmark and peer median values will still be displayed.

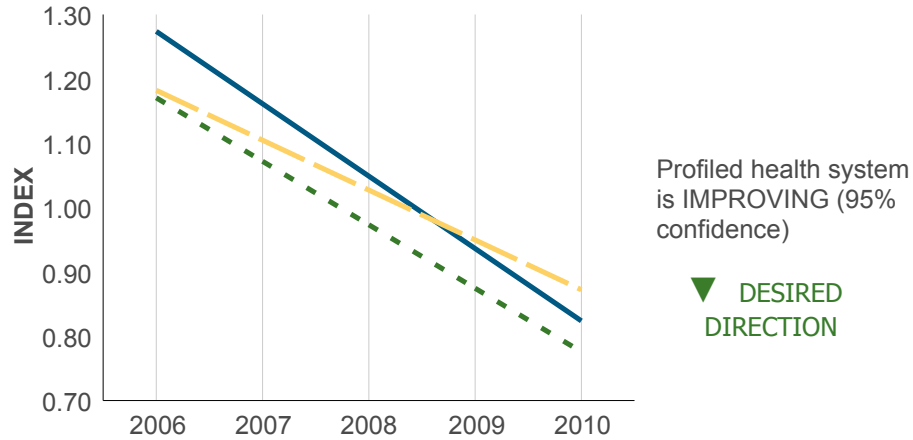
#### Color Quintile Graphs - Missing Data Points

Individual data points are missing on the Color Quintile Graphs when values are not reported, or your comparison group median value has been substituted, in a specific year.

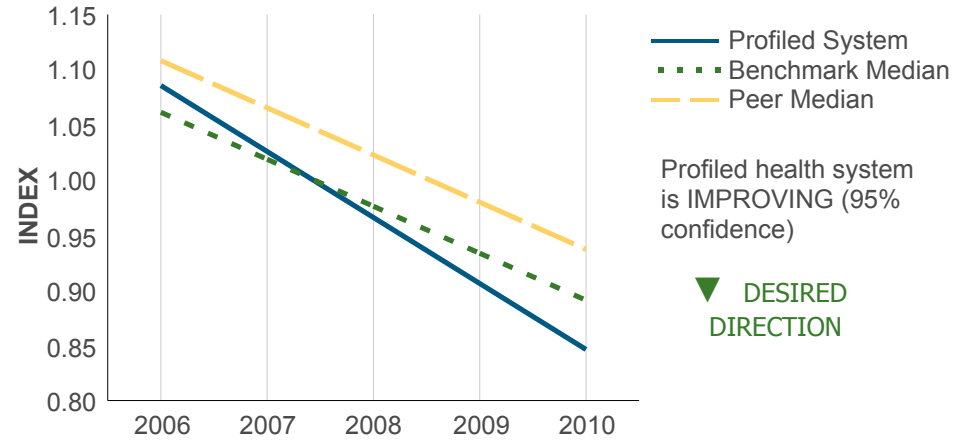
If a health system was excluded from trending for missing one or more measures, the details are noted at the end of the Trend Profile section.

# PROFILED SYSTEM 2006 - 2010 PERFORMANCE TRENDS COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup> SYSTEMS

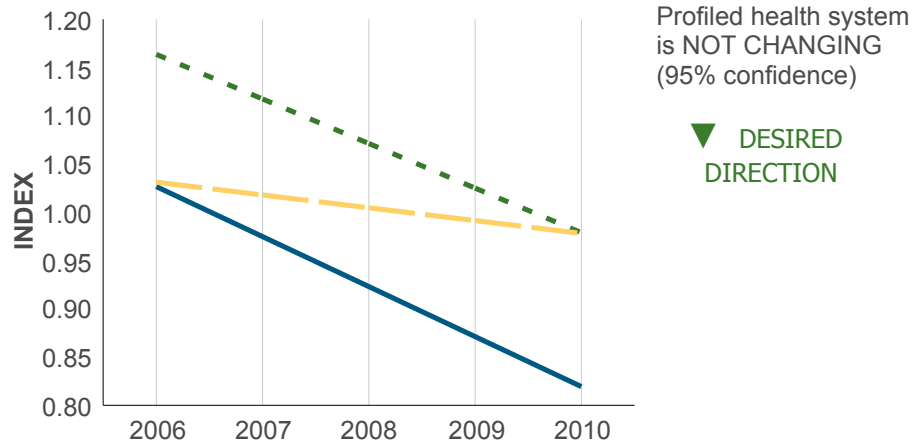
## RISK-ADJUSTED MORTALITY INDEX



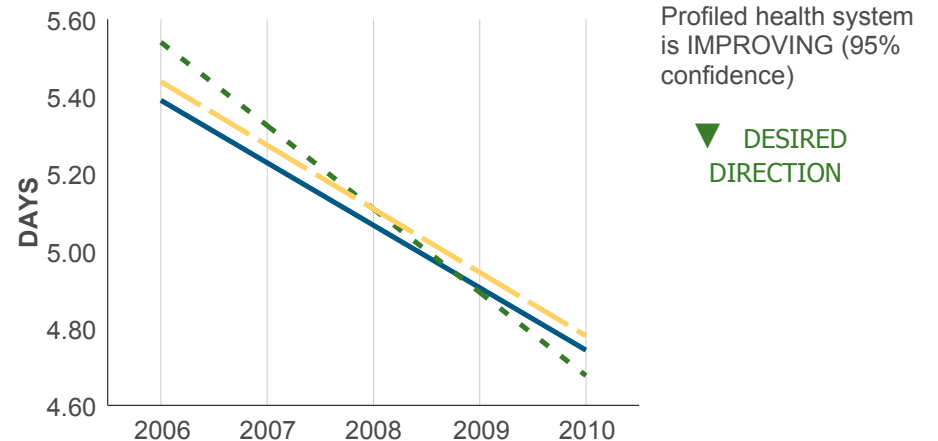
## RISK-ADJUSTED COMPLICATIONS INDEX



## RISK-ADJUSTED PATIENT SAFETY INDEX



## SEVERITY-ADJUSTED AVERAGE LENGTH OF STAY

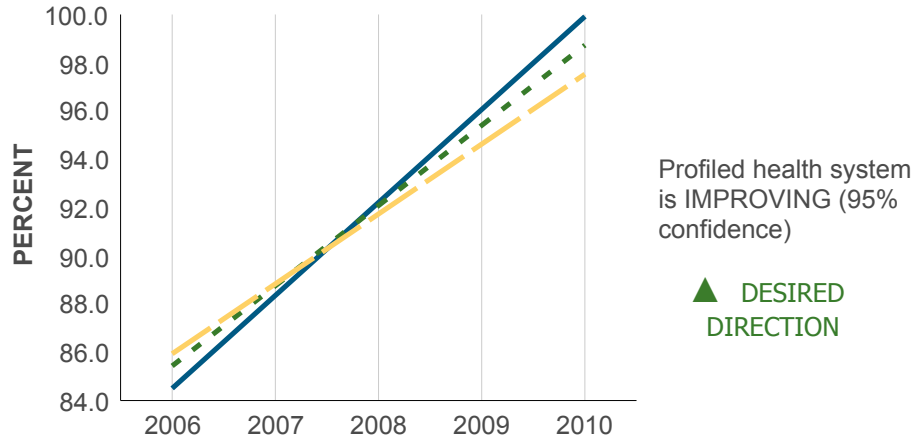


<sup>1</sup>Benchmark health systems n=5

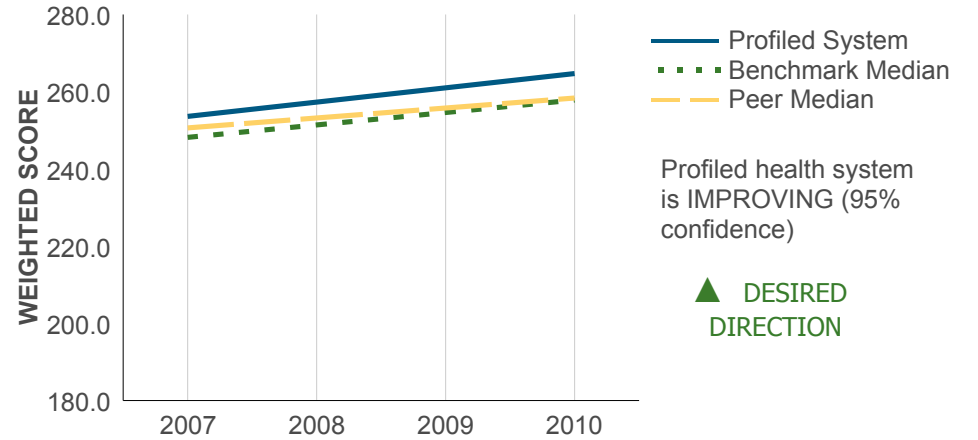
<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM 2006 - 2010 PERFORMANCE TRENDS COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup> SYSTEMS

CORE MEASURES MEAN PERCENT



HCAHPS

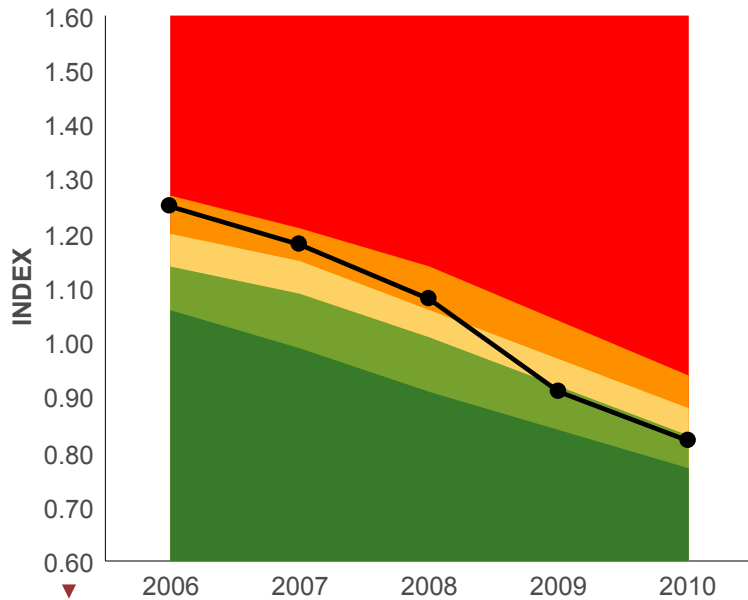


<sup>1</sup>Benchmark health systems n=5

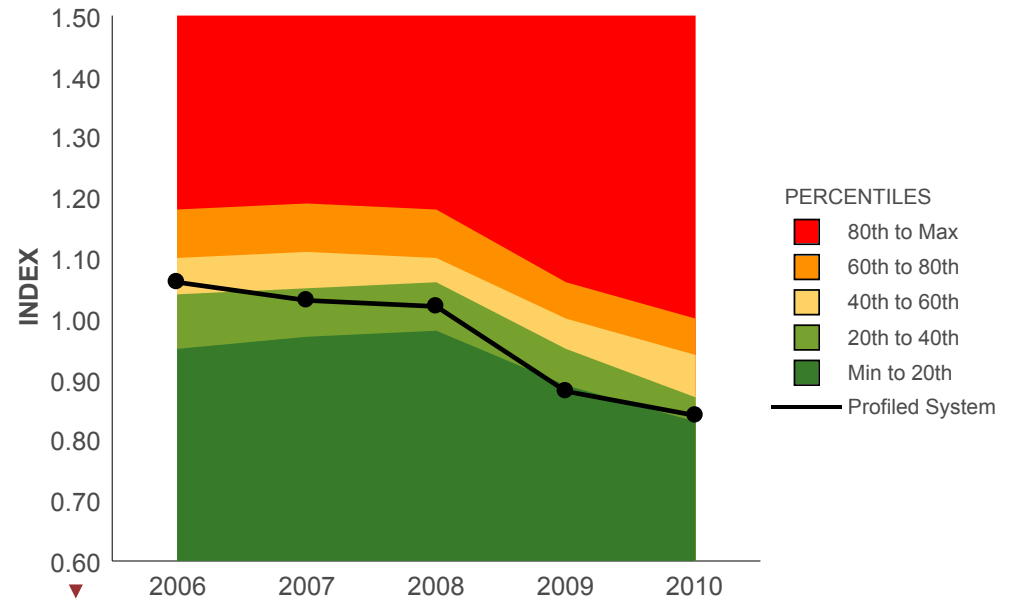
<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM 2006 - 2010 PERFORMANCE TRENDS COMPARED WITH LARGE HEALTH SYSTEM QUINTILES (n=85)

## RISK-ADJUSTED MORTALITY INDEX



## RISK-ADJUSTED COMPLICATIONS INDEX

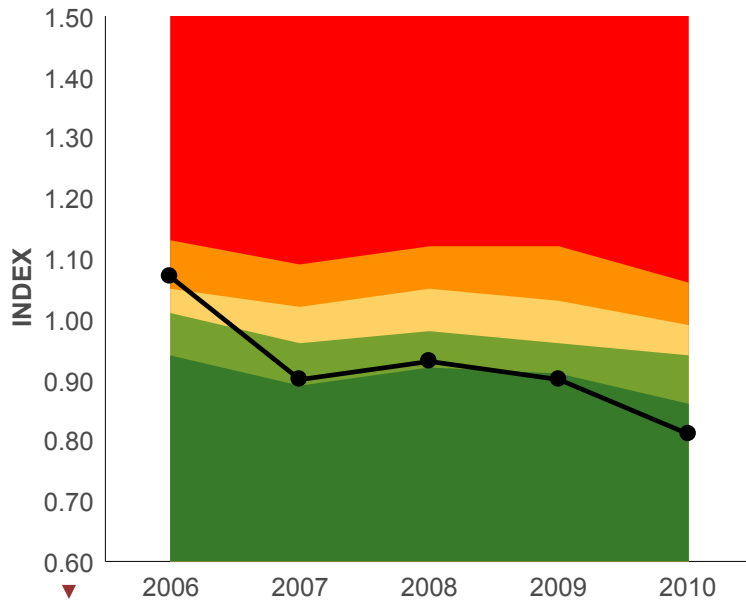


PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2006	1.06	1.14	1.20	1.27	1.25	1.31	1.20
	2007	0.99	1.09	1.15	1.21	1.18	1.23	1.13
	2008	0.91	1.01	1.06	1.14	1.08	1.13	1.03
	2009	0.84	0.92	0.97	1.04	0.91	0.95	0.87
	2010	0.77	0.83	0.88	0.94	0.82	0.86	0.79

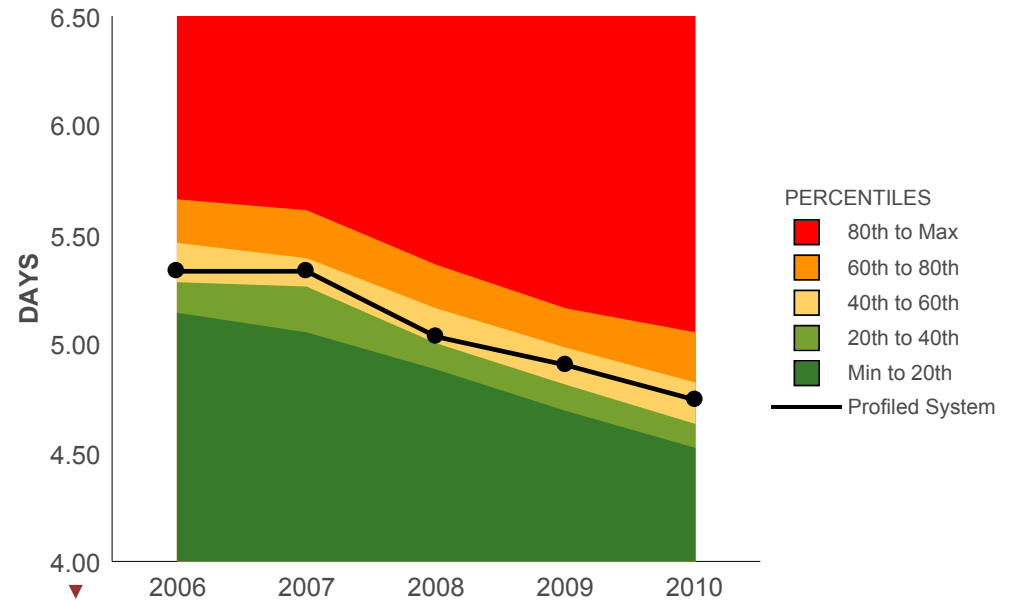
PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM		
		20th	40th	60th	80th	Value	Upper C.I.	Lower C.I.
YEARS	2006	0.95	1.04	1.10	1.18	1.06	1.11	1.02
	2007	0.97	1.05	1.11	1.19	1.03	1.07	0.99
	2008	0.98	1.06	1.10	1.18	1.02	1.06	0.98
	2009	0.89	0.95	1.00	1.06	0.88	0.92	0.85
	2010	0.83	0.87	0.94	1.00	0.84	0.86	0.81

# PROFILED SYSTEM 2006 - 2010 PERFORMANCE TRENDS COMPARED WITH LARGE HEALTH SYSTEM QUINTILES (n=85)

## RISK-ADJUSTED PATIENT SAFETY INDEX



## SEVERITY-ADJUSTED AVERAGE LENGTH OF STAY

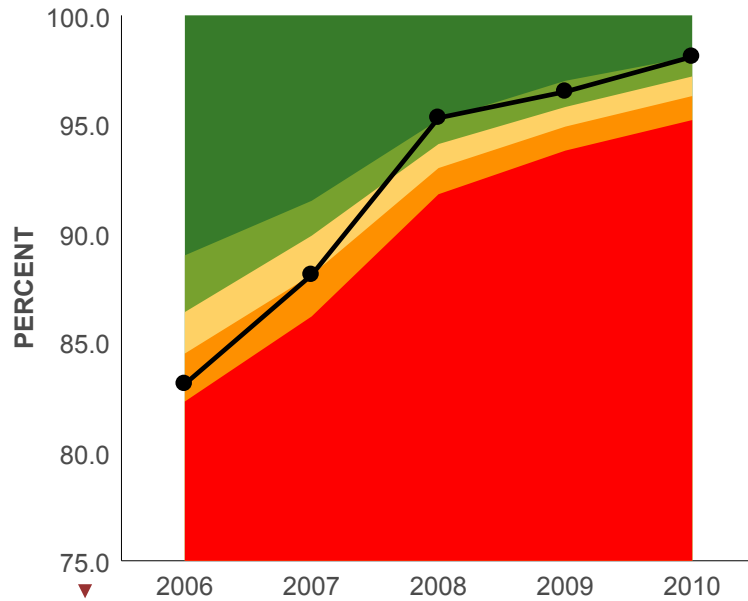


PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM
		20th	40th	60th	80th	Value
YEARS	2006	0.94	1.01	1.05	1.13	1.07
	2007	0.89	0.96	1.02	1.09	0.90
	2008	0.92	0.98	1.05	1.12	0.93
	2009	0.91	0.96	1.03	1.12	0.90
	2010	0.86	0.94	0.99	1.06	0.81

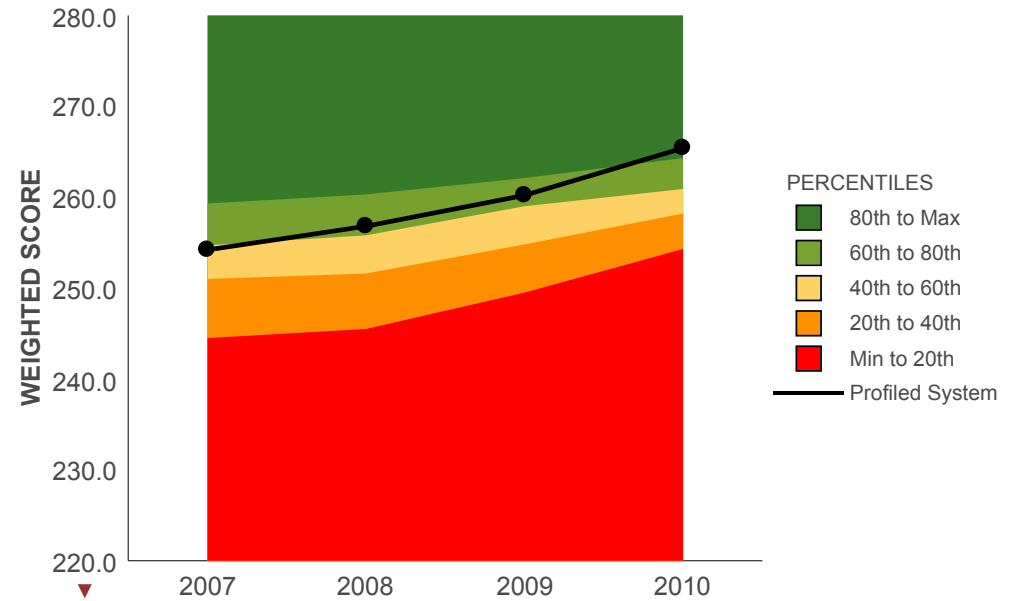
PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM
		20th	40th	60th	80th	Value
YEARS	2006	5.14	5.28	5.46	5.66	5.33
	2007	5.05	5.26	5.39	5.61	5.33
	2008	4.88	5.00	5.16	5.36	5.03
	2009	4.69	4.81	4.98	5.16	4.90
	2010	4.52	4.63	4.82	5.05	4.74

# PROFILED SYSTEM 2006 - 2010 PERFORMANCE TRENDS COMPARED WITH LARGE HEALTH SYSTEM QUINTILES (n=85)

## CORE MEASURES MEAN PERCENT



## HCAHPS SCORE OVERALL RATING



PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM
		20th	40th	60th	80th	Value
YEARS	2006	82.3	84.5	86.4	89.0	83.1
	2007	86.2	88.1	89.9	91.5	88.1
	2008	91.8	93.0	94.1	95.2	95.3
	2009	93.8	94.9	95.8	97.0	96.5
	2010	95.2	96.3	97.2	98.1	98.1

PERCENTILE POINTS ►		HEALTH SYSTEM COMPARISON GROUP				PROFILED SYSTEM
		20th	40th	60th	80th	Value
YEARS	2007	244.5	251.0	254.7	259.3	254.2
	2008	245.5	251.6	255.8	260.3	256.8
	2009	249.5	254.8	259.0	262.1	260.2
	2010	254.3	258.2	260.9	264.3	265.4

## 15 TOP HEALTH SYSTEMS CURRENT PROFILE

### CURRENT PROFILE

The 15 Top Health Systems Current Profile analyzes your health system's performance in the most recent year available, using a national balanced scorecard of critical performance metrics:

- Risk-Adjusted Mortality Index (in-hospital)
- Risk-Adjusted Complications Index
- Risk-Adjusted Patient Safety Index
- Core Measures Mean Percent
- 30 Day Mortality
- 30 Day Readmissions
- Severity-Adjusted Average Length of Stay
- HCAHPS Score (Patient Overall Hospital Rating)

Using this Profile, you can identify your health system's level of performance achievement by individual measure and overall, and target higher performance. In addition, the Profile shows the level of achievement of national award-winning (benchmark) health systems and the median performance of non-winning (peer) systems.

### MEASURE CALCULATION OVERVIEW

Mortality, complications, patient safety and length of stay (LOS) indexes are calculated by summing hospital observed and expected values to the health system level. Expected values are normalized by hospital class. LOS indexes are converted to average length of stay in days for reporting.

Core measures, 30 day mortality and 30 day readmissions are calculated by summing hospital observed and eligible patient counts to the health system level to calculate the percents or rates.

Member hospital HCAHPS scores are weighted for the number of completed surveys. Weighted scores are summed to the health system level and divided by the sum of the member hospital weights to produce a weighted average score for the health system.

### UNDERSTANDING THE GRAPHS

#### Profiled System Compared with Benchmark and Peer

This section contains individual bar graphs for each of the performance measures included in the 15 Top Health Systems national balanced scorecard. Each bar graph shows performance achievement levels for three groups: your health system, the benchmark group median, and the peer group median.

The graphs for the binomial measures — in-hospital mortality, complications and patient safety — also have a statistical significance note that indicates whether your performance is better than expected, as expected, or worse than expected (95% confidence).

#### Patient Safety Indicators, Core Measures and HCAHPS Detail

This section contains bar graphs for the individual measures that make up the composite ranked measures for Patient Safety Index and Core Measures Mean Percent. In addition, performance on each HCAHPS question is included for information. Only the Overall Hospital Rating question (an HCAHPS outcome metric) is ranked.

## CURRENT PROFILE NOTES

### Member Hospital Exclusions

Member hospitals are excluded from the parent health system analysis if one or more of the following conditions exist:

- Identified as a specialty hospital (Children's, Cancer, LTAC, Psych or SNF)
- Identified as a Federally-owned hospital
- Identified as a non-U.S. hospital (Guam, Puerto Rico, Virgin Islands)
- Medicare average length of stay longer than 30 days
- No reported Medicare deaths

Any member hospital measures for which there are useable data will be included when aggregating member hospital data to the system level.

### System Study Exclusions (No Report Available)

- Organization does not have at least two short term general acute care hospitals that report system membership on the hospital cost report
- System has one or more missing measures
- POA not coded for 2009 or 2010 Medicare claims

### System Winner Exclusions

- If a health system has no reported 30 Day Mortality rates, comparison group median values are substituted for analysis, but the system is winner excluded.
- If a health system has no reported 30 Day Readmission rates, comparison group median values are substituted for analysis, but the system is winner excluded.
- A health system that has observed mortality that is statistically worse than expected (95% confidence) is winner excluded.

### Use of Median Values

When individual measures are missing or the reported value is insufficiently precise (patient count too low), we substitute class median values so your health system can be ranked. This was done for the following measures:

- Individual core measures
- 30 day mortality rates (AMI, HF, Pneumonia)
- 30 day readmission rates (AMI, HF, Pneumonia)

### Excluded Core Measures

We excluded one core measure from the study due to very limited reporting:

- Heart Attack Patients Given Fibrinolytic Medication Within 30 Minutes Of Arrival (AMI-7)

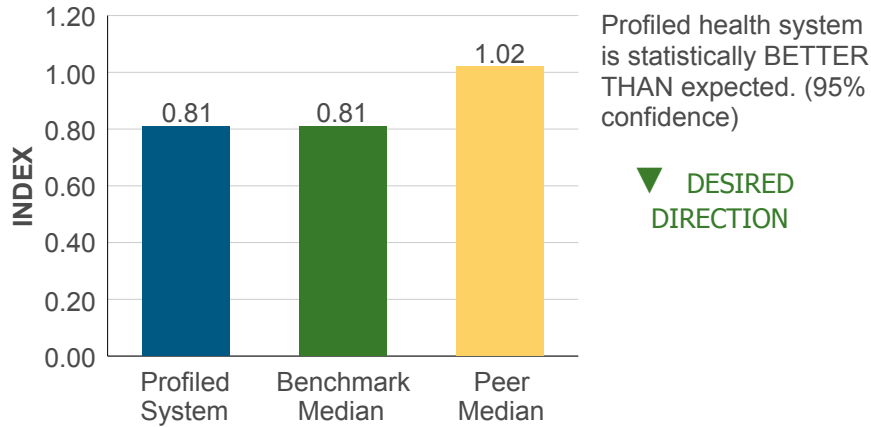
### HCAHPS QUESTIONS

We ranked health systems on the Overall Rating question only. All other question results are reported for information only.

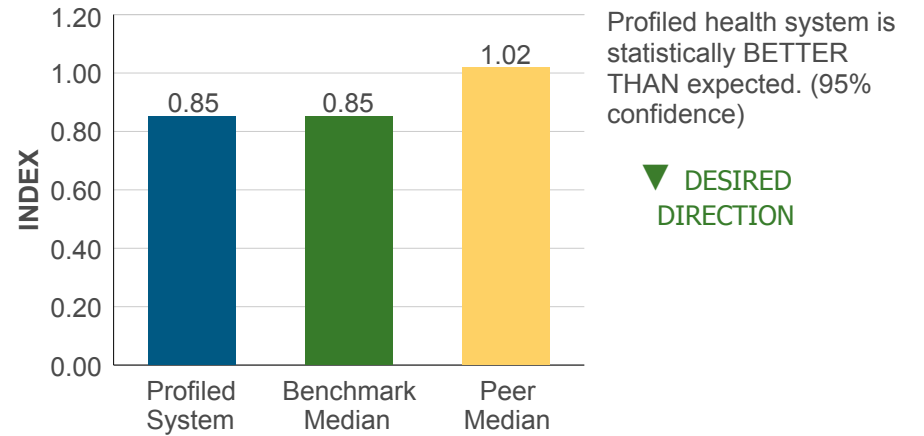
See Abstract for more details. Visit [www.100tophospitals.com](http://www.100tophospitals.com).

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

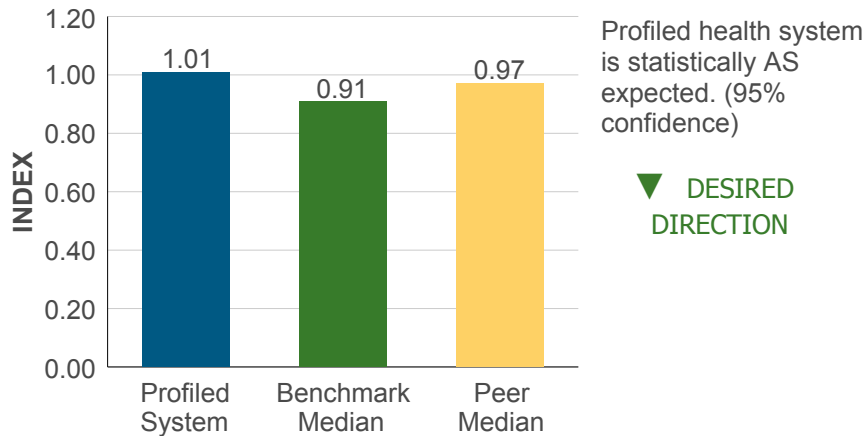
## RISK-ADJUSTED MORTALITY INDEX



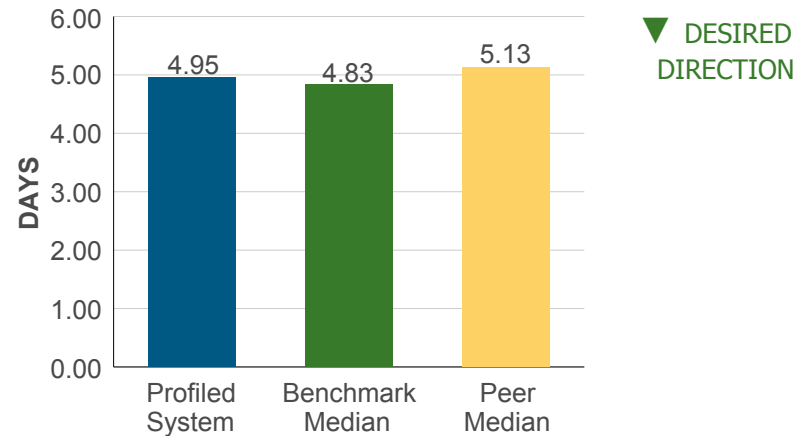
## RISK-ADJUSTED COMPLICATIONS INDEX



## RISK-ADJUSTED PATIENT SAFETY INDEX



## RISK-ADJUSTED AVERAGE LENGTH OF STAY

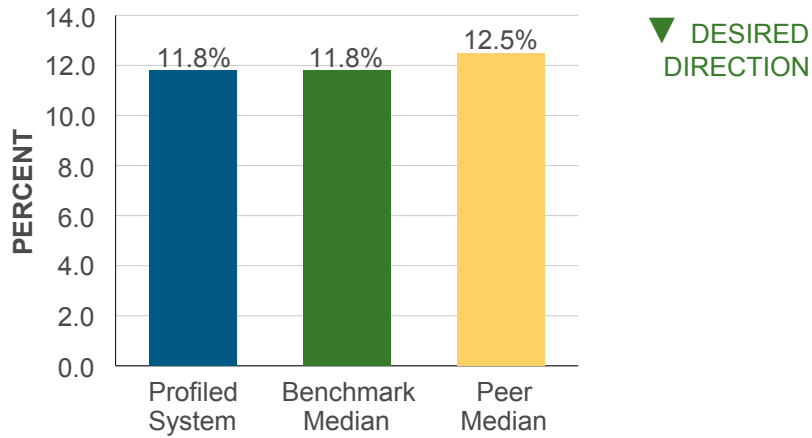


<sup>1</sup>Benchmark health systems n=5

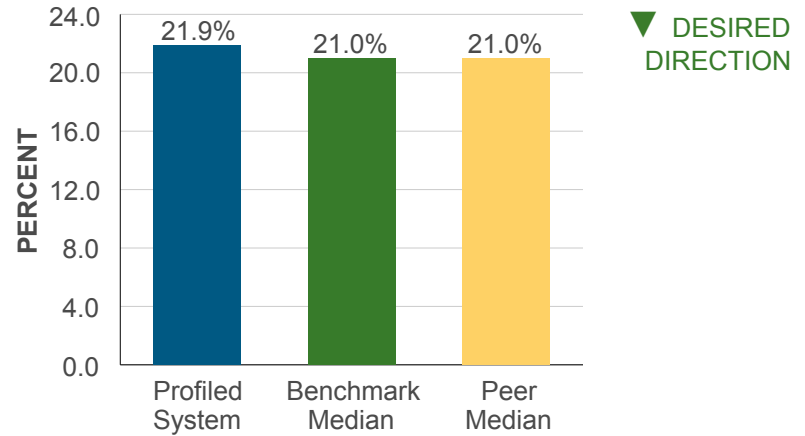
<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

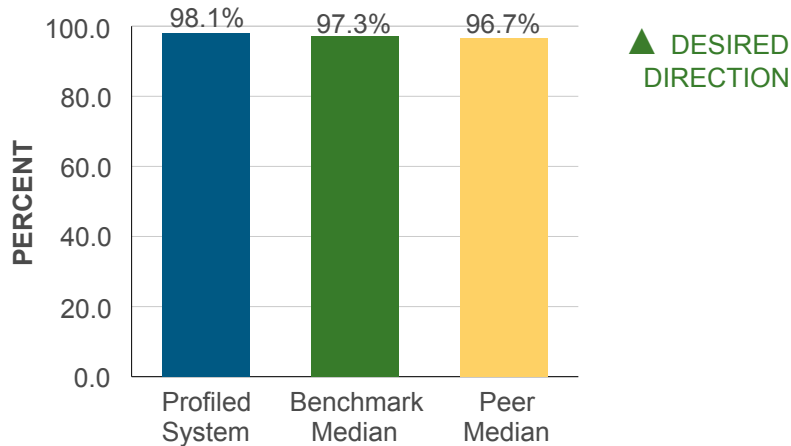
30-DAY MORTALITY RATE (AMI, HF, PNEU)



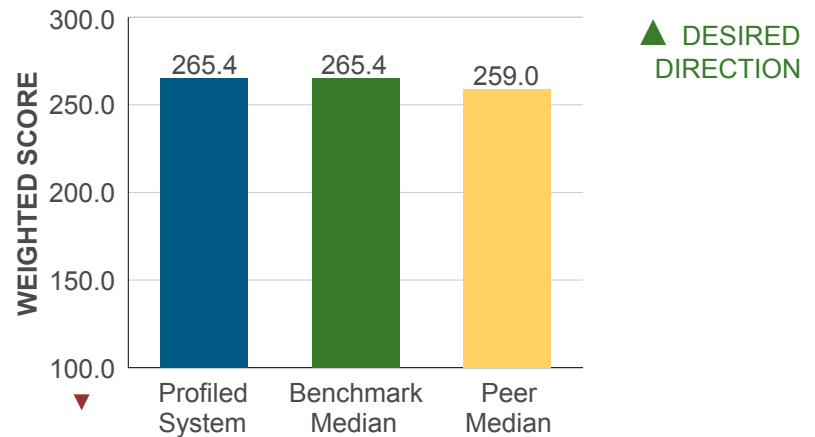
30 DAY READMISSION RATE (AMI, HF, PNEU)



CORE MEASURES MEAN PERCENT



HCAHPS SCORE OVERALL RATING<sup>3</sup>



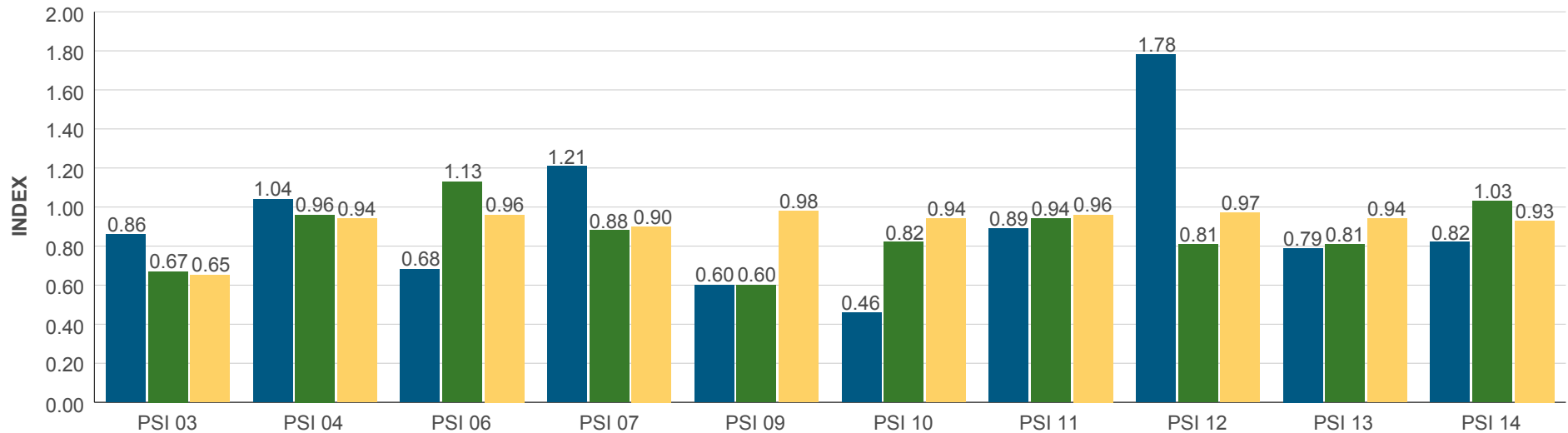
<sup>1</sup>Benchmark health systems n=5

<sup>2</sup>Non-benchmark health systems n=80

<sup>3</sup>Highest possible score is 300

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

## PATIENT SAFETY INDICATORS



**PSI KEY:**

- PSI 03 Pressure ulcer
- PSI 04 Death among surgical inpatients with serious treatable complications
- PSI 06 Iatrogenic pneumothorax
- PSI 07 Central venous catheter-related bloodstream infections
- PSI 09 Postoperative hemorrhage or hematoma
- PSI 10 Postoperative physiologic and metabolic derangements
- PSI 11 Postoperative respiratory failure
- PSI 12 Postoperative pulmonary embolism or deep vein thrombosis
- PSI 13 Postoperative sepsis
- PSI 14 Postoperative wound dehiscence

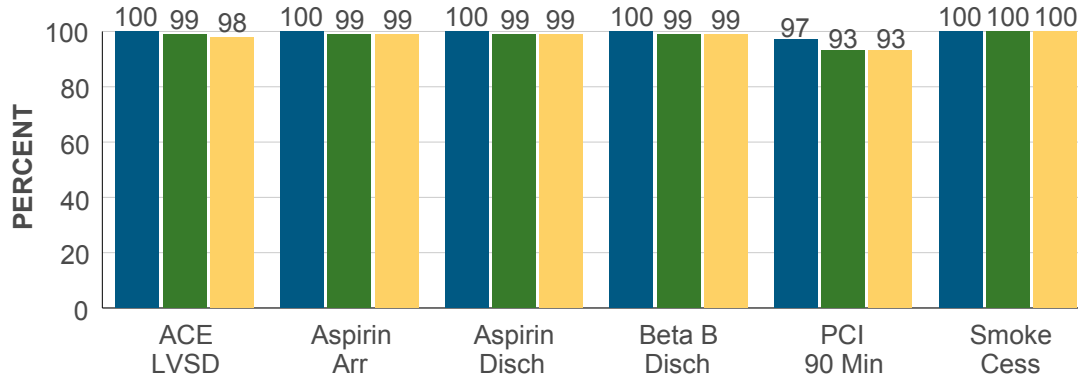
- Profiled System
- Benchmark Median
- Peer Median
- ▼ DESIRED DIRECTION

<sup>1</sup>Benchmark health systems n=5

<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

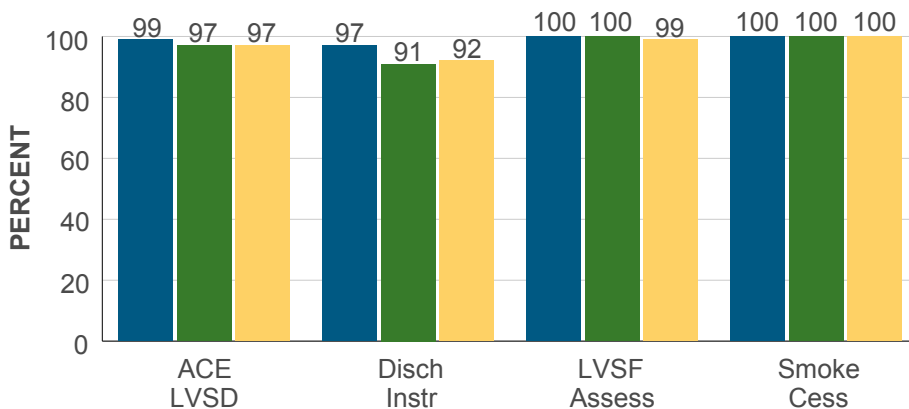
## AMI CORE MEASURES



### AMI ABBREVIATION KEY:

- ACE LVSD Heart Attack Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)
- Aspirin Arr Heart Attack Patients Given Aspirin at Arrival
- Aspirin Disch Heart Attack Patients Given Aspirin at Discharge
- Beta B Disch Heart Attack Patients Given Beta Blocker at Discharge
- PCI 90 Min Heart Attack Patients Given PCI Within 90 Minutes Of Arrival
- Smoke Cess Heart Attack Patients Given Smoking Cessation Advice/Counseling

## HF CORE MEASURES



### HF ABBREVIATION KEY:

- ACE LVSD Heart Failure Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)
- Disch Instr Heart Failure Patients Given Discharge Instructions
- LVSF Assess Heart Failure Patients Given an Evaluation of Left Ventricular Systolic (LVS) Function
- Smoke Cess Heart Failure Patients Given Smoking Cessation Advice/Counseling

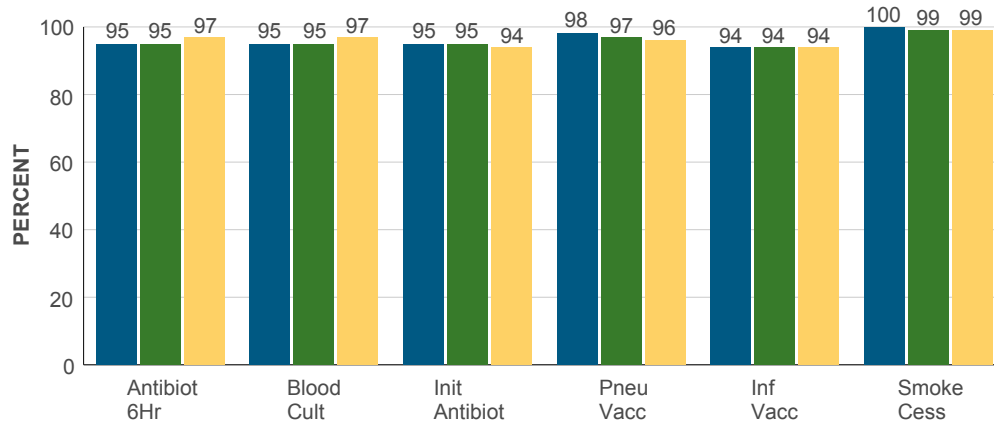
- Profiled System
- Benchmark Median
- Peer Median
- ▲ DESIRED DIRECTION

<sup>1</sup>Benchmark health systems n=5

<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

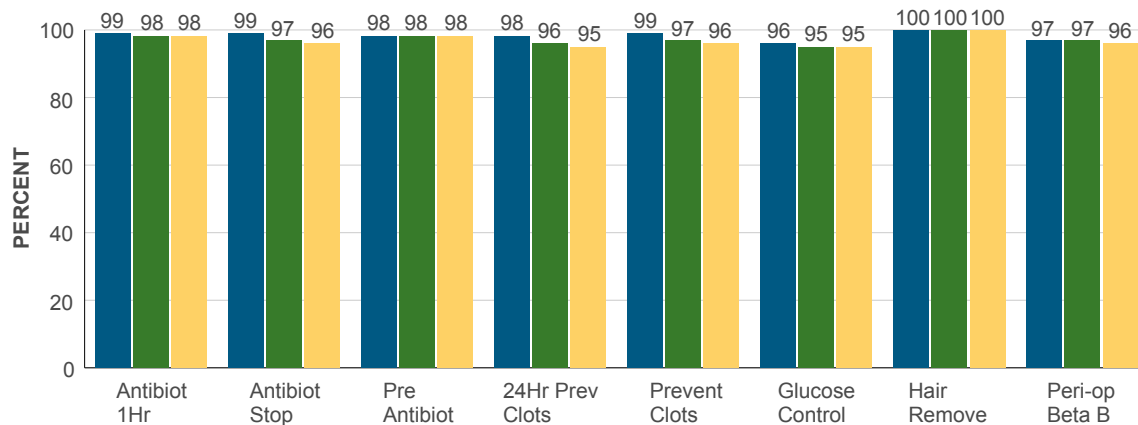
## PNEUMONIA CORE MEASURES



### PNEUMONIA ABBREVIATION KEY:

- Antibiot 6Hr: Pneumonia Patients Given Initial Antibiotic(s) Within 6 Hours after Arrival
- Blood Cult: Pneumonia Patients Whose Initial Emergency Room Blood Culture Was Performed Prior to the Administration of the First Hospital Dose of Antibiotics
- Init Antibiot: Pneumonia Patients Given the Most Appropriate Initial Antibiotic(s)
- Pneu Vacc: Pneumonia Patients Assessed and Given Pneumococcal Vaccination
- Inf Vacc: Pneumonia Patients Assessed and Given Influenza Vaccination
- Smoke Cess: Pneumonia Patients Given Smoking Cessation Advice/Counseling

## SURGERY CORE MEASURES



### SURGERY ABBREVIATION KEY:

- Antibiot 1Hr: Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection
- Antibiot Stop: Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery)
- Pre Antibiot: Surgery patients who were given the right kind of antibiotic to help prevent infection
- 24Hr Prev Clots: Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery
- Prevent Clots: Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries
- Glucose Control: Heart surgery patients whose blood sugar (blood glucose) is kept under good control in the days right after surgery
- Hair Remove: Surgery patients needing hair removed from the surgical area before surgery, who had hair removed using a safer method (electric clippers or hair removal cream – not a razor)
- Peri-op Beta B: Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery

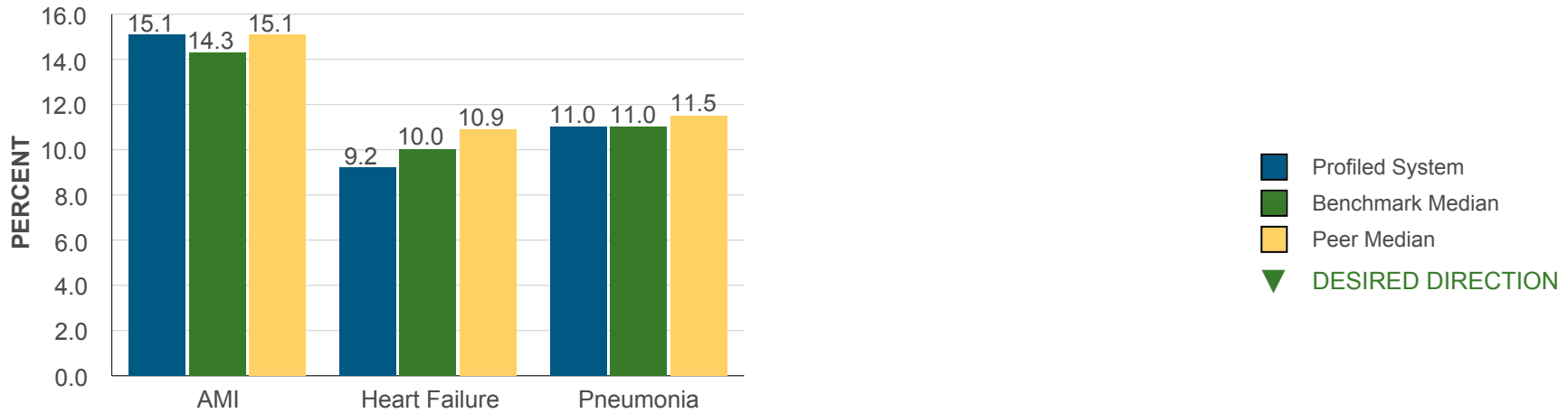
■ Profiled System    
 ■ Benchmark Median    
 ■ Peer Median    
 ▲ DESIRED DIRECTION

<sup>1</sup>Benchmark health systems n=5

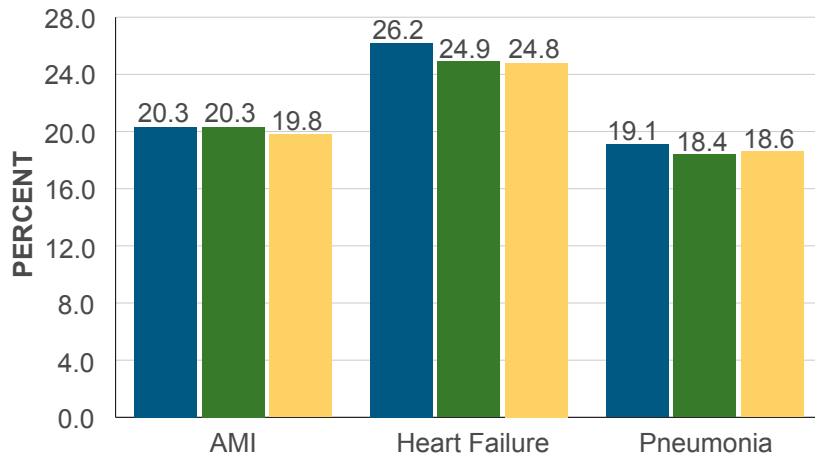
<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

## 30-DAY MORTALITY RATES BY PATIENT CONDITION



## 30-DAY READMISSION RATES BY PATIENT CONDITION

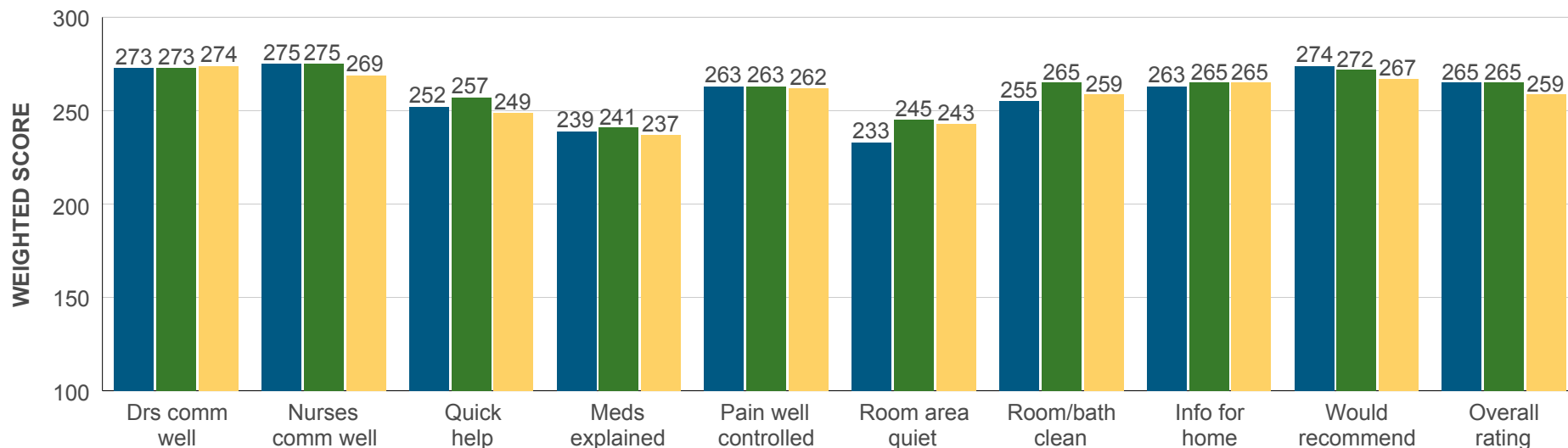


<sup>1</sup>Benchmark health systems n=5

<sup>2</sup>Non-benchmark health systems n=80

# PROFILED SYSTEM COMPARED WITH LARGE HEALTH SYSTEM BENCHMARK<sup>1</sup> AND PEER<sup>2</sup>

## HCAHPS QUESTIONS



### QUESTION KEY:

- Drs comm well How often did doctors communicate well with patients?
- Nurses comm well How often did nurses communicate well with patients?
- Quick help How often did patients receive help quickly from hospital staff?
- Meds Explained How often did staff explain about medicines before giving them to patients?
- Pain well controlled How often was patients pain well controlled?
- Room area quiet How often was the area around patients rooms kept quiet at night?
- Room/bath clean How often were the patients rooms and bathrooms kept clean?
- Info for home Were patients given information about what to do during their recovery at home?
- Would recommend Would patients recommend the hospital to friends and family?
- Overall rating How do patients rate the hospital overall?

- Profiled System
- Benchmark Median
- Peer Median
- ▲ DESIRED DIRECTION

<sup>1</sup>Benchmark health systems n=5

<sup>2</sup>Non-benchmark health systems n=80

## APPENDIX

# INCLUDED MEMBER HOSPITALS

This section contains the list of health system member hospitals included in the 15 Top Health Systems, 2012 study, identified using 2010 hospital cost reports (2009 used if 2010 unavailable).

The following hospitals were included in the 15 Top Health Systems, 2012 study: acute care general, cardiac, orthopedic and critical access.

# HEALTH SYSTEM INCLUDED MEMBER HOSPITALS

MCARE_ID	HOSPITAL NAME	CITY	STATE
999999	Blessings Hospital	Any City	US
999999	Comfort Hospital	Any City	US
999999	Country Hospital	Any City	US
999999	Grand Hospital	Any City	US
999999	Holy Hospital	Any City	US