



100 TOP HOSPITALS

100 Top Hospitals: Study Overview

20th Edition
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TRUVEN HEALTH ANALYTICS 

**100 TOP
HOSPITALS**

TRUVEN 
HEALTH ANALYTICS™

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Table of Contents

Introduction.....	1–3
This Year’s 100 Top Hospitals and Everest Award Winners	1–2
The Multi-Faceted 100 Top Hospitals Program.....	2
About Truven Health Analytics	3
Award Winners.....	5–8
Major Teaching Hospitals	5
Teaching Hospitals.....	6
Large Community Hospitals.....	7
Medium Community Hospitals.....	8
Small Community Hospitals	8
The Everest Award	9–13
The 2013 Everest Award Winners	9
Value to the Healthcare Industry.....	10
How We Select the Everest Award Winners	10–13
Findings	15–29
How Are the Winners Outperforming Their Peers?	15–20
Midwest Leads in Hospital Performance.....	20–22
Performance Improvement Over Time: All Hospitals.....	23
Performance Improvement Over Time.....	24–28
Methodology.....	29–43
Building the Database of Hospitals	30–32
Classifying Hospitals into Comparison Groups.....	32–33
Scoring Hospitals on Weighted Performance Measures.....	33–35
Performance Measures.....	36–41
Determining the 100 Top Hospitals	41–43
Truven Health Policy on Revocation of a 100 Top Hospitals Award.....	43
Winners Through The Years	45–69
Appendix A: Distribution of Winners by State and Region	71
Appendix B: States Included in Each Census Region	73
Appendix C: Methodology Details	75–87
Methods for Identifying Complications of Care	75–80
Core Measures.....	80–81
30-Day Risk-Adjusted Mortality Rates and 30-Day Risk-Adjusted Readmission Rates.....	82

HCAHPS Overall Hospital Rating	82–83
Length-of-Stay Methodologies	83–84
Performance Measure Normalization	84
Interquartile Range Methodology.....	85
Why We Have Not Calculated Percent Change in Specific Instances	85
Protecting Patient Privacy	85
Medicare Cost Report Line Items Used in the Performance Measures Calculations.....	86–87
References.....	89–91

Introduction

Celebrating 20 Years of Identifying Top Performance

Truven Health AnalyticsSM is proud to celebrate the 20th anniversary of the Truven Health 100 Top Hospitals[®] program. What began 20 years ago as a quest to use publicly available data to objectively identify the country's top hospitals has grown to become a teaching tool for the entire industry.

Through the years, the body of published research proving the validity and stability of the 100 Top Hospitals has grown wide.¹⁻²³ We've used the data the 100 Top Hospitals studies yield to learn what makes the winning hospitals the best and how their results differ from those of their peers. We've also undertaken a number of research efforts to dig deeper into the practices of the top organizations' leaders. Through these efforts, we've learned that the best hospitals and health systems:

- Demonstrate excellence across the organization, delivering top-notch patient outcomes, keeping costs down and finances stable so they can invest more back into patient care, following recommended processes, and providing value to the community as a high-quality employer and trusted care partner¹⁻⁵
- Aren't satisfied with one-time accolades. They build on their results and raise their standards year after year⁶
- Follow care standards more closely than their peers⁷⁻¹²
- Exhibit a culture of excellence and performance improvement that pervades every aspect of their organizations — from housekeeping to patient care to administration^{13,18}
- Follow Baldrige practices closely^{13,14}
- Have leaders with common approaches to management and organizational goal development^{13,15-18}
- Use advanced information technology processes¹⁹
- Have strong board leadership^{15-18, 20-23}

We've worked hard to use our tools and techniques to benefit the industry. Read on to learn how the latest winners continue to set benchmarks for other organizations to emulate.

This Year's 100 Top Hospitals and Everest Award Winners

The 100 Top Hospitals study is annual, quantitative research that identifies the hospitals with the best facility-wide performance. To evaluate hospital performance, our team of researchers — including epidemiologists, statisticians, physicians, and former hospital executives — uses public data sources to develop an independent and objective assessment. **Hospitals do not apply and winners do not pay to market this honor.**

At the heart of our research is the 100 Top Hospitals National Balanced Scorecard²⁴, a set of measures that evaluate performance excellence in clinical care, patient perception of care, operational efficiency, and financial stability. To yield fair comparisons, hospitals are measured against peers of similar size and teaching status.

Based on comparisons between the 100 Top Hospitals study winners and a peer group of similar high-volume hospitals that were not winners, we found that if all hospitals performed at the level of this year's winners:

- More than 164,000 additional lives could be saved
- Nearly 82,000 additional patients could be complication-free
- \$6 billion could be saved
- The typical patient could be released from the hospital half a day sooner

We based this analysis on the Medicare patients included in this study. If the same standards were applied to all inpatients, the impact would be even greater.

In a competitive environment like the hospital industry, being a top performer is not enough. Hospital leaders must pay close attention to their competition and better demonstrate their value to consumers and payers. They must also understand what areas still need improvement and find ways to keep improving. In addition to the current 100 Top Hospitals winners, this study also names our Everest Award winners. This award honors a special group of the 100 Top Hospitals award winners who have achieved both the highest recent national performance and the fastest five-year rates of improvement. This year, only 17 hospitals received this award. See the special Everest Award section of this document for more information on the award's methodology and a list of the winners.

The Multi-Faceted 100 Top Hospitals Program

To increase understanding of trends in specific areas of the industry, the 100 Top Hospitals program includes a range of studies and reports:

- 100 Top Hospitals and Everest Award studies, described here
- 50 Top Cardiovascular Hospitals, an annual study identifying hospitals that demonstrate the highest performance in hospital cardiovascular services
- 15 Top Health Systems, a groundbreaking study introduced in 2009 that provides an objective measure of health system performance as a sum of its parts
- The 100 Top Hospitals Performance Matrix, a two-dimensional analysis — available for nearly all U.S. hospitals — that provides a clear view of how long-term improvement and current performance overlap and compare with national peers
- A variety of custom benchmark reports designed to help executives understand how their performance compares with their peers within health systems, states, and markets

You can read more about these studies, and see lists of all winners, by visiting 100tophospitals.com.

About Truven Health Analytics

Truven Health Analytics delivers unbiased information, analytic tools, benchmarks, and services to the healthcare industry. Hospitals, government agencies, employers, health plans, clinicians, pharmaceutical, and medical device companies have relied on us for more than 30 years. We combine our deep clinical, financial, and healthcare management expertise with innovative technology platforms and information assets to make healthcare better by collaborating with our customers to uncover and realize opportunities for improving quality, efficiency, and outcomes. With more than 2,000 employees globally, we have major offices in Ann Arbor, Mich.; Chicago; and Denver. Advantage Suite, Micromedex, ActionOI, MarketScan, and 100 Top Hospitals are registered trademarks or trademarks of Truven Health Analytics.

Award Winners

Truven Health AnalyticsSM is proud to present the 2013 Truven Health 100 Top Hospitals[®] award winners. We stratify winners by five separate peer comparison groups: major teaching, teaching, large community, medium community, and small community hospitals.

For full details on these peer groups and the process we use to select the benchmark hospitals, please see the Methodology section of this document.

Major Teaching Hospitals*		
Hospital	Location	Medicare ID
Advocate Christ Medical Center	Oak Lawn, IL	140208
Advocate Illinois Masonic Medical Center	Chicago, IL	140182
Advocate Lutheran General Hospital	Park Ridge, IL	140223
Baystate Medical Center	Springfield, MA	220077
Beth Israel Deaconess Medical Center	Boston, MA	220086
Christiana Care Health System	Newark, DE	080001
Froedtert & The Medical College of Wisconsin	Milwaukee, WI	520177
NorthShore University HealthSystem	Evanston, IL	140010
Northwestern Memorial Hospital	Chicago, IL	140281
Penn Presbyterian Medical Center	Philadelphia, PA	390223
Providence Hospital and Medical Center	Southfield, MI	230019
St. Joseph Mercy Hospital	Ann Arbor, MI	230156
The Methodist Hospital	Houston, TX	450358
UC San Diego Medical Center	San Diego, CA	050025
University of Michigan Hospitals & Health Centers	Ann Arbor, MI	230046

* Everest Award winners are bolded.

Teaching Hospitals*

Hospital	Location	Medicare ID
Allen Hospital	Waterloo, IA	160110
Avera McKennan Hospital & University Health Center	Sioux Falls, SD	430016
Baptist St. Anthony's Health System	Amarillo, TX	450231
Beaumont Hospital, Troy	Troy, MI	230269
Carolinas Medical Center-Mercy	Charlotte, NC	340098
Grant Medical Center	Columbus, OH	360017
Immanuel Medical Center	Omaha, NE	280081
Kettering Medical Center	Kettering, OH	360079
Lankenau Medical Center	Wynnewood, PA	390195
McKay-Dee Hospital Center	Ogden, UT	460004
Mercy Medical Center	Cedar Rapids, IA	160079
Mission Hospital	Asheville, NC	340002
North Colorado Medical Center	Greeley, CO	060001
Poudre Valley Hospital	Fort Collins, CO	060010
Presbyterian Intercommunity Hospital	Whittier, CA	050169
Riverside Methodist Hospital	Columbus, OH	360006
Rose Medical Center	Denver, CO	060032
Saint Thomas Hospital	Nashville, TN	440082
Saint Vincent Hospital	Worcester, MA	220176
Scripps Green Hospital	La Jolla, CA	050424
St. Luke's Hospital	Cedar Rapids, IA	160045
St. Vincent Indianapolis Hospital	Indianapolis, IN	150084
Sutter Medical Center, Sacramento	Sacramento, CA	050108
United Regional Health Care System	Wichita Falls, TX	450010
Virginia Hospital Center	Arlington, VA	490050

* Everest Award winners are bolded.

Large Community Hospitals*

Hospital	Location	Medicare ID
Advocate Good Samaritan Hospital	Downers Grove, IL	140288
Banner Boswell Medical Center	Sun City, AZ	030061
Billings Clinic Hospital	Billings, MT	270004
Centinela Hospital Medical Center	Inglewood, CA	050739
Central DuPage Hospital	Winfield, IL	140242
Gaston Memorial Hospital	Gastonia, NC	340032
Good Shepherd Medical Center	Longview, TX	450037
Kendall Regional Medical Center	Miami, FL	100209
Lakeland Regional Medical Center	St. Joseph, MI	230021
Martin Health System	Stuart, FL	100044
Maury Regional Medical Center	Columbia, TN	440073
Mease Countryside Hospital	Safety Harbor, FL	100265
Memorial Hermann Memorial City Medical Center	Houston, TX	450610
Memorial Hospital West	Pembroke Pines, FL	100281
Northeast Georgia Medical Center	Gainesville, GA	110029
Ocala Regional Medical Center	Ocala, FL	100212
Providence Little Company of Mary Medical Center	Torrance, CA	050353
St. David's Medical Center	Austin, TX	450431
St. David's North Austin Medical Center	Austin, TX	450809
TriStar Skyline Medical Center	Nashville, TN	440006

* Everest Award winners are bolded.

Medium Community Hospitals*

Hospital	Location	Medicare ID
Aurora Sheboygan Memorial Medical Center	Sheboygan, WI	520035
Baptist Medical Center East	Montgomery, AL	010149
Bon Secours St. Francis Hospital	Charleston, SC	420065
Chino Valley Medical Center	Chino, CA	050586
Doctors Hospital of Sarasota	Sarasota, FL	100166
Garden Grove Hospital Medical Center	Garden Grove, CA	050230
Gulf Coast Medical Center	Panama City, FL	100242
Holland Hospital	Holland, MI	230072
INOVA Fair Oaks Hospital	Fairfax, VA	490101
Lakeview Hospital	Bountiful, UT	460042
Lawrence Memorial Hospital	Lawrence, KS	170137
Licking Memorial Hospital	Newark, OH	360218
Logan Regional Hospital	Logan, UT	460015
McKee Medical Center	Loveland, CO	060030
Mercy Hospital Anderson	Cincinnati, OH	360001
Mercy Hospital Fairfield	Fairfield, OH	360056
Montclair Hospital Medical Center	Montclair, CA	050758
Ogden Regional Medical Center	Ogden, UT	460005
Shasta Regional Medical Center	Redding, CA	050764
West Anaheim Medical Center	Anaheim, CA	050426

* Everest Award winners are bolded.

Small Community Hospitals*

Hospital	Location	Medicare ID
Alta View Hospital	Sandy, UT	460044
Desert Valley Hospital	Victorville, CA	050709
Dublin Methodist Hospital	Dublin, OH	360348
Gulf Breeze Hospital	Gulf Breeze, FL	100266
Hill Country Memorial Hospital	Fredericksburg, TX	450604
Lovelace Westside Hospital	Albuquerque, NM	320074
Major Hospital	Shelbyville, IN	150097
MedStar St. Mary's Hospital	Leonardtown, MD	210028
Mercy Hospital Grayling	Grayling, MI	230058
Ministry Saint Clare's Hospital	Weston, WI	520202
Payson Regional Medical Center	Payson, AZ	030033
Presbyterian Hospital Huntersville	Huntersville, NC	340183
Sacred Heart Hospital on the Emerald Coast	Miramar Beach, FL	100292
San Dimas Community Hospital	San Dimas, CA	050588
Sauk Prairie Memorial Hospital & Clinics	Prairie du Sac, WI	520095
Spectrum Health United Hospital	Greenville, MI	230035
St. Elizabeth Community Hospital	Red Bluff, CA	050042
Sutter Davis Hospital	Davis, CA	050537
Texas Health Harris Methodist Hospital Azle	Azle, TX	450419
Woodwinds Health Campus	Woodbury, MN	240213

* Everest Award winners are bolded.

The Everest Award

The Truven Health 100 Top Hospitals®

Everest Award honors hospitals that have both the highest current performance and the fastest long-term improvement.

This award recognizes the boards, executives, and medical staff leaders who have developed and executed strategies that drove the highest rate of improvement, resulting in the highest performance in the country at the end of five years. Hospitals that win this award are setting national benchmarks for both long-term improvement and top one-year performance.

The Everest Award winners are a special group of the 100 Top Hospitals award winners that, in addition to achieving benchmark status for one year, have simultaneously set national benchmarks for the fastest long-term improvement on our national balanced scorecard.

The 2013 Everest Award Winners

Truven Health AnalyticsSM is proud to present the winners of the second annual Truven Health 100 Top Hospitals Everest Award.

2013 Everest Award Winners*

Hospital	Location	Medicare ID
Advocate Good Samaritan Hospital	Downers Grove, IL	140288
Advocate Illinois Masonic Medical Center	Chicago, IL	140182
Advocate Lutheran General Hospital	Park Ridge, IL	140223
Allen Hospital	Waterloo, IA	160110
Doctors Hospital of Sarasota	Sarasota, FL	100166
Good Shepherd Medical Center	Longview, TX	450037
Grant Medical Center	Columbus, OH	360017
Lakeview Hospital	Bountiful, UT	460042
Maury Regional Medical Center	Columbia, TN	440073
McKay-Dee Hospital Center	Ogden, UT	460004
Mease Countryside Hospital	Safety Harbor, FL	100265
Mercy Hospital Grayling	Grayling, MI	230058
Riverside Methodist Hospital	Columbus, OH	360006
United Regional Health Care System	Wichita Falls, TX	450010
University of Michigan Hospitals & Health Centers	Ann Arbor, MI	230046
Virginia Hospital Center	Arlington, VA	490050
Woodwinds Health Campus	Woodbury, MN	240213

Value to the Healthcare Industry

Leaders making critical decisions in an increasingly transparent environment must have more sophisticated intelligence that provides clearer insight into the complexity of changing organizational performance. They must also balance short- and long-term goals to drive continuous gains in performance and value. By comparing individual hospital and health system performance with integrated national benchmarks for highest achievement and improvement, we provide unique new insights for making smarter decisions that will achieve their mission and consistently increase value to the community.

Transparency presents hospital boards and CEOs with a very public challenge to increase the value of core services to their communities. Providing real value is not a one-time event — it is a continuous process of increasing worth over time. Leaders of hospitals and health systems must develop strategies to continuously strengthen both their organizations and the value of their services to the community.

Integrating national benchmarks for highest achievement with national benchmarks for fastest long-term improvement radically increases the value of objective business information available for strategy development and decision making. Comparing hospital or health system performance to these integrated benchmarks allows leaders to review the effectiveness of long-term strategies that led to current performance. This integrated information enables boards and CEOs to better answer multi-dimensional questions, such as:

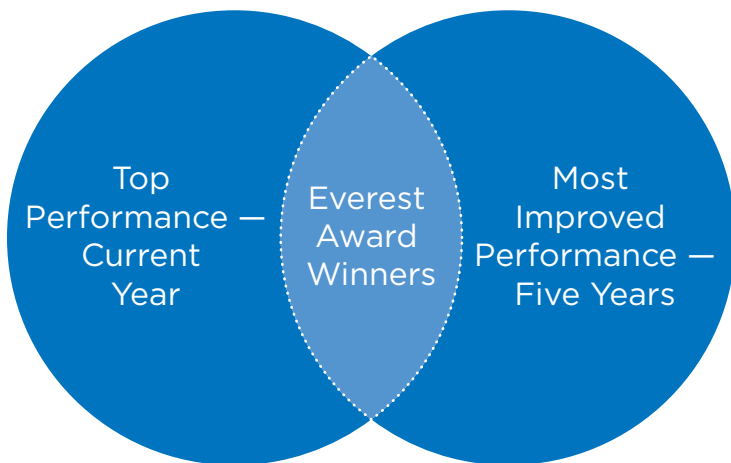
- Did our long-term strategies result in a stronger hospital across all performance areas?
- Did our strategies drive improvement in some areas but inadvertently cause deteriorating performance in others?
- What strategies will help us increase the rate of improvement in the right areas to come closer to national performance levels?
- What incentives do we set for management to achieve the desired improvement more quickly?
- Will the investments we're considering help us achieve improvement goals for the hospital or health system?
- Can we quantify the long- and short-term increases in value our hospital has provided to our community?

How We Select the Everest Award Winners

Winners of the 100 Top Hospitals Everest Award are setting national benchmarks for both long-term (three- to five-year) improvement and highest one-year performance on the study's balanced scorecard. Everest Award winners are selected from among the new 100 Top Hospitals award winners. The national award and the Everest Award are based on a set of measures that reflect highly effective performance across the whole organization.

Our methodology for selecting the Everest Award winners can be summarized in three main steps:

1. Selecting the annual 100 Top Hospitals award winners using our objective methodology* based on publicly available data and a balanced scorecard of performance measures
2. Using our multi-year trending methodology to select the 100 hospitals that have shown the fastest, most consistent five-year improvement rates on the same balanced scorecard of performance measures†
3. Aligning these two lists of hospitals and looking for overlap; those that ranked in the top 100 of both lists are the Everest Award winners



Combining these two methodologies yields a very select group of Everest Award winners; the number of winners will vary every year, based solely on performance. This year, only 17 hospitals achieved this status.

Data Sources

As with all of the 100 Top Hospitals awards, our methodology is objective and all data come from trusted public sources. We build a database of short-term, acute-care, nonfederal U.S. hospitals that treat a broad spectrum of patients. The primary data sources are the Medicare Provider Analysis and Review (MedPAR) dataset and the Medicare Cost Report. We use the most recent five years of Cost Report and three years of MedPAR data available.

Several other datasets are also used. Core measures and patient satisfaction (Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey) data are from the Centers for Medicare and Medicaid Services (CMS) Hospital Compare dataset. Residency program information, used in classifying teaching hospitals, is from the American Medical Association (Accreditation Council for Graduate Medical Education (ACGME)-accredited programs) and the American Osteopathic Association (AOA).

After excluding hospitals with data that would skew study results (e.g., specialty hospitals), we have a database study group of nearly 3,000 hospitals.

*For full details on how the 100 Top Hospitals winners are selected, please see the Methodology section of this document.

†Due to availability of Present on Admission (POA) data, the clinical measures are based on only three years of data. See the Performance Measures section below for details.

Comparison Groups

Because bed size and teaching status have a profound effect on the types of patients a hospital treats and the scope of services it provides, we assigned each hospital in our study database to one of five comparison groups, or classes, according to its size and teaching status (for definitions of each group, see the Methodology section):

- Major Teaching Hospitals
- Teaching Hospitals
- Large Community Hospitals
- Medium Community Hospitals
- Small Community Hospitals

To judge hospitals fairly and compare them to like hospitals, we use these classes for all scoring and ranking of hospitals to determine winners. For more information on how we build the database, please see the Methodology section of this document.

Performance Measures

Both the 100 Top Hospitals award and the Everest Award are based on a set of measures that reflect highly effective performance across the whole organization, including board members, medical staff, management, and nursing. These measures include patient outcomes and safety, national treatment standards (core measures), patient satisfaction, operational efficiency, and financial stability.

The 10 measures used to select the 2013 winners are:

1. Risk-adjusted mortality index (in-hospital)[†]
2. Risk-adjusted complications index[†]
3. Risk-adjusted patient safety index[†]
4. Core measures mean percent
5. 30-day risk-adjusted mortality rate for acute myocardial infarction (AMI), heart failure, and pneumonia
6. 30-day risk-adjusted readmission rate for AMI, heart failure, and pneumonia
7. Severity-adjusted average length-of-stay[†]
8. Case mix- and wage-adjusted inpatient expense per discharge
9. Adjusted operating profit margin
10. HCAHPS score (patient rating of overall hospital performance)

For full details, including calculation and scoring methods, please see the Methodology section.

For the in-hospital mortality, complications, and patient safety — clinical measures with low frequency of occurrence — we combine two years of data for each study year to stabilize results. Starting with the 2013 100 Top Hospitals studies, the Truven Health risk models have been re-calibrated using MedPAR 2009, 2010, and 2011 data sets to take advantage of Present on Admission (POA) coding. POA coding first became available in the 2009 MedPAR data set, so data are only available for three years.

[†]Due to availability of Present on Admission (POA) data, these measures contain only three years of data (2009, 2010, and 2011).

In this study, we trended only three years, rather than the five used in previous studies, combining data as follows:

- Study year 2011 = 2011 and 2010 MedPAR datasets
- Study year 2010 = 2010 and 2009 MedPAR datasets
- Study year 2009 = 2009 and 2009 MedPAR datasets

The average length-of-stay measure is trended using only three years of data with POA as well, but the data years are not combined for this metric. One year of data for each study year is used. All other measures use five years of data.

For specific data years used for each measure, please see page 41 of the Methodology section.

Final Selection: Ranking and Five-Year Trending

To select the 100 Top Hospitals award winners, we rank hospitals on the basis of their current-year performance on each of the study measures relative to other hospitals in their comparison group. We then sum each hospital's performance-measure rankings and re-rank them, overall, to arrive at a final rank for the hospital. (The 30-day rates by patient condition each receive a weight of one-sixth. All other measures receive a weight of one.) The hospitals with the best final ranks in each comparison group are selected as the 100 Top Hospitals award winners.

Separately, for every hospital in the study, we calculate a t-statistic that measures five-year^{*} performance improvement on each of the 10 performance measures. This statistic measures both the direction and magnitude of change in performance, and the statistical significance of that change. Within the five comparison groups, we rank hospitals on the basis of their performance improvement t-statistic on each of the study measures relative to other hospitals in their group. We then sum each hospital's performance-measure rankings and re-rank them, overall, to arrive at a final rank for the hospital. The hospitals with the best final rank in each comparison group are selected as the performance improvement benchmark hospitals.

As our final step, we align the two groups of benchmark hospitals and look for overlap. Those that are identified as benchmarks on both lists are the Everest Award winners.

^{*}Due to availability of Present on Admission (POA) data, certain measures contain only three years of data (2009, 2010, and 2011). See previous page for details.

Findings

The Truven Health 100 Top Hospitals® outperform their peers by demonstrating balanced excellence — operating effectively across all functional areas of their organizations. There’s no better way to see how the nation’s health and the industry’s bottom lines could be improved than by aggregating the winner-versus-nonwinner data from this study.

Based on comparisons between the study winners and a peer group of similar high-volume hospitals that were not winners, we found that if all hospitals performed at the level of this year’s winners:

- More than 164,000 additional lives could be saved
- Nearly 82,000 additional patients could be complication-free
- \$6 billion could be saved
- The typical patient could be released from the hospital half a day sooner

We based this analysis on the Medicare patients included in this study. If the same standards were applied to all inpatients, the impact would be even greater.

How Are the Winners Outperforming Their Peers?

In this section, we show how the 100 Top Hospitals performed within their comparison groups, or classes (major teaching and teaching hospitals; and large, medium, and small community hospitals), compared with nonwinning peers. For performance measure details and definitions of each comparison group, please see the Methodology section.

In Tables 1-6, data for the 100 Top Hospitals award winners are labeled Benchmark, and data for all hospitals, excluding award winners, are labeled Peer Group. In columns labeled Benchmark Compared with Peer Group, we calculate the actual and percentage difference between the benchmark hospital scores and the peer group scores. We found:

100 Top Hospitals Have Better Survival Rates

- The winners had 7 percent fewer deaths than expected, considering patient severity, while their nonwinning peers had as many deaths as would be expected (Table 1).
- Small community hospitals had the best survival rates and the most dramatic difference between winners and nonwinners. Winning hospitals had 14 percent fewer deaths than expected, while their peers had only 1 percent fewer (Table 6).
- Major teaching hospitals are large organizations impacting many patient lives. In this group, winning hospitals had 4 percent fewer deaths than nonwinning hospitals. Large and medium-sized community hospitals also had a big impact, with 5 and 6 percent fewer deaths, respectively, than their nonwinning peers (Table 2).

100 Top Hospitals Have Fewer Patient Complications

- Patients at the winning hospitals had 6 percent fewer complications than expected, considering patient severity, while their nonwinning peers had only 1 percent fewer complications than expected (Table 1).
- Medium-sized community hospitals had the most dramatic difference between winners and nonwinners. Winning hospitals had 10 percent fewer patient complications than nonwinning hospitals (Table 5).
- Winning major teaching hospitals had 2 percent fewer complications than nonwinning hospitals (Table 2).

100 Top Hospitals Follow Accepted Care Protocols and Patient Safety Standards More Closely

- The winning hospitals do a better job avoiding adverse patient safety events and are following accepted care standards (core measures) more closely.
- A patient safety index (PSI) of 0.86 tells us that the winning hospitals had 14 percent fewer adverse patient safety events than expected; their peers had only 1 percent fewer adverse events than expected (Table 1).
- Small and medium-sized community hospitals had the best patient safety scores and the most dramatic differences between winners and nonwinners. Small winning hospitals had 41 percent fewer adverse patient safety events than nonwinning hospitals (Tables 5 and 6).
- The winning hospitals' higher core measures mean percentage of 98.1 tells us that they had better adherence to recommended core measures of care than their peers, who had a median of 96.3 percent (Table 1).
- Although core measures scores were fairly consistent among the hospital teaching status and size comparison groups, winning medium-sized community hospitals had the best core measures scores overall (Table 5).

100 Top Hospitals Have Better Longer-Term Outcomes

- 30-day mortality and readmission rates are lower at the winning hospitals overall.
- 30-day mortality outcomes: The difference between winning and nonwinning hospitals was greatest for pneumonia patients.
- 30-day readmissions: The difference between winning and nonwinning hospitals was greatest for heart failure patients, with winners performing over 1 percentage point better than nonwinners (Table 1).

100 Top Hospitals Hold Down Expenses

- The typical winning hospital charges \$624 less per discharge than the typical nonwinner (Table 1).
- Of all the comparison groups, the top medium-sized community hospitals had the lowest expenses and outperformed their peers by the widest margin (Table 5).

Patients Treated At 100 Top Hospitals Return Home Sooner

- Winning hospitals have a median average length-of-stay of 4.4 days, more than half a day shorter than their peers' median of nearly 5 days (Table 1).
- The winning medium-sized and small community hospitals had the shortest ALOS — 4.2 days — of all the groups (Tables 5 and 6).

Patients Treated at 100 Top Hospitals Report a Better Overall Hospital Experience Than Those Treated in Peer Hospitals

- The winners' higher median Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score tells us that patients treated at the 100 Top Hospitals are reporting a better overall hospital experience than those treated in peer hospitals.
- The top small community hospitals had the highest HCAHPS scores (Table 6).

Table 1: National Performance Comparisons (All Classes)

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.93	1.00	-0.07	-6.6%	lower mortality
Complications Index ¹	0.94	0.99	-0.05	-4.8%	lower complications
Patient Safety Index ²	0.86	0.99	-0.13	-12.7%	better patient safety
Core Measures Mean Percent (%) ³	98.1	96.3	1.8	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	14.8	15.4	-0.6	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	11.1	11.5	-0.4	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	11.1	11.9	-0.8	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	18.9	19.6	-0.7	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	23.6	24.7	-1.1	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	18.2	18.5	-0.3	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.44	4.98	-0.54	-10.9%	shorter ALOS
Inpatient Expense per Discharge (\$)	5,548	6,172	-624	-10.1%	lower expenses
Operating Profit Margin (%)	14.2	3.7	10.5	n/a ⁵	higher profitability
HCAHPS Score ³	267	259	8	3.1%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1–Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008–June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

Table 2: Major Teaching Hospital Performance Comparisons

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.96	1.00	-0.04	-4.3%	lower mortality
Complications Index ¹	0.98	1.00	-0.02	-1.9%	lower complications
Patient Safety Index ²	0.92	1.00	-0.08	-7.8%	better patient safety
Core Measures Mean Percent (%) ³	98.1	96.2	1.9	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	13.8	14.9	-1.1	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	9.9	10.6	-0.7	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	10.9	11.6	-0.7	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	19.8	20.5	-0.7	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	25.9	25.7	0.2	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	20.5	19.4	1.1	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.65	5.03	-0.38	-7.6%	shorter ALOS
Inpatient Expense per Discharge (\$)	7,730	7,222	508	7.0%	lower expenses
Operating Profit Margin (%)	9.7	3.1	6.7	n/a ⁵	higher profitability
HCAHPS Score ³	265	258	7	2.7%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1-Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008-June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

Table 3: Teaching Hospital Performance Comparisons

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.95	1.00	-0.04	-4.4%	lower mortality
Complications Index ¹	0.97	1.00	-0.03	-2.9%	lower complications
Patient Safety Index ²	0.95	1.00	-0.05	-4.7%	better patient safety
Core Measures Mean Percent (%) ³	97.9	96.5	1.4	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	14.6	15.1	-0.5	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	11.1	11.3	-0.2	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	11.5	11.6	-0.1	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	18.4	19.7	-1.3	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	23.0	24.4	-1.4	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	18.1	18.6	-0.5	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.41	5.06	-0.65	-12.8%	shorter ALOS
Inpatient Expense per Discharge (\$)	5,716	6,056	-340	-5.6%	lower expenses
Operating Profit Margin (%)	12.7	4.5	8.3	n/a ⁵	higher profitability
HCAHPS Score ³	269	259	10	3.9%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1-Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008-June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

Table 4: Large Community Hospital Performance Comparisons

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.95	1.00	-0.05	-5.0%	lower mortality
Complications Index ¹	0.95	1.00	-0.05	-4.9%	lower complications
Patient Safety Index ²	0.89	0.99	-0.10	-9.9%	better patient safety
Core Measures Mean Percent (%) ³	98.3	96.8	1.5	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	14.8	15.2	-0.4	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	11.5	11.3	0.2	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	11.2	11.6	-0.4	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	19.1	19.7	-0.6	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	23.1	24.7	-1.6	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	18.6	18.5	0.1	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.58	5.12	-0.54	-10.6%	shorter ALOS
Inpatient Expense per Discharge (\$)	5,246	6,027	-780	-12.9%	lower expenses
Operating Profit Margin (%)	10.9	5.5	5.4	n/a ⁵	higher profitability
HCAHPS Score ³	265	259	6	2.3%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1–Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008–June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

Table 5: Medium-Sized Community Hospital Performance Comparisons

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.94	1.00	-0.06	-6.2%	lower mortality
Complications Index ¹	0.90	1.00	-0.10	-10.0%	lower complications
Patient Safety Index ²	0.74	0.99	-0.25	-25.4%	better patient safety
Core Measures Mean Percent (%) ³	98.4	96.5	2.0	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	14.8	15.5	-0.7	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	11.0	11.5	-0.5	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	11.4	11.9	-0.5	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	18.8	19.5	-0.7	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	23.6	24.7	-1.1	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	17.4	18.5	-1.2	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.20	5.06	-0.86	-16.9%	shorter ALOS
Inpatient Expense per Discharge (\$)	4,833	6,055	-1,222	-20.2%	lower expenses
Operating Profit Margin (%)	17.1	4.5	12.6	n/a ⁵	higher profitability
HCAHPS Score ³	263	257	6	2.1%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1–Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008–June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

Table 6: Small Community Hospital Performance Comparisons

Performance Measure	Medians		Benchmark Compared With Peer Group		
	Current Benchmark	Peer Group of U.S. Hospitals	Actual	Percent	Desired Direction
Mortality Index ¹	0.86	0.99	-0.13	-12.9%	lower mortality
Complications Index ¹	0.90	0.96	-0.06	-6.7%	lower complications
Patient Safety Index ²	0.59	0.99	-0.40	-40.5%	better patient safety
Core Measures Mean Percent (%) ³	98.0	95.8	2.1	n/a ⁵	better core measure performance
AMI 30-Day Mortality Rate (%) ⁴	15.9	15.7	0.2	n/a ⁵	lower 30-day mortality
HF 30-Day Mortality Rate (%) ⁴	11.5	11.8	-0.3	n/a ⁵	lower 30-day mortality
Pneumonia 30-Day Mortality Rate (%) ⁴	11.1	12.1	-1.0	n/a ⁵	lower 30-day mortality
AMI 30-Day Readmission Rate (%) ⁴	18.8	19.4	-0.6	n/a ⁵	lower 30-day readmissions
HF 30-Day Readmission Rate (%) ⁴	23.6	24.6	-1.1	n/a ⁵	lower 30-day readmissions
Pneumonia 30-Day Readmission Rate (%) ⁴	17.4	18.2	-0.8	n/a ⁵	lower 30-day readmissions
Average Length-of-stay (days) ¹	4.20	5.04	-0.84	-16.7%	shorter ALOS
Inpatient Expense per Discharge (\$)	5,434	6,321	-887	-14.0%	lower expenses
Operating Profit Margin (%)	14.9	2.1	12.8	n/a ⁵	higher profitability
HCAHPS Score ³	271	260	11	4.0%	higher hospital rating

1. Based on POA-enabled risk models applied to MedPAR 2010 and 2011 data.

2. Based on AHRQ POA-enabled risk models applied to MedPAR 2010 and 2011 data. Ten PSIs included; see Appendix C for list.

3. Data from CMS Hospital Compare 2012 Q3 release (January 1–Dec 31, 2011 data set). See Appendix C for included core measures.

4. Data from CMS Hospital Compare 2012 Q3 release (July 1, 2008–June 30, 2011 dataset).

5. We do not calculate percent difference for this measure because it is already a percent value. See Appendix C for details.

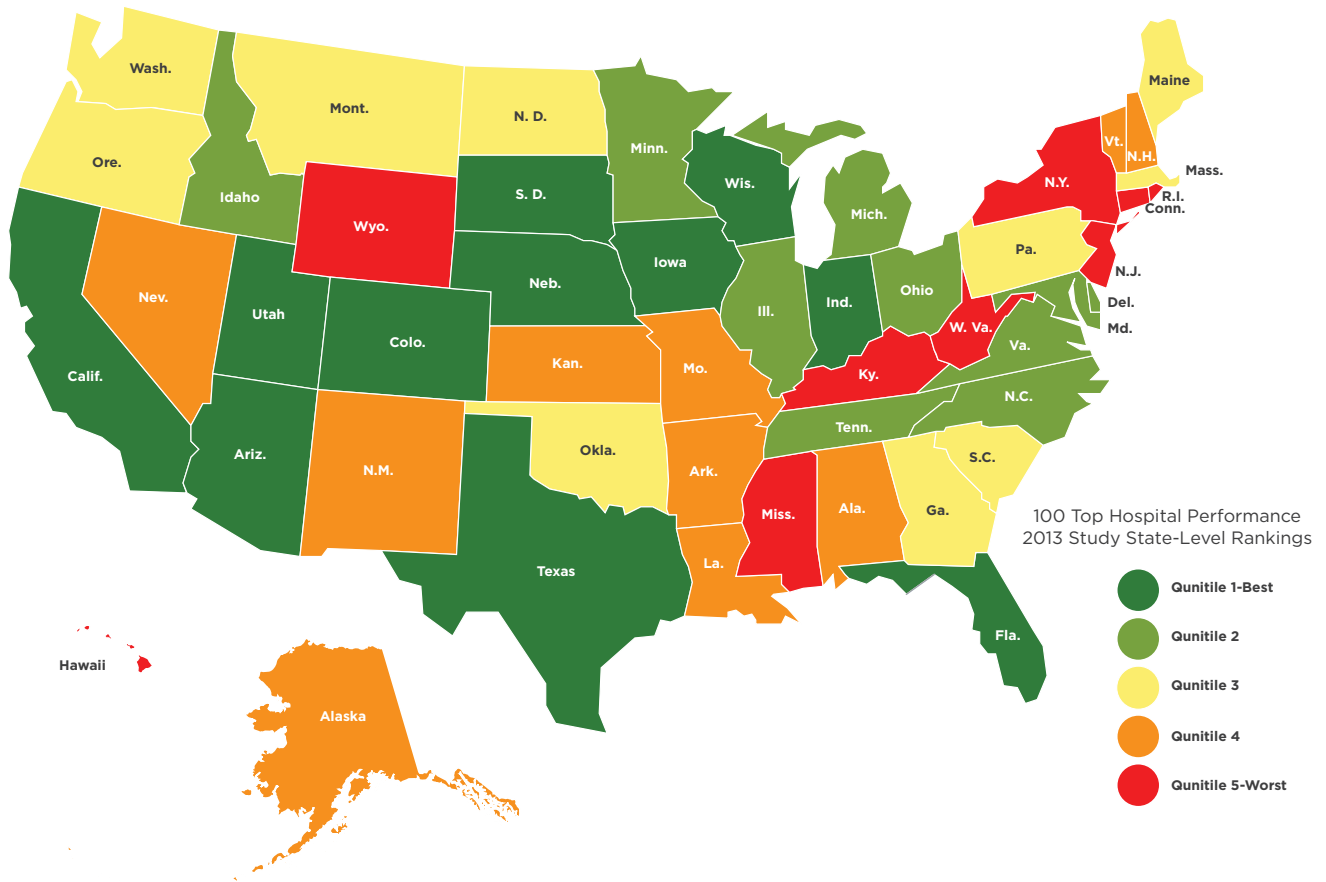
Midwest Leads in Hospital Performance

Hospital performance varies widely throughout the country. Regional differences in the population's age and health, as well as differences in payment protocols, greatly affect hospitals' abilities to improve patient outcomes and build healthy business structures. The methodology of the 100 Top Hospitals studies helps to level the playing field for some of the factors beyond a hospital's control by adjusting for patient severity, wage differences, and hospital size and teaching status. Still, regional variations in hospital performance are clear.

In this year's study, about a third (35 and 32 out of 100, respectively) of the award winners were located in the Midwest and South census regions. The West was close behind, with 28 of the 100 winners. The Northeast had far fewer winning hospitals — just 5 of the 2013 were located in this region. (See Appendix A for a breakdown of all winners by state and census region, and Appendix B for a list of all states in each region.)

Because the regions do not have equal numbers of hospitals, evaluating hospital performance by looking at the number of winners by region can be deceiving. To further assess regional performance, we prepared analysis that demonstrates state-level performance over the last two years of the 100 Top Hospitals study. To show performance by state, we ranked states and aggregated them into five equal groups (quintiles) based on their performance in this year's study versus other states.

Figure 1: State-Level Performance Comparisons, 2013 Study*



*State Data Note: The 2013 state findings are based on the 100 Top Hospitals measure methodologies, using 2010 and 2011 MedPAR data (combined) for clinical measures and 2011 data for all other measures.

By assigning a color to each quintile, the maps (Figures 1 and 2) provide a visual representation of the variability in performance across the country for the current and previous studies (2013 and 2012). Additionally, Table 7 shows each state's rank, in quintiles, for the current and previous-year studies. This analysis allows us to observe geographic patterns in performance. Among our observations:

- In both years, the Midwest was the clear front-runner in performance versus peers. Three-quarters of the states in this region were in the top-performing two quintiles both study years. No states in this region fell into one of the bottom two quintiles (Table 1).
- Overall, 42 percent of all top-performing states (those in the best quintile) were located in the Midwest in this year's study.
- The West had the greatest number and highest percentage of states that improved their performance (moved into a higher quintile) between the two study years.
- The Northeast showed the weakest performance overall, with 67 percent of the region's states in the lowest-performing two quintiles in the current study and 56 percent in the previous.
- In this year's study, the South and West had about equal percentages of hospitals in the highest and lowest two quintiles.

Figure 2: State-Level Performance Comparisons, 2012 Study

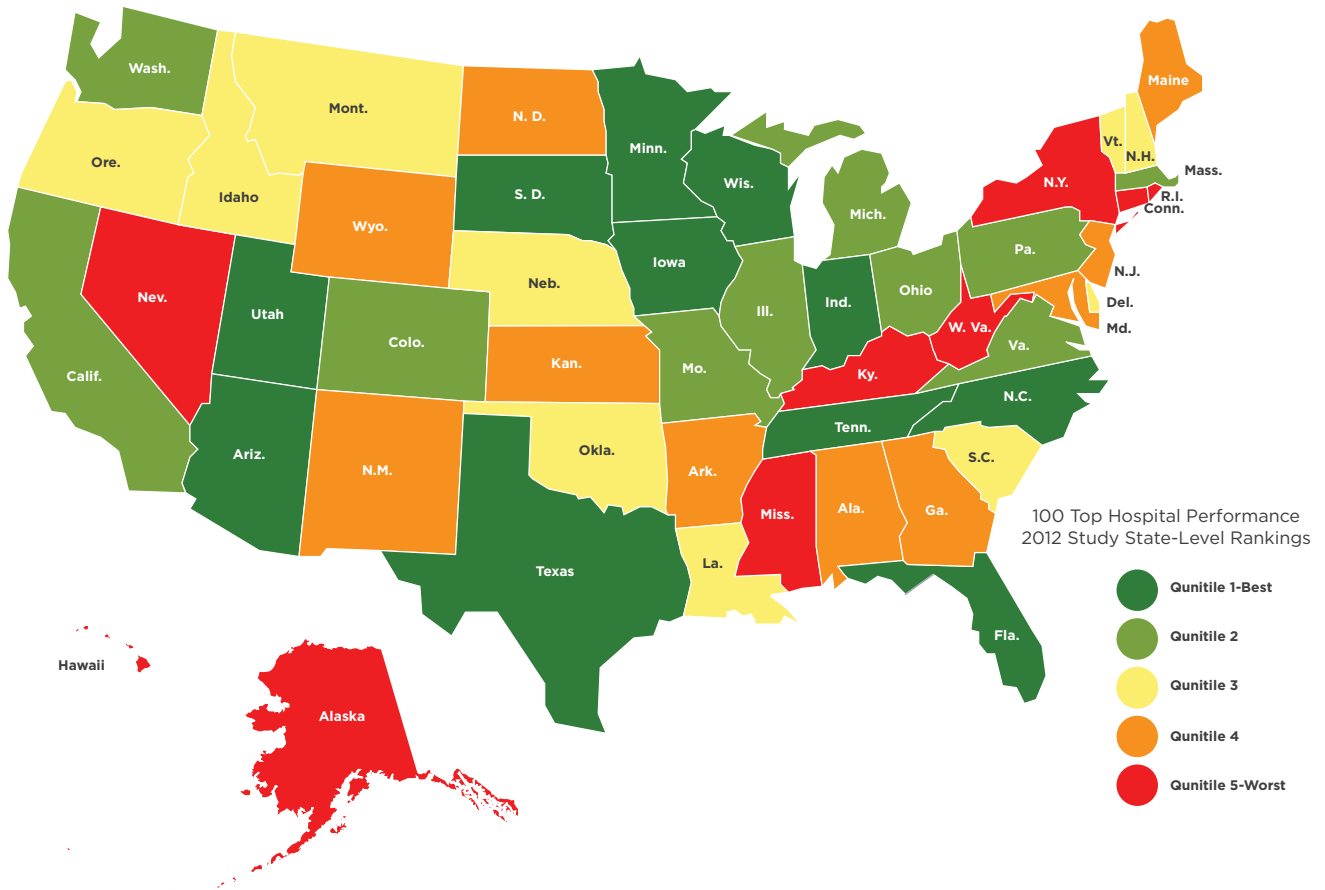


Table 7: 100 Top Hospitals Two-Year State-Level Performance Comparisons

Northeast		Midwest		South		West	
2013 Study*	2012 Study	2013 Study	2012 Study	2013 Study	2012 Study	2013 Study	2012 Study
Connecticut	Connecticut	Illinois	Illinois	Alabama	Alabama	Alaska	Alaska
Maine	Maine	Indiana	Indiana	Arkansas	Arkansas	Arizona	Arizona
Massachusetts	Massachusetts	Iowa	Iowa	Delaware	Delaware	California	California
New Hampshire	New Hampshire	Kansas	Kansas	District of Columbia	District of Columbia	Colorado	Colorado
New Jersey	New Jersey	Michigan	Michigan	Florida	Florida	Hawaii	Hawaii
New York	New York	Minnesota	Minnesota	Georgia	Georgia	Idaho	Idaho
Pennsylvania	Pennsylvania	Missouri	Missouri	Kentucky	Kentucky	Montana	Montana
Rhode Island	Rhode Island	Nebraska	Nebraska	Louisiana	Louisiana	Nevada	Nevada
Vermont	Vermont	North Dakota	North Dakota	Maryland	Maryland	New Mexico	New Mexico
		Ohio	Ohio	Mississippi	Mississippi	Oregon	Oregon
		South Dakota	South Dakota	North Carolina	North Carolina	Utah	Utah
		Wisconsin	Wisconsin	Oklahoma	Oklahoma	Washington	Washington
				South Carolina	South Carolina	Wyoming	Wyoming
				Tennessee	Tennessee		
				Texas	Texas		
				Virginia	Virginia		
				West Virginia	West Virginia		

*State Data Note: The 2013 state findings are based on the 100 Top Hospitals measure methodologies, using 2010 and 2011 MedPAR data (combined) for clinical measures and 2011 data for all other measures.

Performance Improvement Over Time: All Hospitals

By studying the direction of performance change of all hospitals in our study (winners and nonwinners), we can see that, in recent years, U.S. hospitals have not been able to significantly improve overall performance across the entire balanced scorecard (Table 8). But, over the years we studied (2009 through 2011 for the mortality, complications, patient safety, and length-of-stay measures; 2007 through 2011 for the core measures, expenses, profit margin, and HCAHPS score measures), there were noteworthy performance improvements in adherence to core measures and overall patient satisfaction (HCAHPS score) (see green column):

- Nearly three-quarters of the hospitals studied improved their core measures score.
- Almost a quarter improved their overall patient satisfaction score (HCAHPS).

For the remainder of the measures, the majority of hospitals in the study had no statistically significant change in performance (yellow column).

On the operating efficiency front, nearly a quarter of the hospitals studied (23.6 percent) had a significant increase in expense per discharge.

Table 8: Direction of Performance Change for All Hospitals in Study, Multi-Year Trend

Performance Measure	Significantly Improving Performance		No Statistically Significant Change in Performance		Significantly Declining Performance	
	Count of Hospitals ¹	Percent of Hospitals ²	Count of Hospitals ¹	Percent of Hospitals ²	Count of Hospitals ¹	Percent of Hospitals ²
Risk-Adjusted Mortality Index ³	26	0.9%	2,707	97.1%	55	2.0%
Risk-Adjusted Complication Index ³	43	1.5%	2,695	96.7%	50	1.8%
Risk-Adjusted Patient Safety Index ³	22	0.9%	2,480	97.4%	44	1.7%
Core Measures Mean Percent ⁴	2,003	71.8%	785	28.2%	0	0.0%
Severity-Adjusted Average Length-of-stay ³	27	1.0%	2,737	98.2%	24	0.9%
Adjusted Inpatient Expense per Discharge ⁴	43	1.5%	2,083	74.9%	656	23.6%
Operating Profit Margin ⁴	224	8.1%	2,395	86.4%	154	5.6%
HCAHPS Score ⁴	651	23.4%	2,088	74.9%	49	1.8%

1. Count refers to the number of in-study hospitals whose performance fell into the highlighted category on the measure.

2. Percent is the total in-study hospitals across all peer groups.

3. Data shown are for the three years for which Present on Admission (POA) coding is available (2009-2011). See the Everest Award section for details.

4. Data shown are for five years (2007-2011).

Note: Total number of hospitals included in the analysis will vary by measure due to exclusion of IQR outlier data points. Patient Safety Index, Inpatient Expense, and Operating Profit Margin are affected. Some in-study hospitals had too few data points remaining to calculate the trend.

Performance Improvement Over Time

The line graphs on the following pages show individual performance-measure trends comparing how the hospitals in our study that had the fastest, most consistent multi-year rate of performance improvement (labeled as “Benchmark”) performed versus their peers (those that did not have the fastest multi-year improvement) on each study performance measure. The peer and benchmark lines represent the best-fit straight line through the data over the years studied (2009 through 2011 for the mortality, complications, patient safety, and length-of-stay measures; 2007 through 2011 for the core measures, expenses, profit margin, and HCAHPS score measures).

Clinical Quality

Figures 3–4 show how the hospitals with the best multi-year performance improvement have made consistent improvement on clinical measures:

- The hospitals with the most consistent multi-year performance improvement (benchmark) lowered patient mortality and complications, but their peers had an increase in mortality rates and flat complications rates (Figures 3 and 5).
- The benchmark group reduced adverse safety events at a rapid pace, while their peers had a notable increase in adverse events (Figure 5).
- Both groups had a steady increase in core measures scores through the years (Figure 6).

Figure 3: Hospitals with Best Performance Improvement Rates Versus Peers, Risk-Adjusted Mortality Index

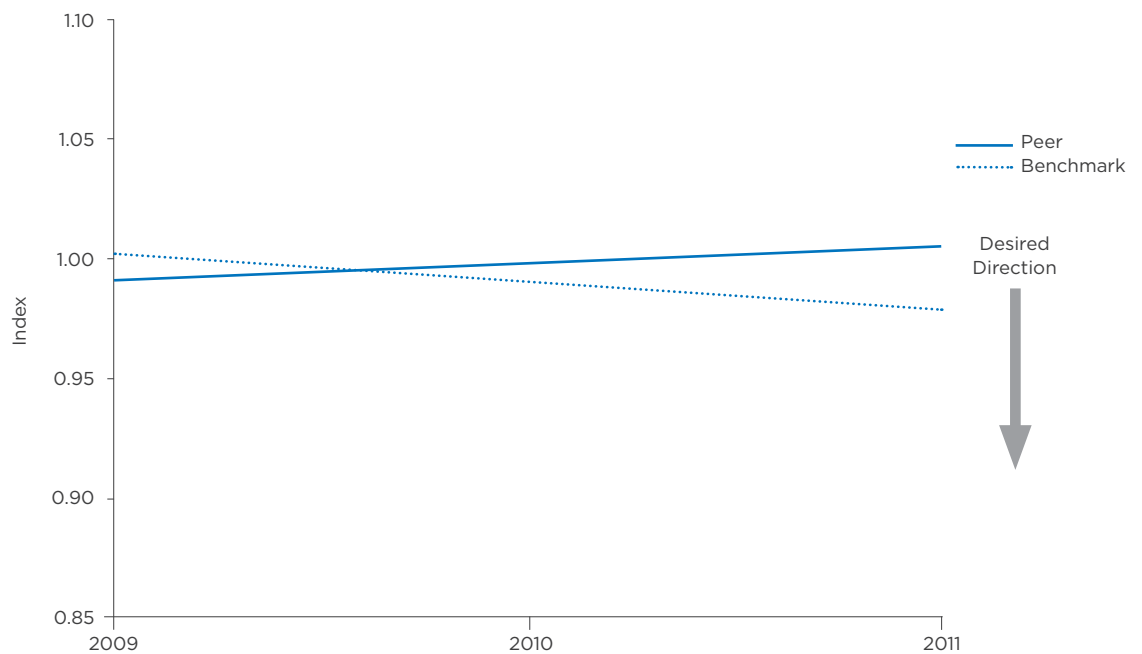


Figure 4: Hospitals with Best Performance Improvement Rates Versus Peers, Risk-Adjusted Complications Index

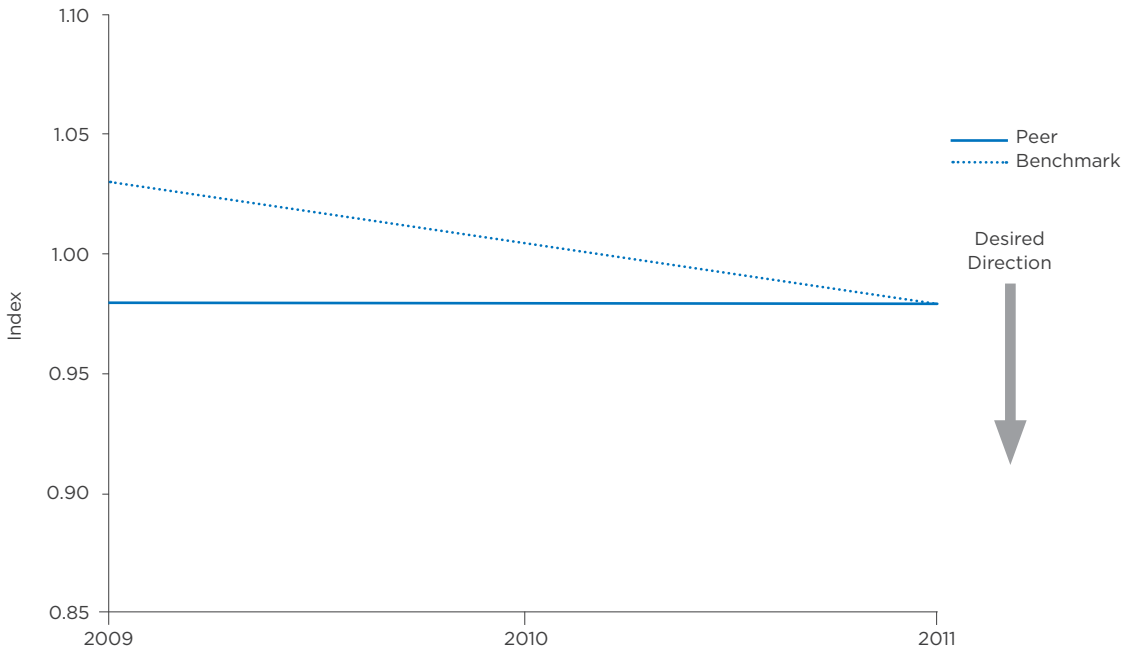


Figure 5: Hospitals with Best Performance Improvement Rates Versus Peers, Risk-Adjusted Patient Safety Index

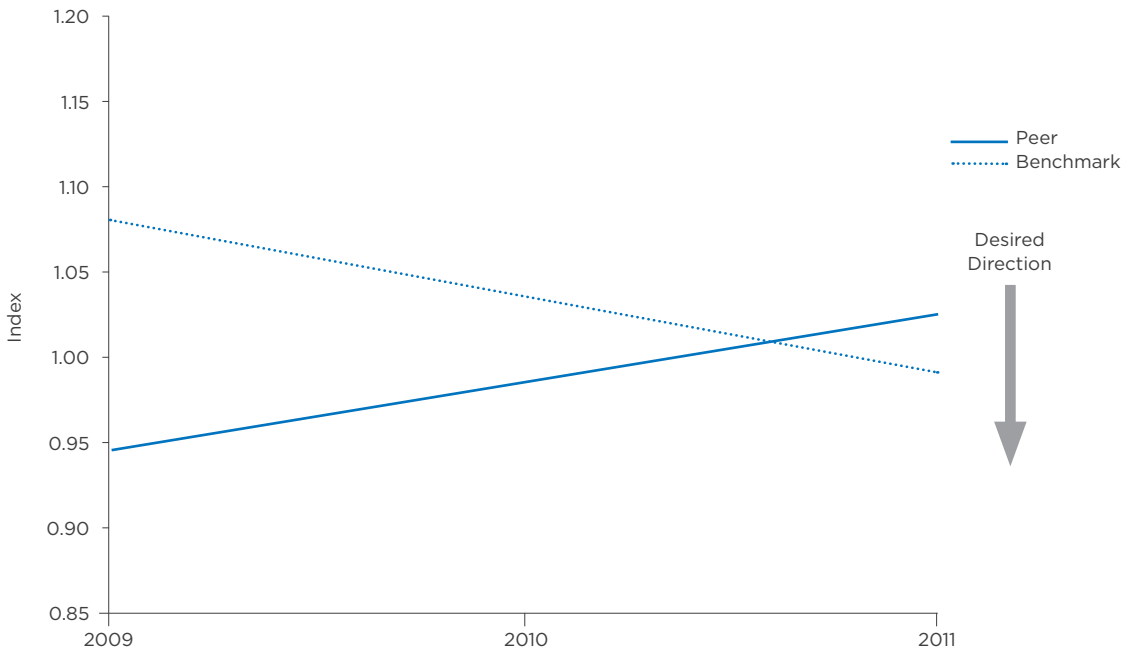
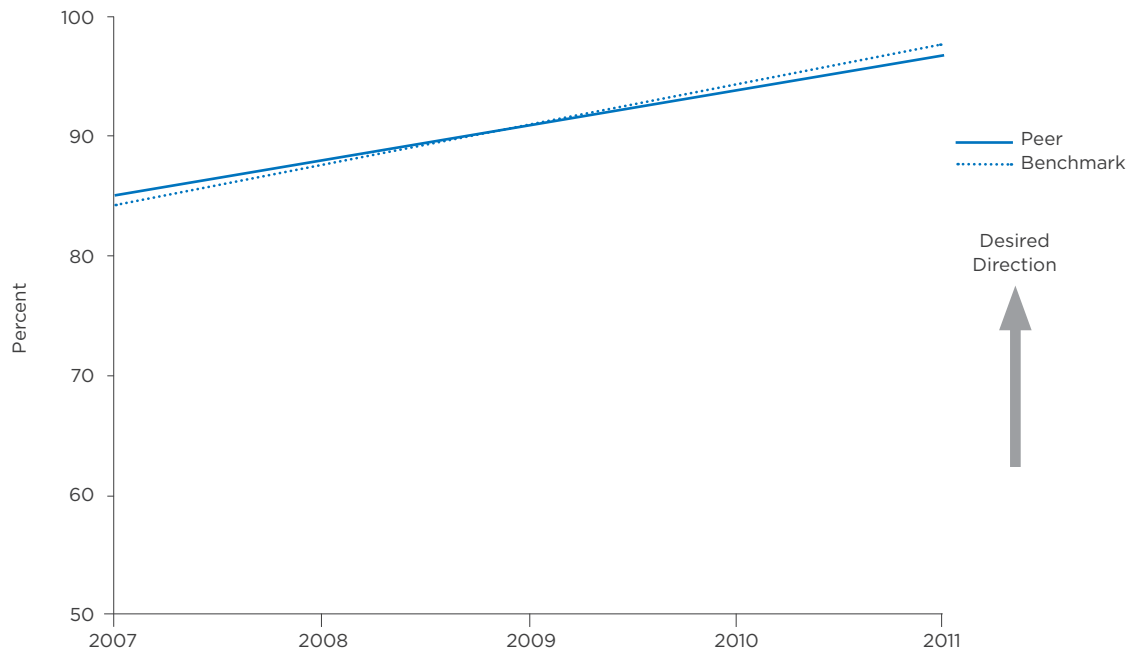


Figure 6: Hospitals with Best Performance Improvement Rates Versus Peers, Core Measures Mean Percent



Efficiency

Figures 7–9 demonstrate how the hospitals in our study with the fastest, most consistent multi-year improvement rates (benchmark group) have improved their efficiency and financial position:

- The benchmarks in this analysis shortened ALOS by a half a day, but their peers saw a decrease of just one-tenth of a day (Figure 7).
- Although both groups had increasing inpatient expenses, the benchmark group had a much slower increase — the median expense at the peer hospitals increased 13 percent, while the benchmark group saw an increase of only 2 percent (Figure 8).
- Profit margin differences were dramatic. The benchmark group increased their operating profit margin from 0.7 to 8.7 percent in the years studied, while the peer group hospitals kept their margin relatively flat at around 4.4 percent (Figure 9).

Figure 7: Hospitals with Best Performance Improvement Rates Versus Peers, Severity-Adjusted Average Length-of-stay

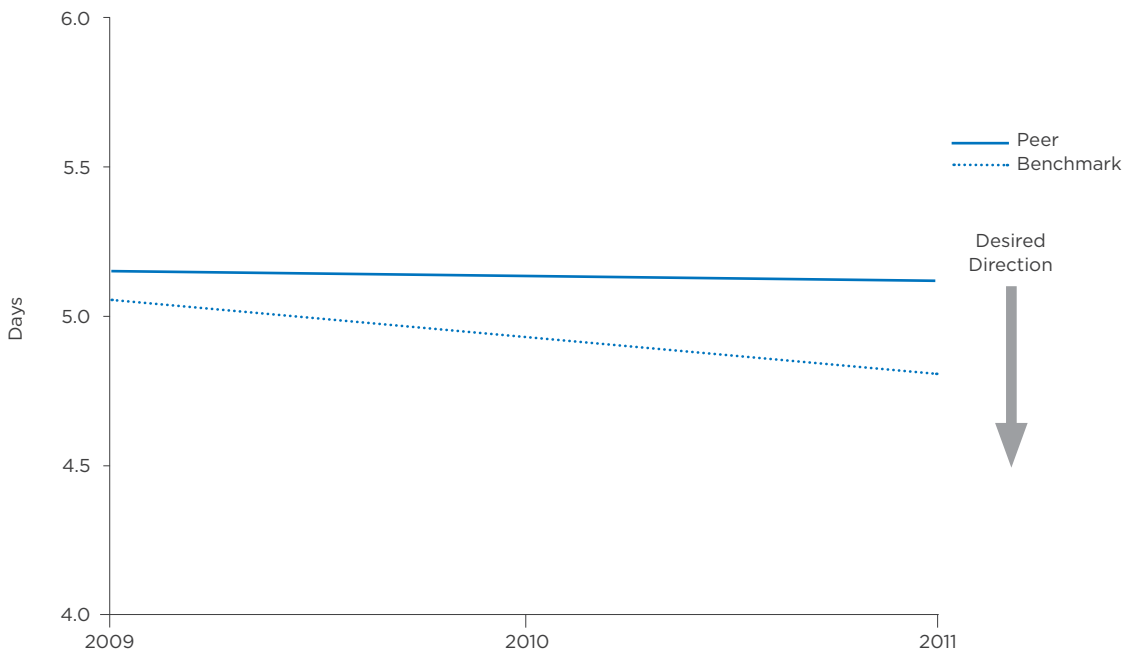


Figure 8: Hospitals with Best Performance Improvement Rates Versus Peers, Adjusted Inpatient Expense per Discharge

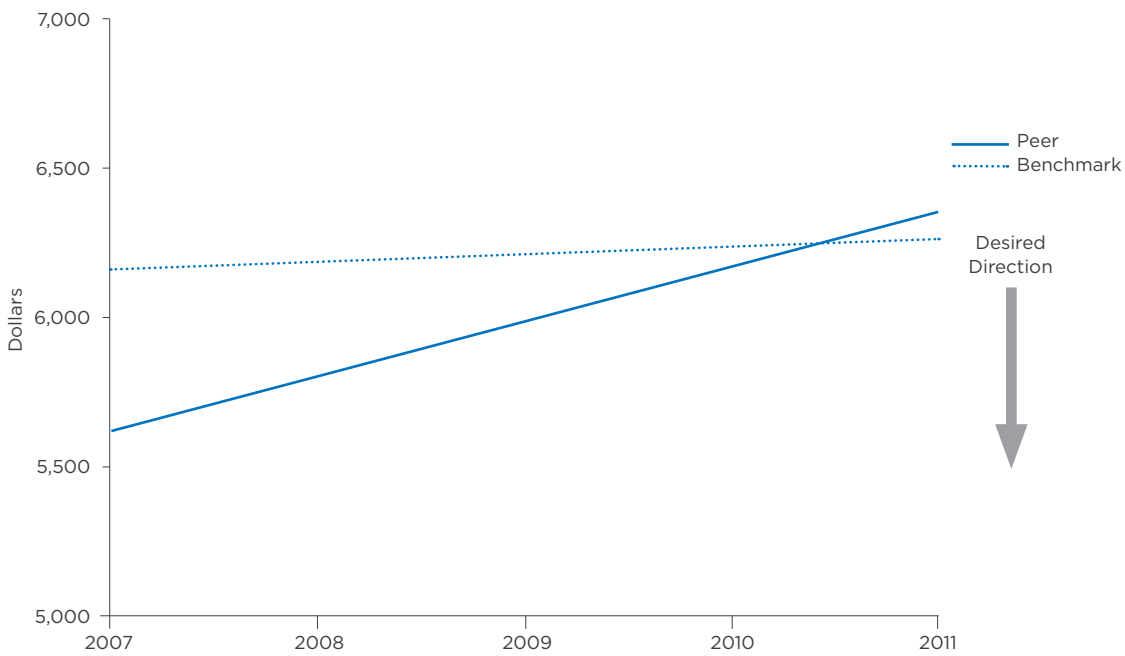
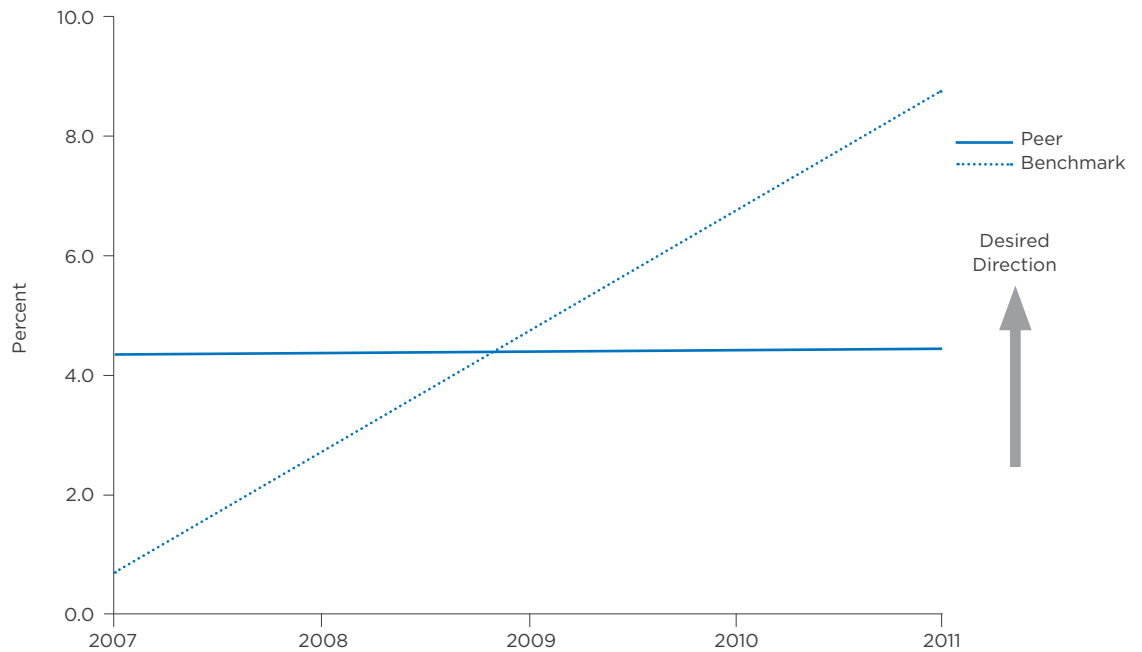


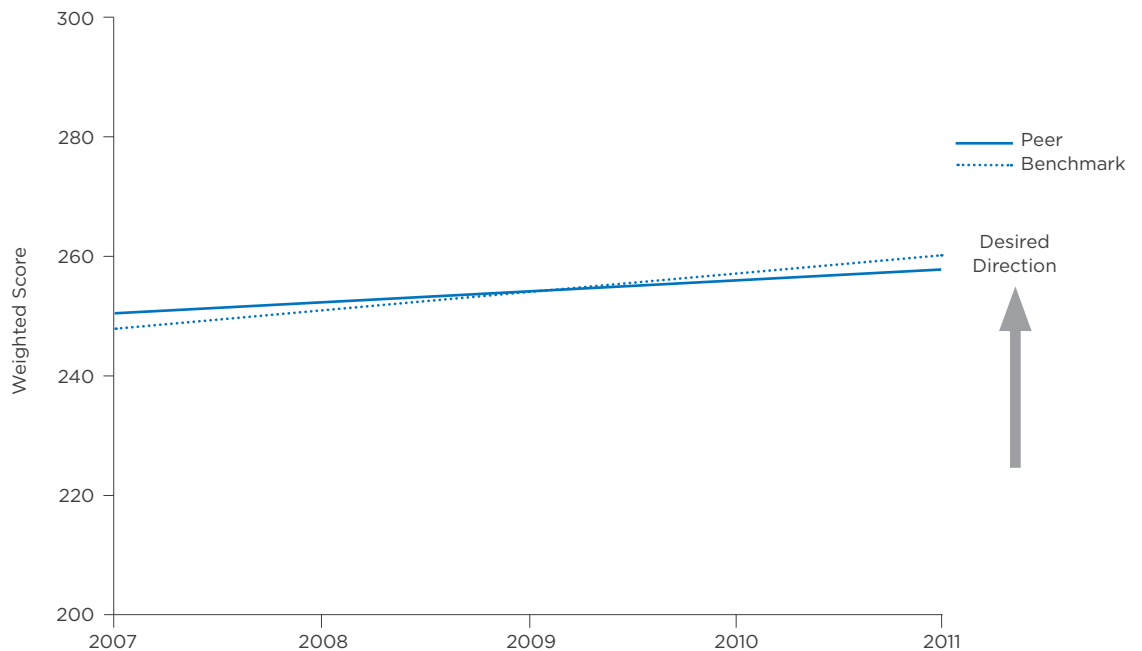
Figure 9: Hospitals with Best Performance Improvement Rates Versus Peers, Operating Profit Margin



Patient Satisfaction

The benchmark hospitals saw a slightly larger increase in HCAHPS overall patient satisfaction scores between 2007 and 2010 than did their peers. The benchmark hospitals had a weighted score increase of approximately 13 points, while the peers' increase was only seven points (Figure 10).

Figure 10: Hospitals with Best Performance Improvement Rates Versus Peers, HCAHPS Score



Methodology

The Truven Health 100 Top Hospitals® study is quantitative research that identifies 100 hospitals with the highest achievement on the 100 Top Hospitals Balanced Scorecard.

The scorecard, based on Norton and Kaplan's²⁴ concept, consists of 10 measures, distributed across four domains — quality, efficiency, finance, and consumer assessment of care — and uses only publicly available data. The hospitals with the highest achievement are those with the highest ranking on a composite score of the 10 measures. This study includes only short-term, acute-care, nonfederal U.S. hospitals that treat a broad spectrum of patients.

The main steps we take in selecting the 100 Top Hospitals are:

- Building the database of hospitals, including special selection and exclusion criteria
- Classifying hospitals into comparison groups by size and teaching status
- Scoring hospitals on a balanced scorecard of 10 performance measures
- Determining 100 Top Hospitals by ranking hospitals relative to their comparison group

The following section is intended to be an overview of these steps. To request more detailed information on any of the study methodologies outlined here, please e-mail us at 100tophospitals@truvenhealth.com or call +1.800.366.7526. Note: This section details the methods used to produce the 100 Top Hospitals award winners. For details on the methods used to find the Everest Award winners, please see the Everest Awards section of this document.

Building the Database of Hospitals

All of the 100 Top Hospitals studies use only publicly available data. The data for this study primarily come from:

- The Medicare Provider Analysis and Review (MedPAR) dataset
- The Medicare Cost Report
- The Centers for Medicare and Medicaid Services (CMS) Hospital Compare dataset

We use MedPAR patient-level medical record information to calculate mortality, complications, patient safety, and length-of-stay. The MedPAR dataset contains information on the approximately 14 million Medicare patients discharged annually from U.S. acute-care hospitals. In this study, we used the most recent two federal fiscal years of MedPAR data available — 2010 and 2011 — which include Medicare HMO encounters.²⁵

Note: To choose the Everest Award winners, we also reviewed the most recent five years of data, 2007 through 2011, to study the rate of change in performance through the years. To read more about the Everest Award methodology, please see the special Everest Award section of this document. For specific data sources for each performance measure, please see the table on page 41.

We use Medicare Cost Reports to create our proprietary database, which contains hospital-specific demographic information and hospital-specific, all-payer revenue, and expense data. The Medicare Cost Report is filed annually by every U.S. hospital that participates in the Medicare program. Hospitals are required to submit cost reports to receive reimbursement from Medicare. It should be noted, however, that cost report data include services for all patients, not just Medicare beneficiaries.

The Medicare Cost Report promotes comparability and consistency among hospitals in reporting. We used hospital 2011 cost reports, published in the federal Hospital Cost Report Information System (HCRIS) third quarter 2012 dataset for this study. Due to the change in Medicare cost report format requirements from version 2552-96 to version 2552-10, which caused a significant number of hospitals to be delayed in filing 2011 cost reports, we also processed the 2010 cost reports for any hospitals with missing or incomplete 2011 cost reports. These hospitals are included in the study for purposes of analysis and comparison, but they are not included for consideration as 100 Top winners.

If we did not have a 2011 or 2010 cost report that was complete, we excluded the hospital from the study. Hospitals that file cost reports jointly with other hospitals under one provider number are analyzed as one organization.

We, and many others in the healthcare industry, have used the MedPAR and Medicare Cost Report databases for many years. We believe them to be accurate and reliable sources for the types of analyses performed in this study. Performance based on Medicare data has been found to be highly representative of that of all-payer data.

We used the CMS Hospital Compare dataset published in the third quarter of 2012 for core measures, 30-day mortality rates, 30-day readmission rates, and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient perception of care data in this study.

We used residency program information to classify hospitals. This comes from the American Medical Association (for Accreditation Council for Graduate Medical Education (ACGME)-accredited programs)²⁶ and the American Osteopathic Association (AOA).²⁷

Severity-Adjustment Models and Present-on-Admission Data

Truven Health proprietary severity adjustment models for mortality, complications and length-of-stay (LOS) have been recalibrated using three years of MedPAR data to take advantage of available present-on-admission (POA) data that was reported in the 2009, 2010, and 2011 MedPAR data sets. In addition, the hospital characteristics factors were dropped, as analysis indicated they did not contribute to improved model performance.

The improved severity-adjustment models were used in producing the risk-adjusted mortality and complications indexes, based on two years of MedPAR data (2010 and 2011); and the severity-adjusted LOS, based on MedPAR 2011.

In addition, the Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicator risk models also take into account POA. Under the Deficit Reduction Act of 2005, as of federal fiscal year 2008, hospitals receive reduced payment for cases with certain conditions — like falls, surgical site infections, and pressure ulcers — that were not present on the patient’s admission but occur during their hospitalization. As a result, CMS now requires all inpatient prospective payment system hospitals to document whether a patient has these conditions when admitted.

Hospital Exclusions

After building the database, we excluded a number of hospitals that would have skewed the study results. Excluded from the study were:

- Specialty hospitals (e.g., critical access; children’s; women’s; psychiatric; substance abuse; rehabilitation; cardiac; orthopedic; heart; cancer; and long-term, acute-care hospitals)
- Federally owned hospitals
- Non-U.S. hospitals (such as those in Puerto Rico, Guam, and the U.S. Virgin Islands)
- Hospitals with fewer than 25 acute-care beds
- Hospitals with fewer than 100 Medicare patient discharges in federal FFY 2011
- Hospitals with Medicare average lengths of stay longer than 25 days in FFY 2011
- Hospitals with no reported Medicare patient deaths in FFY 2011
- Hospitals for which either a 2011 or 2010 Medicare Cost Report was not available
- Hospitals with either a 2011 or 2010 Medicare Cost Report that was not for a 12-month reporting period
- Hospitals that did not report POA information, because their data are not comparable to other hospitals’ (affects most Maryland hospitals in the Medicare waiver program*)
- Hospitals missing data required to calculate performance measures

*Maryland’s hospitals are not paid under Medicare’s inpatient prospective payment system. Instead, they have a Medicare waiver agreement that allows Medicare reimbursement according to rates set by the state’s Health Services Cost Review Commission. For more information, see mhcc.maryland.gov/consumerinfo/hospitalguide/patients/other_information/overview_of_maryland_regulatory_system_for_hospital_oversight.html.

In addition, specific patient records were also excluded:

- Patients who were discharged to another short-term facility (this is done to avoid double counting)
- Patients who were not at least 65 years old
- Rehabilitation, psychiatric, and substance-abuse patients
- Patients with stays shorter than one day

After all exclusions were applied, 2,922 hospitals were included in the study.

Classifying Hospitals into Comparison Groups

Bed size, teaching status, and residency/fellowship program involvement have a profound effect on the types of patients a hospital treats and the scope of services it provides. When analyzing the performance of an individual hospital, it is important to evaluate it against other similar hospitals. To address this, we assigned each hospital to one of five comparison groups, or classes, according to its size and teaching status.

Our classification methodology draws a significant distinction between major teaching hospitals and teaching hospitals by measuring the magnitude and type of teaching programs, and by accounting for their level of involvement in physician education and research. This methodology de-emphasizes the role of bed size and focuses more on teaching program involvement. Through it, we seek to measure both the depth and breadth of teaching involvement and recognize teaching hospitals' tendencies to reduce beds and concentrate on true tertiary care.

Our formula for defining the teaching comparison groups includes each hospital's bed size, residents[†]-to-acute-care beds ratio, and involvement in graduate medical education programs accredited by either the ACGME²⁶ or the AOA.²⁷ The definition includes both the magnitude (number of programs) and type (sponsorship or participation) of graduate medical education (GME) program involvement. In this study, AOA residency program involvement was treated as being equivalent to ACGME program sponsorship.

The five comparison groups, and their parameters, are as follows:

Major Teaching Hospitals

There are three ways to qualify:

1. 400 or more acute-care beds in service plus an intern and resident-per-bed ratio of at least 0.25, plus
 - Sponsorship of at least 10 GME programs or
 - Involvement in at least 20 programs overall
2. Involvement in at least 30 GME programs overall (regardless of bed size or intern and resident-per-bed ratio)
3. An intern and resident-per-bed ratio of at least 0.60 (regardless of bed size or GME program involvement)

[†] We include interns, residents, and fellows reported in full time equivalents (FTEs) on the hospital cost report.

Teaching Hospitals

- 200 or more acute-care beds in service and
- Either an intern and resident-per-bed ratio of at least 0.03 or involvement in at least three GME programs overall

Large Community Hospitals

- 250 or more acute-care beds in service and
- Not classified as a teaching hospital per definitions above

Medium Community Hospitals

- 100–249 acute-care beds in service and
- Not classified as a teaching hospital per definitions above

Small Community Hospitals

- 25–99 acute-care beds in service and
- Not classified as a teaching hospital per definitions above

Scoring Hospitals on Weighted Performance Measures

Evolution of Performance Measures

We use a balanced scorecard approach, based on public data, to select the measures most useful for boards and CEOs in the current hospital operating environment. Throughout the life of the study, we have worked hard to meet this vision. We gather feedback from industry leaders, hospital executives, academic leaders, and internal experts; review trends in the healthcare market; and survey hospitals in demanding marketplaces to learn what measures are valid and reflective of top performance. As the market has changed, our methods have evolved. Our current measures are centered on four main components of hospital performance: clinical quality, efficiency, financial health, and patient perception of care.

The measures for the 2013 study are:

1. Risk-adjusted mortality index (in-hospital)
2. Risk-adjusted complications index
3. Risk-adjusted patient safety index
4. Core measures mean percent
5. 30-day risk-adjusted mortality rates for acute myocardial infarction (AMI), heart failure, and pneumonia
6. 30-day risk-adjusted readmission rates for AMI, heart failure, and pneumonia
7. Severity-adjusted average length-of-stay
8. Case mix- and wage-adjusted inpatient expense per discharge
9. Adjusted operating profit margin
10. HCAHPS score (patient rating of overall hospital performance)

Following is the rationale for the selection of our balanced scorecard categories and the measures used for each.

Clinical Quality

Our measures of clinical quality are the risk-adjusted mortality index, risk-adjusted complications index, 30-day mortality rate, 30-day readmission rate, risk-adjusted patient safety index, and the core measures mean percent.

The mortality and complications measures show us how the hospital is performing on the most basic and essential care standards — survival and error-free care — while treating patients in the hospital. The extended outcomes measures — 30-day mortality and readmission rates for AMI, heart failure, and pneumonia patients — help us understand how the hospital's patients are faring over a longer period. These measures are part of CMS' value-based purchasing program and are watched closely in the industry. Hospitals with lower values appear to be providing care with better medium-term results for these conditions.

Patient safety is another important measure of hospital quality tracked closely in the industry. The risk-adjusted patient safety index is based on the AHRQ PSIs.²⁸ Patient safety measures reflect both clinical quality and the effectiveness of systems within the hospital. Because they use hospital administrative data and focus on surgical complications and other iatrogenic events, we feel that AHRQ's PSIs provide an unbiased look at many aspects of patient safety inside hospitals. Such objective analysis is central to the 100 Top Hospitals mission. The risk-adjusted patient safety index facilitates comparison of national and individual hospital performance using a group of 10 PSIs, which allows us to gauge the results of hospital-wide patient safety performance.

To be truly balanced, a scorecard must include various measures of quality. To this end, we also include an aggregate core measures score. Core measures were developed by the Joint Commission and CMS, and endorsed by the National Quality Forum as minimum basic process-of-care standards. They are a widely accepted method for measuring patient care quality that includes specific guidelines for heart attack, heart failure, pneumonia, pregnancy and related conditions, and surgical care. Our core measures score is based on the heart attack, heart failure, pneumonia, and surgical care areas of this program, using Hospital Compare data reported on the CMS Web site.²⁹ In this study, we included only those core measures that CMS has sanctioned for use in 2012. See Appendix C for a list.

Efficiency and Financial Health

These categories include severity-adjusted average length-of-stay, adjusted inpatient expense per discharge, and adjusted operating profit margin. Severity-adjusted average length-of-stay serves as a proxy for clinical efficiency, while adjusted inpatient expense per discharge serves as a measure of operating efficiency. We previously used operating expense per adjusted discharge, which is the most commonly used measure of hospital operating efficiency. This measure relies on

adjusting discharges for outpatient volume based on the ratio of total inpatient revenue to acute inpatient revenue. This overstates the number of discharges allocated to outpatient volume because the mark-up on outpatient services is generally much higher than for inpatient services. By switching to a metric based on inpatient expense per inpatient discharge, we have a much stronger predictor of operating efficiency. The operating profit margin is a measure of management's ability to operate within its current financial constraints and provides an indicator of the hospital's financial health.

All three measures require adjustment to increase the validity of comparisons across the hospital industry. We use a Truven Health severity-adjustment model to determine expected length-of-stay at the patient level. This is used to calculate the hospital-level, severity-adjusted, average length-of-stay. We adjust inpatient expenses, as reported on the hospital cost report, for patient severity (Medicare case mix index) and area wage levels (area wage index). These adjustments allow us to more accurately compare hospitals with different levels of patient severity operating in varying cost-of-living environments. We adjust operating profit margin to reflect related organization expense, as reported on the Medicare cost report, to provide a more accurate measure of a hospital's profitability.

Previous studies used the cash-to-total-debt ratio to look at a hospital's liquidity. Such measures of liquidity are one way to measure the financial viability and health of an organization. However, measuring liquidity has become problematic as more and more hospitals join health systems. Health system accounting practices often recognize hospitals as units of the system, with no cash or investment assets of their own; a typical practice is to sweep cash up to the system accounts daily. Moreover, hospitals in health systems are now often reported as having no debt in their own name. Using public data, there is no effective way to accurately determine liquidity, so we have removed the cash-to-debt measure from the 100 Top Hospitals study.

Patient Perception of Care

We believe that a measure of patient perception of care is crucial to the balanced scorecard concept. Understanding how patients perceive the care a hospital provides, and how that perception compares and contrasts with perceptions of its peers, is an important step a hospital must take in pursuing performance improvement. As such, this study includes the HCAHPS score, based on patient perception of care data from the HCAHPS patient survey. In this study, the HCAHPS score is based on the HCAHPS overall hospital rating question only.

Through the combined measures described above, we hope to provide a balanced picture of overall quality of care and financial health, and reflect the probability of sustained high performance. Full details about each of these performance measures are included on the following pages.

Performance Measures

Risk-Adjusted Mortality Index (In-Hospital)			
Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>Patient survival is a universally accepted measure of hospital quality. The lower the mortality index, the greater the survival of the patients in the hospital, considering what would be expected based on patient characteristics. While all hospitals have patient deaths, this measure can show where deaths did not occur but were expected, or the reverse, given the patient's condition.</p>	<p>We calculate an index value based on the number of actual in-hospital deaths in 2010 and 2011, divided by the number expected, given the risk of death for each patient. We normalize the index based on the observed and expected deaths for each comparison group. This measure is based on our proprietary, risk-adjusted mortality index model, which is designed to predict the likelihood of a patient's death based on patient-level characteristics (age, sex, presence of complicating diagnoses).</p> <p>Palliative care patients are included in the risk model. POA data are considered as part of the risk model. Post-discharge deaths are not included. For more details, see Appendix C. The reference value for this index is 1.00; a value of 1.15 indicates 15 percent more deaths occurred than were predicted, and a value of 0.85 indicates 15 percent fewer deaths than predicted.</p>	<p>We rank hospitals on the difference between observed and expected deaths, expressed in normalized standard deviation units (z-score).^{30, 31} Hospitals with the fewest deaths, relative to the number expected, after accounting for standard binomial variability, received the most favorable scores. We use two years of MedPAR data (2010 and 2011) to reduce the influence of chance fluctuation. Normalization was done by comparison group.</p> <p>Hospitals with observed values that were statistically worse than expected (95 percent confidence) were not eligible to be named as benchmarks.</p>	Lower

Risk-Adjusted Complications Index			
Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>Keeping patients free from potentially avoidable complications is an important goal for all healthcare providers. A lower complications index indicates fewer patients with complications, considering what would be expected based on patient characteristics. Like the mortality index, this measure can show where complications did not occur but were expected, or the reverse, given the patient's condition.</p>	<p>We calculate an index value based on the number of cases with complications in 2010 and 2011, divided by the number expected, given the risk of complications for each patient. We normalize the index based on the observed and expected complications for each comparison group. This measure uses our proprietary, expected complications rate index models. These models account for patient-level characteristics (age, sex, principal diagnosis, comorbid conditions, and other characteristics). Complications rates are calculated from normative data for two patient risk groups: medical and surgical. POA data are considered as part of the risk model. For more details, see Appendix C.</p> <p>The reference value for this index is 1.00; a value of 1.15 indicates 15 percent more complications occurred than were predicted, and a value of 0.85 indicates 15 percent fewer complications than predicted.</p>	<p>We rank hospitals on the difference between the observed and expected number of patients with complications, expressed in normalized standard deviation units (z-score).^{30, 31} We use two years of MedPAR data (2010 and 2011) to reduce the influence of chance fluctuation. Normalization was done by comparison group. Hospitals with the fewest observed complications, relative to the number expected, after accounting for standard binomial variability, received the most favorable scores.</p> <p>Hospitals with observed values that were statistically worse than expected (95 percent confidence) were not eligible to be named as benchmarks.</p>	Lower

Risk-Adjusted Patient Safety Index

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>Patient safety has become an increasingly important measure of hospital quality. Patient safety measures are reflective of both clinical quality and the effectiveness of systems within the hospital. The AHRQ, a public health service agency within the federal government's Department of Health and Human Services, has developed a set of PSIs. These indicators are widely used as a means of measuring hospital safety. Because they use hospital administrative data and include surgical complications and other iatrogenic events, we feel that AHRQ's PSIs provide an unbiased look at the quality of care inside hospitals. Such objective analysis is central to the 100 Top Hospitals mission.</p>	<p>For each of the 10 included PSIs (see Appendix C for a list), we calculated an index value based on the number of actual PSI occurrences for 2010 and 2011, combined, divided by the number of normalized expected occurrences, given the risk of the PSI event for each patient. Values were normalized by comparison group. We applied the hospital-level PSI methodology from AHRQ to the 2010 and 2011 MedPAR acute-care data, using AHRQ program code to adjust for risk.²⁸ POA data are considered as part of the PSI model. For more information, see Appendix C.</p> <p>The reference value for this index is 1.00; a value of 1.15 indicates 15 percent more events than predicted, and a value of 0.85 indicates 15 percent fewer.</p> <p>We rank hospitals on the difference between the observed and expected number of patients with PSI events, for each of the 10 selected PSIs, expressed in standard deviation units (z-score).^{30, 31}</p>	<p>We used two years of MedPAR data (2010 and 2011) to reduce the influence of chance fluctuation. The AHRQ PSI risk models used POA coding in the MedPAR data. We normalized z-scores by hospital comparison group and developed a mean normalized z-score as an aggregate PSI score. Hospitals with the fewest observed PSIs, relative to the number expected, accounting for binomial variability, received the most favorable scores.</p> <p>Hospitals with extreme outlier values in this measure were not eligible to be named benchmarks (see "Eliminating Outliers" on page 41).</p>	<p>Lower</p>

Core Measures Mean Percent

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>To be truly balanced, a scorecard must include various measures of quality. Core measures were developed by the National Quality Forum as minimum basic standards. They are a widely accepted method for measuring patient care quality that includes specific guidelines for heart attack, heart failure, pneumonia, and surgical care.</p>	<p>For each hospital, we calculate the arithmetic mean of the included core measure percent values. The reported core measure percent values reflect the percentage of eligible patients who received the expected standard of patient care. We consider reported core measure percents with patient counts less than or equal to 25 or with relative standard error values greater than or equal to 0.30 statistically unreliable. In these cases, we substitute the comparison group-specific median percent value for the affected core measure.</p>	<p>Core measure values are from the CMS Hospital Compare database for the third quarter of 2012. This contains data from January 1 through December 31, 2011. Because of low reporting, we excluded a number of core measures for small community hospitals.</p> <p>We ranked hospitals by comparison group, based on their mean core measure percent value for included core measures.</p> <p>For a list of the measures used and those excluded, please see Appendix C.</p>	<p>Higher</p>

30-Day Risk-Adjusted Mortality Rates for AMI, Heart Failure, and Pneumonia Patients

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>30-day mortality rates are a widely accepted measure of the effectiveness of hospital care. They allow us to look beyond immediate inpatient outcomes and understand how the care the hospital provided to inpatients with these particular conditions may have contributed to their longer-term survival. Because these measures are part of CMS' value-based purchasing program, they are now being watched closely in the industry. In addition, tracking these measures may help hospitals identify patients at risk for post-discharge problems and target improvements in discharge planning and in aftercare processes. Hospitals that score well may be better prepared for a pay-for-performance structure.</p>	<p>CMS calculates a 30-day mortality rate for each patient condition using three years of MedPAR data, combined. CMS does not calculate rates for hospitals where the number of cases is too small (less than 25). In these cases, we substitute the comparison group-specific median rate for the affected 30-day mortality measure.</p>	<p>Data are from the CMS Hospital Compare dataset for the third quarter of 2012. This contains data from July 1, 2008, through June 30, 2011. For more information about this data, see Appendix C.</p> <p>We rank hospitals independently on each of the three 30-day mortality rates (AMI, heart failure, and pneumonia), by hospital comparison group. Each patient condition receives one-sixth weight in overall hospital ranking, for a total 30-day mortality rate weight of one-half.</p>	<p>Lower</p>

30-Day Risk-Adjusted Readmission Rates for AMI, Heart Failure, and Pneumonia Patients

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>30-day readmission rates are a widely accepted measure of the effectiveness of hospital care. They allow us to understand how the care the hospital provided to inpatients with these particular conditions may have contributed to issues with their post-discharge medical stability and recovery.</p> <p>Because these measures are part of CMS' value-based purchasing program, they are now being watched closely in the industry. In addition, tracking these measures may help hospitals identify patients at risk for post-discharge problems if discharged too soon, as well as target improvements in discharge planning and in aftercare processes. Hospitals that score well may be better prepared for a pay-for-performance structure.</p>	<p>CMS calculates a 30-day readmission rate for each patient condition using three years of MedPAR data, combined. CMS does not calculate rates for hospitals where the number of cases is too small (less than 25). In these cases, we substitute the comparison group-specific median rate for the affected 30-day mortality measure.</p>	<p>Data are from the CMS Hospital Compare dataset for the third quarter of 2012. This contains data from July 1, 2008, through June 30, 2011. For more information about this data, see Appendix C.</p> <p>We rank hospitals independently on each of the three 30-day readmission rates (AMI, heart failure, and pneumonia), by hospital comparison group. Each patient condition receives one-sixth weight in overall hospital ranking, for a total 30-day readmission rate weight of one-half.</p>	<p>Lower</p>

Severity-Adjusted Average Length-of-stay

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>A lower severity-adjusted average LOS generally indicates more efficient consumption of hospital resources and reduced risk to patients.</p>	<p>We calculate an LOS index value by dividing the actual LOS by the normalized expected LOS. Expected LOS adjusts for difference in severity of illness using a linear regression model. We normalize the expected values based on the observed and expected LOS of the hospitals in the comparison group. Each hospital LOS index is converted to an average LOS in days by multiplying by the in-study population grand mean LOS. See Appendix C for more information.</p>	<p>This measure uses MedPAR data for 2011. We adjusted average LOS to factor out differences attributable to the varying severity of illness of patients at each hospital using POA-enabled risk models. For more information on this model, see Appendix C.</p> <p>We rank hospitals on their severity-adjusted average LOS.</p>	<p>Lower</p>

Case Mix- and Wage-Adjusted Inpatient Expense per Discharge

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>This measure helps to determine how efficiently a hospital cares for its patients. Low values indicate lower costs and thus better efficiency.</p>	<p>We calculate the inpatient expense per discharge measure by aggregating the cost center-level inpatient expense from the hospital cost report and dividing by the total acute inpatient discharges, adjusted for case mix and area wage indexes. See Appendix C for detailed calculations and the Medicare Cost Report locations (worksheet, line, and column) for each calculation element.</p>	<p>This measure uses Medicare Cost Report data for hospital cost reports ending in calendar year 2011. If 2011 was missing or incomplete due to the change in Medicare cost report format requirements, 2010 cost reports were used. Adjusted inpatient expense per discharge measures the hospital's average cost of delivering inpatient care on a per-unit basis. Inpatient expense for each department is calculated from fully allocated cost using the ratio of inpatient charges to total charges. For inpatient nursing units, this will always be 100 percent of the fully allocated cost. For departments with both inpatient and outpatient services, the ratio will vary. Non-reimbursable and special purpose cost centers are omitted as these have no charges for patient care.</p> <p>The hospital's CMS-assigned case mix index is used to account for differences in patient complexity. The CMS area wage index is used to account for geographic differences in cost of living.</p> <p>We rank hospitals on their adjusted inpatient expense per discharge.</p> <p>Hospitals with extreme outlier values in this measure were not eligible to be named benchmarks (see "Eliminating Outliers" on page 41).</p> <p>In addition, hospitals for which 2010 cost reports were used were not eligible to be named benchmarks.</p>	<p>Lower</p>

Profitability (Adjusted Operating Profit Margin)

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>Operating profit margin is one of the purest measures of a hospital's financial health. It is a measure of the amount of income a hospital is taking in versus its expenses.</p>	<p>We calculate the adjusted operating profit margin by determining the difference between a hospital's total operating revenue and total operating expense, expressed as a percentage of its total operating revenue, adjusted for related organization expense. Total operating revenue is the sum of net patient revenue plus other operating revenue. Operating expense is adjusted for related organization expense. See Appendix C for detailed calculations and the Medicare Cost Report locations (worksheet, line, and column) for each calculation element.</p>	<p>This measure uses Medicare Cost Report data for hospital cost reports ending in calendar year 2011. If 2011 was missing or incomplete due to the change in Medicare cost report format requirements, 2010 cost reports were used.</p> <p>We rank hospitals on their adjusted operating profit margin.</p> <p>Extreme outlier values in this measure were not eligible to be named benchmarks (see "Eliminating Outliers" on page 41).</p> <p>In addition, hospitals for which 2010 cost reports were used were not eligible to be named benchmarks.</p>	<p>Higher</p>

HCAHPS Score (Patient Rating of Overall Hospital Performance)

Why We Include This Element	Calculation	Comment	Favorable Values Are
<p>We believe that including a measure of patient perception of care is crucial to the balanced scorecard concept. How patients perceive the care a hospital provides has a direct effect on its ability to remain competitive in the marketplace.</p>	<p>We used the HCAHPS survey instrument question, "How do patients rate the hospital, overall?" to score hospitals. Patient responses could fall into three categories, and the number of patients in each category was reported as a percent:</p> <ul style="list-style-type: none"> ▪ Patients who gave a rating of 6 or lower (low) ▪ Patients who gave a rating of 7 or 8 (medium) ▪ Patients who gave a rating of 9 or 10 (high) <p>For each answer category, we assign a weight as follows: 3 equals high or good performance, 2 equals medium or average performance, and 1 equals low or poor performance. We then calculate a weighted score for each hospital by multiplying the HCAHPS answer percent by the category weight. For each hospital, we sum the weighted percent values for the three answer categories. The result is the HCAHPS score. See Appendix C for full details.</p>	<p>Data are from CMS Hospital Compare, third quarter 2012 database. This database contains the HCAHPS results for data period January 1 through December 31, 2011.</p> <p>We rank hospitals based on the weighted percent sum or HCAHPS score. The highest possible HCAHPS score is 300 (100 percent of patients rate the hospital high). The lowest HCAHPS score is 100 (100 percent of patients rate the hospital low).</p>	<p>Higher</p>

Performance Measure	Data Sources and Periods	
	Current Performance	Multi-Year Trend Performance
Risk-Adjusted Mortality Index	MedPAR FFY 2010 and 2011	MedPAR FFY 2009–2011
Risk-Adjusted Complications Index	MedPAR FFY 2010 and 2011	MedPAR FFY 2009–2011
Risk-Adjusted Patient Safety Index	MedPAR FFY 2010 and 2011	MedPAR FFY 2009–2011
Core Measures Mean Percent	CMS Hospital Compare, 3rd quarter 2012 (January 1–December 31, 2011 dataset)	CMS Hospital Compare, 3rd quarter releases (2007–2011)
30-Day Mortality Rates (AMI, Heart Failure, Pneumonia)	CMS Hospital Compare, 3rd quarter 2012 (July 1, 2008–June 30, 2011 dataset)	Trend data not available
30-Day Readmission Rates (AMI, Heart Failure, Pneumonia)	CMS Hospital Compare, 3rd quarter 2012 (July 1, 2008–June 30, 2011 dataset)	Trend data not available
Severity-Adjusted Average Length-of-stay	MedPAR FFY 2011	MedPAR FFY 2009–2011
Adjusted Inpatient Expense per Discharge	HCRIS 3rd quarter 2012 (2011 Medicare Cost Reports)	HCRIS, 2007–2011 Medicare Cost Reports
Adjusted Operating Profit Margin	HCRIS 3rd quarter 2012 (2011 Medicare Cost Reports)	HCRIS, 2007–2011 Medicare Cost Reports
HCAHPS	CMS Hospital Compare, 3rd quarter 2012 (January 1–December 31, 2011 dataset)	CMS Hospital Compare, 3rd quarter releases (2007–2011)

Determining the 100 Top Hospitals

Eliminating Outliers

Within each of the five hospital comparison groups, we ranked hospitals based on their performance on each of the measures relative to other hospitals in their group. Prior to ranking, we used three methods of identifying hospitals that were performance outliers. These hospitals were not eligible to be named winners.

Interquartile Range Methodology

We used the interquartile range methodology to identify hospitals with extreme outlier values for the following measures:

- Risk-adjusted patient safety index (high outliers only)
- Case mix- and wage-adjusted inpatient expense per discharge (high or low outliers)
- Adjusted operating profit margin (high and low outliers)

This was done because we do not want hospitals that have poor patient safety performance or a high probability of having erroneous cost report data to be declared winners.

For more information on the interquartile range methodology, please see Appendix C.

Mortality and Complications Outliers

For mortality and complications, which have observed and expected values, we identified hospitals with performance that was statistically worse than expected. This was done because we do not want hospitals that have poor clinical outcomes to be declared winners.

Hospital mortality is considered worse than expected if the observed value is higher than expected and the difference is statistically significant with 95 percent confidence. Confidence interval high and low index values (95 percent confidence) are calculated. When a hospital's observed value is 30 or greater, we use the approximate binomial confidence interval methodology. When a hospital's observed value is less than 30, we use the exact mid-p binomial confidence interval methodology. If the hospital's low confidence interval index value is greater than or equal to 1.0, the hospital is statistically worse than expected and is excluded from the list of possible winners.

Operating Profit Margin Outliers

We identified hospitals with a negative adjusted operating profit margin as outliers. This was done because we do not want hospitals that fail to meet this very basic financial responsibility to be declared winners.

Winner Exclusion for No Current Cost Report

We used hospital 2011 cost reports, published in the federal Hospital Cost Report Information System (HCRIS) third quarter 2012 dataset, for this study. Due to the change in Medicare cost report format requirements from version 2552-96 to version 2552-10, which caused a significant number of hospitals to be delayed in filing 2011 cost reports, we also processed the 2010 cost reports for any hospitals with missing or incomplete 2011 cost reports. These hospitals are included in the study for purposes of analysis and comparison, but they are not included for consideration as 100 Top winners, due to the age of their data.

Ranking

Within the five hospital comparison groups, we ranked hospitals on the basis of their performance on each of the performance measures independently, relative to other hospitals in their group. Each performance measure is assigned a weight for use in overall ranking. Each hospital's performance measure ranks were summed to arrive at a total score for the hospitals. The hospitals were then ranked based on their total scores, and the hospitals with the best overall rankings in each comparison group were selected as the winners.

All measures except the 30-day mortality and 30-day readmission rates received a weight of one in the final ranking process. For the 30-day mortality and readmission rate measures, we give the rates for each of the conditions (AMI, heart failure, and pneumonia) a weight of one-sixth in the final 100 Top Hospitals ranking process for winner selection. This study includes:

Comparison Group	Number of Winners	Number of Nonwinners	Total Hospitals in Study
Major Teaching Hospitals	15	183	198
Teaching Hospitals	25	399	424
Large Community Hospitals	20	317	337
Medium Community Hospitals	20	1,000	1,020
Small Community Hospitals	20	923	943
All Hospitals	100	2,822	2,922

Truven Health Policy on Revocation of a 100 Top Hospitals Award

To preserve the integrity of the study, it is the policy of Truven Health to revoke a 100 Top Hospitals award if a hospital is found to have submitted inaccurate or misleading data to any 100 Top Hospitals data source.

At the sole discretion of Truven Health, the circumstances under which a 100 Top Hospitals award could be revoked include, but are not limited to, the following:

1. Discovery by Truven Health staff, through statistical analysis or other means, that a hospital has submitted inaccurate data
2. Discovery of media or Internet reports of governmental or accrediting agency investigations or sanctions for actions by a hospital that could have an adverse impact on the integrity of the 100 Top Hospitals studies or award winner selection

Winners Through The Years

Hospital*	Location	Total Year(s) Won	Study Years†																			
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
NorthShore University HealthSystem	Evanston, IL	16		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Advocate Lutheran General Hospital	Park Ridge, IL	14			•	•		•	•	•	•	•	•	•			•	•	•		•	
Munson Medical Center	Traverse City, MI	14	•				•	•	•	•			•	•	•	•	•	•	•	•	•	
Vanderbilt University Medical Center	Nashville, TN	13						•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Brigham and Women's Hospital	Boston, MA	12	•	•	•	•	•	•	•	•			•		•					•		
Saint Thomas Hospital	Nashville, TN	12	•	•	•			•	•		•				•		•	•	•	•	•	
Beth Israel Deaconess Medical Center	Boston, MA	11		•	•	•	•							•	•	•	•			•	•	
EMH Regional Medical Center	Elyria, OH	11	•	•				•		•	•	•	•	•	•	•						
Hillcrest Hospital	Mayfield Heights, OH	11			•	•		•	•	•	•	•			•	•	•					
Licking Memorial Hospital	Newark, OH	11						•	•	•	•	•	•		•	•	•	•			•	
Beaumont Hospital, Troy	Troy, MI	10						•	•			•	•	•	•	•				•	•	
Mayo Clinic — Rochester Methodist Hospital	Rochester, MN	10		•	•	•	•		•		•	•			•				•	•		
Riverside Methodist Hospital	Columbus, OH	10								•	•	•	•	•	•	•			•	•	•	
Providence St. Vincent Medical Center	Portland, OR	10	•	•				•	•	•	•	•		•			•					
Lancaster General Hospital	Lancaster, PA	10					•	•	•	•	•	•		•	•	•	•					
Blake Medical Center	Bradenton, FL	9			•		•	•	•	•	•	•		•								
Mease Countryside Hospital	Safety Harbor, FL	9					•		•	•	•		•	•		•					•	
Mercy Medical Center North Iowa	Mason City, IA	9								•	•	•	•		•	•	•			•	•	
Kettering Medical Center	Kettering, OH	9								•	•			•	•	•	•			•	•	
Mercy Hospital Anderson	Cincinnati, OH	9						•	•			•	•		•	•	•			•	•	
Memorial Health Care System	Chattanooga, TN	9					•						•	•	•	•	•	•	•	•	•	
Poudre Valley Hospital	Fort Collins, CO	8		•									•	•	•	•					•	
Kendall Regional Medical Center	Miami, FL	8			•	•	•	•			•					•					•	
Martin Health System	Stuart, FL	8						•	•		•	•							•	•	•	
North Florida Regional Medical Center	Gainesville, FL	8		•	•		•	•	•	•	•											
Holland Hospital	Holland, MI	8												•	•	•	•	•	•	•	•	

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Spectrum Health Hospital Group	Grand Rapids, MI	8		•	•			•	•	•						•		•	•		
University of Michigan Hospitals & Health Centers	Ann Arbor, MI	8	•	•									•	•	•	•	•				•
St. Cloud Hospital	St. Cloud, MN	8	•	•					•					•	•	•	•	•			
Geisinger Medical Center	Danville, PA	8					•	•		•				•	•			•	•	•	
Sanford USD Medical Center	Sioux Falls, SD	8	•	•									•	•	•	•		•			
Scott and White Hospital	Temple, TX	8											•	•	•	•	•	•	•		•
Inova Fairfax Hospital	Falls Church, VA	8	•		•		•	•	•	•	•		•								
University of Virginia Medical Center	Charlottesville, VA	8						•	•	•	•	•		•	•			•			
Desert Valley Hospital	Victorville, CA	7											•	•	•		•	•		•	•
St. Elizabeth Community Hospital	Red Bluff, CA	7													•	•	•	•	•	•	•
Exempla Lutheran Medical Center	Wheat Ridge, CO	7	•	•		•		•			•	•			•						
Saint Francis Hospital and Medical Center	Hartford, CT	7					•	•		•	•	•	•	•							
Regional Medical Center Bayonet Point	Hudson, FL	7			•			•	•	•	•	•	•								
St. Luke's Boise Medical Center	Boise, ID	7	•	•	•								•			•	•	•			
Northwestern Memorial Hospital	Chicago, IL	7					•	•		•							•	•	•		•
Silver Cross Hospital	New Lenox, IL	7											•	•	•	•	•	•	•		•
St. Vincent Indianapolis Hospital	Indianapolis, IN	7						•	•								•	•	•	•	•
Cleveland Clinic Foundation	Cleveland, OH	7		•	•	•	•	•		•	•										
Southwest General Health Center	Middleburg Heights, OH	7	•											•	•	•	•	•	•	•	
York Hospital	York, PA	7					•	•	•	•	•		•	•							
Castleview Hospital	Price, UT	7		•	•	•		•	•	•							•				
St. Joseph Medical Center	Tacoma, WA	7		•	•	•	•	•	•	•	•										
Chambers Memorial Hospital	Danville, AR	6											•	•	•	•	•	•			
Scripps Green Hospital	La Jolla, CA	6											•	•				•	•	•	•
Rose Medical Center	Denver, CO	6								•	•					•	•	•			•
Leesburg Regional Medical Center	Leesburg, FL	6				•	•	•	•	•	•										
Medical Center of Trinity	Trinity, FL	6			•	•	•	•		•	•										
Morton Plant Hospital	Clearwater, FL	6							•	•	•		•	•							•
Palmetto General Hospital	Hialeah, FL	6					•	•	•	•	•		•								
Central DuPage Hospital	Winfield, IL	6													•	•	•	•	•	•	•
St. Elizabeth Healthcare	Edgewood, KY	6					•								•	•	•	•	•		•
Baystate Medical Center	Springfield, MA	6							•		•				•				•	•	•
Beverly Hospital	Beverly, MA	6								•	•	•			•	•				•	
Newton-Wellesley Hospital	Newton, MA	6		•							•		•	•	•	•					
Spectrum Health United Hospital	Greenville, MI	6					•	•		•									•	•	•
William Beaumont Hospital-Royal Oak	Royal Oak, MI	6					•	•	•	•	•		•								

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St. Luke's Hospital	Chesterfield, MO	6				•			•	•	•		•	•								
Mercy Hospital Clermont	Batavia, OH	6									•				•		•	•	•	•		
University Hospitals Case Medical Center	Cleveland, OH	6													•	•	•	•	•	•		
Medical Center of Southeastern Oklahoma	Durant, OK	6			•	•	•	•	•	•												
DuBois Regional Medical Center	DuBois, PA	6	•							•		•	•		•				•			
Robert Packer Hospital	Sayre, PA	6													•	•	•	•	•	•	•	
UPMC Hamot	Erie, PA	6								•					•			•	•	•	•	
DeKalb Community Hospital	Smithville, TN	6			•	•		•	•	•	•											
Harris Methodist Fort Worth	Fort Worth, TX	6		•	•	•	•	•	•													
American Fork Hospital	American Fork, UT	6		•			•	•	•										•	•		
PeaceHealth Southwest Washington Medical Center	Vancouver, WA	6		•					•	•		•			•	•						
Appleton Medical Center	Appleton, WI	6		•					•	•	•	•	•									
St. Joseph's Hospital and Medical Center	Phoenix, AZ	5								•	•		•				•	•				
University Medical Center	Tucson, AZ	5													•	•	•	•	•			
Exempla Saint Joseph Hospital	Denver, CO	5	•	•			•		•			•										
Aventura Hospital and Medical Center	Aventura, FL	5			•	•	•		•	•												
Brandon Regional Hospital	Brandon, FL	5			•	•	•		•	•												
Cleveland Clinic Florida	Weston, FL	5													•			•	•	•	•	
Delray Medical Center	Delray Beach, FL	5									•	•	•	•								•
Gulf Coast Medical Center	Fort Myers, FL	5				•	•				•		•		•							
Largo Medical Center	Largo, FL	5		•	•		•			•					•							
Piedmont Fayette Hospital	Fayetteville, GA	5											•	•	•	•				•		
WellStar Kennestone Hospital	Marietta, GA	5	•					•	•	•	•											
St. Luke's Hospital	Cedar Rapids, IA	5												•	•				•		•	•
Advocate Christ Medical Center	Oak Lawn, IL	5						•	•	•											•	•
Baptist Hospital East	Louisville, KY	5												•	•	•	•	•				
Flaget Memorial Hospital	Bardstown, KY	5												•	•	•	•			•		
King's Daughters Medical Center	Ashland, KY	5												•	•	•	•	•				
Meadowview Regional Medical Center	Maysville, KY	5			•			•	•		•	•										
University of Kentucky Albert B. Chandler Hospital	Lexington, KY	5	•	•	•										•	•						
Cape Cod Hospital	Hyannis, MA	5					•	•	•	•					•							
Allegiance Health	Jackson, MI	5			•	•											•		•	•		
Providence Hospital and Medical Center	Southfield, MI	5				•											•	•	•			•
Spectrum Health Hospitals	Grand Rapids, MI	5		•	•	•	•			•												
St. Joseph Mercy Hospital	Ann Arbor, MI	5				•			•										•		•	•
Lakeview Hospital	Stillwater, MN	5											•		•	•	•					•

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Mayo Clinic — Saint Marys Hospital	Rochester, MN	5		•							•	•	•				•					
St. John's Mercy Hospital	Washington, MO	5			•			•	•	•	•											
Mission Hospital	Asheville, NC	5		•									•	•							•	•
Saint Elizabeth Regional Medical Center	Lincoln, NE	5	•										•	•	•		•					
Aultman Hospital	Canton, OH	5						•	•	•										•	•	
Sycamore Medical Center	Miamisburg, OH	5													•	•	•			•	•	
The Christ Hospital	Cincinnati, OH	5	•		•			•		•	•											
The Ohio State University Medical Center	Columbus, OH	5	•	•	•					•		•										
Avera McKennan Hospital & University Health Center	Sioux Falls, SD	5														•	•	•	•			•
Jamestown Regional Medical Center	Jamestown, TN	5			•	•	•	•				•										
St. Mark's Hospital	Salt Lake City, UT	5		•							•	•	•		•							
Valley View Medical Center	Cedar City, UT	5						•	•	•	•	•										
Providence Regional Medical Center	Everett, WA	5	•	•											•		•	•				
St. Francis Hospital	Federal Way, WA	5							•	•	•	•	•									
Aurora Sheboygan Memorial Medical Center	Sheboygan, WI	5														•	•	•	•			•
Gundersen Lutheran	La Crosse, WI	5						•								•	•	•	•			
Theda Clark Medical Center	Neenah, WI	5	•						•	•	•		•									
Northwest Medical Center	Tucson, AZ	4										•	•	•		•						
Payson Regional Medical Center	Payson, AZ	4													•				•	•		•
Pomona Valley Hospital Medical Center	Pomona, CA	4				•		•	•	•												
Sutter Davis Hospital	Davis, CA	4														•				•	•	•
Torrance Memorial Medical Center	Torrance, CA	4	•	•	•									•								
UCSF Medical Center	San Francisco, CA	4		•	•	•	•															
West Anaheim Medical Center	Anaheim, CA	4															•		•	•	•	•
Hartford Hospital	Hartford, CT	4				•	•	•		•												
Middlesex Hospital	Middletown, CT	4											•			•	•			•		
Gulf Coast Medical Center	Panama City, FL	4			•				•												•	•
JFK Medical Center	Atlantis, FL	4			•				•	•		•										
Lee Memorial Health System	Fort Myers, FL	4		•							•	•	•									
Memorial Hospital of Jacksonville	Jacksonville, FL	4						•	•	•	•											
Palms West Hospital	Loxahatchee, FL	4			•					•	•	•										
Wellington Regional Medical Center	Wellington, FL	4										•	•	•	•							
Advocate Good Samaritan Hospital	Downers Grove, IL	4															•		•	•	•	•
Advocate Illinois Masonic Medical Center	Chicago, IL	4																•	•	•	•	•

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Riverside Medical Center	Kankakee, IL	4														•	•	•	•			
Shelby Memorial Hospital	Shelbyville, IL	4						•	•	•				•								
Major Hospital	Shelbyville, IN	4																•	•		•	•
Harlan ARH Hospital	Harlan, KY	4						•								•				•	•	
Saint Joseph East	Lexington, KY	4												•		•	•		•			
Milford Regional Medical Center	Milford, MA	4							•	•	•	•										
Saint Vincent Hospital	Worcester, MA	4								•									•	•	•	
Washington County Health System	Hagerstown, MD	4					•	•		•		•										
Gerber Memorial Health Services	Fremont, MI	4	•							•				•	•							
St. Joseph Mercy Saline Hospital	Saline, MI	4														•	•	•	•			
St. Mary's Medical Center	Duluth, MN	4		•	•		•		•													
Carolinas Medical Center-NorthEast	Concord, NC	4								•	•	•	•									
Gaston Memorial Hospital	Gastonia, NC	4								•									•	•	•	
Albany Medical Center	Albany, NY	4		•			•	•	•													
Bethesda North Hospital	Cincinnati, OH	4											•	•	•	•						
Fairview Hospital	Cleveland, OH	4													•	•	•			•		
Grant Medical Center	Columbus, OH	4				•	•							•							•	
Summa Health System	Akron, OH	4								•	•		•	•								
University Hospital	Cincinnati, OH	4	•		•					•		•										
Providence Portland Medical Center	Portland, OR	4	•	•					•	•												
St. Charles Medical Center-Bend	Bend, OR	4	•	•						•				•								
Paoli Hospital	Paoli, PA	4											•	•					•	•		
The Western Pennsylvania Hospital	Pittsburgh, PA	4								•	•	•						•				
UPMC Northwest	Seneca, PA	4								•	•	•	•									
Baptist Hospital	Nashville, TN	4			•			•		•									•			
Baptist Hospital of East Tennessee	Knoxville, TN	4				•	•	•	•													
Centennial Medical Center	Nashville, TN	4					•									•	•		•			
Hendersonville Medical Center	Hendersonville, TN	4			•	•				•	•											
Maury Regional Medical Center	Columbia, TN	4	•													•		•			•	
Clear Lake Regional Medical Center	Webster, TX	4				•	•	•	•													
East Texas Medical Center Tyler	Tyler, TX	4					•	•				•		•								
Memorial Hermann Hospital System	Houston, TX	4				•			•										•	•		
Mother Frances Hospital-Tyler	Tyler, TX	4													•			•	•	•		
St. David's Medical Center	Austin, TX	4																•	•	•	•	
University Medical Center Brackenridge	Austin, TX	4				•				•	•	•										
Alta View Hospital	Sandy, UT	4	•			•		•													•	

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Augusta Health	Fishersville, VA	4					•	•												•	•
St. Clare Hospital	Lakewood, WA	4							•	•	•	•									
Bellin Hospital	Green Bay, WI	4	•						•	•	•										
Sauk Prairie Memorial Hospital & Clinics	Prairie du Sac, WI	4							•				•	•							•
University of Wisconsin Hospital and Clinics	Madison, WI	4	•								•		•		•						
Andalusia Regional Hospital	Andalusia, AL	3												•		•				•	
Baptist Medical Center East	Montgomery, AL	3																	•		•
Banner Boswell Medical Center	Sun City, AZ	3											•								•
Mt. Graham Regional Medical Center	Safford, AZ	3			•	•	•														•
Paradise Valley Hospital	Phoenix, AZ	3						•		•						•					
Wickenburg Community Hospital	Wickenburg, AZ	3		•	•	•															
Providence Little Company of Mary Medical Center	Torrance, CA	3	•																		•
Sutter Medical Center, Sacramento	Sacramento, CA	3									•	•									•
Tri-City Medical Center	Oceanside, CA	3		•	•	•															
UC San Diego Medical Center	San Diego, CA	3																	•		•
St. Anthony North Hospital	Westminster, CO	3						•	•		•										
Danbury Hospital	Danbury, CT	3												•	•	•					
Yale-New Haven Hospital	New Haven, CT	3											•	•		•					
Baptist Hospital	Miami, FL	3							•		•	•									
Memorial Hospital West	Pembroke Pines, FL	3																	•	•	
Ocala Regional Medical Center	Ocala, FL	3									•										•
Orange Park Medical Center	Orange Park, FL	3				•					•	•									
Orlando Regional Medical Center	Orlando, FL	3			•	•		•													
Sacred Heart Hospital on the Emerald Coast	Miramar Beach, FL	3																	•		•
St. Vincent's Medical Center	Jacksonville, FL	3		•	•	•															
Fairview Park Hospital	Dublin, GA	3								•	•	•									
Meadows Regional Medical Center	Vidalia, GA	3													•	•		•			
WellStar Douglas Hospital	Douglasville, GA	3								•	•	•									
Centegra Northern Illinois Medical Center	McHenry, IL	3													•	•	•				
Crossroads Community Hospital	Mount Vernon, IL	3				•	•	•													
Memorial Hospital of Carbondale	Carbondale, IL	3												•	•	•					
Marion General Hospital	Marion, IN	3	•															•	•		
St. Mary's Medical Center	Evansville, IN	3		•	•	•															
Wishard Health Services	Indianapolis, IN	3	•	•	•																

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Shawnee Mission Medical Center	Shawnee Mission, KS	3									•		•	•								
Georgetown Community Hospital	Georgetown, KY	3					•	•			•											
Kentucky River Medical Center	Jackson, KY	3								•	•			•								
Whitesburg ARH	Whitesburg, KY	3	•							•	•											
Minden Medical Center	Minden, LA	3											•						•	•		
Ochsner Medical Center	New Orleans, LA	3																	•	•	•	
Bronson Methodist Hospital	Kalamazoo, MI	3												•					•	•		
Central Michigan Community Hospital	Mount Pleasant, MI	3	•															•		•		
Mercy Hospital Cadillac	Cadillac, MI	3																	•	•	•	
Metro Health Hospital	Wyoming, MI	3																•	•	•		
MidMichigan Medical Center-Midland	Midland, MI	3																•	•	•		
Otsego Memorial Hospital	Gaylord, MI	3							•	•		•										
St. John Hospital and Medical Center	Detroit, MI	3																•	•	•		
St. Joseph Health System	Tawas City, MI	3																		•	•	•
St. Mary Mercy Livonia Hospital	Livonia, MI	3																	•	•	•	
Buffalo Hospital	Buffalo, MN	3				•			•												•	
Fairview Ridges Hospital	Burnsville, MN	3	•								•											
St. John's Hospital	Maplewood, MN	3		•																		
Woodwinds Health Campus	Woodbury, MN	3																		•	•	•
Boone Hospital Center	Columbia, MO	3																		•	•	
Missouri Baptist Medical Center	St. Louis, MO	3																		•	•	•
St. John's Hospital	Springfield, MO	3	•	•																		
St. John's Mercy Medical Center	St. Louis, MO	3							•	•	•											
FirstHealth Moore Regional Hospital	Pinehurst, NC	3			•																	
Heritage Hospital	Tarboro, NC	3			•	•	•															
Alegent Health Bergan Mercy Medical Center	Omaha, NE	3									•									•	•	
Speare Memorial Hospital	Plymouth, NH	3											•	•	•							
Staten Island University Hospital	Staten Island, NY	3				•	•	•														
Akron General Medical Center	Akron, OH	3				•					•	•										
Doctors Hospital	Columbus, OH	3																		•	•	•
Good Samaritan Hospital	Cincinnati, OH	3																	•	•		•
Grandview Medical Center	Dayton, OH	3									•								•			
Mercy Hospital Fairfield	Fairfield, OH	3																		•		•
Mercy Medical Center	Springfield, OH	3				•						•		•								
Wooster Community Hospital	Wooster, OH	3																		•	•	•
Duncan Regional Hospital	Duncan, OK	3																	•	•	•	
Providence Milwaukie Hospital	Milwaukie, OR	3		•							•		•									
Willamette Valley Medical Center	McMinnville, OR	3			•	•	•															

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Bryn Mawr Hospital	Bryn Mawr, PA	3															•		•	•	
Thomas Jefferson University Hospital	Philadelphia, PA	3					•		•	•											
UPMC Bedford Memorial	Everett, PA	3		•						•	•										
Copper Basin Medical Center	Copperhill, TN	3			•		•			•											
Patients' Choice Medical Center of Erin	Erin, TN	3					•				•			•							
Riverview Regional Medical Center-South Campus	Carthage, TN	3				•	•						•								
St. Mary's Jefferson Memorial Hospital	Jefferson City, TN	3																•	•	•	
Citizens Medical Center	Victoria, TX	3													•	•	•				
Doctors Hospital at Renaissance	Edinburg, TX	3														•	•	•			
Hill Country Memorial Hospital	Fredericksburg, TX	3												•						•	•
Houston Northwest Medical Center	Houston, TX	3								•	•	•									
Lake Pointe Medical Center	Rowlett, TX	3				•					•		•								
Lake Whitney Medical Center	Whitney, TX	3														•	•	•			
McAllen Medical Center	McAllen, TX	3					•	•	•												
Memorial Hermann Memorial City Medical Center	Houston, TX	3																	•	•	•
Parkland Health and Hospital System	Dallas, TX	3								•		•					•				
Texas Health Harris Methodist Hospital Cleburne	Cleburne, TX	3		•	•			•													
The Methodist Hospital	Houston, TX	3												•						•	•
University Health System	San Antonio, TX	3					•						•	•							
University Medical Center of El Paso	El Paso, TX	3			•	•											•				
Brigham City Community Hospital	Brigham City, UT	3			•	•											•				
Intermountain Medical Center	Murray, UT	3	•						•	•											
Lakeview Hospital	Bountiful, UT	3				•					•										•
Logan Regional Hospital	Logan, UT	3								•	•										•
McKay-Dee Hospital Center	Ogden, UT	3																	•	•	•
Ogden Regional Medical Center	Ogden, UT	3									•									•	•
Winchester Medical Center	Winchester, VA	3		•											•	•					
New London Family Medical Center	New London, WI	3			•	•			•												
Banner Mesa Medical Center	Mesa, AZ	2			•	•															
Carondelet St. Joseph's Hospital	Tucson, AZ	2								•	•										
Carondelet St. Mary's Hospital	Tucson, AZ	2									•		•								
Scottsdale Healthcare Shea	Scottsdale, AZ	2											•					•			
Tucson Medical Center	Tucson, AZ	2			•								•								
Barstow Community Hospital	Barstow, CA	2				•	•														

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Centinela Hospital Medical Center	Inglewood, CA	2																			•	•
Chino Valley Medical Center	Chino, CA	2																			•	•
Community Hospital of Huntington Park	Huntington Park, CA	2				•	•															
El Camino Hospital	Mountain View, CA	2	•	•																		
Garden Grove Hospital Medical Center	Garden Grove, CA	2																			•	•
Garfield Medical Center	Monterey Park, CA	2					•	•														
Hoag Memorial Hospital Presbyterian	Newport Beach, CA	2	•	•																		
Inland Valley Medical Center	Wildomar, CA	2		•						•												
Mercy General Hospital	Sacramento, CA	2					•								•							
Mercy San Juan Medical Center	Carmichael, CA	2													•	•						
Mills-Peninsula Health Services	Burlingame, CA	2						•	•													
Montclair Hospital Medical Center	Montclair, CA	2																•				•
Scripps Mercy Hospital	San Diego, CA	2								•	•											
UC Irvine Medical Center	Orange, CA	2										•	•									
North Colorado Medical Center	Greeley, CO	2								•												•
Penrose-St. Francis Health Services	Colorado Springs, CO	2						•							•							
Porter Adventist Hospital	Denver, CO	2								•		•										
St. Anthony Hospital	Lakewood, CO	2						•		•												
Swedish Medical Center	Englewood, CO	2									•	•										
Hospital of Saint Raphael	New Haven, CT	2						•	•													
Christiana Care Health System	Newark, DE	2								•												•
Baptist Medical Center	Jacksonville, FL	2				•	•															
Bayfront Medical Center	St. Petersburg, FL	2						•		•												
Cape Coral Hospital	Cape Coral, FL	2								•		•										
Citrus Memorial Hospital	Inverness, FL	2	•					•														
Doctors Hospital of Sarasota	Sarasota, FL	2																			•	•
Florida Hospital Flagler	Palm Coast, FL	2											•	•								
Gulf Breeze Hospital	Gulf Breeze, FL	2																			•	•
Gulf Coast Hospital	Fort Myers, FL	2				•	•															
Jackson North Medical Center	North Miami Beach, FL	2		•				•														
Munroe Regional Medical Center	Ocala, FL	2							•			•										
Northwest Medical Center	Margate, FL	2				•															•	
Pasco Regional Medical Center	Dade City, FL	2					•						•									
Sarasota Memorial Hospital	Sarasota, FL	2											•								•	
Seven Rivers Regional Medical Center	Crystal River, FL	2							•	•												
South Miami Hospital	Miami, FL	2							•		•											

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
University Hospital and Medical Center	Tamarac, FL	2			•	•															
University of Miami Hospital	Miami, FL	2					•	•													
Donalsonville Hospital	Donalsonville, GA	2							•	•											
Georgia Health Sciences Medical Center	Augusta, GA	2															•				
Hamilton Medical Center	Dalton, GA	2			•	•															
Northeast Georgia Medical Center	Gainesville, GA	2																	•		•
Piedmont Hospital	Atlanta, GA	2									•			•							
Saint Joseph's Hospital of Atlanta	Atlanta, GA	2	•												•						
Tanner Medical Center-Villa Rica	Villa Rica, GA	2				•					•										
Union General Hospital	Blairsville, GA	2		•																	•
Allen Hospital	Waterloo, IA	2												•							•
Fort Madison Community Hospital	Fort Madison, IA	2									•			•							
The Finley Hospital	Dubuque, IA	2	•																		•
St. Luke's Jerome Medical Center	Jerome, ID	2							•	•											
St. Mary's Hospital and Clinics	Cottonwood, ID	2			•						•										
Carle Foundation Hospital	Urbana, IL	2																			•
Greenville Regional Hospital	Greenville, IL	2																			•
MacNeal Hospital	Berwyn, IL	2	•			•															
Morris Hospital and Healthcare Centers	Morris, IL	2	•																		•
Northwest Community Hospital	Arlington Heights, IL	2									•										•
Trinity Rock Island	Rock Island, IL	2																			•
University of Chicago Medical Center	Chicago, IL	2			•																•
Columbus Regional Hospital	Columbus, IN	2																			•
Community Hospital	Munster, IN	2																			•
Deaconess Hospital and Health System	Evansville, IN	2			•	•															
Memorial Hospital and Health Care Center	Jasper, IN	2												•							•
Memorial Hospital of South Bend	South Bend, IN	2													•						•
St. Francis Hospital and Health Centers	Indianapolis, IN	2																			•
The King's Daughters' Hospital and Health Services	Madison, IN	2																			•
St. Francis Health Center	Topeka, KS	2		•		•															
Bourbon Community Hospital	Paris, KY	2					•	•													
Hardin Memorial Hospital	Elizabethtown, KY	2																			•
Manchester Memorial Hospital	Manchester, KY	2								•	•										
Trover Health System	Madisonville, KY	2																			•

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013	
Wayne County Hospital	Monticello, KY	2			•	•																	
Massachusetts General Hospital	Boston, MA	2								•											•		
MetroWest Medical Center	Natick, MA	2			•	•																	
St. Luke's Hospital	New Bedford, MA	2			•	•																	
Winchester Hospital	Winchester, MA	2					•														•		
Mercy Medical Center	Baltimore, MD	2				•																•	
Northwest Hospital	Randallstown, MD	2								•	•												
The Johns Hopkins Hospital	Baltimore, MD	2	•	•																			
Union Hospital	Elkton, MD	2								•			•										
Union Memorial Hospital	Baltimore, MD	2										•								•			
Chelsea Community Hospital	Chelsea, MI	2	•																		•		
Gratiot Medical Center	Alma, MI	2														•				•			
Hackley Hospital	Muskegon, MI	2														•	•						
McLaren Regional Medical Center	Flint, MI	2								•						•							
Mecosta County Medical Center	Big Rapids, MI	2													•	•							
St. Joseph Mercy Livingston Hospital	Howell, MI	2																			•	•	
Douglas County Hospital	Alexandria, MN	2								•											•		
Fairview Southdale Hospital	Edina, MN	2	•				•																
Mercy Hospital	Coon Rapids, MN	2		•																		•	
Park Nicollett Methodist Hospital	St. Louis Park, MN	2								•			•										
United Hospital	St. Paul, MN	2		•	•																		
Cox Health	Springfield, MO	2				•	•																
Northeast Regional Medical Center	Kirkville, MO	2															•				•		
Parkland Health Center-Farmington	Farmington, MO	2															•			•			
SSM St. Joseph Hospital West	Lake Saint Louis, MO	2								•			•										
St. John's Regional Medical Center	Joplin, MO	2														•				•			
Billings Clinic Hospital	Billings, MT	2										•										•	
Franklin Regional Medical Center	Louisburg, NC	2			•	•																	
Jamestown Hospital	Jamestown, ND	2	•																		•		
Parkland Medical Center	Derry, NH	2			•					•													
St. Peter's Hospital	Albany, NY	2						•		•													
Adena Regional Medical Center	Chillicothe, OH	2											•		•								
Atrium Medical Center	Franklin, OH	2						•	•														
Blanchard Valley Hospital	Findlay, OH	2													•							•	
Dublin Methodist Hospital	Dublin, OH	2																				•	•
Dunlap Memorial Hospital	Orrville, OH	2											•	•									
Good Samaritan Hospital	Dayton, OH	2								•	•												
Lake Health	Concord, OH	2											•		•								

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mercy Medical Center	Canton, OH	2								•	•											
Southwest Regional Medical Center	Georgetown, OH	2								•	•											
St. Rita's Medical Center	Lima, OH	2				•			•													
University Hospitals Geauga Regional Hospital	Chardon, OH	2						•		•												
Mercy Health Center	Oklahoma City, OK	2	•	•																		
Ponca City Medical Center	Ponca City, OK	2																		•	•	
Grande Ronde Hospital	La Grande, OR	2	•	•																		
Sacred Heart Medical Center	Eugene, OR	2	•	•																		
Samaritan Lebanon Community Hospital	Lebanon, OR	2	•	•																		
Butler Memorial Hospital	Butler, PA	2											•	•								
Excelsa Health Latrobe Area Hospital	Latrobe, PA	2					•					•										
Excelsa Health Westmoreland	Greensburg, PA	2							•	•												
Lankenau Medical Center	Wynnewood, PA	2																		•	•	
Penn Presbyterian Medical Center	Philadelphia, PA	2																		•	•	
Punxsutawney Area Hospital	Punxsutawney, PA	2						•	•													
St. Clair Hospital	Pittsburgh, PA	2								•											•	
St. Joseph Medical Center	Reading, PA	2								•	•											
St. Luke's Hospital	Bethlehem, PA	2					•			•												
St. Mary Medical Center	Langhorne, PA	2									•	•										
The Reading Hospital and Medical Center	West Reading, PA	2						•		•												
UPMC Passavant	Pittsburgh, PA	2							•	•												
UPMC St. Margaret	Pittsburgh, PA	2											•	•								
Bon Secours St. Francis Hospital	Charleston, SC	2																		•	•	
Medical University of South Carolina	Charleston, SC	2				•	•															
Trident Health System	Charleston, SC	2						•	•													
Prairie Lakes Healthcare System	Watertown, SD	2											•	•								
Cookeville Regional Medical Center	Cookeville, TN	2													•	•						
LeConte Medical Center	Sevierville, TN	2														•			•			
Parkridge Medical Center	Chattanooga, TN	2								•		•										
St. Mary's Medical Center of Campbell County	LaFollette, TN	2														•	•					
TriStar Skyline Medical Center	Nashville, TN	2																	•			•
Baptist St. Anthony's Health System	Amarillo, TX	2																		•	•	
Baylor Medical Center at Waxahachie	Waxahachie, TX	2																	•	•		
Central Texas Hospital	Cameron, TX	2													•	•						

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013	
CHRISTUS St. Michael Health System	Texarkana, TX	2																			•	•	
Corpus Christi Medical Center	Corpus Christi, TX	2									•											•	
East Houston Regional Medical Center	Houston, TX	2			•																	•	
Good Shepherd Medical Center	Longview, TX	2								•												•	
Harris County Hospital District	Houston, TX	2		•	•																		
Llano Memorial Healthcare System	Llano, TX	2		•	•																		
Memorial Hermann Katy Hospital	Katy, TX	2																			•	•	
Memorial Hermann Sugar Land Hospital	Sugar Land, TX	2																			•	•	
Memorial Hermann-Texas Medical Center	Houston, TX	2			•	•																	
Seton Medical Center Austin	Austin, TX	2		•																		•	
St. David's North Austin Medical Center	Austin, TX	2																				•	•
Mountain View Hospital	Payson, UT	2			•		•																
San Juan Hospital	Monticello, UT	2																					
INOVA Fair Oaks Hospital	Fairfax, VA	2									•											•	
Memorial Regional Medical Center	Mechanicsville, VA	2																			•	•	
Sentara Leigh Hospital	Norfolk, VA	2										•	•										
Sentara Virginia Beach General Hospital	Virginia Beach, VA	2									•	•											
VCU Medical Center	Richmond, VA	2											•										
Providence St. Mary Medical Center	Walla Walla, WA	2		•																		•	
Sunnyside Community Hospital	Sunnyside, WA	2		•																		•	
Valley Medical Center	Renton, WA	2																				•	•
Whitman Hospital and Medical Center	Colfax, WA	2			•	•																	
Aurora West Allis Medical Center	West Allis, WI	2																				•	•
Baldwin Area Medical Center	Baldwin, WI	2			•	•																	
Bay Area Medical Center	Marinette, WI	2																				•	•
Meriter Hospital	Madison, WI	2																				•	•
Monroe Clinic	Monroe, WI	2																				•	•
St. Elizabeth Hospital	Appleton, WI	2											•										
St. Mary's Hospital	Madison, WI	2			•																	•	
Waukesha Memorial Hospital	Waukesha, WI	2			•																	•	
Powell Valley Healthcare	Powell, WY	2																				•	•
Evergreen Medical Center	Evergreen, AL	1																				•	
Hill Hospital of Sumter County	York, AL	1																				•	
J. Paul Jones Hospital	Camden, AL	1																				•	

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Lake Martin Community Hospital	Dadeville, AL	1									•										
Lanier Health Services	Valley, AL	1						•													
Medical Center Barbour	Eufaula, AL	1	•																		
Medical Center Enterprise	Enterprise, AL	1								•											
Riverview Regional Medical Center	Gadsden, AL	1					•														
Russell Medical Center	Alexander City, AL	1																		•	
Russellville Hospital	Russellville, AL	1						•													
Southwest Alabama Medical Center	Thomasville, AL	1								•											
Thomas Hospital	Fairhope, AL	1																		•	
UAB Hospital	Birmingham, AL	1				•															
Wedowee Hospital	Wedowee, AL	1						•													
Booneville Community Hospital	Booneville, AR	1									•										
Arrowhead Hospital	Glendale, AZ	1														•					
Community Hospital Medical Center	Phoenix, AZ	1			•																
John C. Lincoln — North Mountain	Phoenix, AZ	1											•								
La Paz Regional Hospital	Parker, AZ	1																		•	
Mayo Clinic Hospital	Phoenix, AZ	1											•								
Mesa General Hospital	Mesa, AZ	1					•														
Tempe St Luke's Hospital	Tempe, AZ	1								•											
Yavapai Regional Medical Center	Prescott, AZ	1														•					
Adventist Medical Center-Reedley	Reedley, CA	1		•																	
CHA Hollywood Presbyterian Medical Center	Los Angeles, CA	1					•														
Citrus Valley Medical Center — Queen of the Valley Campus	West Covina, CA	1	•																		
Eisenhower Medical Center	Rancho Mirage, CA	1														•					
Fairchild Medical Center	Yreka, CA	1													•						
Fountain Valley Regional Hospital and Medical Center	Fountain Valley, CA	1					•														
French Hospital Medical Center	San Luis Obispo, CA	1																			•
Good Samaritan Medical Center	San Jose, CA	1			•																
Hemet Valley Medical Center	Hemet, CA	1							•												
Lakewood Regional Medical Center	Lakewood, CA	1		•																	
Mercy Hospital of Folsom	Folsom, CA	1														•					
Methodist Hospital	Arcadia, CA	1		•																	
O'Connor Hospital	San Jose, CA	1		•																	
Pacific Alliance Medical Center	Los Angeles, CA	1																		•	
Palmdale Regional Medical Center	Palmdale, CA	1					•														
Parkview Community Hospital	Riverside, CA	1	•																		

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Plumas District Hospital	Quincy, CA	1					•														
Presbyterian Intercommunity Hospital	Whittier, CA	1																			•
Providence Saint Joseph Medical Center	Burbank, CA	1						•													
Saddleback Memorial Medical Center	Laguna Hills, CA	1																•			
Saint Agnes Medical Center	Fresno, CA	1				•															
San Antonio Community Hospital	Upland, CA	1																•			
San Dimas Community Hospital	San Dimas, CA	1																			•
Santa Ana Hospital Medical Center	Santa Ana, CA	1									•										
Shasta Regional Medical Center	Redding, CA	1																			•
Sierra Nevada Memorial Hospital	Grass Valley, CA	1												•							
Sonora Regional Medical Center	Sonora, CA	1						•													
Stanford Hospital and Clinics	Stanford, CA	1		•																	
UC Davis Medical Center	Sacramento, CA	1		•																	
Avista Adventist Hospital	Louisville, CO	1									•										
Community Hospital	Grand Junction, CO	1									•										
Denver Health Medical Center	Denver, CO	1												•							
McKee Medical Center	Loveland, CO	1																			•
Montrose Memorial Hospital	Montrose, CO	1	•																		
Presbyterian/St. Luke's Medical Center	Denver, CO	1									•										
San Luis Valley Regional Medical Center	Alamosa, CO	1		•																	
The Medical Center of Aurora	Aurora, CO	1												•							
University of Colorado Hospital	Aurora, CO	1				•															
Valley View Hospital	Glenwood Springs, CO	1												•							
University of Connecticut Health Center	Farmington , CT	1														•					
MedStar Washington Hospital Center	Washington, DC	1								•											
Baptist Medical Center Nassau	Fernandina Beach, FL	1									•										
Bay Medical Center	Panama City, FL	1												•							
Bethesda Memorial Hospital	Boynton Beach, FL	1		•																	
Boca Raton Regional Hospital	Boca Raton, FL	1						•													
Columbia Pompano Beach Medical Center	Pompano Beach, FL	1			•																
Doctor's Memorial Hospital	Perry, FL	1					•														
Englewood Community Hospital	Englewood, FL	1								•											
Florida Hospital-Ormond Memorial	Ormond Beach, FL	1											•								
Florida Medical Center	Fort Lauderdale, FL	1								•											

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Halifax Health Medical Center	Daytona Beach, FL	1										•									
Manatee Memorial Hospital	Bradenton, FL	1											•								
Memorial Hospital Miramar	Miramar, FL	1																•			
North Okaloosa Medical Center	Crestview, FL	1									•										
Oak Hill Hospital	Brooksville, FL	1									•										
Palms of Pasadena Hospital	Saint Petersburg, FL	1								•											
Putnam Community Medical Center	Palatka, FL	1						•													
Sebastian River Medical Center	Sebastian, FL	1												•							
St. Joseph's Hospital	Tampa, FL	1																•			
St. Vincent's Medical Center Southside	Jacksonville, FL	1																•			
The Villages Health System	The Villages, FL	1														•					
Town and Country Hospital	Tampa, FL	1			•																
Venice Regional Medical Center	Venice, FL	1																	•		
West Florida Hospital	Pensacola, FL	1			•																
Candler Hospital	Savannah, GA	1				•															
Coliseum Medical Centers	Macon, GA	1			•																
Doctors Hospital	Augusta, GA	1								•											
East Georgia Regional Medical Center	Statesboro, GA	1							•												
Emory University Hospital	Atlanta, GA	1		•																	
Fannin Regional Hospital	Blue Ridge, GA	1									•										
Flint River Community Hospital	Montezuma, GA	1				•															
Grady General Hospital	Cairo, GA	1								•											
Medical Center of Central Georgia	Macon, GA	1	•																		
South Fulton Medical Center	East Point, GA	1	•																		
Wellstar Cobb Hospital	Austell, GA	1		•																	
Wilcox Memorial Hospital	Lihue, HI	1							•												
Burgess Health Center	Onawa, IA	1			•																
Floyd Valley Hospital	Le Mars, IA	1											•								
Greater Regional Medical Center	Creston, IA	1	•																		
Henry County Health Center	Mount Pleasant, IA	1		•																	
Mercy Medical Center	Cedar Rapids, IA	1																			•
Mercy Medical Center-Dubuque	Dubuque, IA	1																•			
Sartori Memorial Hospital	Cedar Falls, IA	1											•								
Winneshiek Medical Center	Decorah, IA	1												•							
Eastern Idaho Regional Medical Center	Idaho Falls, ID	1								•											
Gritman Medical Center	Moscow, ID	1		•																	
Madison Memorial Hospital	Rexburg, ID	1	•																		
Twin Falls Clinic and Hospital	Twin Falls, ID	1					•														

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013
Decatur Memorial Hospital	Decatur, IL	1																				•
Edward Hospital	Naperville, IL	1																				•
FHN Memorial Hospital	Freeport, IL	1															•					
Heartland Regional Medical Center	Marion, IL	1								•												
Hillsboro Area Hospital	Hillsboro, IL	1						•														
Iroquois Memorial Hospital	Watseka, IL	1												•								
MetroSouth Medical Center	Blue Island, IL	1								•												
Michael Reese Hospital and Medical Center	Chicago, IL	1			•																	
Ottawa Regional Hospital and Healthcare Center	Ottawa, IL	1		•																		
Rush University Medical Center	Chicago, IL	1																				•
Rush-Copley Medical Center	Aurora, IL	1														•						
Sarah Bush Lincoln Health Center	Mattoon, IL	1												•								
St. Alexis Medical Center	Hoffman Estates, IL	1								•												
SwedishAmerican Hospital	Rockford, IL	1								•												
Vista Medical Center East	Waukegan, IL	1	•																			
Clarian Health / Indiana University Medical Center	Indianapolis, IN	1	•																			
Community Hospital Anderson	Anderson, IN	1	•																			
Community Hospital East/North	Indianapolis, IN	1								•												
Community Westview Hospital	Indianapolis, IN	1				•																
DeKalb Memorial Hospital	Auburn, IN	1														•						
Dupont Hospital	Fort Wayne, IN	1																				•
Floyd Memorial Hospital and Health Services	New Albany, IN	1	•																			
Franciscan St. Francis – Beech Grove	Beech Grove, IN	1												•								
IU Health Ball Memorial Hospital	Muncie, IN	1								•												
Kosciusko Community Hospital	Warsaw, IN	1																				•
Lutheran Hospital	Fort Wayne, IN	1									•											
Margaret Mary Community Hospital	Batesville, IN	1												•								
Parkview Hospital	Fort Wayne, IN	1				•																
Parkview Huntington Hospital	Huntington, IN	1																				•
Reid Hospital and Health Care Services	Richmond, IN	1																				•
Saint Joseph Regional Medical Center	Mishawaka, IN	1																•				
Saint Joseph Regional Medical Center	Plymouth, IN	1																				•
Scott Memorial Hospital	Scottsburg, IN	1																				•
St. Vincent Carmel Hospital	Carmel, IN	1																				•

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			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Terre Haute Regional Hospital	Terre Haute, IN	1								•											
Goodland Regional Medical Center	Goodland, KS	1				•															
Lawrence Memorial Hospital	Lawrence, KS	1																			•
Osborne County Memorial Hospital	Osborne, KS	1			•																
Scott County Hospital	Scott City, KS	1					•														
St. John's Hospital	Salina, KS	1	•																		
Breckinridge Memorial Hospital	Hardinsburg, KY	1				•															
Clark Regional Medical Center	Winchester, KY	1								•											
Frankfort Regional Medical Center	Frankfort, KY	1								•											
Jackson Purchase Medical Center	Mayfield, KY	1																•			
Lake Cumberland Regional Hospital	Somerset, KY	1					•														
McDowell ARH Hospital	McDowell, KY	1									•										
Owensboro Medical Health System	Owensboro, KY	1																		•	
Saint Joseph-London	London, KY	1																•			
Saint Joseph-Martin	Martin, KY	1							•												
Baton Rouge General	Baton Rouge, LA	1		•																	
Oakdale Community Hospital	Oakdale, LA	1						•													
Rapides Regional Medical Center	Alexandria, LA	1					•														
West Jefferson Medical Center	Marrero, LA	1				•															
Willis-Knighton Medical Center	Shreveport, LA	1												•							
Willis-Knighton Medical Center South	Shreveport, LA	1		•																	
Boston Medical Center	Boston, MA	1									•										
Hubbard Regional Hospital	Webster, MA	1								•											
NSMC Salem Hospital	Salem, MA	1								•											
South Shore Hospital	South Weymouth, MA	1												•							
Steward St. Elizabeth's Medical Center	Boston, MA	1																		•	
Sturdy Memorial Hospital	Attleboro, MA	1								•											
Anne Arundel Medical Center	Annapolis, MD	1											•								
Baltimore Washington Medical Center	Glen Burnie, MD	1													•						
Franklin Square Hospital Center	Baltimore, MD	1										•									
Greater Baltimore Medical Center	Baltimore, MD	1	•																		
MedStar St. Mary's Hospital	Leonardtown, MD	1									•										•
St. Agnes Hospital	Baltimore, MD	1			•																
Maine Medical Center	Portland, ME	1								•											

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Saint Joseph Hospital	Bangor, ME	1																			●
Bay Regional Medical Center	Bay City, MI	1											●								
Garden City Hospital	Garden City, MI	1														●					
Genesys Regional Medical Center	Grand Blanc, MI	1												●							
Grand View Hospital	Ironwood, MI	1												●							
Lakeland Regional Medical Center	St. Joseph, MI	1																			●
Mercy Health Partners	Muskegon, MI	1														●					
Mercy Hospital Grayling	Grayling, MI	1																			●
MidMichigan Medical Center-Clare	Clare, MI	1															●				
Oaklawn Hospital	Marshall, MI	1		●																	
Pennock Health	Hastings, MI	1														●					
Port Huron Hospital	Port Huron, MI	1														●					
Sparrow Health System	Lansing, MI	1							●												
Spectrum Health Zeeland Community Hospital	Zeeland, MI	1	●																		
St. Joseph Mercy Port Huron	Port Huron, MI	1	●																		
Abbott Northwestern Hospital	Minneapolis, MN	1	●																		
Cambridge Medical Center	Cambridge, MN	1	●																		
Clearwater County Memorial Hospital	Bagley, MN	1						●													
District One Hospital	Faribault, MN	1	●																		
Fairview Lakes Medical Center	Wyoming, MN	1			●																
Grand Itasca Clinic and Hospital	Grand Rapids, MN	1								●											
Mayo Clinic Health System	Austin, MN	1								●											
Northfield Hospital and Clinics	Northfield, MN	1								●											
Olmsted Medical Center	Rochester, MN	1									●										
Perham Memorial Hospital and Home	Perham, MN	1															●				
St. Francis Regional Medical Center	Shakopee, MN	1																			
St. Joseph's Hospital	St. Paul, MN	1															●				
Swift County-Benson Hospital	Benson, MN	1											●								
University of Minnesota Medical Center, Fairview	Minneapolis, MN	1	●																		
Barnes-Jewish St. Peters Hospital	St. Peters, MO	1																			●
Freeman Health System	Joplin, MO	1																			●
Missouri Southern Healthcare	Dexter, MO	1															●				
Moberly Regional Medical Center	Moberly, MO	1																			●
Ray County Memorial Hospital	Richmond, MO	1																			●

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
SSM St. Mary's Health Center	St. Louis, MO	1														•					
St. John's St. Francis Hospital	Mountain View, MO	1								•											
North Mississippi Medical Center	Tupelo, MS	1																•			
The University of Mississippi Medical Center	Jackson, MS	1														•					
Community Hospital of Anaconda	Anaconda, MT	1						•													
Marcus Daly Memorial Hospital	Hamilton, MT	1		•																	
The HealthCenter	Kalispell, MT	1																		•	
Carolinas Medical Center-Mercy	Charlotte, NC	1																			•
Duke University Hospital	Durham, NC	1																	•		
Morehead Memorial Hospital	Eden, NC	1	•																		
Pitt County Memorial Hospital	Greenville, NC	1									•										
Presbyterian Hospital Huntersville	Huntersville, NC	1																			•
Rex Healthcare	Raleigh, NC	1															•				
Rutherford Hospital, Inc.	Rutherfordton, NC	1																	•		
Wake Forest University Baptist Medical Center	Winston-Salem, NC	1											•								
MeritCare Medical Center	Fargo, ND	1											•								
Union Hospital	Mayville, ND	1				•															
Bryan Medical Center	Lincoln, NE	1											•								
Creighton University Medical Center	Omaha, NE	1								•											
Immanuel Medical Center	Omaha, NE	1																			•
Niobrara Valley Hospital	Lynch, NE	1			•																
Catholic Medical Center	Manchester, NH	1	•																		
Dartmouth-Hitchcock Medical Center	Lebanon, NH	1								•											
Clara Maass Medical Center	Belleville, NJ	1																			•
Community Medical Center	Toms River, NJ	1																			•
Hackensack University Medical Center	Hackensack, NJ	1																			•
Kennedy Memorial Hospital	Cherry Hill, NJ	1								•											
Robert Wood Johnson University Hospital	New Brunswick, NJ	1														•					
Lea Regional Medical Center	Hobbs, NM	1								•											
Lincoln County Medical Center	Ruidoso, NM	1		•																	
Lovelace Westside Hospital	Albuquerque, NM	1																			•
Nor-Lea Hospital District	Lovington, NM	1										•									
Presbyterian Hospital	Albuquerque, NM	1	•																		
University of New Mexico Hospital	Albuquerque, NM	1	•																		
University Medical Center	Las Vegas, NV	1						•													
North Shore University Hospital	Manhasset, NY	1								•											

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
St. Joseph's Hospital Health Center	Syracuse, NY	1									•										
Stony Brook University Hospital	Stony Brook, NY	1				•															
Community Hospitals and Wellness Centers	Bryan, OH	1													•						
Community Memorial Hospital	Hicksville, OH	1		•																	
Genesis HealthCare System	Zanesville, OH	1																		•	
Henry County Hospital	Napoleon, OH	1									•										
Knox Community Hospital	Mount Vernon, OH	1				•															
Lima Memorial Hospital	Lima, OH	1														•					
Memorial Hospital of Union County	Marysville, OH	1										•									
MetroHealth Medical Center	Cleveland, OH	1															•				
Miami Valley Hospital	Dayton, OH	1					•														
Mount Carmel	Columbus, OH	1										•									
Parma Community General Hospital	Parma, OH	1										•									
Samaritan Regional Health System	Ashland, OH	1																			•
St. Elizabeth Boardman Health Center	Youngstown, OH	1																		•	
St. Joseph Health Center	Warren, OH	1								•											
The Jewish Hospital	Cincinnati, OH	1													•						
Trumbull Memorial Hospital	Warren, OH	1												•							
Union Hospital	Dover, OH	1																	•		
Van Wert County Hospital	Van Wert, OH	1									•										
INTEGRIS Canadian Valley Regional Hospital	Yukon, OK	1													•						
Memorial Hospital	Stilwell, OK	1															•				
OU Medical Center	Oklahoma City, OK	1					•														
Perry Memorial Hospital	Perry, OK	1		•																	
Saint Francis Hospital	Tulsa, OK	1	•																		
Sequoyah Memorial Hospital	Sallisaw, OK	1										•									
Adventist Medical Center	Portland, OR	1		•																	
Good Samaritan Regional Medical Center	Corvallis, OR	1		•																	
Legacy Good Samaritan Medical Center	Portland, OR	1		•																	
Legacy Meridian Park Hospital	Tualatin, OR	1			•																
Oregon Health and Science University	Portland, OR	1									•										
Providence Newberg Medical Center	Newberg, OR	1											•								
Rogue Valley Medical Center	Medford, OR	1		•																	
Salem Hospital	Salem, OR	1		•																	

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Silverton Hospital	Silverton, OR	1												•							
Three Rivers Hospital Community Hospital	Grants Pass, OR	1	•																		
Willamette Falls Hospital	Oregon City, OR	1	•																		
Allegheny General Hospital	Pittsburgh, PA	1																		•	
Doylestown Hospital	Doylestown, PA	1																		•	
Geisinger Wyoming Valley Medical Center	Wilkes-Barre, PA	1												•							
Hospital of the University of Pennsylvania	Philadelphia, PA	1			•																
Lewistown Hospital	Lewistown, PA	1									•										
Southwest Regional Medical Center	Waynesburg, PA	1										•									
Titusville Area Hospital	Titusville, PA	1							•												
Tyrone Hospital	Tyrone, PA	1								•											
UPMC Horizon	Greenville, PA	1	•																		
UPMC Presbyterian	Pittsburgh, PA	1										•									
Kent Hospital	Warwick, RI	1								•											
Rhode Island Hospital	Providence, RI	1						•													
Roger Williams Medical Center	Providence, RI	1							•												
AnMed Health Medical Center	Anderson, SC	1																		•	
Colleton Medical Center	Walterboro, SC	1						•													
Avera St. Benedict Health Center	Parkston, SD	1			•																
Spearfish Regional Hospital	Spearfish, SD	1				•															
Crockett Hospital	Lawrenceburg, TN	1										•									
Cumberland Medical Center	Crossville, TN	1							•												
Cumberland River Hospital	Celina, TN	1						•													
Erlanger Bledsoe Hospital	Pikeville, TN	1								•											
Grandview Medical Center	Jasper, TN	1						•													
Horizon Medical Center	Dickson, TN	1			•																
Indian Path Medical Center	Kingsport, TN	1							•												
Jellico Community Hospital	Jellico, TN	1											•								
Marshall Medical Center	Lewisburg, TN	1									•										
Methodist University Hospital	Memphis, TN	1						•													
Physicians Regional Medical Center	Knoxville, TN	1													•						
Rhea Medical Center	Dayton, TN	1									•										
River Park Hospital	McMinnville, TN	1			•																
SkyRidge Medical Center	Cleveland, TN	1	•																		
StoneCrest Medical Center	Smyrna, TN	1																	•		
Summit Medical Center	Hermitage, TN	1						•													

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
The University of Tennessee Medical Center	Knoxville, TN	1							•												
Wellmont Holston Valley Medical Center	Kingsport, TN	1							•												
White County Community Hospital	Sparta, TN	1												•							
Woods Memorial Hospital	Etowah, TN	1				•															
Baptist Health System	San Antonio, TX	1												•							
Baylor All Saints Medical Center at Fort Worth	Fort Worth, TX	1																	•		
Baylor Medical Center at Irving	Irving, TX	1	•																		
Baylor University Medical Center at Dallas	Dallas, TX	1																		•	
Bayshore Medical Center	Pasadena, TX	1					•														
Brazosport Regional Health System	Lake Jackson, TX	1														•					
Childress Regional Medical Center	Childress, TX	1												•							
CHRISTUS Jasper Memorial Hospital	Jasper, TX	1					•														
Connally Memorial Medical Center	Floresville, TX	1																	•		
East Texas Medical Center Quitman	Quitman, TX	1				•															
Ennis Regional Medical Center	Ennis, TX	1													•						
Laredo Medical Center	Laredo, TX	1					•														
Medical Center of Plano	Plano, TX	1						•													
Medical City Dallas Hospital	Dallas, TX	1			•																
Mesquite Community Hospital	Mesquite, TX	1			•																
Methodist Hospital	San Antonio, TX	1											•								
Parkview Regional Hospital	Mexia, TX	1				•															
Presbyterian Hospital of Dallas	Dallas, TX	1				•															
Providence Health Center	Waco, TX	1												•							
South Texas Regional Medical Center	Jourdanton, TX	1							•												
Spring Branch Medical Center	Houston, TX	1							•												
St. David's Round Rock Medical Center	Round Rock, TX	1																		•	
St. David's South Austin Hospital	Austin, TX	1								•											
Texas Health Harris Methodist Hospital Azle	Azle, TX	1																			•
Tri-City Health Centre	Dallas, TX	1		•																	
United Regional Health Care System	Wichita Falls, TX	1																			•
Ashley Regional Medical Center	Vernal, UT	1										•									
Dixie Regional Medical Center	St. George, UT	1																•			

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Hospital*	Location	Total Year(s) Won	Study Years†																		
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
LDS Hospital	Salt Lake City, UT	1	•																		
Bon Secours St. Mary's Hospital	Richmond, VA	1																			•
CJW Medical Center	Richmond, VA	1								•											
Culpeper Regional Hospital	Culpeper, VA	1			•																
Henrico Doctors' Hospital	Richmond, VA	1											•								
INOVA Loudoun Hospital	Leesburg, VA	1	•																		
Lee Regional Medical Center	Pennington Gap, VA	1				•															
Martha Jefferson Hospital	Charlottesville, VA	1								•											
Sentara Potomac Hospital	Woodbridge, VA	1		•																	
Virginia Hospital Center	Arlington, VA	1																			•
Allenmore Hospital	Tacoma, WA	1							•												
Cascade Valley Hospital and Clinics	Arlington, WA	1		•																	
Deaconess Medical Center	Spokane, WA	1	•																		
Harrison Medical Center	Bremerton, WA	1				•															
Northwest Hospital and Medical Center	Seattle, WA	1		•																	
Othello Community Hospital	Othello, WA	1			•																
PeaceHealth St. Joseph Medical Center	Bellingham, WA	1												•							
Providence Mount Carmel Hospital	Colville, WA	1		•																	
Providence Sacred Heart Medical Center	Spokane, WA	1		•																	
Samaritan Hospital	Moses Lake, WA	1		•																	
St. Elizabeth Hospital	Enumclaw, WA	1								•											
St. John Medical Center	Longview, WA	1	•																		
Toppenish Community Hospital	Toppenish, WA	1													•						
University of Washington Medical Center	Seattle, WA	1	•																		
Virginia Mason Medical Center	Seattle, WA	1									•										
Aspirus Wausau Hospital	Wausau, WI	1		•																	
Aurora BayCare Medical Center	Green Bay, WI	1																		•	
Aurora St. Luke's Medical Center	Milwaukee, WI	1	•																		
Beaver Dam Community Hospitals, Inc.	Beaver Dam, WI	1						•													
Columbia St. Mary's Hospital Columbia	Milwaukee, WI	1												•							
Columbia St. Mary's Hospital Milwaukee	Milwaukee, WI	1													•						
Community Memorial Hospital	Menomonee Falls, WI	1	•																		
Froedtert & The Medical College of Wisconsin	Milwaukee, WI	1																			•
Grant Regional Health Center	Lancaster, WI	1		•																	

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Hospital*	Location	Total Year(s) Won	Study Years†																			
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012	2013
Howard Young Medical Center	Woodruff, WI	1	•																			
Memorial Hospital of Lafayette County	Darlington, WI	1			•																	
Memorial Medical Center	Ashland, WI	1	•																			
Mercy Hospital and Trauma Center	Janesville, WI	1	•																			
Mercy Medical Center	Oshkosh, WI	1											•									
Ministry Saint Clare's Hospital	Weston, WI	1																				•
Red Cedar Medical Center	Menomonie, WI	1		•																		
Riverside Medical Center	Waupaca, WI	1											•									
St. Joseph's Hospital	Chippewa Falls, WI	1																				•
St. Mary's Hospital Medical Center	Green Bay, WI	1										•										
St. Vincent Hospital	Green Bay, WI	1		•																		
Waupun Memorial Hospital	Waupun, WI	1				•																
Wheaton Franciscan Healthcare-St. Joseph	Milwaukee, WI	1																				•
Greenbrier Valley Medical Center	Ronceverte, WV	1																				•
St. Joseph's Hospital	Parkersburg, WV	1											•									
United Hospital Center	Bridgeport, WV	1																				•
Williamson Memorial Hospital	Williamson, WV	1											•									
Ivinson Memorial Hospital	Laramie, WY	1	•																			
Riverton Memorial Hospital	Riverton, WY	1			•																	

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Appendix A

Distribution of Winners by State and Region*

State	Number of Winners	
	Current Study	Previous Study
Alabama	1	1
Alaska	0	0
Arizona	2	1
Arkansas	0	0
California	15	11
Colorado	4	1
Connecticut	0	0
Delaware	1	0
District of Columbia	0	0
Florida	9	13
Georgia	1	0
Hawaii	0	0
Idaho	0	0
Illinois	7	4
Indiana	2	4
Iowa	3	2
Kansas	1	0
Kentucky	0	2
Louisiana	0	1
Maine	0	1
Maryland	1	1
Massachusetts	3	3
Michigan	8	7
Minnesota	1	2
Mississippi	0	0
Missouri	0	0
Montana	1	1
Nebraska	1	0
Nevada	0	0
New Hampshire	0	0
New Jersey	0	3

State	Number of Winners	
	Current Study	Previous Study
New Mexico	1	0
New York	0	0
North Carolina	4	2
North Dakota	0	0
Ohio	7	6
Oklahoma	0	1
Oregon	0	0
Pennsylvania	2	10
Rhode Island	0	0
South Carolina	1	2
South Dakota	1	0
Tennessee	3	3
Texas	9	14
Utah	5	2
Vermont	0	0
Virginia	2	2
Washington	0	0
West Virginia	0	0
Wisconsin	4	0
Wyoming	0	0

State	Number of Winners	
	Current Study	Previous Study
Northeast	5	17
Midwest	35	25
South	32	42
West	28	16

*For a listing of states within each census region, see Appendix B.

Appendix B

States Included in Each Census Region

Northeast	Midwest	South	West
Connecticut	Illinois	Alabama	Alaska
Maine	Indiana	Arkansas	Arizona
Massachusetts	Iowa	Delaware	California
New Hampshire	Kansas	District of Columbia	Colorado
New Jersey	Michigan	Florida	Hawaii
New York	Minnesota	Georgia	Idaho
Pennsylvania	Missouri	Kentucky	Montana
Rhode Island	Nebraska	Louisiana	Nevada
Vermont	North Dakota	Maryland	New Mexico
	Ohio	Mississippi	Oregon
	South Dakota	North Carolina	Utah
	Wisconsin	Oklahoma	Washington
		South Carolina	Wyoming
		Tennessee	
		Texas	
		Virginia	
		West Virginia	

Appendix C: Methodology Details

Methods for Identifying Complications of Care

Without adjusting for differences, comparing outcomes among hospitals is like comparing the proverbial apples to oranges: hard, if not impossible, to do. To make valid normative comparisons of hospital outcomes, it is necessary to adjust raw data to accommodate differences that result from the variety and severity of admitted cases.

Truven Health AnalyticsSM is able to make valid normative comparisons of mortality and complications rates by using patient-level data to control effectively for case mix and severity differences. We do this by evaluating ICD-9-CM diagnosis and procedure codes to adjust for severity within clinical case mix groupings. Conceptually, we group patients with similar characteristics (i.e., age, sex, principal diagnosis, procedures performed, admission type, and comorbid conditions) to produce expected, or normative, comparisons. Through extensive testing, we have found that this methodology produces valid normative comparisons using readily available administrative data, eliminating the need for additional data collection.³²

Normative Database Development

For this study, Truven Health constructed a normative database of case-level data from the most recent three years of MedPAR data (2009, 2010, and 2011). The data include both fee-for-service Medicare claims and HMO encounters. Demographic and clinical data are also included: age, sex, and length-of-stay (LOS); clinical groupings (MS-DRGs), ICD-9-CM principal and secondary diagnoses¹; ICD-9-CM principal and secondary procedures²; present on admission coding; admission source and type; and discharge status.

Present-on-Admission Data

Under the Deficit Reduction Act of 2005, as of federal fiscal year (FFY) 2008, hospitals receive reduced payments for cases with certain conditions — such as falls, surgical site infections, and pressure ulcers — that were not present on the patient's admission, but occurred during hospitalization. As a result, CMS now requires all inpatient prospective payment system hospitals to document whether a patient has these conditions when admitted. Truven Health proprietary risk-adjustment models for mortality, complications, and length-of-stay include present-on-admission (POA) data that was reported in the 2009, 2010, and 2011 MedPAR datasets.

Risk-Adjusted Mortality Index Models

Truven has developed an overall mortality risk model. From this model, we excluded long-term care, psychiatric, substance abuse, rehabilitation, and federally owned or controlled facilities. In addition, we excluded certain patient records from the data set: psychiatric, substance abuse, rehabilitation, and unclassified cases (MS-DRGs 945, 946, and 999); cases where patient age was less than 65 years; and where patient transferred to other short-term acute care hospital. Palliative care patients (v66.7) are included in the mortality risk model, which is calibrated to determine probability of death for these patients.

¹ We used 25 diagnostic codes in the 2011 MedPar data set and 9 in the 2009 and 2010 MedPAR data sets.

² We used 25 procedure codes in the 2011 MedPar data set and 6 in the 2009 and 2010 MedPAR data sets.

A standard logistic regression model is used to estimate the risk of mortality for each patient. This is done by weighting the patient records of the client hospital by the logistic regression coefficients associated with the corresponding terms in the model and the intercept term. This produces the expected probability of an outcome for each eligible patient (numerator) based on the experience of the norm for patients with similar characteristics (age, clinical grouping, severity of illness, and so forth).³³⁻³⁷

Staff physicians at Truven Health have suggested important clinical patient characteristics that also were incorporated into the proprietary models. After assigning the predicted probability of the outcome for each patient, the patient-level data can then be aggregated across a variety of groupings, including hospital, service, or the MS-DRG classification systems.

Expected Complications Rate Index Models

Risk-adjusted complications refer to outcomes that may be of concern when they occur at a greater than expected rate among groups of patients, possibly reflecting systemic quality of care issues. The Truven Health complications model uses clinical qualifiers to identify complications that have occurred in the inpatient setting. The complications used in the model are:

Complication	Patient Group
Post-operative complications relating to urinary tract	Surgical only
Post-operative complications relating to respiratory system except pneumonia	Surgical only
GI complications following procedure	Surgical only
Infection following injection/infusion	All patients
Decubitus ulcer	All patients
Post-operative septicemia, abscess, and wound infection	Surgical, including cardiac
Aspiration pneumonia	Surgical only
Tracheostomy complications	All patients
Complications of cardiac devices	Surgical, including cardiac
Complications of vascular and hemodialysis devices	Surgical only
Nervous system complications from devices/Complications of nervous system devices	Surgical only
Complications of genitourinary devices	Surgical only
Complications of orthopedic devices	Surgical only
Complications of other and unspecified devices, implants, and grafts	Surgical only
Other surgical complications	Surgical, including cardiac
Miscellaneous complications	All patients

Complication	Patient Group
Cardio-respiratory arrest, shock, or failure	Surgical only
Post-operative complications relating to nervous system	Surgical only
Post-operative acute myocardial infarction	Surgical only
Post-operative cardiac abnormalities except AMI	Surgical only
Procedure-related perforation or laceration	All patients
Post-operative physiologic and metabolic derangements	Surgical, including cardiac
Post-operative coma or stupor	Surgical, including cardiac
Post-operative pneumonia	Surgical, including cardiac
Pulmonary embolism	All patients
Venous thrombosis	All patients
Hemorrhage, hematoma, or seroma complicating a procedure	All patients
Post-procedure complications of other body systems	All patients
Complications of transplanted organ (excludes skin and cornea)	Surgical only
Disruption of operative wound	Surgical only
Complications relating to anesthetic agents and CNS depressants	Surgical, including cardiac
Complications relating to antibiotics	All patients
Complications relating to other anti-infective drugs	All patients
Complications relating to anti-neoplastic and immunosuppressive drugs	All patients
Complications relating to anticoagulants and drugs affecting clotting factors	All patients
Complications relating to blood products	All patients
Complications relating to narcotics and related analgesics	All patients
Complications relating to non-narcotic analgesics	All patients
Complications relating to anti-convulsants and anti-Parkinsonism drugs	All patients
Complications relating to sedatives and hypnotics	All patients
Complications relating to psychotropic agents	All patients
Complications relating to CNS stimulants and drugs affecting the autonomic nervous system	All patients
Complications relating to drugs affecting cardiac rhythm regulation	All patients
Complications relating to cardiotonic glycosides (digoxin) and drugs of similar action	All patients
Complications relating to other drugs affecting the cardiovascular system	All patients
Complications relating to anti-asthmatic drugs	All patients
Complications relating to other medications (includes hormones, insulin, iron, and oxytocic agents)	All patients

A normative database of case-level data including age, sex, LOS, clinical grouping (MS-DRGs), and comorbid conditions was constructed using the most recent three years of available MedPAR data (2009, 2010, and 2011). Long-term care, psychiatric, substance abuse, rehabilitation, and federally owned or controlled facilities were not included. In addition, we excluded certain patient records from the data set: psychiatric, substance abuse, rehabilitation, and unclassified cases (MS-DRGs 945, 946, and 999); cases where patient age was less than 65 years and where patient transferred to other short-term acute care hospital.

A standard regression model is used to estimate the risk of experiencing a complication for each patient. This is done by weighting the patient records of the client hospital by the regression coefficients associated with the corresponding terms in the prediction models and intercept term. This method produces the expected probability of a complication for each patient based on the experience of the norm for patients with similar characteristics. After assigning the predicted probability of a complication for each patient in each risk group, it is then possible to aggregate the patient-level data across a variety of groupings.³⁸⁻⁴¹

Patient Safety Indicators

The Agency for Healthcare Research and Quality (AHRQ) is a public health service agency within the federal government's Department of Health and Human Services. The agency's mission includes both translating research findings into better patient care and providing policymakers and other healthcare leaders with information needed to make critical healthcare decisions. We use AHRQ's Patient Safety Indicators (PSIs) in calculating our risk-adjusted patient safety index performance measure. This information on PSIs is from the AHRQ website (ahrq.gov):

The AHRQ Quality Indicators measure healthcare quality by using readily available hospital inpatient administrative data. Patient Safety Indicators are a set of indicators providing information on potential in-hospital complications and adverse events following surgeries, procedures, and childbirth. The PSIs were developed after a comprehensive literature review, analysis of ICD-9-CM codes, review by a clinician panel, implementation of risk adjustment, and empirical analyses. The Patient Safety Indicators provide a perspective on patient safety events using hospital administrative data. Patient Safety Indicators also reflect quality of care inside hospitals, but focus on surgical complications and other iatrogenic events.⁴²

For the risk-adjusted patient safety index performance measure, we began our research with all PSIs that occurred with sufficient frequency to generate provider-specific output. Of the 20 PSIs included in the original AHRQ methodology, only 15 produced non-zero PSI rates on the Medicare data. Four measures are for birth or other obstetrical-related conditions, which do not occur in the age group under study here. Transfusion reactions generated rates that were too low for the AHRQ PSI software to generate provider-specific output. Due to the unreliability of E coding, we also excluded complications of anesthesia (PSI 1), foreign body left in during procedure (PSI 5), postoperative hip fracture (PSI 8), and accidental puncture and laceration (PSI 15), which rely on E codes. Since the original analysis was done, death in low-mortality DRGs (PSI 2) no longer has risk values in the model.

Since the POA coding has become available with the MedPAR 2009 data set, pressure ulcer (PSI 3) and postoperative pulmonary embolism or deep vein thrombosis (PSI 12), which are highly impacted by POA coding, are included. The AHRQ model version used in this study was Version 4.3, published August 2011. The model used POA coding in MedPAR data.

The final set of 10 PSIs included in this study was:

- PSI 3: Pressure ulcer
- PSI 4: Death among surgical inpatients with serious treatable complications
- PSI 6: Iatrogenic pneumothorax
- PSI 7: Central venous catheter-related bloodstream infections
- PSI 9: 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

ECRI and PSI: Complementary Methodologies

Given its high level of importance, we chose to increase our emphasis on patient safety by using both the PSI (AHRQ) and expected complications rate index (ECRI) methodologies to calculate two separate outcome measures. Both PSI and ECRI are methodologies for identifying complications of care. Although the definitions have some similarities, there are enough differences that the two are useful complements to each other. ECRI is an overall complication methodology in which the outcome is the occurrence of one or more of 47 complications of care. The AHRQ PSIs used in our study are based on 10 separate models that evaluate the occurrence of 10 distinct complications of care, one of which is mortality related — an adverse outcome that is not included in ECRI.

Index Interpretation

An outcome index is a ratio of an observed number of outcomes to an expected number of outcomes in a particular population. This index is used to make normative comparisons and is standardized in that the expected number of events is based on the occurrence of the event in a normative population. The normative population used to calculate expected numbers of events is selected to be similar to the comparison population with respect to relevant characteristics, including age, sex, region, and case mix.

The index is simply the number of observed events divided by the number of expected events and can be calculated for outcomes that involve counts of occurrences (e.g., deaths or complications). Interpretation of the index relates the experience of the comparison population relative to a specified event to the expected experience based on the normative population.

Examples:

10 events observed ÷ 10 events expected = 1.0: The observed number of events is equal to the expected number of events based on the normative experience.

10 events observed ÷ 5 events expected = 2.0: The observed number of events is twice the expected number of events based on the normative experience.

10 events observed ÷ 25 events expected = 0.4: The observed number of events is 60 percent lower than the expected number of events based on the normative experience.

Therefore, an index value of 1.0 indicates no difference between observed and expected outcome occurrence. An index value greater than 1.0 indicates an excess in the observed number of events relative to the expected based on the normative experience. An index value less than 1.0 indicates fewer events observed than would be expected based on the normative experience. An additional interpretation is that the difference between 1.0 and the index is the percentage difference in the number of events relative to the norm. In other words, an index of 1.05 indicates 5 percent more outcomes, and an index of 0.90 indicates 10 percent fewer outcomes than expected based on the experience of the norm. The index can be calculated across a variety of groupings (e.g., hospital, service).

Core Measures

Core measures were developed by the Joint Commission and endorsed by the National Quality Forum (NQF), the nonprofit public-private partnership organization that endorses national healthcare performance measures, as minimum basic care standards. They are a widely accepted method for measuring quality of patient care that includes specific guidelines for heart attack (acute myocardial infarction (AMI)), heart failure (HF), pneumonia, pregnancy and related conditions, and surgical care. Our composite core measures mean percent is based on the AMI, HF, pneumonia, and surgical care areas of this program, using Hospital Compare data reported on the Centers for Medicare and Medicaid Services (CMS) website. The data in this study are from the third quarter 2012 database. This contains data from January 1 through December 31, 2011.

In calculating each hospital's core measures mean percent, the comparison group median core-measure value was substituted for a missing core measure. In addition, the comparison group median core measure value was substituted when the hospital reported core measures with patient counts less than or equal to 25 or with relative standard error greater than or equal to 0.30. This was done because the original reported values were considered statistically unreliable.

AMI Core Measures

AMI-8A* Heart attack patients given percutaneous coronary intervention within 90 minutes of arrival

AMI-10* Heart attack patients given a prescription for statin at discharge

HF Core Measures

HF-1 Heart failure patients given discharge instructions

Pneumonia Core Measures

PN-3B Pneumonia patients whose initial emergency room blood culture was performed prior to the administration of the first hospital dose of antibiotics

PN-5C Pneumonia patients given initial antibiotic(s) within 6 hours after arrival

PN-6 Pneumonia patients given the most appropriate initial antibiotic(s)

Surgical Care Improvement Project Core Measures

SCIP_CARD_2 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

SCIP-INF-1 Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection

SCIP-INF-2 Surgery patients who were given the right kind of antibiotic to help prevent infection

SCIP-INF-3 Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery)

SCIP-INF-4* Heart surgery patients whose blood sugar (blood glucose) is kept under good control in the days right after surgery

SCIP-INF-9 Surgery patients whose urinary catheters were removed on the first or second day after surgery

SCIP-INF-10 Patients having surgery who were actively warmed in the operating room or whose body temperature was near normal by the end of surgery

SCIP-VTE-1 Surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries

SCIP-VTE-2 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

*We did not include this measure for small community hospitals due to very low reporting.

30-Day Risk-Adjusted Mortality Rates and 30-Day Risk-Adjusted Readmission Rates

This study currently includes two extended outcome measures — 30-day mortality and 30-day readmission rates, as defined by the CMS Hospital Compare dataset (third quarter 2012). The longitudinal data period contained in this analysis is July 1, 2008, through June 30, 2011. The Hospital Compare website and database were created by CMS, the Department of Health and Human Services, and other members of the Hospital Quality Alliance. The data on the website come from hospitals that have agreed to submit quality information that will be made public. Both of the measures used in this study have been endorsed by the NQF.

CMS calculates the 30-day mortality and 30-day readmission rates from Medicare enrollment and claims records using sophisticated statistical modeling techniques that adjust for patient-level risk factors and account for the clustering of patients within hospitals. Both rates are based on heart attack, heart failure, and pneumonia patients.

CMS' three mortality models (heart attack, heart failure, and pneumonia) estimate hospital-specific, risk-standardized, all-cause 30-day mortality rates for patients hospitalized with a principal diagnosis of heart attack, heart failure, or pneumonia. All-cause mortality is defined as death from any cause within 30 days after the admission date, regardless of whether the patient dies while still in the hospital or after discharge.

CMS' three readmission models estimate hospital-specific, risk-standardized, all-cause 30-day readmission rates for patients discharged alive to a non-acute-care setting with a principal diagnosis of heart attack, heart failure, or pneumonia. Patients may have been readmitted back to the same hospital, to a different hospital or to an acute-care facility. They may have been readmitted for the same condition as their recent hospital stay or for a different reason (this is to discourage hospitals from coding similar readmissions as different readmissions).²⁹

HCAHPS Overall Hospital Rating

To measure patient perception of care, this study uses the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient survey. HCAHPS is a standardized survey instrument and data collection methodology for measuring patients' perspectives of hospital care. HCAHPS is a core set of questions that can be combined with customized, hospital-specific items to produce information that complements the data hospitals currently collect to support internal customer service and quality-related activities.

HCAHPS was developed through a partnership between CMS and AHRQ that had three broad goals:

- Produce comparable data on patients' perspectives of care that allow objective and meaningful comparisons among hospitals on topics that are important to consumers

- Encourage public reporting of the survey results to create incentives for hospitals to improve quality of care
- Enhance public accountability in healthcare by increasing the transparency of the quality of hospital care provided in return for the public investment

The HCAHPS survey has been endorsed by the NQF and the Hospital Quality Alliance. The federal government’s Office of Management and Budget has approved the national implementation of HCAHPS for public reporting purposes.

Voluntary collection of HCAHPS data for public reporting began in October 2006. The first public reporting of HCAHPS results, which encompassed eligible discharges from October 2006 through June 2007, occurred in March 2008. HCAHPS results are posted on the Hospital Compare website, found at hospitalcompare.hhs.gov, or through a link on medicare.gov. A downloadable version of HCAHPS results is available.⁴³

For this study edition, we used Hospital Compare data from the third quarter 2012 database. This database contains the HCAHPS results for data period January 1 through December 31, 2011. Although we are reporting hospital performance on all HCAHPS questions, only performance on the Overall Hospital Rating question, “How do patients rate the hospital, overall?” is used to rank hospital performance. Patient responses fell into three categories, and the number of patients in each category was reported as a percent:

- Patients who gave a rating of 6 or lower (low)
- Patients who gave a rating of 7 or 8 (medium)
- Patients who gave a rating of 9 or 10 (high)

For each answer category, we assigned a weight as follows: 3 equals high or good performance, 2 equals medium or average performance, and 1 equals low or poor performance. We then calculated a weighted score for each hospital by multiplying the HCAHPS answer percent by the category weight. For each hospital, we summed the weighted percent values for the three answer categories. Hospitals were then ranked by this weighted percent sum. The highest possible HCAHPS score is 300 (100 percent of patients rate the hospital high). The lowest possible HCAHPS score is 100 (100 percent of patients rate the hospital low).

Length-of-Stay Methodologies

The study’s LOS performance measure uses the Truven Health proprietary, severity-adjusted resource demand methodology. This model now includes POA data that was reported in the 2010 and 2011 MedPAR datasets. Under the Deficit Reduction Act of 2005, as of federal fiscal year 2008, hospitals receive reduced payments for cases in which certain conditions — like falls, surgical site infections, and pressure ulcers — were not present on the patient’s admission but occur during their hospitalization. As a result, CMS now requires all inpatient prospective payment system hospitals to document whether a patient has these conditions when admitted.

Our severity-adjusted resource demand model allows us to produce risk-adjusted performance comparisons on LOS between or across virtually any subgroup of inpatients. These patient groupings can be based on clinical groupings, hospitals, product lines, geographic regions, physicians, etc. This regression model adjusts for differences in diagnosis type and illness severity, based on ICD-9-CM coding. It also adjusts for patient age, gender, and admission status. Its associated LOS weights allow group comparisons on a national level and in a specific market area. This year, the LOS model has been recalibrated from three years of MedPAR data (2009, 2010, and 2011), taking into account present on admission (POA) coding.

POA coding allows us to determine appropriate adjustments based on pre-existing conditions versus complications of hospital care. We calculate expected values from model coefficients that are normalized to the clinical group and transformed from log scale.

Performance Measure Normalization

The mortality, complications, patient safety index, and LOS measures are normalized, based on the in-study population, by comparison group, to provide a more easily interpreted comparison among hospitals. To address the impact of bed size and teaching status, including extent of residency program involvement, and compare hospitals to other like hospitals, we assign each hospital in the study to one of five comparison groups (major teaching, teaching, large community, medium community, and small community hospitals). (Detailed descriptions of the patient and hospital comparison groups can be found in the Methodology section of this document.)

For the mortality and complications measures, we base our ranking on the difference between observed and expected events, expressed in standard deviation units (z-scores) that have been normalized. We normalize the individual hospital z-scores by finding the difference between the hospital z-score and the mean z-score for their comparison group. The difference is then divided by the standard deviation of the comparison group's z-scores to produce the normalized z-score for the hospital.

For length-of-stay measure, we base our ranking on the normalized severity-adjusted LOS index expressed in days. This index is the ratio of the observed and the normalized expected values for each hospital. We normalize the individual hospital's expected values by multiplying them by the ratio of the observed to expected values for the comparison group. The hospital's normalized index is then calculated by dividing the hospital's observed value by its normalized expected value. We convert this normalized index into days by multiplying by the average length-of-stay of the in-study hospitals (grand mean LOS).

Interquartile Range Methodology

For each measure, we calculate an interquartile range (IQR) based on data for all in-study hospitals. Two outlier points (trim points) are set for each measure: one upper limit and one lower limit.

A value (X) is considered an outlier if either of the following is true:

- X > upper limit outlier point
- X < lower limit outlier point

The procedure for calculating the IQR and outlier points is as follows:

- Determine the first quartile (Q1). This is the 25th percentile value of all records in the population
- Determine the third quartile (Q3). This is the 75th percentile value of all records in the population
- Calculate the IQR by subtracting Q1 from Q3. ($IQR = Q3 - Q1$)
- Calculate the upper limit trim point for PSI index, and the upper and lower limit trim points for inpatient expense per discharge:
 - upper limit = $Q3 + (3.0 \times IQR)$
 - lower limit = $Q1 - (3.0 \times IQR)$
- Calculate the upper and lower limit trim points for operating profit margin:
 - upper limit = $Q3 + (2.0 \times IQR)$
 - lower limit = $Q1 - (2.0 \times IQR)$

Data points that are outside the IQR limits are considered to be extreme outliers and are excluded.

Why We Have Not Calculated Percent Change in Specific Instances

Percent change is a meaningless statistic when the underlying quantity can be positive, negative, or zero. The actual change may mean something, but dividing it by a number that may be zero or of the opposite sign does not convey any meaningful information because the amount of change is not proportional to its previous value.⁴⁴

We also do not report percent change when the metrics are already percentages. In these cases, we report the simple difference between the two percentage values.

Protecting Patient Privacy

In accordance with patient privacy laws, we do not report any individual hospital data that are based on 11 or fewer patients. This affects the following measures:

- Risk-adjusted mortality index
- Risk-adjusted complications index
- 30-day mortality rates for AMI, heart failure, and pneumonia (CMS does not report a rate when count is less than 25)
- 30-day readmission rates for AMI, heart failure, and pneumonia (CMS does not report a rate when count is less than 25)
- Average length-of-stay

Medicare Cost Report Line Items Used in the Performance Measures Calculations

A number of our calculations include data from the Medicare Cost Report. Below you will find our calculations and the Cost Report locations (worksheet, line, and column) for all of these items. The following apply to the 100 Top Hospitals study and the hospital Medicare Cost Report for the hospital fiscal year ending in 2011. In cases where a 2011 cost report was missing or incomplete due to the change in reporting format (2552-96 replaced by 2552-10), we used the 2010 cost report. Please note that the locations of the elements will sometimes vary between Cost Reports. The line and column references are the standard based on CMS Form 2552-96. Any deviations from this standard are checked by system and manual data analysis to ensure that the coding has been done properly.

Case Mix- and Wage-Adjusted Inpatient Expense per Discharge

$$\frac{[(0.62 \times \text{Acute Inpatient Expense} \div \text{CMS Wage Index}) + 0.38 \times \text{Acute Inpatient Expense}] \div \text{Acute Inpatient Discharges}}{\text{Medicare Case Mix Index}}$$

Acute Inpatient Expense = Inpatient Expense — (Subprovider Expense — Nursery Expense — Skilled Nursing Facility Expense — Intermediate-Care Facility Expense — Other Long-Term Care Facility Expense — Cost Centers without Revenue (e.g., organ procurement, outpatient therapy, other capital-related costs, etc.)

Inpatient Expense = Sum Over All Departments

$$[(\text{Inpatient Department Charges} \div \text{Department Charges}) \times \text{Department Cost}]$$

Individual Element Locations in the Medicare Cost Report:

- Acute Inpatient Discharges — Worksheet S-3, Line 14, Column 15
- Inpatient Department (cost center) elements:
 - Fully Allocated Cost — Worksheet C, Part 1, Column 1
 - Total Charges — Worksheet C, Part 1, Column 8
 - Inpatient Charges — Worksheet C, Part 1, Column 6
- Medicare Case Mix Index — Federal Register: CMS Inpatient Prospective Payment System (IPPS) Fiscal Year 2009 Final Rule
- CMS Wage Index — CMS Federal Register: CMS IPPS Fiscal Year 2009 Final Rule
- Medicare Case Mix Index — Federal Register: CMS Inpatient Prospective Payment System (IPPS) Fiscal Year 2010 Final Rule (if FY end before October 1, 2011) or 2011 (cost report end date October 1 or later)
- CMS Wage Index — CMS Federal Register: CMS IPPS Fiscal Year 2010 Final Rule (if FY end before October 1, 2011) or 2011 (cost report end date October 1 or later)

Adjusted Operating Profit Margin

$$\frac{[(\text{Net Patient Revenue} + \text{Other Operating Revenue} - (\text{Total Operating Expense} + \text{Related Organization Expense})) \div (\text{Net Patient Revenue} + \text{Other Operating Revenue})]}{\times 100}$$

Other Operating Revenue = [Total Other Income — Other Income: Contributions, Donations, etc. — Other Income from Investments]

Individual Element Locations in the Medicare Cost Report:

- Net Patient Revenue — Worksheet G-3, Line 3, Column 1
- Total Other Income — Worksheet G-3, Line 25, Column 1
- Other Income: Contributions, Donations, etc. — Worksheet G-3, Line 6, Column 1
- Other Income from Investments — Worksheet G-3, Line 7, Column 1
- Total Operating Expense — Worksheet G-3, Line 4, Column 1
- Related Organization Expense — Worksheet A-8, Line 12, Column 2

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