The Twelfth Annual HealthGrades Hospital Quality in America Study

October 2009

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Since 1998, HealthGrades has studied and measured the quality of care at the nation's 5,000 hospitals and published the results of its annual research on the Web to assist consumers in choosing a hospital. In this report, HealthGrades examines risk-adjusted mortality and complication rates among the nation's hospitals, assesses the differences between best-performing and worst-performing hospitals, and evaluates the performance of individual states and regions across eleven service areas. Individual hospital quality results from this study are available at www.healthgrades.com.

Executive Summary

Although many metrics exist to evaluate quality, one important way to recognize quality of care is to measure outcomes. For the first part of *The Twelfth Annual HealthGrades Hospital Quality in America Study*, HealthGrades analyzed approximately 40 million Medicare discharges from every U.S. hospital from 2006 through 2008. Risk-adjusted mortality and complication rates were calculated and hospitals were assigned a 1-star (poor), 3-star (as expected), or 5-star (best) quality rating for 27 procedures and diagnoses from heart failure to hip replacement to pneumonia. Individual hospital quality results from this study are available at www.healthgrades.com.

For the second part of this study, HealthGrades assessed quality differences between 1-, 3-, and 5-star rated hospitals by analyzing the inhospital mortality rates associated with 17 of the 27 procedures and diagnoses and, for the first time, inhospital complications associated with five major orthopedic procedures. The procedures and diagnoses covered by the second part of this study include:

Mortality-Based Procedures and Diagnoses	
• Bowel Obstruction	• Pancreatitis
• Chronic Obstructive Pulmonary Disease	• Pneumonia
• Coronary Bypass Surgery	• Pulmonary Embolism
• Coronary Interventional Procedures (Angioplasty/Stent)	• Resection/Replacement of Abdominal Aorta
• Diabetic Acidosis and Coma	• Respiratory Failure
• Gastrointestinal Bleed	• Sepsis
• Gastrointestinal Surgeries and Procedures	• Stroke
• Heart Attack (Acute Myocardial Infarction)	• Valve Replacement Surgery
• Heart Failure	
Complication-Based Procedures	
• Back and Neck Surgery (Spinal Fusion)	• Hip Fracture Repair
• Back and Neck Surgery (without Spinal Fusion)	• Total Hip Replacement
	• Total Knee Replacement

Also, in the second part of this study, HealthGrades evaluated the performance of individual states and regions across eleven service areas: cardiac surgery, coronary interventional procedures, critical care, gastrointestinal services, heart attack treatment, heart failure treatment, pulmonary care, stroke care, joint replacement surgery, hip fracture repair surgery, and spine surgery. State and regional performance was benchmarked against the best-performing hospitals and against the national average.

New to this year's study, HealthGrades evaluated the relationship between The Joint Commission's comprehensive stroke certification program (www. jointcommission.org) and HealthGrades mortality ratings for stroke care.

Summary of Findings

Key findings of this study include:

The nation's inhospital risk-adjusted mortality rate improved on average 10.99% from 2006 through 2008.

1 The nation's inhospital risk-adjusted mortality rate improved on average 10.99% from 2006 through 2008, but the degree of improvement varied widely by procedure and diagnosis studied (range: -1.64% to 20.15%) (see *Appendix C*).

- Mortality rates at 5-star rated hospitals continue to improve at a more rapid rate (11.89%) than 1- or 3-star hospitals (10.14% and 10.72%, respectively) (see *Table 4*).

If all hospitals performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 224,537 Medicare lives could potentially have been saved from 2006 through 2008.

2 Large gaps persist between the "best" and the "worst" hospitals across all procedures and diagnoses studied. Five-star rated hospitals had significantly lower risk-adjusted mortality across all three years studied (see *Appendix C*).

- Across all procedures and diagnoses studied, there was a 71.64% lower chance of dying in a 5-star rated hospital compared to a 1-star rated hospital.
- Across all procedures and diagnoses studied, there was a 51.53% lower chance of dying in a 5-star rated hospital compared to the U.S. hospital average.

3 If all hospitals performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 224,537 Medicare lives could potentially have been saved from 2006 through 2008 (see *Appendix C*).

- Approximately 56% (127,488) of the potentially preventable deaths were associated with just four diagnoses:

Approximately 56% (127,488) of the potentially preventable deaths were associated with just four diagnoses: sepsis, pneumonia, heart failure, and respiratory failure.

1) Sepsis (44,622)
2) Pneumonia (29,251)
3) Heart Failure (26,374)
4) Respiratory Failure (27,241)

4 Variation in risk-adjusted mortality exists at the national, regional and state levels.

- The region with the lowest overall risk-adjusted mortality remained the East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin), while the East South Central region (Alabama, Kentucky, Mississippi, and Tennessee) continued to have the highest mortality compared with previous years' studies (see *Appendix G*).

The East North Central region had the highest percentage (25.54%) of best-performing hospitals.

5 Best-performing hospitals, defined as hospitals among the top 15% for risk-adjusted mortality overall, *clustered* in different regions of the country (see *Appendix H*).

- The East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) had the highest percentage of best-performing hospitals at 25.54%.
- Less than eight percent (7.27%) of hospitals within the East South Central region (Alabama, Kentucky, Mississippi, and Tennessee) were top-performing hospitals.
- Over the last three studies, Ohio and Florida consistently had the greatest percentage of hospitals in the top 15% for risk-adjusted mortality in seven of the eight service areas (see *Table 6*).

The region with the most overall improvement was the Mountain region where risk-adjusted mortality dropped by 13.53%.

6 Greater improvement in performance between 2006 and 2008 was seen within certain regions of the country (see *Appendix I*).

- The region with the most overall improvement for all procedures and diagnoses combined was the Mountain region (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming), where the risk-adjusted mortality dropped by 13.53%.
- The region with the least improvement was the East South Central region (Alabama, Kentucky, Mississippi, and Tennessee), with a decline in risk-adjusted mortality of 8.75%.
- Texas was the state that had the most procedures and diagnoses showing improvement for the most consecutive years of study in critical care, heart failure, and pulmonary.

7 Complications showed a large variation between the "best" and the "worst" hospitals for orthopedic procedures. Five-star rated hospitals had significantly lower risk-adjusted orthopedic complication rates across all three years studied (see *Appendix F).*

If all hospitals performed at the level of a 5-star rated hospital across the orthopedic procedures studied, 110,687 Medicare orthopedic inhospital complications may have been avoided.

- Across all orthopedic procedures studied, there was a 79.69% lower chance of experiencing one or more orthopedic inhospital complications in a 5-star rated hospital compared to a 1-star rated hospital and a 61.22% lower chance compared to the U.S. hospital average.
- If all hospitals performed at the level of a 5-star rated hospital across the orthopedic procedures studied, 110,687 Medicare orthopedic inhospital complications may have been avoided.

8 For orthopedic procedures, inhospital risk-adjusted complication rates *increased* from 2006 through 2008 (see *Appendix F*).

- On average, risk-adjusted complication rates for orthopedic procedures increased 5.13%.
- Five-star rated hospitals had the largest increase (6.79%) from 2006 through 2008.

The East South Central and South Atlantic regions had the fewest complications for orthopedic procedures.

9 Variation in risk-adjusted complications for orthopedic procedures also existed at the regional level (see *Table 10*).

- Hospitals that had the fewest orthopedic complications were located in the East South Central (Alabama, Kentucky, Mississippi, and Tennessee) and the South Atlantic (Florida, Georgia, North Carolina, South Carolina, and West Virginia).
- Hospitals that had the most orthopedic complications were located in the Mid-Atlantic (Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, and Virginia), New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), and Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) regions.

Hospitals certified as a Center of Excellence in Stroke Care by The Joint Commission have an 8.06% lower risk-adjusted mortality compared to hospitals that were not stroke certified.

10 In evaluating hospitals for stroke outcomes, hospitals that have been certified as a Center of Excellence in Stroke Care by The Joint Commission had better outcomes compared with hospitals that were not stroke certified. This was applicable only to higher volume hospitals, that is, only hospitals in the top 50th percentile (volumes greater than 145 patients over three years).

- Stroke-certified hospitals were almost twice as likely to attain a HealthGrades' 5-star rating in stroke (30.1% of certified hospitals were 5-star rated versus 15.7% of non-certified hospitals), and fewer of the certified hospitals fell into HealthGrades' 1-star category (12.3% versus 19.6% for non-certified hospitals) (see *Table 13*).
- Stroke-certified hospitals have an 8.06% lower risk-adjusted mortality rate compared to hospitals that were not stroke certified.

Introduction

With healthcare reform efforts under consideration in Congress, there is much discussion about the value of healthcare in America. In 2007, healthcare spending equated to $7,400 for each American.[1] This spending equates to more than any other nation per capita and as a percentage of the Gross Domestic Product.[2] Despite the increased spending, there is general agreement that there is a significant need to improve the quality of care delivered and increase the value of that care. In fact, one of the guiding principles of the current administration's reform efforts is to improve patient safety and health care quality.[3]

While a number of factors contribute to substandard care in the U.S., variation among providers and inconsistent adherence to evidence-based guidelines has been the focus of recent improvement efforts.

best possible care and actual care, according to Carolyn Clancy of the Agency for Healthcare Research and Quality.

Much Effort Focused on Reducing Variation

While a number of factors contribute to substandard care in the U.S., *variation among providers* and *inconsistent adherence to evidence-based guidelines* has been the focus of recent improvement efforts. In an effort to be a more prudent purchaser of healthcare services, the Centers for Medicare and Medicaid Services (CMS), as part of the Medicare Modernization Act, has been publicly reporting on 42 measures of hospital quality, safety, and patient experience. Initial evidence indicates that mandatory hospital reporting has resulted in hospitals:

- Improving at a faster rate than other healthcare delivery settings,
- Decreasing overall mortality,
- Reducing variation between hospitals, and
- Improving adherence to best practices.[4,5]

However, while this early evidence is promising, according to Carolyn Clancy, head of the Agency for Healthcare Research and Quality, it will take 18.73 years to close the gap between best practice and actual care.[6] So, while much has been accomplished, there is still much work to do to close this gap.

Studies in the medical literature have also shown that following evidence-based guidelines can reduce mortality in hospitals. One such study was the CRUSADE trial, a survey evaluating adherence to best practices in care for one common type of heart attack, non-ST elevation myocardial infarction (NSTEMI).[7] The study concluded that hospitals that were least compliant with evidence-based guidelines (approximately 65% compliance with evidence-based guidelines) had a mortality rate of approximately 6%. This is in contrast to the most compliant hospitals (> 80% compliance with evidence-based guidelines) that had an all-cause mortality rate of 3.6% in their NSTEMI population. Adoption has been slow: two and a half years after the trial the 600 hospitals in the CRUSADE registry are only doing the "right" thing 33% of the time.[7]

The Role of Quality Measures

Most of the improvements seen in the hospital industry have been attributed to increased awareness from public reporting of quality measures. Providing hospitals information about their performance compared to benchmarks has helped them establish a baseline of performance and learn from best-performing hospitals. For the past twelve years, HealthGrades' research has focused on the differences in performance from hospital to hospital, state to state, and region to region. This research quantifies the impact of that variation in terms of patient lives lost and potentially avoidable morbidity.

As the healthcare reform debate continues, transparency of information, additional quality measures, and consumer education are at the heart of those discussions. With the current gap between best practice and actual care, transparent quality measures that allow a consumer to compare hospital performance play an essential role in the healthcare market place. Healthcare quality information, previously thought to be too complex for patients to understand, has proved to be an important source for many individuals making healthcare decisions. The HealthGrades Web site alone receives 7 million unique visitors each month. Recent research conducted by the Kaiser Family Foundation found that 35% of individuals would use a hospital that has higher quality ratings over a hospital that is familiar to them. This number has increased from 25% in 1996.[8]

Study Objectives: Variation in Quality and Association between Process and Outcome

For the first time in this report's 12-year history, HealthGrades quantified quality differences in five common orthopedic procedures comparing hospitals based on their rates of inhospital complications.

The objective of *The Twelfth Annual HealthGrades Hospital Quality in America Study* was to identify and quantify the impact of variation among the nation's 5,000 hospitals by measuring risk-adjusted inhospital mortality across 17 procedures and diagnoses. This study quantifies differences by best, as-expected, and poor performance categories by state and region. For the first time in this report's 12-year history, HealthGrades has also quantified quality differences in five common orthopedic procedures comparing hospitals based on their rates of inhospital complications. This information is also summarized by hospital performance category by state and region.

Also for the first time, HealthGrades has examined the relationship between process and outcome measures specifically in the area of stroke care. The Joint Commission Stroke certification recognizes hospitals that have implemented the *processes* of care for stroke patients that have been shown to improve patient outcomes. In this study, HealthGrades has analyzed the association between these processes and HealthGrades *outcomes* (risk-adjusted mortality star ratings).

HealthGrades' star rating system tells consumers whether a particular hospital's performance is "best" (5-star), "as expected" (3-star), or "poor" (1-star) on a particular procedure or diagnosis. Hospital ratings are based on patient outcomes, specifically, risk-adjusted mortality or complications. Because no two hospitals or their patients' risk profiles are alike, HealthGrades has developed extensive risk-adjustment algorithms to ensure that it is making analogous comparisons.

Methods Part I: The Twelfth Annual Hospital Quality Ratings Methods

HealthGrades rated more than 5,000 hospitals in the following categories (ratings for specific hospitals are available at www.healthgrades.com):

1 Appendectomy
2 Back and Neck Surgery (except Spinal Fusion)
3 Back and Neck Surgery (Spinal Fusion)
4 Bowel Obstruction
5 Carotid Surgery
6 Cholecystectomy (Gallbladder Surgery)
7 Chronic Obstructive Pulmonary Disease (COPD)
8 Coronary Bypass Surgery (CABG)
9 Coronary Interventional Procedures (Angioplasty/Stent)
10 Diabetic Acidosis and Coma
11 Gastrointestinal Bleed
12 Gastrointestinal Surgeries and Procedures
13 Heart Attack (Acute Myocardial Infarction)
14 Heart Failure
15 Hip Fracture Repair
16 Pancreatitis
17 Peripheral Vascular Bypass
18 Pneumonia
19 Prostatectomy
20 Pulmonary Embolism
21 Resection/Replacement Abdominal Aorta
22 Respiratory Failure
23 Sepsis
24 Stroke
25 Total Hip Replacement
26 Total Knee Replacement
27 Valve Replacement Surgery

HealthGrades analyzed patient outcome data for virtually every hospital in the country using initial data purchased from the Centers for Medicare and Medicaid Services (CMS). The Medicare data (MedPAR file) from CMS contained the inpatient records for Medicare patients. For appendectomy, HealthGrades analyzed inpatient data provided by 19 states that provide all-payer data (AZ, CA, FL, IA, MA, MD, ME, NJ, NV, NY, OR, PA, RI, TX, UT, VA, VT, WA, and WI).

Ratings were based upon HealthGrades' risk-adjustment methodology described below. The purpose of risk adjustment is to obtain fair statistical comparisons among disparate populations or groups. Significant differences in demographic and clinical risk factors are found among patients treated in different hospitals. Risk adjustment of the data is necessary to make accurate and valid comparisons of clinical outcomes at different hospitals.

Data Acquisition

The MedPAR data was selected for several reasons.

- Included in the database is almost every hospital in the country, with the exception of military and Veterans Administration hospitals.
- Accuracy is regulated; hospitals are required by law to submit complete and accurate information with substantial penalties for those that report inaccurate or incomplete data.
- The Medicare population represents a majority of the patients for almost all of the clinical categories studied. For example, Medicare patients account for approximately 55 – 60% of all cardiac patients.

For Multivariate Logistic Regression-Based Ratings (see below), HealthGrades conducted a series of data quality checks to preserve the integrity of the ratings. Based on the results of these checks, we excluded a limited number of cases because they were inappropriate for inclusion in the database or miscoded.

Examples of excluded patient records are:

- Patients under the age of 65 (except appendectomy).
- Patients who left the hospital against medical advice or who were transferred to another acute care hospital.
- Patients discharged alive with a length-of-stay that is inconsistent with the reason for admission. (For example, a patient discharged alive with a one day length-of-stay for valve replacement surgery would be excluded because this procedure requires several days for recovery.)
- Patients who were still in the hospital when the Medicare claim was filed.
- Patients with an invalid gender (for example, a prostatectomy related to a female patient).

Multivariate Logistic Regression-Based Ratings

HealthGrades' Multivariate Logistic Regression-Based Ratings methodology takes into account patient characteristics such as age, gender, and underlying medical diagnoses that could increase the patient's risk of mortality or complication.

The inhospital data for 26 diagnoses and procedures on the HealthGrades Web site represent three years of patient discharges from Medicare fiscal year 2006 through 2008 and three years of patient discharges from 2005 through 2007 for state data. In addition, for appendectomy HealthGrades analyzed inpatient data provided by 19 states that provide all-payer data (AZ, CA, FL, IA, MA, MD, ME, NJ, NV, NY, OR, PA, RI, TX, UT, VA, VT, WA, and WI).

In the initial analysis of the data, a separate data set was created for each group of patients having a specific procedure or diagnosis based on ICD-9-CM coding (e.g., coronary bypass surgery, total hip replacement). Each group of patients was defined by using the information on diagnoses and procedures coded in the patient records. See *Hospital Report Card™ Mortality and Complication Based Outcomes Methodology* (www.healthgrades.com) for a list of the diagnosis and procedure codes that define each patient cohort. The quality measure for some cohorts was mortality, whereas for other cohorts, the quality measure was major complications.

For each patient cohort, HealthGrades developed a list of specific procedures and diagnoses that define the cohort, a list of potential risk factors, and a list of post-surgical complications (where applicable). The latter two lists were developed in the following manner:

1. Potential risk factors included demographic characteristics, clinically relevant procedures, and all diagnoses occurring in more than 0.5% of the patient population.
2. Post-surgical complications were identified using a panel of clinical and coding experts.

Some diagnosis codes were merged together (e.g., primary and secondary pulmonary hypertension) to minimize the impact of coding variations.

Outcomes were binary, with documented major complications either present or not, and patients recorded as either alive or expired. See *Hospital Report Card™ Mortality and Complication Based Outcomes Methodology* for a list of complications included in the quality measure "Major Complications." In cohorts where the quality measure is major complications, mortality is considered a complication.

Risk-Adjustment Methodology

Fair and valid comparisons between hospital providers can be made only to the extent that the risk-adjustment methodology considers important differences in patient demographic and clinical characteristics. The risk-adjustment methodology used by HealthGrades defines *risk factors* as those clinical and demographic variables that influence patient outcomes in significant and systematic ways. Risk factors may include age, gender, source of admission, specific procedure performed, and comorbid conditions such as hypertension, chronic renal failure, heart failure, and diabetes. The methodology is disease-specific and outcome-specific. This means that individual risk models are constructed and tailored for each clinical condition or procedure, and also for each outcome.

Developing the HealthGrades ratings involved four steps for each disease state or procedure specific cohort (e.g., coronary bypass surgery) and quality measure (e.g., inhospital mortality).

1. First, the predicted value (predicted number of deaths or complications at each hospital) was obtained using logistic regression models discussed in the next section.
2. Second, the predicted value was compared with the actual or observed value (actual number of deaths or complications at each hospital). Any hospital that did not have at least 30 cases across three years of data was removed, and any hospital that did not have at least five cases in the most current year was removed.
3. Third, a test was conducted to determine whether the difference between the predicted and actual values was statistically significant. This test was performed to make sure that differences were very unlikely to be caused by chance alone.
4. Fourth, a star rating was assigned based upon the outcome of the test for statistical significance.

Multivariate Logistic Regression Models

Unique statistical models were developed for each patient cohort and each outcome using logistic regression.

Comorbid diagnoses (e.g., hypertension, chronic renal failure, anemia, diabetes), demographic characteristics (e.g., age and gender), and specific procedures (e.g., percutaneous coronary intervention in coronary bypass surgery) were classified as potential risk factors. We used logistic regression to determine the most critical risk factors; all risk factors that remained in the final model had to be statistically significant ($p < 0.05$) in predicting the outcome (mortality, inhospital complications). In addition, risk factors are required to have an odds ratio greater than 1.0. There are occasional exceptions to this rule; for example, risk factors that have been documented in the medical literature to be protective and risk factors that are part of the cohort definition remain in the model even if the odds ratio was less than one (e.g., streptococcal pneumoniae pneumonia is one type of pneumonia that makes up the pneumonia cohort). Complications were *not* counted as risk factors because they were considered a result of care received during the admission.

The statistical models were checked for validity and finalized. All of the models were highly significant, with c-statistics ranging from ~0.6 to ~0.9. These cohort and outcome-specific models were then used to estimate the probability of the outcome for each patient in the cohort. Patients were then aggregated for each hospital to obtain the predicted outcome for each hospital.

Statistical significance tests were performed to identify, by hospital, whether the actual and predicted rates were significantly different. We used a z-score to establish an approximate 90% confidence interval.

Assignment of Star Ratings

The following rating system was applied to the data for all procedures and diagnoses:

★★★★★ Actual performance was **better than predicted** and the difference was statistically significant.

★★★ Actual performance was **not significantly different** from what was predicted.

★ Actual performance was **worse than predicted** and the difference was statistically significant.

In general, 70% to 80% of hospitals in each procedure/diagnosis were classified as three stars, with actual results statistically the same as predicted results. Approximately 10% to 15%were 1-star hospitals and 10% to 15% were 5-star hospitals.

Limitations of the Data Models

It must be understood that while these models may be valuable in identifying hospitals that perform better than others, one should not use this information alone to determine the quality of care provided at each hospital. The models are limited by the following factors:

- Cases may have been coded incorrectly or incompletely by the hospital.
- The models can only account for risk factors that are coded into the billing data—if a particular risk factor was not coded into the billing data, such as a patient's socioeconomic status and health behavior, then it was not accounted for with these models.
- Although HealthGrades has taken steps to carefully compile these data using its methodology, no techniques are infallible, and therefore some information may be missing, outdated or incorrect.

Please note that a high ranking for a particular hospital is not a recommendation or endorsement by HealthGrades of a particular hospital; it means that the data associated with a particular hospital has met the foregoing qualifications. Only individual patients can decide whether a particular hospital is suited for their unique needs.

Also note that if more than one hospital reported to CMS under a single provider ID, HealthGrades analyzed patient outcome data for those hospitals as a single unit. Throughout this document, therefore, "hospital" refers to one hospital or a group of hospitals reporting under a single provider ID.

Methods Part 2: Evaluating Inhospital Mortality and Complication Rates

The purpose of the second part of the study was to evaluate the inhospital mortality and complication rates from hospital to hospital and among states and regions. In Part I, the actual (observed) and predicted (expected) mortality rates were calculated for each of the 27 procedures and diagnoses for each hospital to assign each hospital a star rating (5-star, 3-star and 1-star) by procedure and diagnosis.

In Part 2, the inhospital observed and expected rates of all patients from each of the three hospital star rating groups (5-star, 3-star, and 1-star) were then aggregated for each of the 17 mortality-based procedures and diagnoses (a subset of the original 27) to obtain a 5-star, 3-star, and 1-star observed and expected inhospital mortality rate by procedure and diagnosis.

New to Part 2 of this year's study is the evaluation of inhospital complication rates for five common major orthopedic procedures among Medicare recipients. The same steps were taken as above with the exception of the outcome of measure being inhospital complications versus mortality. The following are the major categories of post-operative complications considered in this analysis.

Table 1: Post-Operative Complications Categories

Post-Operative Complications Categories			
Cardiac	**Digestive**	**Respiratory**	
Heart Attack (AMI)	Paralytic Ileus	Respiratory Failure/Insufficiency	
Atrial Fibrillation		Pneumonia	
Heart Failure		Aspiration Pneumonia	
Urinary	**Post-Operative Infections**	**Other**	
Acute Renal Failure	Sepsis	Death	Shock
Urinary Tract Infection	Wound Infection	Dural Tears	Stroke
Urinary Retention		Device Complications	Hemorrhage
		Drug-Induced Delirium	

For a specific listing of ICD-9-CM codes used to identify complications by procedure see *Hospital Report Card™ Mortality and Complication Based Outcomes Methodology* at www.healthgrades.com.

Comparing Outcomes Nationally, Regionally, at State Level

Unadjusted (observed) mortality/complication rates and numbers were evaluated nationally, regionally and at the state level. Because sicker patients will have higher associated observed mortality/complications, HealthGrades also calculated and compared observed (O) to expected (E) ratios by procedure or diagnosis and by year for each star rating.

- An O/E ratio of less than 1 means that the procedure/diagnosis measured had *fewer* deaths/inhospital complications than expected given its patient population.
- An O/E of greater than 1 means that the procedure/diagnosis measured had *more* deaths/inhospital complications than expected given its patient population.

A related measure is risk-adjusted mortality/complication rate, defined as the O/E ratio multiplied by the three-year national average rate.

For state and regional comparisons, HealthGrades combined individual procedures and diagnoses into eight categories.

Table 2: Conditions and Related Procedures/Diagnoses

Conditions	Includes Procedures & Diagnoses
Cardiac Surgery	Coronary Bypass Surgery Valve Replacement Surgery
Treatment of Heart Attack	Heart Attack
Coronary Interventional Procedures	Coronary Interventional Procedures (Angioplasty/Stent)
Treatment of Heart Failure	Heart Failure
Critical Care	Respiratory Failure Pulmonary Embolism Diabetic Acidosis and Coma Sepsis
Gastrointestinal	Bowel Obstruction Gastrointestinal Bleed Gastrointestinal Surgeries and Procedures Pancreatitis
Pulmonary	Chronic Obstructive Pulmonary Disease Pneumonia
Stroke	Stroke
Hip and Knee Replacement	Total Knee Replacement Total Hip Replacement
Hip Fracture	Hip Fracture Repair
Spine Surgery	Back and Neck Surgery (without Spinal Fusion) Back and Neck Surgery (Spinal Fusion)

To identify regional performance trends, the following regions were used:

Table 3: Region State Definitions

Regions and State Definitions			
New England		**East South Central**	
Connecticut	New Hampshire	Alabama	Mississippi
Maine	Rhode Island	Kentucky	Tennessee
Massachusetts	Vermont		
Mid-Atlantic		**West South Central**	
Delaware	New York	Arkansas	Oklahoma
District of Columbia	Pennsylvania	Louisiana	Texas
Maryland	Virginia		
New Jersey			
East North Central		**Pacific**	
Illinois	Ohio	Alaska	Oregon
Indiana	Wisconsin	California	Washington
Michigan		Hawaii	
West North Central		**Mountain**	
Iowa	Nebraska	Arizona	Nevada
Kansas	North Dakota	Colorado	New Mexico
Minnesota	South Dakota	Idaho	Utah
Missouri		Montana	Wyoming
South Atlantic			
Florida	South Carolina		
Georgia	West Virginia		
North Carolina			

Illustration 1: Region State Definitions Map

Comparing The Joint Commission's Stroke-Certified Hospitals with HealthGrades' Stroke Ratings

Also, new to this year's study is the analysis of The Joint Commission's comprehensive stroke certification compared with HealthGrades' stroke 1-, 3-, and 5-star rated hospitals. For this section of analysis, a list of stroke-certified hospitals was obtained from The Joint Commission (www.jointcommission.org). The list of stroke-certified hospitals was current as of August 2009. Hospitals on this list with a minimum volume of 145 patients over the three years of study were then compared to the HealthGrades 1-, 3-, and 5-star rated hospitals to evaluate the percentage stroke-certified hospitals versus non-certified hospitals in each HealthGrades' star rating category. Mortality rates were also compared.

Results Part 1: Hospital Quality Ratings

HealthGrades' ratings of more than 5,000 hospitals and approximately 40 million Medicare discharges, based on *The Twelfth Annual HealthGrades Hospital Quality in America Study*, can be found at www.healthgrades.com. For all of the specific procedures and diagnoses rated, 10% to 15% of hospitals stand out as "best" performers (5-star rated), while another 10% to 15% stand out as "poor" performers (1-star rated). The remaining hospitals are "as expected" (3-star rated).

Results Part 2: Hospital Quality in America Study: Mortality

The nation's inhospital risk-adjusted mortality rate improved on average 10.99% from 2006 through 2008.

Since 2006, U.S. observed and risk-adjusted mortality rates have improved overall, but gaps continue to exist between the "best" and the "worst" hospitals. Risk-adjusted mortality rates improved, on average 10.99% from 2006 through 2008, but the degree of improvement varied widely by procedure and diagnosis (range: -1.64% to 20.15%) (see *Appendix C*). The most improvement was seen in chronic obstructive pulmonary disease, pulmonary embolism, and valve replacement surgery. The only diagnosis to show no improvement was diabetic acidosis and coma which experienced a 1.64% increase in risk-adjusted mortality from 2006 through 2008. Compared to last year's study, the overall rate of improvement has decreased from an average 13.05% improvement (2005-2007) to 10.97% this year.

Five-Star Rated Hospitals Have Significantly Lower Mortality and Greater Improvements

Five-star rated hospitals had significantly and consistently lower unadjusted and adjusted mortality rates across all three years studied, compared to other rated hospitals. This finding is consistent with all previous HealthGrades hospital quality studies. Five-star rated hospitals also improved, on average 11.89% from 2006 through 2008, which was greater than the rate of improvement for both 3-star and 1-star hospitals (10.72% and 10.14% respectively) (see *Table 4*).

On average, a patient has a 52% lower chance of dying at a best-performing hospital compared to the U.S. hospital average.

The lower mortality associated with 5-star rated hospitals means that across all cohorts studied, there was a:

- 71.64% lower chance of dying in a 5-star rated hospital as compared to a 1-star rated hospital, and a
- 51.53% lower chance of dying in a 5-star rated hospital as compared to the U.S. hospital average (see *Appendix C*).

Table 4: Average Risk-Adjusted Mortality Rate Improvements Across All Procedures and Diagnoses by Hospital Star Rating Category

Overall Average Risk-Adjusted Mortality Rate Improvements*	Hospital Quality (2006 – 2008)			
	U.S.	5-star	3-star	1-star
	10.97%	11.89%	10.72%	10.14%

* Improvement was calculated using the following steps (data not shown): 1) Sum observed and expected counts by year for each star rating category; 2) Calculate a combined O/E which is the ratio of the sum of the observed divided by the sum of the expected for each year, for each category; 3) Calculate the Overall Average Improvement by (2006 O/E minus 2008 O/E) divided by 2006 O/E.

If all hospitals performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 224,537 Medicare lives could potentially have been saved from 2006 through 2008.

While Improvements Made, the Quality Chasm Persists

These findings, consistent with previous *HealthGrades Hospital Quality in America* studies, underscore that while there have been improvements in the quality of care nationwide, a quality chasm still persists from hospital to hospital. The fact remains that if all hospitals had performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 224,537 Medicare lives could have potentially been saved during 2006 through 2008 (see *Appendix C*).

Five-Star Rated Hospitals Save Medicare Lives

Approximately 56% (127,488) of the potentially preventable deaths were associated with just four diagnoses: sepsis, pneumonia, heart failure, and respiratory failure.

Of the total 224,537 Medicare potentially preventable deaths associated with the 17 procedures and conditions studied, 56.78% were associated with just four common hospital diagnoses:

1) Sepsis (44,622)
2) Pneumonia (29,251)
3) Heart Failure (26,374)
4) Respiratory Failure (27,241)

Five-star rated hospitals consistently performed significantly better than expected across these four high-risk inpatient diagnoses. For 5-star rated hospitals, we found an overall average improvement of almost 10.48% among these four diagnoses from 2006 through 2008 (see *Appendix C*).

Variation in Quality Present Among the States and Regions

When looking at risk-adjusted mortality from a regional perspective, the performance was similar to last year's study. Hospitals located in the East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin) had the overall best performance. The states within the East South Central (Alabama, Kentucky, Mississippi, and Tennessee) had the poorest performance. *Table 5* summarizes regions by 1-, 3-, and 5-star performance (see *Appendix G* for observed-to-expected ratios).

The red and green areas of *Table 5* illustrate which procedures/diagnoses saw improvement (green) or decline (red) in ratings for each region.

Table 5: Regional Star Ratings - Mortality

Conditions	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	★★★★★	★	★★★★★	★★★	★★★	★★★	★★★	★★★	★
Coronary Interventional Procedures	★★★★★	★	★★★★★	★★★	★★★★★	★	★★★	★	★
Critical Care	★★★★★	★	★	★★★★★	★	★★★★★	★	★★★★★	★★★
Gastrointestinal	★★★★★	★	★	★★★★★	★★★	★★★	★	★★★	★★★
Heart Attack	★★★★★	★	★	★★★★★	★★★★★	★★★	★★★	★★★	★
Heart Failure	★★★★★	★	★★★	★★★★★	★★★	★★★	★★★★★	★	★
Pulmonary	★★★★★	★	★	★★★★★	★★★	★★★	★★★	★	★
Stroke	★★★★★	★	★	★★★★★	★	★★★★★	★	★★★	★★★

Black indicates no change in ratings compared to last year. Green indicates ratings improved compared to last year. Red indicates ratings worsened compared to last year.

The East South Central and South Atlantic regions had the fewest complications for orthopedic procedures.

These results show that national disparity can be due to clustering of best-performing hospitals in certain states and regions. (Regional data can be found in *Appendix H.*)

- In the East North Central region (Illinois, Indiana, Michigan, Ohio, and Wisconsin), 25.54% of the hospitals were best-performing hospitals in all the procedures/diagnoses combined.
- By contrast, 7.27% of hospitals within the East South Central region (Alabama, Kentucky, Mississippi, and Tennessee) fulfilled the definition for best-performing hospitals in all the procedures/diagnoses combined.
- Several states have consistently shown the greatest numbers of top-performing hospitals within different service lines, procedures and diagnoses.

Table 6 shows the top five states with the greatest number of best-performing hospitals by procedure/diagnosis. States noted in green made this list for each specific procedure/diagnosis for the last three study years (2007, 2008, and 2009).

Table 6: Top 5 States with Greatest Percentage of Best-Performing Hospitals - Mortality

Procedure/ Diagnosis	State	Procedure/ Diagnosis	State
Cardiac Surgery		Critical Care	
	South Dakota		Maryland*
	Massachusetts*		Ohio*
	Pennsylvania*		Arizona
	Wisconsin		Michigan*
	New York		Florida*
Heart Attack		Gastrointestinal	
	Ohio*		Maryland*
	Minnesota*		Arizona
	Arizona		Florida*
	Florida*		Ohio*
	Michigan*		Michigan*
Coronary Interventional Procedures		Pulmonary	
	Maine		Maryland*
	Florida*		Ohio*
	New York*		Florida*
	Illinois*		Arizona
	Ohio*		Michigan*
Heart Failure		Stroke	
	Maryland*		Arizona
	Florida*		Florida*
	Arizona*		Colorado
	Ohio*		Ohio*
	Illinois*		Michigan

States for this table were chosen using statistical significance rather than raw percentages because of the low sample size of some of the states.

* States that made the *Top 5 States with Greatest Percentage of Best-Performing Hospitals* list for the last three study years (2007, 2008, and 2009).

When evaluating performance improvement across regions and states, the greatest improvement in performance between 2006 and 2008 was in the Mountain region (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) (see *Appendix I*). Several states showed improvement in several procedures/diagnoses: Arizona showed consistent improvement in five out of eight procedures and diagnoses, followed by California, Florida, New York, and Texas with four out of eight procedures and diagnoses (see *Table 6*).

Several states consistently showed improvement in mortality for the past three years of analysis (2007, 2008, and 2009). Texas was the state that had the most procedures and diagnoses showing improvement for the most consecutive years of study in critical care, heart failure, and pulmonary (see *Table 7*).

Table 7: Top 5 States Showing Most Improvement - Mortality

Procedure/ Diagnosis	State	Procedure/ Diagnosis	State
Cardiac Surgery		Critical Care	
	New Hampshire		Arizona
	Arizona		Florida
	North Carolina		California
	Tennessee		New York
	Florida		Texas*
Heart Attack		Gastrointestinal	
	Arizona		Arizona
	Mississippi		Indiana
	Michigan		Michigan
	Florida		New York*
	New York		California
Coronary Interventional Procedures		Pulmonary	
	Wyoming		Arizona
	North Dakota		North Carolina
	Michigan		New York
	New Jersey		Texas*
	Illinois		California
Heart Failure		Stroke	
	California		Georgia
	Arkansas		Virginia*
	New Jersey		New Jersey
	Florida		North Carolina
	Texas*		Texas

States for this table were chosen using statistical significance rather than raw percentages because of the low sample size of some of the states.

* States that made the *Top 5 States Showing Most Improvement* list for the last three study years (2007, 2008, and 2009).

Results Part 3: Hospital Quality in America Study: Orthopedic Complications

Five-Star Rated Hospitals Had Significantly Lower Inhospital Orthopedic Complications

If all hospitals performed at the level of a 5-star rated hospital across the orthopedic procedures studied, 110,687 Medicare complications could have been avoided from 2006 through 2008.

Five-star rated hospitals had significantly lower inhospital complications in orthopedic procedures. Similar to the mortality analysis in this study, 5-star rated hospitals had much better risk-adjusted complication rates compared to 1-star hospitals. The lower complication rate associated with 5-star rated hospitals means that across all cohorts studied, there was a:

- 79.69% average lower complication risk in a 5-star rated hospital as compared to a 1-star rated hospital, and a
- 61.22% average lower complication risk in a 5-star rated hospital as compared to the U.S. hospital average (see *Appendix F*).

If all hospitals had performed at the level of a 5-star rated hospital across the orthopedic procedures studied, 110,687 Medicare complications could have been avoided from 2006 through 2008 (see *Appendix F*).

Orthopedic Risk-Adjusted Complication Rates Increased from 2006 through 2008

Unlike those procedures and diagnoses evaluated based on mortality, orthopedic risk-adjusted complication rates *increased* from 2006 through 2008 averaging 4.46% with results ranging from a 2.22% increase (total knee replacement) to a nearly 10% increase (total hip replacement) in complications (see *Appendix F* and *Table 8*).

One-star rated hospitals were the only category of hospitals that improved inhospital risk-adjusted complication rates with an average improvement of 2.16% over the three years studied. Five-star rated hospital complication rates actually worsened by 6.79% from 2006 through 2008, while 3-star hospital complication rates worsened by 2.44% (see *Table 8*).

Table 8: Average Risk-Adjusted Complication Rate Improvements Across All Orthopedic Procedures by Hospital Star Rating Category

Overall Average Risk-Adjusted Complication Rate Improvements*	Hospital Quality (2006 – 2008)			
	U.S.	5-star	3-star	1-star
	-4.46%	-6.79%	-2.44%	2.16%

* Improvement was calculated using the following steps (data not shown): 1) Sum observed and expected counts by year for each star rating category; 2) Calculate a combined O/E which is the ratio of the sum of the observed divided by the sum of the expected for each year, for each category; 3) Calculate the Overall Average Improvement by (2006 O/E minus 2008 O/E) divided by 2006 O/E.

The most frequent complications ranged from 0.76% to 4.25% amongst all the cohorts. There were some notable commonalities.

- Acute renal failure was among the most commonly occurring complications in four of the elective orthopedic procedures.
- Post-operative cardiac complications occurred amongst the most commonly occurring complications in three of the five procedures studied.

Table 9: Top Orthopedic Complications

ICD-9-CM Code	Description	Frequency
Back and Neck (without Spinal Fusion)		
998.2	ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE	4.25%
997.5	URINARY COMPLICATIONS	1.67%
788.20	RETENTION OF URINE	1.28%
*	ACUTE RENAL FAILURE	0.93%
Back and Neck (Spinal Fusion)		
998.2	ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE	3.95%
*	ACUTE RENAL FAILURE	1.77%
*	PNEUMONIA	1.72%
Hip Fracture Repair		
518.81	ACUTE RESPIRATORY FAILURE	1.77%
997.1	CARDIAC COMPLICATIONS	1.63%
997.3	RESPIRATORY COMPLICATIONS	1.49%
Total Hip Replacement		
*	ACUTE RENAL FAILURE	1.41%
997.1	CARDIAC COMPLICATIONS	1.02%
997.5	URINARY COMPLICATIONS	0.88%
Total Knee Replacement		
*	ACUTE RENAL FAILURE	1.21%
997.1	CARDIAC COMPLICATIONS	0.96%
292.81	DRUG-INDUCED DELIRIUM	0.76%

* Several like ICD-9-CM codes were merged together for purposes of analysis. For specific codes, see *Hospital Report Card™ Mortality and Complication Based Outcomes Methodology* at www.healthgrades.com.

Variation in Quality Present Among the States and Regions

The East South Central (Alabama, Kentucky, Mississippi, and Tennessee) and the South Atlantic (Florida, Georgia, North Carolina, South Carolina, and West Virginia) regions were areas with hospitals with the fewest risk-adjusted inhospital orthopedic complications (see *Table 10*).

The Mid-Atlantic (Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania, and Virginia), New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), and Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) regions were areas with hospitals with the most risk-adjusted inhospital orthopedic complications. (Refer to *Table 3* and *Illustration 1* for a definition of the regions.)

Table 10: Regional Star Ratings – Orthopedic Complications

Conditions	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Hip & Knee Replacement	★★★★★	★★★★★	★	★	★	★★★★★	★★★★★	★★★	★★★
Hip Fracture	★★★★★	★★★★★	★	★	★	★★★	★★★★★	★	★★★★★
Spine Surgery	★	★★★★★	★	★	★	★★★	★★★★★	★	★★★★★

Table 11 outlines the top five states with the greatest number of best-performing hospitals for avoiding complications. Interestingly, with the exception of Florida, states with the greatest percentage of best-performing hospitals were not found in regions with the lowest complication rates.

Table 11: Top 5 States with Greatest Percentage of Best-Performing Hospitals – Orthopedic Complications

Procedure	State	Procedure	State	Procedure	State
Hip & Knee Replacement		Hip Fracture Repair		Spine Surgery	
	Delaware		Tennessee		Delaware
	South Dakota		Georgia		South Dakota
	North Dakota		Arkansas		Oregon
	Michigan		Florida		Florida
	California		Texas		Texas

States for this table were chosen using statistical significance rather than raw percentages because of the low sample size of some of the states.

Table 12 lists the top five states with hospitals showing the most improvement in their complication rates. States in these categories did not fall in the regions with the best complication rates.

Table 12: Top 5 States Showing Most Improvement - Orthopedic Complications

Procedure	State	Procedure	State	Procedure	State
Hip & Knee Replacement		Hip Fracture Repair		Spine Surgery	
	Delaware		Idaho		North Dakota
	Utah		Louisiana		Missouri
	Nevada		Nevada		Idaho
	Texas		Wisconsin		Nevada
	New York		Virginia		Virginia

States for this table were chosen using statistical significance rather than raw percentages because of the low sample size of some of the states.

Results Part 4: Variations Among Stroke Center of Excellence Designations

The Joint Commission offers certification to hospitals as a Center of Excellence in Stroke Care. To receive this designation, hospitals are required to have multiple processes in place that have been shown to significantly improve outcomes for stroke patients.

To determine whether these required processes have the desired effect on outcomes, the percentages of 1-, 3-, and 5-star hospitals were calculated among the certified and non-certified hospitals. Very few small hospitals go through the process of stroke certification, so the analysis was confined to hospitals in the top 50th percentile by stroke case volume. (Only 3.4% of hospitals in the lower half were certified, but 32.2% were certified in the upper half. The cutoff was at 145 cases in the three years of data.) The Joint Commission stroke certification data was obtained August 2009.

Stroke-certified hospitals were almost twice as likely to attain a HealthGrades' 5-star rating in stroke (30.1% of certified hospitals were 5-star rated versus 15.7% of non-certified hospitals), and fewer of the stroke-certified hospitals fell into the 1-star category (12.3% versus 19.6%) (see *Table 13*).

Table 13: Stroke-Certified Hospitals by HealthGrades Star Rating

HealthGrades Star Rating	Number of Hospitals	% of Stroke-Certified with Rating	% of Non-Certified with Rating
1-Star	256	12.3%	19.6%
3-Star	935	57.6%	64.7%
5-Star	311	30.1%	15.7%

Pearson Chi-Square likelihood ratio: p< 0.000

Hospitals certified as a Stroke Center of Excellence have an 8.06% lower risk-adjusted mortality compared to hospitals that were not stroke certified.

The average unadjusted mortality rate was slightly higher for stroke-certified hospitals, 7.62% versus 7.01% (see *Illustration 2*), but the *expected* (predicted) mortality rate was much higher for stroke-certified hospitals, 8.18% versus 6.92%, indicating that these hospitals have a more severely ill population compared with non-certified hospitals (see *Illustration 3*). One conclusion is that the stroke-certified hospitals are treating a higher risk population, and they are treating them more effectively. Overall, stroke-certified hospitals had an observed-to-expected ratio of 0.93 while non-certified hospitals had a ratio of 1.01.

Stroke-certified hospitals also had an 8.06% lower risk-adjusted mortality rate compared to hospitals that are not certified.

Illustration 2: Observed (Actual) Mortality Rate Stroke-Certified and Non-Certified Hospitals

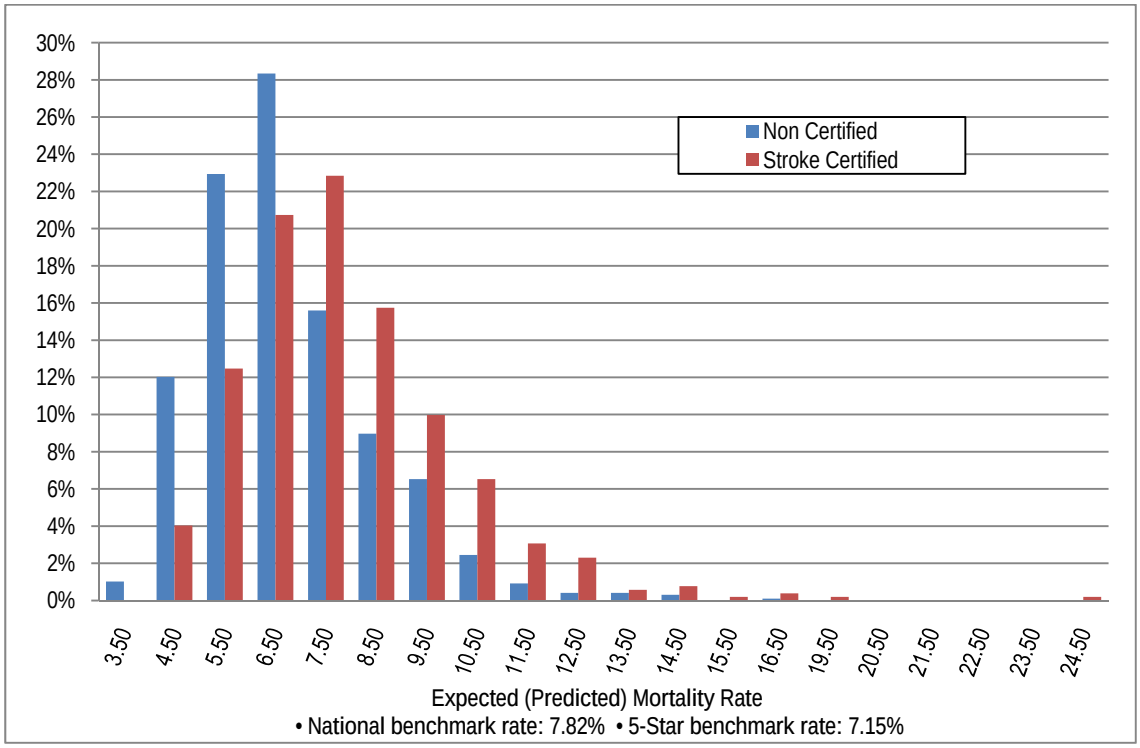
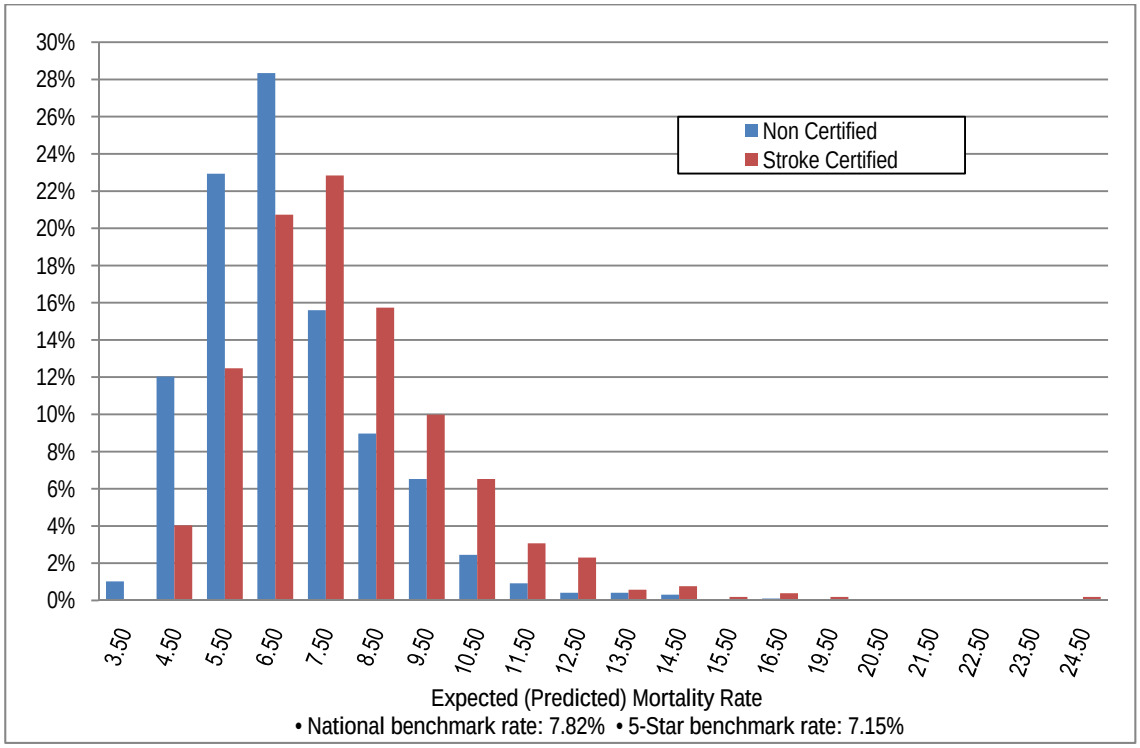


Illustration 3: Expected (Predicted) Mortality Rate Stroke-Certified and Non-Certified Hospitals



Discussion

The Twelfth Annual HealthGrades Hospital Quality in America Study demonstrates that there has been an 11% overall improvement in mortality from 2006 through 2008 in American hospitals. Compared with last year's study, the overall rate of improvement has decreased slightly. The good news is that mortality improvement was seen in all performance categories: 1-star, 3-star, and 5-star. However, the best-performing hospitals continue to improve at a faster rate than average and poor-performing hospitals.

Inhospital complications among orthopedic procedures showed the reverse trend. Over the three years of study, inhospital complications increased an average of 5.13%. Unlike the mortality cohorts studied, in this evaluation, the 1-star hospitals were the only performance category to show improvement, albeit small (2.16%). In the fall of 2007, CMS enacted a no-pay policy for eight inhospital complications. Perhaps this policy has created an overall detection bias and greater attention to post-operative complications.

On average, a patient has a 72% lower chance of dying and an 80% lower chance of experiencing an orthopedic inhospital complication at a best-performing hospital compared to a poor-performing hospital.

Regardless of outcome studied, there is still a significant gap between the best-performing and worst-performing hospitals in measures of both mortality and complications. On average, a patient has a 72% lower chance of dying and an 80% lower chance of experiencing an orthopedic inhospital complication at a best-performing hospital compared to a poor-performing hospital. Compared to an average-performing hospital, a patient had on average a 52% lower chance of dying and a 61% lower chance of experiencing an inhospital complication.

Many Americans are using a number of different sources for healthcare quality information. However, only 41% of people surveyed in the previously mentioned Kaiser Family Foundation survey answered that they thought there were big quality differences between the hospitals in their area.[8] This makes the above findings even more troubling. It is important that consumers understand that not only are there differences among hospitals but also among departments within the same hospital. For example, a hospital may have some of the best clinical outcomes in the nation in coronary bypass surgery but some of the worst outcomes in joint replacement surgery. Where possible, consumers should arm themselves with as much information about their specific healthcare issue and the quality of care for that condition.

With mortality cohorts, best-performing hospitals were found in states that had the best regional mortality outcomes. There was little variation between years of study. The East North Central region continues to show the best performance in risk-adjusted mortality. The East South Central region continues to have the worst risk-adjusted mortality. The best-performing states continue to be the best-performing year after year with eleven states appearing among the list of states with the most best-performing hospitals for the last three years of study.

Surprisingly however, in the orthopedic complications analysis, there was very little consistency among the best-performing regions and states in these procedures and compared with those states with procedures and conditions having the best mortality outcomes. This suggests that variation exists even at the hospital level. Even good hospitals have areas where improvement is needed. This is additional evidence in support of more transparency and additional quality improvement strategies.

What makes a best-performing hospital? What makes one state or region better than another? To answer this question, more research is necessary to correlate processes to outcomes. Some research has indicated a disconnect between some of the publicly reported process measures and short-term outcomes.[8, 9] Some argue that this dichotomy leads to unintended consequences and a focus on the wrong metrics.

A new focus of this study is to correlate the relationship between process measures and outcomes. This study was able to verify that hospitals certified by The Joint Commission as a Stroke Center of Excellence (hospitals that have implemented best process practices) have a much greater percentage of 5-star performers and fewer 1-star performers for the treatment of stroke. These centers have dedicated significant time and resources to implement rigorous standards of care as well as quality infrastructures to continually evaluate and refine their processes. These findings lend credence to that fact that when the appropriate structures or processes are in place, the quality of care can vastly improve.

The next year has the potential to bring substantial changes to the healthcare system at the national level. As legislators discuss the healthcare value proposition, it is clear that the full value cannot be actualized until the best quality healthcare is available regardless of the hospital a patient goes to or the state or region in which they live. Healthcare reform cannot take place without attention to improving quality. Focused attention can help the government, hospitals, and consumers determine where the benefit will be the greatest. Consider that targeting just four conditions (sepsis, pneumonia, heart failure, and respiratory failure) for improvement at the average-performing and poor-performing hospitals has the potential to save 127,488 Medicare patients over three years. A focus on preventing cardiac and renal complications in orthopedic procedures has the potential to save millions of dollars in reduced length-of-stay and additional treatments and procedures in addition to reducing preventable morbidity.

If all hospitals performed at the level of the best-performing hospitals from 2006 through2008, 224,537 Medicare lives could potentially have been saved and 110,687 Medicare orthopedic inhospital complications potentially avoided.

With current evidence indicating that publicly reporting hospital performance has improved quality, hospitals should expect to see and prepare for additional transparency around quality measures that are correlated with improved outcomes. Consumers should also demand that more information be made available. Having this information readily available can mean the difference between surviving a hospitalization or not, or experiencing a potentially preventable complication or not. If all hospitals performed at the level of the best-performing hospitals from 2006 through 2008, 224,537 Medicare lives could potentially have been saved and 110,687 Medicare orthopedic inhospital complications potentially avoided.

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Health Grades Inc. is the leading independent healthcare ratings organization, providing quality ratings, profiles and cost information on the nation's hospitals, physicians, nursing homes and prescription drugs.

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Appendix A: Observed-to-Expected Mortality by Year

Procedure or Diagnosis	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to-Expected Ratio
Bowel Obstruction	2006	3.33%	3.44%	1.03
	2007	3.40%	3.29%	0.97
	2008	3.12%	3.06%	0.98
	2006-2008	3.28%	3.26%	0.99
Chronic Obstructive Pulmonary Disease	2006	1.82%	2.03%	1.11
	2007	1.90%	1.91%	1.01
	2008	2.01%	1.78%	0.89
	2006-2008	1.91%	1.90%	0.99
Coronary Bypass Surgery	2006	2.64%	2.84%	1.08
	2007	2.69%	2.65%	0.98
	2008	2.70%	2.48%	0.92
	2006-2008	2.67%	2.67%	1.00
Coronary Interventional Procedures (Angioplasty/Stent)	2006	1.03%	1.09%	1.06
	2007	1.19%	1.17%	0.99
	2008	1.97%	1.90%	0.97
	2006-2008	1.36%	1.36%	1.00
Diabetic Acidosis and Coma	2006	1.67%	1.57%	0.94
	2007	1.54%	1.50%	0.97
	2008	1.62%	1.55%	0.95
	2006-2008	1.61%	1.54%	0.95
Gastrointestinal Bleed	2006	1.97%	2.16%	1.10
	2007	2.04%	1.97%	0.97
	2008	2.11%	1.97%	0.93
	2006-2008	2.04%	2.04%	1.00
Gastrointestinal Surgeries and Procedures	2006	9.99%	10.20%	1.02
	2007	10.47%	10.10%	0.96
	2008	10.10%	9.86%	0.98
	2006-2008	10.19%	10.05%	0.99
Heart Attack (Acute Myocardial Infarction)	2006	9.44%	9.97%	1.06
	2007	9.60%	9.52%	0.99
	2008	9.60%	9.08%	0.95
	2006-2008	9.54%	9.53%	1.00

Procedure or Diagnosis	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to-Expected Ratio
Heart Failure	2006	3.71%	3.92%	1.06
	2007	3.95%	3.78%	0.96
	2008	3.73%	3.64%	0.98
	2006-2008	3.79%	3.79%	1.00
Pancreatitis	2006	2.67%	2.77%	1.04
	2007	2.71%	2.74%	1.01
	2008	2.91%	2.63%	0.90
	2006-2008	2.76%	2.71%	0.98
Pneumonia	2006	4.76%	5.10%	1.07
	2007	4.90%	4.78%	0.98
	2008	5.22%	4.95%	0.95
	2006-2008	4.95%	4.95%	1.00
Pulmonary Embolism	2006	4.29%	4.51%	1.05
	2007	4.55%	4.27%	0.94
	2008	4.97%	4.33%	0.87
	2006-2008	4.61%	4.37%	0.95
Resection / Replacement Abdominal Aorta	2006	4.23%	4.16%	0.98
	2007	3.84%	3.63%	0.95
	2008	3.96%	3.54%	0.89
	2006-2008	4.01%	3.78%	0.94
Respiratory Failure	2006	22.38%	23.31%	1.04
	2007	21.57%	21.34%	0.99
	2008	20.11%	18.58%	0.92
	2006-2008	21.31%	21.00%	0.99
Sepsis	2006	20.62%	21.90%	1.06
	2007	21.99%	21.86%	0.99
	2008	21.95%	20.70%	0.94
	2006-2008	21.55%	21.44%	0.99
Stroke	2006	7.07%	7.46%	1.06
	2007	7.18%	7.17%	1.00
	2008	7.20%	6.73%	0.93
	2006-2008	7.15%	7.13%	1.00
Valve Replacement Surgery	2006	6.55%	7.10%	1.08
	2007	6.63%	6.59%	0.99
	2008	7.03%	6.32%	0.90
	2006-2008	6.74%	6.67%	0.99

Appendix B: Risk-Adjusted Mortality Performance by Year

Procedure or Diagnosis	Year	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-Expected Ratio (95% CI)
Bowel Obstruction	2006	2.12 (2.04-2.21)	0.99	.48 (.41- .55)
	2007	2.05 (1.97-2.13)	0.93	.40 (.33- .47)
	2008	1.95 (1.87-2.04)	0.95	.40 (.33- .47)
	2006-2008	2.04 (2.00-2.09)	0.95	.43 (.39- .47)
Chronic Obstructive Pulmonary Disease	2006	2.28 (2.22-2.35)	1.05	.47 (.42- .53)
	2007	2.02 (1.95-2.08)	0.97	.38 (.33- .44)
	2008	1.88 (1.83-1.94)	0.82	.40 (.35- .45)
	2006-2008	2.05 (2.01-2.08)	0.94	.42 (.39- .45)
Coronary Bypass Surgery	2006	2.14 (2.03-2.26)	1.03	.48 (.37- .58)
	2007	1.97 (1.85-2.09)	0.94	.44 (.33- .55)
	2008	1.92 (1.80-2.04)	0.87	.34 (.23- .45)
	2006-2008	2.02 (1.95-2.08)	0.95	.42 (.36- .48)
Coronary Interventional Procedures (Angioplasty/Stent)	2006	1.87 (1.78-1.96)	1.05	.46 (.38- .55)
	2007	1.84 (1.75-1.93)	0.94	.50 (.41- .58)
	2008	1.64 (1.57-1.71)	0.95	.51 (.45- .57)
	2006-2008	1.77 (1.72-1.81)	0.98	.49 (.45- .53)
Diabetic Acidosis and Coma	2006	2.66 (2.43-2.88)	0.81	.19 (.00- .51)
	2007	3.10 (2.85-3.34)	0.82	.04 (.00- .40)
	2008	3.31 (3.04-3.57)	0.81	.25 (.00- .53)
	2006-2008	3.00 (2.86-3.14)	0.81	.17 (.00- .35)
Gastrointestinal Bleed	2006	2.26 (2.18-2.34)	1.03	.47 (.39- .54)
	2007	2.02 (1.94-2.10)	0.92	.40 (.33- .48)
	2008	1.87 (1.79-1.95)	0.89	.39 (.32- .47)
	2006-2008	2.05 (2.01-2.10)	0.95	.42 (.38- .46)
Gastrointestinal Surgeries and Procedures	2006	1.70 (1.64-1.75)	1.01	.58 (.54- .63)
	2007	1.55 (1.50-1.60)	0.96	.51 (.47- .56)
	2008	1.58 (1.53-1.63)	0.97	.58 (.54- .63)
	2006-2008	1.61 (1.58-1.64)	0.98	.56 (.53- .59)
Heart Attack (Acute Myocardial Infarction)	2006	1.46 (1.43-1.49)	1.05	.76 (.73- .78)
	2007	1.41 (1.38-1.44)	0.98	.70 (.68- .73)
	2008	1.34 (1.31-1.37)	0.95	.64 (.62- .67)
	2006-2008	1.40 (1.38-1.42)	1.00	.70 (.69- .72)

Continued

Procedure or Diagnosis	Year	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-Expected Ratio (95% CI)
Heart Failure	2006	1.76 (1.73-1.79)	1.04	.65 (.62- .67)
	2007	1.61 (1.58-1.64)	0.95	.56 (.54- .59)
	2008	1.66 (1.63-1.69)	0.97	.56 (.54- .59)
	2006-2008	1.68 (1.66-1.70)	0.99	.59 (.58- .61)
Pancreatitis	2006	2.73 (2.55-2.92)	0.93	.19 (.00- .41)
	2007	2.62 (2.43-2.82)	0.92	.11 (.00- .33)
	2008	2.33 (2.14-2.52)	0.83	.16 (.00- .37)
	2006-2008	2.57 (2.46-2.68)	0.89	.15 (.03- .28)
Pneumonia	2006	1.80 (1.77-1.83)	1.03	.65 (.63- .68)
	2007	1.66 (1.63-1.69)	0.95	.57 (.55- .59)
	2008	1.58 (1.56-1.61)	0.93	.55 (.53- .57)
	2006-2008	1.68 (1.67-1.70)	0.97	.59 (.58- .60)
Pulmonary Embolism	2006	2.48 (2.31-2.65)	1.03	.31 (.18- .44)
	2007	2.01 (1.86-2.16)	0.92	.26 (.13- .40)
	2008	2.06 (1.90-2.22)	0.85	.25 (.12- .38)
	2006-2008	2.17 (2.08-2.26)	0.93	.28 (.20- .35)
Resection / Replacement Abdominal Aorta	2006	1.94 (1.73-2.15)	0.97	.49 (.33- .64)
	2007	2.22 (1.97-2.48)	0.95	.24 (.08- .41)
	2008	2.23 (1.97-2.49)	0.87	.35 (.17- .52)
	2006-2008	2.11 (1.97-2.25)	0.93	.37 (.27- .46)
Respiratory Failure	2006	1.40 (1.38-1.42)	1.06	.74 (.72- .75)
	2007	1.38 (1.36-1.40)	1.01	.69 (.68- .71)
	2008	1.31 (1.29-1.33)	0.94	.63 (.62- .65)
	2006-2008	1.37 (1.35-1.38)	1.00	.69 (.68- .70)
Sepsis	2006	1.42 (1.40-1.43)	1.07	.80 (.79- .81)
	2007	1.32 (1.31-1.34)	1.02	.74 (.73- .75)
	2008	1.28 (1.27-1.29)	0.95	.71 (.70- .72)
	2006-2008	1.33 (1.33-1.34)	1.01	.74 (.74- .75)
Stroke	2006	1.66 (1.63-1.70)	1.04	.65 (.62- .68)
	2007	1.58 (1.55-1.61)	0.98	.60 (.57- .63)
	2008	1.48 (1.44-1.51)	0.92	.57 (.54- .60)
	2006-2008	1.57 (1.55-1.59)	0.98	.61 (.59- .62)
Valve Replacement Surgery	2006	1.82 (1.72-1.92)	1.06	.61 (.52- .70)
	2007	1.82 (1.72-1.93)	0.98	.49 (.41- .58)
	2008	1.66 (1.56-1.76)	0.87	.48 (.40- .57)
	2006-2008	1.77 (1.71-1.83)	0.97	.53 (.48- .58)

Appendix C: Risk-Adjusted Mortality Performance Improvement and Relative Risk Reductions by Year

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average (2006-2008)	Relative Risk Reduction Associated with 5-Star Hospitals Compared to 1-Star	Relative Risk Reduction Associated with 5-Star Hospitals Compared to National	Reduction in Deaths If All Hospitals Operated at 5-Star Level (2006-2008)
Bowel Obstruction	2006		77.31%	53.31%	
	2007		80.33%	58.34%	
	2008		79.66%	59.46%	
	3-year aggregate	5.06%	79.02%	56.86%	8,012
Chronic Obstructive Pulmonary Disease	2006		79.24%	57.46%	
	2007		80.93%	61.80%	
	2008		78.85%	55.18%	
	3-year aggregate	20.15%	79.64%	58.07%	11,133
Coronary Bypass Surgery	2006		77.81%	55.91%	
	2007		77.63%	55.24%	
	2008		82.35%	63.13%	
	3-year aggregate	14.72%	79.06%	57.71%	3,805
Coronary Interventional Procedures (Angioplasty/Stent)	2006		75.16%	56.36%	
	2007		73.04%	49.72%	
	2008		69.11%	47.43%	
	3-year aggregate	9.20%	72.11%	50.71%	5,975
Diabetic Acidosis and Coma	2006		92.97%	80.09%	
	2007		98.62%	95.59%	
	2008		92.51%	74.02%	
	3-year aggregate	-1.64%	94.33%	82.19%	1,681
Gastrointestinal Bleed	2006		79.37%	57.54%	
	2007		80.00%	58.32%	
	2008		79.02%	57.81%	
	3-year aggregate	14.98%	79.49%	57.87%	8,753

Continued

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average (2006-2008)	Relative Risk Reduction Associated with 5-Star Hospitals Compared to 1-Star	Relative Risk Reduction Associated with 5-Star Hospitals Compared to National	Reduction in Deaths If All Hospitals Operated at 5-Star Level (2006-2008)
Gastrointestinal Surgeries and Procedures	2006		65.84%	43.15%	
	2007		66.85%	46.70%	
	2008		63.03%	40.19%	
	3-year aggregate	4.32%	65.20%	43.28%	9,684
Heart Attack (Acute Myocardial Infarction)	2006		48.20%	28.31%	
	2007		50.01%	29.20%	
	2008		51.92%	31.99%	
	3-year aggregate	10.42%	49.99%	29.77%	19,323
Heart Failure	2006		63.11%	38.78%	
	2007		65.18%	41.23%	
	2008		66.03%	42.34%	
	3-year aggregate	7.69%	64.69%	40.68%	26,374
Pancreatitis	2006		93.18%	81.98%	
	2007		95.73%	88.91%	
	2008		93.27%	82.66%	
	3-year aggregate	12.77%	94.09%	84.54%	2,641
Pneumonia	2006		63.64%	39.01%	
	2007		65.61%	41.50%	
	2008		65.43%	42.23%	
	3-year aggregate	11.72%	64.87%	40.87%	29,251
Pulmonary Embolism	2006		87.51%	70.50%	
	2007		86.85%	71.78%	
	2008		87.77%	71.06%	
	3-year aggregate	17.16%	87.31%	71.00%	4,033

Continued

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average (2006-2008)	Relative Risk Reduction Associated with 5-Star Hospitals Compared to 1-Star	Relative Risk Reduction Associated with 5-Star Hospitals Compared to National	Reduction in Deaths If All Hospitals Operated at 5-Star Level (2006-2008)
Resection/ Replacement Abdominal Aorta	2006		74.77%	50.31%	
	2007		89.00%	74.16%	
	2008		84.41%	61.14%	
	3-year aggregate	9.19%	82.60%	61.06%	1,180
Respiratory Failure	2006		47.29%	29.19%	
	2007		49.94%	29.97%	
	2008		51.67%	31.36%	
	3-year aggregate	11.30%	49.64%	30.18%	27,241
Sepsis	2006		43.62%	24.87%	
	2007		44.33%	25.94%	
	2008		44.78%	25.20%	
	3-year aggregate	11.20%	44.30%	25.35%	44,622
Stroke	2006		60.94%	38.48%	
	2007		61.83%	39.66%	
	2008		61.51%	39.20%	
	3-year aggregate	11.48%	61.40%	39.10%	17,434
Valve Replacement Surgery	2006		66.64%	43.95%	
	2007		72.92%	50.35%	
	2008		70.84%	46.22%	
	3-year aggregate	17.04%	70.17%	46.82%	3,395
Average		10.99%	71.64%*	51.53%*	
Total					224,537

* These averages were calculated by averaging the three-year aggregate improvement. This calculation gives equal weight to each diagnosis or procedure regardless of the number of patients in the group. Alternatively, the difference between star categories can be measured by combining all patients across the patient groups, and calculating observed-to-expected ratios for the different star categories. Calculated in this way, 5-star rated hospitals have, on average, 55.81% fewer deaths than 1-star hospitals, and 33.88% fewer deaths than the national average (risk-adjusted results). Using a similar method to calculate overall improvement from 2006 to 2008 yields a 10.97% reduction in risk-adjusted mortality.

Appendix D: Observed-to-Expected Orthopedic Complications by Year

Procedure	Year	Predicted (Expected) Complications	Actual (Observed) Complications	U.S. Observed-to-Expected Ratio
Back & Neck Surgery (except Spinal Fusion)	2006	11.46%	10.99%	0.96
	2007	11.59%	11.56%	1.00
	2008	11.18%	11.43%	1.02
	2006-2008	11.41%	11.32%	0.99
Back & Neck Surgery (Spinal Fusion)	2006	16.78%	16.75%	1.00
	2007	16.84%	16.46%	0.98
	2008	16.57%	16.93%	1.02
	2006-2008	16.72%	16.72%	1.00
Hip Fracture Repair	2006	12.07%	12.01%	1.00
	2007	12.50%	12.04%	0.96
	2008	12.74%	13.31%	1.04
	2006-2008	12.43%	12.45%	1.00
Total Hip Replacement	2006	7.82%	7.50%	0.96
	2007	7.85%	7.38%	0.94
	2008	7.65%	8.03%	1.05
	2006-2008	7.77%	7.64%	0.98
Total Knee Replacement	2006	7.14%	7.11%	1.00
	2007	7.18%	6.96%	0.97
	2008	7.09%	7.22%	1.02
	2006-2008	7.14%	7.10%	1.00

Appendix E: Risk-Adjusted Orthopedic Complication Performance by Year

Procedure	Year	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-Expected Ratio (95% CI)
Back & Neck Surgery (except Spinal Fusion)	2006	1.84 (1.78-1.90)	0.92	.33 (.27- .39)
	2007	1.92 (1.87-1.98)	0.94	.34 (.28- .40)
	2008	1.96 (1.90-2.02)	0.95	.30 (.23- .37)
	2006-2008	1.91 (1.87-1.94)	0.94	.33 (.29- .36)
Back & Neck Surgery (Spinal Fusion)	2006	1.71 (1.66-1.76)	0.96	.40 (.35- .45)
	2007	1.69 (1.65-1.74)	0.95	.44 (.39- .48)
	2008	1.66 (1.62-1.70)	0.98	.45 (.40- .50)
	2006-2008	1.69 (1.66-1.71)	0.96	.43 (.40- .46)
Hip Fracture Repair	2006	1.86 (1.82-1.89)	0.95	.43 (.40- .47)
	2007	1.79 (1.75-1.82)	0.94	.45 (.42- .48)
	2008	1.80 (1.77-1.82)	0.96	.46 (.42- .50)
	2006-2008	1.81 (1.79-1.83)	0.95	.45 (.43- .47)
Total Hip Replacement	2006	2.30 (2.23-2.36)	0.89	.29 (.24- .35)
	2007	2.25 (2.18-2.33)	0.89	.34 (.28- .40)
	2008	2.28 (2.22-2.34)	0.94	.32 (.26- .39)
	2006-2008	2.28 (2.24-2.32)	0.91	.32 (.28- .35)
Total Knee Replacement	2006	2.06 (2.02-2.09)	0.93	.40 (.36- .43)
	2007	1.97 (1.94-2.01)	0.93	.42 (.39- .45)
	2008	1.99 (1.96-2.02)	0.95	.42 (.39- .45)
	2006-2008	2.01 (1.99-2.03)	0.94	.41 (.39- .43)

Appendix F: Risk-Adjusted Orthopedic Complication Performance Improvement and Relative Risk Reductions by Year

Procedure	Year	Percent of Improvement U.S. Average (2006-2008)	Relative Risk Reduction Associated with 5-Star Hospitals Compared to 1-Star	Relative Risk Reduction Associated with 5-Star Hospitals Compared to National	Reduction in Complications If All Hospitals Operated at 5-Star Level (2006-2008)
Back & Neck Surgery (except Spinal Fusion)	2006		82.09%	65.64%	
	2007		82.20%	65.67%	
	2008		84.68%	70.68%	
	3-year aggregate	-6.69%	82.91%	67.16%	13,404
Back & Neck Surgery (Spinal Fusion)	2006		76.78%	60.22%	
	2007		74.24%	55.33%	
	2008		72.92%	55.90%	
	3-year aggregate		74.56%	57.04%	
	3-year aggregate	-2.32%	79.45%	62.54%	16,487
Hip Fracture Repair	2006		76.77%	56.72%	
	2007		74.89%	53.40%	
	2008		74.50%	56.17%	
	3-year aggregate	-4.90%	75.41%	55.52%	36,020
Total Hip Replacement	2006		87.20%	69.32%	
	2007		85.06%	64.16%	
	2008		85.91%	69.40%	
	3-year aggregate	-9.5%	86.09%	67.77%	14,207
Total Knee Replacement	2006		80.75%	60.29%	
	2007		78.57%	56.43%	
	2008		79.06%	59.10%	
	3-year aggregate	-2.22%	79.46%	58.60%	30,569
Average		-5.13%	79.69%*	61.22%*	
Total					110,687

* These averages were calculated by averaging the three-year aggregate improvement. This calculation gives equal weight to each diagnosis or procedure regardless of the number of patients in the group.

Appendix G: Observed-to-Expected Mortality Ratios (O/E) by Region

Procedure or Diagnosis	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	.89	1.15	.92	.97	.98	1.00	1.03	1.03	1.15
Coronary Interventional Procedures (Angioplasty/Stent)	.88	1.18	.94	.97	.87	1.18	.96	1.10	1.06
Critical Care	.89	1.08	1.05	.95	1.09	.96	1.02	.95	1.00
Gastrointestinal	.88	1.16	1.04	.93	1.03	.99	1.02	1.03	1.01
Heart Attack	.92	1.10	1.03	.96	.96	.99	1.00	.98	1.06
Heart Failure	.88	1.23	1.01	.93	1.03	1.01	.94	1.09	1.06
Pulmonary	.86	1.14	1.03	.97	.99	1.01	1.01	1.05	1.03
Stroke	.83	1.17	1.05	.90	1.16	.95	1.05	.97	.98
Combined	.88	1.13	1.04	.95	1.04	.98	1.01	1.01	1.03

An O/E ratio of less than 1 means that the procedure/diagnoses measured had fewer deaths than expected given its patient population.

An O/E of greater than 1 means that the procedure/diagnoses measured had more deaths than expected given its patient populations.

Appendix H: Percentage of Best-Performing Hospitals for Combined and Individual Mortality by Region

Procedure or Diagnosis	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	19.32%	9.52%	25.17%	18.60%	22.22%	13.70%	12.59%	9.57%	6.43%
Coronary Interventional Procedures (Angioplasty/Stent)	20.91%	7.55%	18.84%	14.63%	22.45%	8.24%	21.15%	9.60%	11.16%
Critical Care	22.48%	7.76%	11.92%	17.27%	7.78%	17.81%	15.11%	14.47%	13.56%
Gastrointestinal	24.43%	5.28%	16.14%	14.29%	15.34%	17.07%	14.92%	7.81%	13.27%
Heart Attack	22.79%	7.11%	10.58%	17.14%	20.53%	13.31%	15.79%	18.72%	11.07%
Heart Failure	24.42%	5.37%	17.60%	16.13%	15.25%	10.92%	20.54%	7.01%	13.06%
Pulmonary	23.67%	9.50%	16.31%	15.01%	14.36%	15.34%	17.47%	7.28%	13.68%
Stroke	24.57%	4.26%	12.40%	20.83%	10.20%	17.84%	15.48%	10.91%	11.36%
Combined	25.54%	7.27%	16.25%	14.81%	9.94%	17.44%	17.78%	7.85%	11.96%

Appendix I: Percentage of Improvement for Combined and Individual Mortality by Region

Procedure or Diagnosis	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	17.14%	18.17%	13.49%	22.07%	18.12%	11.18%	21.77%	18.22%	12.25%
Coronary Interventional Procedures (Angioplasty/Stent)	18.76%	11.81%	8.75%	22.53%	10.24%	-6.37%	5.51%	9.47%	1.96%
Critical Care	10.87%	7.84%	9.40%	11.98%	12.33%	12.96%	12.32%	15.59%	9.97%
Gastrointestinal	11.75%	6.24%	7.74%	12.29%	9.70%	10.12%	6.67%	6.88%	5.04%
Heart Attack	15.09%	9.00%	12.51%	20.40%	4.57%	10.08%	12.62%	10.84%	6.20%
Heart Failure	6.70%	4.39%	7.49%	11.87%	7.53%	16.00%	9.29%	2.54%	9.85%
Pulmonary	11.43%	12.08%	14.97%	19.67%	16.24%	14.27%	14.59%	11.51%	12.54%
Stroke	8.63%	11.47%	12.57%	1.93%	14.00%	11.89%	14.83%	12.04%	14.38%
Combined	10.94%	8.75%	10.22%	13.53%	10.75%	12.23%	11.85%	11.04%	9.61%

Appendix J: State Quality Reports

Appendix J.1: Alabama Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.42%	4.84%	-9.68%	4.93%	25	8.00%	48.00%	44.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.70%	1.62%	5.00%	1.62%	29	6.90%	68.97%	24.14%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	22.43%	20.59%	8.18%	21.51%	87	2.30%	65.52%	32.18%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.70%	4.60%	2.26%	4.68%	88	2.27%	69.32%	28.41%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.58%	11.65%	-.61%	11.31%	48	.00%	66.67%	33.33%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.07%	4.88%	3.70%	4.85%	96	2.08%	68.75%	29.17%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.96%	4.19%	15.47%	4.62%	99	6.06%	66.67%	27.27%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.05%	8.74%	3.43%	8.86%	71	2.82%	66.20%	30.99%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.19%	7.64%	6.63%	7.91%	99	3.03%	58.59%	38.38%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.2: Alaska Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.32%	3.65%	-57.22%	3.43%	2	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.97%	1.70%	13.47%	1.73%	2	.00%	50.00%	50.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.24%	16.88%	7.46%	18.91%	8	.00%	87.50%	12.50%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.44%	2.98%	32.73%	3.54%	11	18.18%	81.82%	.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.33%	8.09%	28.56%	9.55%	4	.00%	100.00%	.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.63%	4.50%	2.89%	4.32%	10	10.00%	90.00%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.53%	4.56%	-29.35%	4.41%	16	.00%	81.25%	18.75%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.79%	9.49%	3.05%	10.73%	8	.00%	62.50%	37.50%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.07%	6.87%	2.88%	7.21%	17	.00%	100.00%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.3: Arizona Quality Report

- Arizona is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart failure for three years in a row; and the highest percentage of best-performing hospitals in critical care, heart attack, gastrointestinal care, pulmonary care, and stroke care.
- Arizona is one of the top five states nationwide showing the most improvement in cardiac surgery, heart attack, critical care, gastrointestinal care, and pulmonary care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.26%	2.48%	41.77%	3.20%	28	25.00%	75.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.32%	.96%	27.20%	1.11%	42	23.81%	66.67%	9.52%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.98%	13.50%	24.89%	15.12%	58	32.76%	63.79%	3.45%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.38%	2.52%	25.40%	2.87%	58	31.03%	62.07%	6.90%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.76%	7.14%	26.89%	8.27%	44	29.55%	59.09%	11.36%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.00%	2.31%	22.95%	2.45%	62	38.71%	61.29%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.57%	2.19%	38.70%	2.78%	74	33.78%	63.51%	2.70%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	4.57%	3.74%	18.10%	4.22%	40	40.00%	57.50%	2.50%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.16%	4.48%	27.19%	5.13%	72	43.06%	54.17%	2.78%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.4: Arkansas Quality Report

- Arkansas is one of the top five states nationwide showing the most improvement in the treatment of heart failure.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.54%	3.96%	28.44%	4.98%	19	5.26%	68.42%	26.32%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.58%	1.39%	12.08%	1.43%	21	4.76%	80.95%	14.29%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.89%	18.95%	9.29%	20.07%	56	7.14%	71.43%	21.43%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	5.10%	4.44%	12.97%	4.63%	68	1.47%	66.18%	32.35%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.55%	11.04%	-4.59%	10.96%	34	8.82%	58.82%	32.35%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	6.28%	5.31%	15.42%	5.57%	72	1.39%	59.72%	38.89%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.09%	4.44%	12.80%	4.64%	74	10.81%	54.05%	35.14%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	10.43%	8.59%	17.62%	9.63%	46	4.35%	56.52%	39.13%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.36%	7.43%	11.10%	7.85%	74	2.70%	56.76%	40.54%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.5: California Quality Report

- California is one of the top five states nationwide showing the most improvement in critical care, heart failure, gastrointestinal care, and pulmonary care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.01%	3.53%	11.94%	3.74%	110	16.36%	74.55%	9.09%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	1.56%	-7.89%	1.55%	127	9.45%	73.23%	17.32%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.28%	15.84%	13.31%	17.05%	298	20.47%	67.45%	12.08%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.86%	3.46%	10.45%	3.59%	305	16.72%	71.80%	11.48%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.95%	8.93%	10.20%	9.44%	218	12.84%	79.36%	7.80%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.07%	3.40%	16.47%	3.68%	309	13.92%	77.99%	8.09%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.89%	3.31%	14.95%	3.61%	323	18.89%	69.04%	12.07%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.78%	6.07%	10.40%	6.58%	253	22.13%	66.01%	11.86%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.64%	5.80%	12.66%	6.21%	326	21.78%	67.79%	10.43%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.6: Colorado Quality Report

- Colorado is one of the top five states nationwide with the highest percentage of best-performing hospitals in stroke care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.23%	4.04%	4.35%	3.49%	19	21.05%	73.68%	5.26%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.60%	1.32%	17.13%	1.41%	29	6.90%	86.21%	6.90%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	16.52%	16.61%	-.54%	16.45%	45	17.78%	80.00%	2.22%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	2.74%	2.84%	-3.58%	3.04%	52	17.31%	76.92%	5.77%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	8.88%	8.09%	8.88%	8.77%	32	18.75%	75.00%	6.25%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.09%	3.36%	-8.91%	3.21%	56	16.07%	78.57%	5.36%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.31%	2.83%	14.29%	3.07%	64	20.31%	71.88%	7.81%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	5.76%	5.71%	.92%	5.90%	38	34.21%	55.26%	10.53%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	5.72%	5.60%	2.08%	5.69%	65	15.38%	80.00%	4.62%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.7: Connecticut Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.13%	3.75%	9.30%	4.01%	11	9.09%	81.82%	9.09%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.21%	1.23%	-1.71%	1.19%	12	16.67%	75.00%	8.33%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.84%	16.12%	18.73%	17.94%	31	22.58%	54.84%	22.58%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.91%	3.27%	16.35%	3.58%	30	23.33%	63.33%	13.33%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.07%	8.78%	3.18%	8.84%	29	20.69%	72.41%	6.90%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.65%	3.27%	10.30%	3.47%	32	28.13%	62.50%	9.38%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.62%	2.97%	18.06%	3.20%	32	31.25%	56.25%	12.50%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.47%	6.62%	21.82%	7.54%	29	17.24%	62.07%	20.69%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.77%	5.72%	15.52%	6.21%	32	28.13%	56.25%	15.63%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.8: Delaware Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.91%	2.67%	45.57%	3.89%	4	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.99%	1.12%	43.91%	1.35%	4	.00%	100.00%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	16.56%	15.77%	4.78%	16.17%	5	20.00%	80.00%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.83%	2.69%	29.72%	3.38%	5	20.00%	60.00%	20.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	12.21%	9.38%	23.20%	10.19%	5	20.00%	60.00%	20.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	2.91%	2.94%	-1.11%	3.06%	5	40.00%	60.00%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.07%	2.29%	25.39%	2.74%	5	60.00%	40.00%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.44%	6.58%	11.56%	7.15%	5	.00%	100.00%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.24%	5.39%	13.60%	5.82%	5	40.00%	60.00%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.9: District of Columbia Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.55%	5.40%	2.65%	5.44%	2	.00%	50.00%	50.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.50%	1.48%	1.38%	1.36%	3	.00%	100.00%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.87%	18.23%	8.27%	19.80%	7	14.29%	71.43%	14.29%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.25%	4.47%	-5.02%	4.31%	7	.00%	71.43%	28.57%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.99%	11.77%	-17.82%	10.87%	5	.00%	40.00%	60.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.47%	4.04%	-16.53%	3.57%	7	28.57%	71.43%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.08%	3.53%	13.50%	3.63%	7	14.29%	85.71%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.62%	6.48%	2.17%	6.62%	7	14.29%	85.71%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.94%	6.86%	1.16%	6.90%	7	.00%	85.71%	14.29%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.10: Florida Quality Report

- Florida is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures, heart attack, heart failure, critical care, gastrointestinal care, pulmonary care, and stroke care for three years in a row.
- Florida is one of the top five states nationwide showing the most improvement in cardiac surgery, heart attack, heart failure, and critical care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.60%	3.54%	23.12%	3.98%	72	15.28%	73.61%	11.11%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.16%	1.13%	2.03%	1.16%	79	29.11%	64.56%	6.33%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.11%	15.63%	13.71%	16.80%	170	24.71%	69.41%	5.88%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.24%	3.26%	-.48%	3.22%	172	29.65%	63.37%	6.98%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.71%	8.09%	16.64%	8.82%	147	26.53%	64.63%	8.84%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.10%	2.71%	12.43%	2.88%	175	45.14%	50.86%	4.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.13%	2.94%	5.97%	3.04%	178	34.83%	62.92%	2.25%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.11%	5.51%	9.69%	5.78%	157	34.39%	61.15%	4.46%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.10%	5.41%	11.20%	5.72%	179	37.43%	58.10%	4.47%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.11: Georgia Quality Report

- Georgia is one of the top five states nationwide showing the most improvement in stroke care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.65%	3.63%	22.12%	4.26%	19	5.26%	68.42%	26.32%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.37%	1.63%	-18.72%	1.52%	27	7.41%	62.96%	29.63%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.24%	17.40%	14.01%	18.71%	118	9.32%	70.34%	20.34%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.03%	3.55%	11.79%	3.84%	121	9.92%	76.86%	13.22%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.00%	9.92%	9.82%	10.38%	68	7.35%	73.53%	19.12%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.07%	3.70%	9.16%	3.83%	137	10.95%	78.10%	10.95%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.52%	3.66%	18.85%	4.05%	143	9.09%	68.53%	22.38%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.22%	7.40%	19.73%	8.16%	90	6.67%	68.89%	24.44%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.42%	6.39%	13.89%	6.86%	143	9.09%	71.33%	19.58%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.12: Hawaii Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.51%	4.29%	22.13%	4.48%	4	.00%	50.00%	50.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	2.31%	1.60%	30.76%	2.09%	6	.00%	50.00%	50.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.12%	20.52%	-1.97%	20.67%	14	.00%	100.00%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.83%	3.55%	26.41%	4.18%	15	.00%	80.00%	20.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.73%	10.45%	10.92%	11.57%	12	.00%	50.00%	50.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.68%	4.26%	9.02%	4.71%	14	.00%	92.86%	7.14%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	6.51%	5.37%	17.49%	5.96%	15	.00%	46.67%	53.33%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.86%	8.56%	13.17%	9.25%	14	.00%	57.14%	42.86%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.30%	7.49%	9.80%	8.00%	15	.00%	73.33%	26.67%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.13: Idaho Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.44%	2.94%	14.54%	2.62%	5	40.00%	40.00%	20.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.42%	1.91%	-34.60%	1.68%	7	.00%	85.71%	14.29%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.60%	18.76%	13.13%	20.21%	15	.00%	80.00%	20.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.69%	3.86%	17.70%	4.04%	27	3.70%	81.48%	14.81%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.35%	10.98%	-6.05%	10.60%	9	11.11%	66.67%	22.22%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.35%	4.89%	8.53%	5.00%	26	3.85%	76.92%	19.23%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.28%	5.27%	.29%	5.28%	35	.00%	71.43%	28.57%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	10.30%	8.93%	13.28%	9.24%	14	.00%	71.43%	28.57%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.21%	7.49%	8.72%	7.76%	35	.00%	80.00%	20.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.14: Illinois Quality Report

- Illinois is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures and heart failure for three years in a row.
- Illinois is one of the top five states nationwide showing the most improvement in coronary interventional procedures.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.72%	2.86%	23.10%	3.43%	62	19.35%	75.81%	4.84%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.29%	1.02%	21.00%	1.11%	81	25.93%	67.90%	6.17%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.73%	15.97%	9.94%	16.69%	160	20.63%	66.25%	13.13%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.45%	3.16%	8.44%	3.32%	176	22.73%	64.20%	13.07%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.28%	7.93%	14.55%	8.65%	113	23.01%	69.91%	7.08%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.55%	3.26%	8.14%	3.33%	180	25.00%	60.56%	14.44%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.46%	3.13%	9.52%	3.30%	184	23.91%	65.76%	10.33%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.25%	5.76%	7.81%	6.00%	136	23.53%	69.85%	6.62%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.18%	5.57%	9.88%	5.85%	184	27.17%	60.87%	11.96%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.15: Indiana Quality Report

- Indiana is one of the top five states nationwide showing the most improvement in gastrointestinal care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.91%	3.44%	12.09%	3.62%	33	15.15%	78.79%	6.06%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.27%	1.22%	3.86%	1.28%	47	12.77%	76.60%	10.64%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.01%	16.37%	9.11%	16.97%	99	12.12%	79.80%	8.08%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.79%	3.17%	16.35%	3.35%	111	22.52%	63.06%	14.41%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.18%	9.01%	11.49%	9.51%	66	10.61%	74.24%	15.15%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.14%	3.62%	12.48%	3.75%	114	14.91%	71.05%	14.04%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.71%	3.43%	7.53%	3.52%	114	17.54%	67.54%	14.91%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.20%	5.38%	13.32%	5.86%	89	19.10%	76.40%	4.49%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.53%	5.85%	10.45%	6.10%	114	17.54%	69.30%	13.16%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.16: Iowa Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.61%	4.63%	17.45%	4.82%	12	.00%	83.33%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.57%	1.53%	2.82%	1.47%	21	9.52%	71.43%	19.05%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.10%	13.53%	20.85%	15.13%	56	19.64%	71.43%	8.93%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.08%	3.80%	6.80%	3.82%	97	6.19%	80.41%	13.40%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	8.95%	9.55%	-6.67%	9.03%	29	13.79%	82.76%	3.45%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.43%	4.26%	3.99%	4.22%	104	6.73%	76.92%	16.35%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.26%	4.00%	5.99%	3.98%	114	7.02%	78.07%	14.91%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.68%	6.22%	6.83%	6.48%	55	14.55%	70.91%	14.55%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.75%	6.09%	9.74%	6.27%	116	7.76%	82.76%	9.48%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.17: Kansas Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.47%	3.94%	-13.63%	4.41%	16	6.25%	68.75%	25.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.95%	1.45%	25.72%	1.64%	21	9.52%	66.67%	23.81%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.62%	16.36%	20.65%	18.06%	50	8.00%	84.00%	8.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.92%	4.33%	-10.46%	3.96%	75	10.67%	74.67%	14.67%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.80%	9.30%	5.10%	9.42%	25	20.00%	68.00%	12.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.83%	4.45%	7.83%	4.49%	98	4.08%	80.61%	15.31%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.42%	3.64%	17.61%	4.01%	121	4.13%	85.12%	10.74%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.39%	6.25%	2.17%	6.69%	47	6.38%	82.98%	10.64%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.29%	6.42%	11.89%	6.83%	123	4.07%	85.37%	10.57%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.18: Kentucky Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.19%	3.46%	17.42%	3.83%	18	22.22%	61.11%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.65%	1.23%	25.25%	1.43%	21	9.52%	76.19%	14.29%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.12%	16.05%	6.27%	16.59%	78	16.67%	69.23%	14.10%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.13%	4.16%	-.65%	4.00%	82	7.32%	73.17%	19.51%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.19%	9.48%	7.02%	9.74%	51	13.73%	66.67%	19.61%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.23%	3.98%	5.85%	4.08%	94	9.57%	67.02%	23.40%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.77%	3.64%	3.49%	3.73%	95	15.79%	66.32%	17.89%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.54%	8.45%	.95%	8.60%	55	3.64%	74.55%	21.82%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.65%	6.28%	5.54%	6.44%	95	14.74%	64.21%	21.05%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.19: Louisiana Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.64%	3.74%	19.51%	4.12%	30	3.33%	80.00%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	1.47%	-1.79%	1.45%	41	14.63%	65.85%	19.51%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.49%	19.12%	6.72%	19.64%	84	8.33%	69.05%	22.62%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.42%	3.84%	13.03%	4.13%	90	7.78%	73.33%	18.89%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.52%	10.16%	3.42%	10.39%	54	5.56%	77.78%	16.67%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.32%	4.10%	5.09%	4.13%	101	8.91%	80.20%	10.89%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.15%	4.06%	2.09%	4.01%	107	6.54%	79.44%	14.02%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.79%	7.12%	19.04%	7.93%	65	6.15%	80.00%	13.85%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.42%	6.88%	7.24%	7.08%	110	6.36%	75.45%	18.18%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.20: Maine Quality Report

- Maine is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.43%	3.55%	19.80%	4.14%	3	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.97%	.87%	10.00%	.79%	4	75.00%	.00%	25.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.37%	17.49%	14.11%	18.56%	31	9.68%	77.42%	12.90%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.91%	3.90%	20.63%	4.23%	35	14.29%	68.57%	17.14%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.23%	9.23%	-.02%	8.87%	24	20.83%	75.00%	4.17%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.79%	4.32%	9.85%	4.43%	35	5.71%	74.29%	20.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.30%	4.02%	6.56%	4.12%	36	5.56%	86.11%	8.33%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	10.05%	8.45%	15.92%	9.68%	25	.00%	80.00%	20.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.36%	6.55%	10.93%	6.84%	36	8.33%	80.56%	11.11%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.21: Maryland Quality Report

- Maryland is one of the top five states nationwide with the highest percentage of best-performing hospitals in critical care, heart failure, gastrointestinal care, and pulmonary care for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.20%	4.03%	4.03%	4.20%	10	20.00%	50.00%	30.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.60%	1.39%	13.06%	1.50%	18	11.11%	61.11%	27.78%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	16.21%	15.65%	3.43%	15.69%	46	36.96%	63.04%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	2.70%	3.09%	-14.23%	2.89%	45	55.56%	44.44%	.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.68%	9.17%	5.25%	9.54%	41	9.76%	85.37%	4.88%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	2.47%	2.48%	-.32%	2.50%	45	68.89%	28.89%	2.22%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	2.90%	2.46%	15.23%	2.62%	45	55.56%	44.44%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.65%	5.91%	11.14%	6.33%	43	30.23%	55.81%	13.95%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	5.54%	5.33%	3.78%	5.40%	46	60.87%	39.13%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.22: Massachusetts Quality Report

- Massachusetts is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.50%	3.00%	14.09%	2.97%	14	50.00%	50.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.45%	1.13%	21.74%	1.15%	21	23.81%	66.67%	9.52%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.05%	19.58%	7.00%	20.11%	61	3.28%	80.33%	16.39%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.76%	3.72%	.87%	3.60%	62	17.74%	72.58%	9.68%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.68%	9.40%	2.86%	9.31%	59	23.73%	61.02%	15.25%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.93%	3.85%	1.80%	3.72%	62	20.97%	67.74%	11.29%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.97%	3.29%	17.24%	3.53%	63	17.46%	73.02%	9.52%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.67%	8.20%	5.41%	8.45%	53	11.32%	60.38%	28.30%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.08%	6.60%	6.80%	6.69%	63	7.94%	82.54%	9.52%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.23: Michigan Quality Report

- Michigan is one of the top five states nationwide with the highest percentage of best-performing hospitals in critical care, heart attack, gastrointestinal care, and pulmonary care for three years in a row.
- Michigan is one of the top five states nationwide with the highest percentage of best-performing hospitals in stroke care; and one of the top five states nationwide showing the most improvement in coronary interventional procedures, heart attack, and gastrointestinal care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.20%	3.16%	24.63%	3.57%	32	18.75%	78.13%	3.13%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.50%	1.06%	29.26%	1.22%	38	21.05%	71.05%	7.89%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	16.28%	14.03%	13.81%	15.18%	106	28.30%	66.98%	4.72%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.54%	3.06%	13.58%	3.24%	117	27.35%	67.52%	5.13%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.73%	8.05%	17.27%	8.98%	80	26.25%	61.25%	12.50%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.35%	3.25%	2.86%	3.23%	123	26.83%	65.04%	8.13%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.32%	2.88%	13.33%	3.02%	125	28.00%	66.40%	5.60%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.31%	5.42%	14.06%	5.84%	98	26.53%	69.39%	4.08%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	5.98%	5.15%	13.77%	5.53%	125	28.00%	68.80%	3.20%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.24: Minnesota Quality Report

- Minnesota is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart attack for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.05%	2.40%	40.89%	3.21%	14	21.43%	78.57%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.56%	1.44%	7.77%	1.39%	16	6.25%	81.25%	12.50%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	15.90%	14.80%	6.91%	15.46%	62	16.13%	82.26%	1.61%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.24%	2.78%	14.19%	2.91%	91	14.29%	82.42%	3.30%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	8.73%	8.49%	2.76%	8.53%	37	29.73%	67.57%	2.70%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.76%	3.76%	.22%	3.69%	110	8.18%	80.00%	11.82%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.29%	3.04%	7.81%	3.24%	123	9.76%	83.74%	6.50%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.17%	6.23%	-1.04%	6.44%	50	14.00%	80.00%	6.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	5.89%	5.51%	6.46%	5.70%	125	11.20%	87.20%	1.60%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.25: Mississippi Quality Report

- Mississippi is one of the top five states nationwide showing the most improvement in the treatment of heart attack.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.86%	4.38%	36.13%	5.50%	18	.00%	61.11%	38.89%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.78%	1.51%	15.05%	1.72%	18	.00%	66.67%	33.33%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	25.12%	22.08%	12.11%	23.27%	65	.00%	60.00%	40.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	5.26%	4.77%	9.43%	4.77%	67	.00%	62.69%	37.31%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	13.82%	10.47%	24.23%	12.03%	31	.00%	48.39%	51.61%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.87%	6.06%	-3.13%	5.92%	88	.00%	57.95%	42.05%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	6.00%	4.94%	17.59%	5.34%	90	.00%	57.78%	42.22%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.44%	7.29%	22.77%	8.66%	50	2.00%	66.00%	32.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	9.41%	8.15%	13.33%	8.67%	90	.00%	53.33%	46.67%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.26: Missouri Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.00%	4.07%	18.57%	4.48%	33	6.06%	75.76%	18.18%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.62%	1.61%	.63%	1.60%	41	7.32%	70.73%	21.95%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.07%	15.95%	16.33%	17.36%	88	14.77%	67.05%	18.18%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.14%	3.70%	10.51%	3.93%	102	5.88%	75.49%	18.63%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.20%	9.44%	15.68%	10.26%	61	9.84%	63.93%	26.23%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.29%	4.26%	.89%	4.18%	111	7.21%	70.27%	22.52%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.93%	3.58%	8.74%	3.75%	114	12.28%	73.68%	14.04%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.65%	6.48%	15.22%	7.23%	75	10.67%	76.00%	13.33%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.08%	6.15%	13.13%	6.59%	114	13.16%	73.68%	13.16%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.27: Montana Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.89%	2.82%	52.13%	3.97%	5	20.00%	60.00%	20.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.68%	1.31%	22.10%	1.35%	9	22.22%	55.56%	22.22%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.24%	17.55%	8.78%	17.95%	20	5.00%	80.00%	15.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.31%	2.99%	30.56%	3.65%	25	8.00%	80.00%	12.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.78%	8.32%	14.92%	9.44%	9	.00%	77.78%	22.22%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.60%	4.88%	-6.20%	4.67%	32	6.25%	71.88%	21.88%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.30%	4.37%	17.58%	5.00%	49	.00%	79.59%	20.41%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.59%	8.77%	-2.17%	8.80%	16	.00%	68.75%	31.25%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.72%	6.75%	12.49%	7.16%	48	2.08%	85.42%	12.50%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.28: Nebraska Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.08%	4.13%	-1.30%	4.04%	10	10.00%	80.00%	10.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.30%	1.10%	15.64%	1.35%	15	13.33%	80.00%	6.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	22.76%	19.34%	15.04%	20.57%	23	.00%	86.96%	13.04%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.30%	4.57%	-6.18%	4.36%	49	4.08%	71.43%	24.49%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.92%	8.53%	21.88%	9.78%	18	16.67%	66.67%	16.67%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.64%	4.24%	8.44%	4.46%	57	7.02%	70.18%	22.81%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.28%	4.25%	19.54%	4.89%	81	3.70%	66.67%	29.63%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.89%	7.10%	20.23%	7.45%	26	.00%	92.31%	7.69%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.11%	7.19%	11.40%	7.62%	81	2.47%	77.78%	19.75%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.29: Nevada Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.10%	5.36%	-5.11%	5.38%	11	9.09%	45.45%	45.45%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.54%	1.20%	22.14%	1.40%	12	16.67%	66.67%	16.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.14%	18.39%	8.67%	19.29%	23	.00%	91.30%	8.70%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.00%	3.80%	5.18%	4.10%	26	7.69%	73.08%	19.23%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.93%	9.06%	24.03%	10.22%	17	.00%	82.35%	17.65%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.73%	3.84%	18.95%	3.90%	25	12.00%	80.00%	8.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.98%	3.35%	15.78%	3.48%	30	16.67%	76.67%	6.67%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.53%	7.15%	-9.62%	6.96%	18	16.67%	66.67%	16.67%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.27%	6.52%	10.27%	6.83%	30	3.33%	86.67%	10.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.30: New Hampshire Quality Report

- New Hampshire is one of the top five states nationwide showing the most improvement in cardiac surgery.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	7.78%	3.46%	55.60%	5.38%	4	.00%	50.00%	50.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.68%	1.26%	25.26%	1.45%	8	12.50%	87.50%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	22.67%	18.71%	17.46%	20.09%	22	4.55%	81.82%	13.64%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.59%	3.80%	17.27%	4.05%	26	11.54%	73.08%	15.38%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.08%	8.67%	4.51%	9.18%	19	15.79%	73.68%	10.53%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.27%	4.02%	23.73%	4.81%	25	4.00%	68.00%	28.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.07%	3.55%	29.93%	4.26%	26	7.69%	73.08%	19.23%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.54%	7.68%	10.04%	7.56%	21	9.52%	71.43%	19.05%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.09%	6.51%	19.57%	7.18%	26	3.85%	76.92%	19.23%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.31: New Jersey Quality Report

- New Jersey is one of the top five states nationwide showing the most improvement in coronary interventional procedures, heart failure, and stroke care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.95%	3.32%	15.94%	3.67%	18	22.22%	61.11%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.63%	1.19%	26.82%	1.37%	34	26.47%	47.06%	26.47%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.08%	17.88%	10.95%	18.99%	71	5.63%	74.65%	19.72%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.04%	3.53%	12.74%	3.67%	71	19.72%	59.15%	21.13%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.10%	9.30%	16.21%	10.14%	68	7.35%	67.65%	25.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.06%	3.50%	13.81%	3.73%	72	20.83%	70.83%	8.33%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.91%	3.39%	13.25%	3.63%	72	13.89%	75.00%	11.11%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.68%	6.31%	17.81%	6.90%	69	18.84%	66.67%	14.49%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.12%	6.20%	12.89%	6.61%	73	13.70%	65.75%	20.55%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.32: New Mexico Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.45%	3.91%	12.25%	4.04%	7	.00%	85.71%	14.29%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.51%	1.17%	22.47%	1.43%	8	.00%	75.00%	25.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.86%	18.61%	1.33%	18.53%	27	7.41%	77.78%	14.81%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.60%	4.14%	-15.01%	4.22%	32	3.13%	78.13%	18.75%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.38%	8.91%	14.20%	9.76%	13	7.69%	76.92%	15.38%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.47%	4.09%	8.48%	4.32%	33	6.06%	84.85%	9.09%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.52%	4.13%	8.62%	4.26%	41	7.32%	75.61%	17.07%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.49%	7.53%	11.28%	8.11%	17	.00%	82.35%	17.65%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.23%	6.80%	5.97%	7.01%	41	4.88%	90.24%	4.88%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.33: New York Quality Report

- New York is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures for three years in a row, and one of the top five states showing the most improvement in gastrointestinal care for three years in a row.
- New York is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery; and one of the top five states nationwide showing the most improvement in the treatment of heart attack, critical care, and pulmonary care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.65%	3.38%	7.46%	3.53%	37	27.03%	64.86%	8.11%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.03%	.97%	5.72%	.98%	45	28.89%	62.22%	8.89%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.94%	19.45%	11.31%	20.67%	175	4.57%	56.00%	39.43%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.69%	4.09%	12.90%	4.40%	177	5.65%	62.15%	32.20%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.48%	9.74%	15.12%	10.62%	156	5.13%	69.23%	25.64%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.86%	4.66%	4.18%	4.73%	185	2.70%	66.49%	30.81%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.93%	4.11%	16.55%	4.58%	189	7.41%	63.49%	29.10%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.43%	8.52%	9.68%	8.87%	165	3.64%	64.24%	32.12%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.03%	7.07%	11.96%	7.55%	188	4.79%	54.26%	40.96%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.34: North Carolina Quality Report

- North Carolina is one of the top five states nationwide showing the most improvement in cardiac surgery, pulmonary care, and stroke care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.42%	3.50%	35.40%	4.48%	22	9.09%	72.73%	18.18%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.70%	1.32%	22.46%	1.44%	24	20.83%	54.17%	25.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.34%	18.22%	10.44%	19.04%	100	13.00%	59.00%	28.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.57%	4.08%	10.58%	4.23%	103	3.88%	74.76%	21.36%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.70%	9.55%	10.78%	10.26%	76	13.16%	67.11%	19.74%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.29%	4.15%	3.39%	4.08%	102	7.84%	78.43%	13.73%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.77%	3.72%	22.05%	4.19%	107	12.15%	66.36%	21.50%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.53%	8.14%	14.60%	8.93%	92	4.35%	63.04%	32.61%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.66%	6.66%	12.99%	7.08%	108	9.26%	66.67%	24.07%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.35: North Dakota Quality Report

- North Dakota is one of the top five states nationwide showing the most improvement in coronary interventional procedures.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.22%	2.97%	43.12%	4.11%	6	.00%	83.33%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.91%	1.03%	46.06%	1.43%	6	16.67%	66.67%	16.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	15.93%	13.37%	16.06%	14.82%	13	38.46%	61.54%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.97%	3.26%	17.71%	3.80%	22	.00%	86.36%	13.64%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.66%	8.44%	12.59%	9.19%	8	25.00%	62.50%	12.50%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.60%	4.01%	-11.31%	3.65%	29	6.90%	89.66%	3.45%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.62%	3.02%	16.53%	3.29%	42	9.52%	88.10%	2.38%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	10.16%	6.51%	35.93%	7.88%	11	9.09%	72.73%	18.18%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.57%	5.44%	17.21%	5.97%	42	11.90%	83.33%	4.76%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.36: Ohio Quality Report

- Ohio is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures, heart attack, heart failure, critical care, gastrointestinal care, pulmonary care, and stroke care for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.61%	3.24%	10.34%	3.38%	53	16.98%	77.36%	5.66%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.24%	1.06%	14.78%	1.16%	60	25.00%	68.33%	6.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	15.28%	13.88%	9.14%	14.61%	143	34.27%	55.94%	9.79%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.04%	2.87%	5.65%	2.99%	152	28.95%	67.76%	3.29%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.14%	8.01%	12.38%	8.54%	110	31.82%	60.00%	8.18%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.11%	2.98%	4.31%	2.99%	154	37.01%	56.49%	6.49%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.05%	2.63%	13.99%	2.78%	155	36.77%	57.42%	5.81%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	5.92%	6.02%	-1.70%	5.78%	130	30.77%	63.85%	5.38%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	5.52%	5.02%	8.96%	5.25%	155	38.06%	58.06%	3.87%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.37: Oklahoma Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.71%	5.94%	-4.01%	5.80%	18	.00%	50.00%	50.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.60%	1.61%	-.69%	1.51%	23	8.70%	78.26%	13.04%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.76%	19.76%	9.18%	20.33%	69	2.90%	84.06%	13.04%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.38%	4.59%	-4.89%	4.54%	78	3.85%	71.79%	24.36%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	12.40%	10.30%	16.95%	11.33%	34	2.94%	67.65%	29.41%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.76%	4.64%	2.37%	4.71%	95	7.37%	70.53%	22.11%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.11%	4.45%	12.89%	4.76%	111	3.60%	78.38%	18.02%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.60%	8.25%	4.12%	8.20%	52	7.69%	73.08%	19.23%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.11%	7.46%	7.95%	7.72%	112	2.68%	76.79%	20.54%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.38: Oregon Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.36%	3.84%	11.91%	4.34%	12	8.33%	75.00%	16.67%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.56%	1.55%	.17%	1.60%	17	11.76%	76.47%	11.76%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.40%	15.45%	20.38%	17.20%	44	13.64%	77.27%	9.09%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.59%	3.99%	-11.11%	3.65%	54	14.81%	75.93%	9.26%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.16%	8.00%	12.62%	8.67%	30	26.67%	66.67%	6.67%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.32%	4.37%	17.81%	4.66%	54	5.56%	79.63%	14.81%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.47%	3.80%	15.01%	4.05%	57	10.53%	75.44%	14.04%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.70%	7.21%	17.13%	7.93%	41	2.44%	85.37%	12.20%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.17%	6.17%	13.95%	6.58%	57	8.77%	77.19%	14.04%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.39: Pennsylvania Quality Report

- Pennsylvania is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.63%	2.72%	25.11%	3.22%	61	32.79%	57.38%	9.84%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.30%	1.25%	4.23%	1.28%	71	19.72%	64.79%	15.49%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.69%	17.08%	8.57%	17.78%	155	12.90%	73.55%	13.55%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.84%	3.60%	6.25%	3.70%	158	15.82%	70.25%	13.92%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.56%	8.66%	9.33%	9.12%	137	18.98%	70.07%	10.95%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.78%	3.42%	9.68%	3.52%	158	20.89%	72.78%	6.33%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.78%	3.17%	16.08%	3.51%	160	15.00%	72.50%	12.50%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.22%	6.52%	9.65%	6.94%	142	12.68%	80.99%	6.34%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.59%	5.94%	9.79%	6.25%	161	15.53%	73.29%	11.18%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.40: Rhode Island Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.52%	5.17%	20.66%	5.32%	3	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.48%	2.09%	-41.73%	1.71%	3	.00%	66.67%	33.33%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	22.04%	19.68%	10.71%	21.19%	10	.00%	80.00%	20.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.12%	4.24%	-3.02%	4.20%	10	10.00%	70.00%	20.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	11.03%	11.61%	-5.25%	10.53%	10	10.00%	80.00%	10.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.97%	4.38%	-10.33%	4.19%	10	10.00%	70.00%	20.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.78%	4.55%	4.78%	4.41%	10	.00%	80.00%	20.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	9.88%	7.81%	20.90%	8.24%	10	10.00%	80.00%	10.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.80%	7.47%	4.19%	7.49%	10	.00%	70.00%	30.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.41: South Carolina Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.75%	3.57%	4.76%	3.67%	16	18.75%	75.00%	6.25%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.48%	1.33%	9.59%	1.43%	17	5.88%	82.35%	11.76%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.41%	19.22%	10.24%	20.17%	55	7.27%	61.82%	30.91%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.61%	3.99%	13.40%	4.34%	57	7.02%	61.40%	31.58%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.11%	10.44%	-3.25%	10.22%	39	5.13%	74.36%	20.51%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.12%	4.59%	10.40%	4.82%	57	.00%	73.68%	26.32%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.79%	4.00%	16.40%	4.36%	58	6.90%	63.79%	29.31%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	10.22%	8.75%	14.35%	9.44%	49	.00%	59.18%	40.82%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.91%	7.06%	10.72%	7.45%	58	6.90%	60.34%	32.76%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.42: South Dakota Quality Report

- South Dakota is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.76%	2.37%	14.37%	2.72%	3	66.67%	.00%	33.33%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.42%	1.59%	-12.28%	1.34%	5	20.00%	40.00%	40.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.62%	18.51%	5.67%	19.08%	12	8.33%	91.67%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.33%	3.98%	8.27%	3.72%	25	4.00%	84.00%	12.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	8.24%	8.26%	-.19%	8.19%	9	44.44%	44.44%	11.11%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.30%	4.86%	-12.99%	4.37%	33	12.12%	60.61%	27.27%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.51%	4.36%	3.49%	4.50%	51	1.96%	80.39%	17.65%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.39%	7.09%	-10.87%	6.64%	11	27.27%	72.73%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.94%	6.86%	1.16%	6.78%	49	2.04%	91.84%	6.12%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.43: Tennessee Quality Report

- Tennessee is one of the top five states nationwide showing the most improvement in cardiac surgery.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.10%	3.53%	30.62%	4.35%	23	8.70%	60.87%	30.43%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.73%	1.66%	4.31%	1.66%	38	10.53%	57.89%	31.58%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	19.39%	17.85%	7.97%	18.41%	105	10.48%	72.38%	17.14%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.31%	3.81%	11.54%	3.85%	104	9.62%	71.15%	19.23%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.22%	9.55%	6.55%	10.18%	67	10.45%	74.63%	14.93%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.75%	4.31%	9.37%	4.34%	113	8.85%	70.80%	20.35%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.13%	3.61%	12.75%	3.90%	116	14.66%	68.10%	17.24%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.21%	6.96%	15.19%	7.72%	82	7.32%	75.61%	17.07%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.26%	6.52%	10.21%	6.83%	115	10.43%	66.09%	23.48%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.44: Texas Quality Report

- Texas is one of the top five states nationwide showing the most improvement in the treatment of heart failure, critical care, and pulmonary care for three years in a row.
- Texas is one of the top five states nationwide showing the most improvement in stroke care.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.73%	4.12%	12.98%	4.32%	104	8.65%	73.08%	18.27%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.52%	1.49%	2.40%	1.42%	130	11.54%	75.38%	13.08%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.76%	15.88%	10.63%	16.71%	263	19.39%	70.34%	10.27%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.36%	3.26%	3.05%	3.28%	284	20.42%	68.66%	10.92%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.15%	9.43%	7.06%	9.72%	185	14.59%	71.89%	13.51%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.83%	3.46%	9.64%	3.58%	314	18.79%	69.75%	11.46%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.85%	3.24%	15.74%	3.41%	344	19.77%	68.60%	11.63%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.60%	5.67%	14.01%	6.21%	198	15.66%	79.29%	5.05%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.48%	5.82%	10.16%	6.07%	348	18.68%	70.40%	10.92%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.45: Utah Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.73%	3.83%	-2.63%	3.91%	9	11.11%	77.78%	11.11%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.38%	1.29%	7.09%	1.36%	14	14.29%	71.43%	14.29%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	15.29%	13.90%	9.08%	14.26%	21	38.10%	61.90%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.61%	3.28%	9.15%	3.33%	27	11.11%	81.48%	7.41%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.86%	8.62%	12.62%	9.24%	14	21.43%	50.00%	28.57%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	3.91%	3.97%	-1.35%	3.66%	27	14.81%	81.48%	3.70%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	3.33%	3.08%	7.42%	3.25%	35	20.00%	74.29%	5.71%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.58%	8.90%	-17.44%	7.63%	18	16.67%	77.78%	5.56%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.02%	5.60%	6.98%	5.71%	35	20.00%	80.00%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.46: Vermont Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.57%	8.26%	-48.11%	7.01%	1	.00%	.00%	100.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.63%	.76%	53.80%	1.03%	1	.00%	100.00%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	21.18%	20.61%	2.67%	22.31%	12	.00%	91.67%	8.33%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	5.20%	3.88%	25.43%	4.31%	13	.00%	84.62%	15.38%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.87%	9.73%	1.46%	9.65%	10	20.00%	70.00%	10.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	7.14%	5.36%	24.96%	6.34%	13	7.69%	30.77%	61.54%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.77%	4.59%	20.41%	5.04%	14	7.14%	71.43%	21.43%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.99%	6.98%	12.73%	8.82%	9	11.11%	77.78%	11.11%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.60%	7.55%	12.12%	8.19%	14	.00%	78.57%	21.43%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.47: Virginia Quality Report

- Virginia is one of the top five states nationwide showing the most improvement in stroke care for three years in a row.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.86%	3.89%	-.76%	3.99%	19	10.53%	68.42%	21.05%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.26%	1.54%	-22.63%	1.39%	32	3.13%	96.88%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	18.72%	16.72%	10.69%	17.93%	78	16.67%	61.54%	21.79%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.70%	3.50%	5.49%	3.63%	76	15.79%	71.05%	13.16%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.57%	9.26%	3.26%	9.42%	70	10.00%	77.14%	12.86%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.34%	3.91%	9.97%	4.03%	79	11.39%	73.42%	15.19%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.03%	3.82%	5.25%	3.86%	80	17.50%	68.75%	13.75%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.72%	6.20%	19.66%	7.00%	69	15.94%	66.67%	17.39%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.79%	6.18%	8.97%	6.50%	80	21.25%	62.50%	16.25%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.48: Washington Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.53%	3.92%	13.49%	4.47%	18	5.56%	66.67%	27.78%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.62%	1.78%	-10.07%	1.72%	30	3.33%	70.00%	26.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.25%	15.34%	11.09%	16.31%	57	14.04%	84.21%	1.75%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.69%	3.24%	12.27%	3.49%	66	24.24%	66.67%	9.09%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.69%	9.08%	6.27%	9.75%	44	11.36%	79.55%	9.09%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.04%	3.86%	4.50%	3.92%	71	4.23%	88.73%	7.04%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.02%	3.49%	13.16%	3.68%	78	10.26%	80.77%	8.97%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	6.71%	6.15%	8.30%	6.38%	54	16.67%	83.33%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.48%	5.83%	10.08%	6.18%	78	12.82%	83.33%	3.85%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.49: West Virginia Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.88%	4.41%	-13.70%	3.90%	6	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.48%	1.50%	-.98%	1.42%	9	22.22%	44.44%	33.33%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	20.19%	18.93%	6.23%	19.53%	40	7.50%	57.50%	35.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	4.45%	4.55%	-2.38%	4.45%	43	6.98%	62.79%	30.23%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	10.21%	9.42%	7.70%	9.85%	31	3.23%	83.87%	12.90%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.34%	4.61%	-6.17%	4.25%	50	10.00%	68.00%	22.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.72%	4.09%	13.27%	4.40%	52	3.85%	63.46%	32.69%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	8.76%	8.66%	1.16%	8.81%	32	3.13%	53.13%	43.75%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	7.47%	7.10%	4.90%	7.25%	52	3.85%	61.54%	34.62%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.50: Wisconsin Quality Report

- Wisconsin is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.75%	3.58%	4.64%	3.66%	27	29.63%	59.26%	11.11%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.50%	1.20%	20.28%	1.33%	37	13.51%	75.68%	10.81%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	17.59%	14.66%	16.68%	16.04%	88	11.36%	84.09%	4.55%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.59%	3.00%	16.43%	3.18%	107	19.63%	73.83%	6.54%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	9.47%	8.83%	6.78%	8.91%	61	14.75%	72.13%	13.11%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	4.20%	3.71%	11.80%	3.79%	117	13.68%	69.23%	17.09%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	4.23%	3.52%	16.77%	3.74%	119	7.56%	79.83%	12.61%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	7.09%	6.04%	14.91%	6.38%	76	19.74%	71.05%	9.21%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	6.58%	5.65%	14.23%	6.00%	119	11.76%	82.35%	5.88%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix J.51: Wyoming Quality Report

- Wyoming is one of the top five states nationwide showing the most improvement in coronary interventional procedures.

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	7.10%	7.52%	-5.91%	7.53%	2	.00%	.00%	100.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	3.76%	1.11%	70.49%	1.99%	2	.00%	50.00%	50.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
State	24.23%	20.50%	15.41%	20.69%	11	.00%	100.00%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
State	3.70%	3.41%	7.82%	3.88%	19	10.53%	73.68%	15.79%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
State	15.47%	9.02%	41.70%	12.06%	2	.00%	50.00%	50.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
State	5.35%	6.32%	-18.06%	5.43%	18	.00%	72.22%	27.78%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
State	5.17%	4.21%	18.56%	4.96%	25	.00%	84.00%	16.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
State	11.39%	8.17%	28.26%	9.28%	7	.00%	71.43%	28.57%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
State	8.93%	7.56%	15.30%	8.07%	25	.00%	92.00%	8.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K: MSA Quality Reports

Appendix K.1: Atlanta Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.18%	3.29%	21.12%	3.95%	7	.00%	100.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.37%	1.33%	3.08%	1.37%	10	.00%	80.00%	20.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	19.53%	16.88%	13.55%	18.16%	36	13.89%	72.22%	13.89%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.73%	3.45%	7.51%	3.73%	36	8.33%	75.00%	16.67%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.97%	8.93%	10.36%	9.78%	27	7.41%	85.19%	7.41%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.65%	2.79%	23.47%	3.18%	38	23.68%	73.68%	2.63%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.96%	2.72%	31.37%	3.42%	40	15.00%	77.50%	7.50%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	8.48%	6.39%	24.63%	7.42%	31	9.68%	74.19%	16.13%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.88%	5.79%	15.85%	6.37%	40	12.50%	80.00%	7.50%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.2: Boston Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	3.86%	3.45%	10.64%	3.34%	9	22.22%	77.78%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.65%	1.15%	29.98%	1.25%	16	12.50%	81.25%	6.25%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	20.94%	20.08%	4.13%	20.49%	30	.00%	80.00%	20.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.75%	3.76%	-.43%	3.62%	30	16.67%	73.33%	10.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	11.02%	10.09%	8.46%	10.15%	29	13.79%	65.52%	20.69%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	4.15%	3.83%	7.71%	3.81%	30	16.67%	73.33%	10.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	4.00%	3.19%	20.10%	3.50%	30	23.33%	66.67%	10.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	8.49%	8.40%	1.01%	8.72%	27	3.70%	62.96%	33.33%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	7.25%	6.73%	7.19%	6.87%	30	3.33%	90.00%	6.67%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.3: Chicago Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	3.60%	2.69%	25.28%	3.24%	47	23.40%	74.47%	2.13%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.36%	1.07%	21.11%	1.16%	59	28.81%	62.71%	8.47%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	16.32%	15.19%	6.93%	15.65%	79	36.71%	60.76%	2.53%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	2.86%	2.66%	6.97%	2.75%	81	45.68%	51.85%	2.47%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	8.81%	7.91%	10.16%	8.34%	67	26.87%	68.66%	4.48%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	2.94%	2.56%	13.08%	2.69%	83	54.22%	44.58%	1.20%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	2.85%	2.53%	11.14%	2.68%	84	50.00%	48.81%	1.19%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	5.32%	4.99%	6.18%	5.21%	70	44.29%	54.29%	1.43%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	5.50%	5.05%	8.13%	5.24%	84	55.95%	42.86%	1.19%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.4: Dallas-Ft. Worth Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	5.67%	4.59%	19.01%	4.92%	26	7.69%	73.08%	19.23%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	2.01%	1.43%	28.94%	1.65%	33	6.06%	81.82%	12.12%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	18.68%	17.17%	8.06%	17.81%	48	10.42%	83.33%	6.25%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.29%	3.00%	8.73%	3.18%	49	28.57%	61.22%	10.20%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	10.98%	10.53%	4.08%	10.86%	43	4.65%	72.09%	23.26%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.73%	3.45%	7.56%	3.64%	51	27.45%	68.63%	3.92%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.89%	3.23%	17.11%	3.39%	51	23.53%	70.59%	5.88%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	7.11%	6.54%	8.03%	6.63%	47	12.77%	82.98%	4.26%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.76%	6.11%	9.63%	6.36%	54	14.81%	77.78%	7.41%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.5: Detroit Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.05%	3.25%	19.66%	3.61%	14	14.29%	85.71%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.29%	.94%	27.51%	1.06%	18	27.78%	72.22%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	15.44%	13.40%	13.24%	14.38%	31	48.39%	48.39%	3.23%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.49%	3.07%	11.99%	3.09%	31	41.94%	58.06%	.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.38%	7.72%	17.74%	8.70%	30	30.00%	63.33%	6.67%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	2.99%	3.12%	-4.33%	3.00%	32	50.00%	46.88%	3.13%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	2.95%	2.45%	17.17%	2.67%	32	62.50%	37.50%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	5.23%	4.76%	8.96%	5.11%	31	51.61%	41.94%	6.45%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	5.56%	4.85%	12.67%	5.17%	32	59.38%	40.63%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.6: Houston Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.32%	3.72%	13.81%	4.00%	16	12.50%	62.50%	25.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.41%	1.26%	10.57%	1.28%	27	14.81%	70.37%	14.81%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	15.09%	13.44%	10.91%	14.11%	37	48.65%	48.65%	2.70%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	2.79%	2.83%	-1.72%	2.75%	39	38.46%	53.85%	7.69%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.65%	8.78%	9.06%	9.13%	34	20.59%	79.41%	.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.05%	2.98%	2.48%	2.87%	43	34.88%	62.79%	2.33%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	2.60%	2.28%	12.37%	2.37%	44	45.45%	52.27%	2.27%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	5.55%	4.62%	16.75%	5.22%	33	30.30%	66.67%	3.03%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	5.39%	4.88%	9.51%	5.06%	45	51.11%	44.44%	4.44%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.7: Los Angeles Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	3.59%	2.94%	18.09%	3.23%	41	19.51%	73.17%	7.32%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.41%	1.51%	-6.86%	1.48%	49	6.12%	83.67%	10.20%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	16.32%	14.55%	10.81%	15.34%	102	36.27%	60.78%	2.94%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.49%	3.10%	10.98%	3.18%	102	23.53%	70.59%	5.88%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.07%	8.83%	2.65%	8.86%	75	17.33%	78.67%	4.00%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.36%	2.95%	12.19%	3.06%	100	23.00%	75.00%	2.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.23%	2.85%	11.93%	3.02%	104	33.65%	65.38%	.96%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	5.67%	5.14%	9.26%	5.49%	80	38.75%	60.00%	1.25%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	5.83%	5.25%	9.87%	5.48%	106	41.51%	56.60%	1.89%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.8: Miami Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.68%	3.27%	30.13%	3.75%	16	12.50%	81.25%	6.25%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.11%	1.29%	-16.16%	1.31%	17	17.65%	82.35%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	18.01%	15.62%	13.27%	16.65%	36	25.00%	69.44%	5.56%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.31%	3.46%	-4.51%	3.35%	35	25.71%	65.71%	8.57%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.55%	8.46%	11.36%	8.77%	31	38.71%	51.61%	9.68%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.07%	2.67%	12.94%	2.79%	34	58.82%	38.24%	2.94%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.00%	2.85%	5.05%	2.84%	35	51.43%	45.71%	2.86%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	7.13%	5.94%	16.75%	6.27%	34	20.59%	73.53%	5.88%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.10%	5.45%	10.60%	5.68%	36	47.22%	47.22%	5.56%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.9: New York Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	3.98%	3.58%	10.00%	3.88%	27	18.52%	66.67%	14.81%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.34%	1.10%	17.56%	1.19%	36	19.44%	63.89%	16.67%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	21.19%	19.21%	9.35%	20.14%	99	6.06%	55.56%	38.38%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	4.69%	3.83%	18.31%	4.20%	99	8.08%	60.61%	31.31%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	11.54%	9.84%	14.75%	10.80%	89	7.87%	57.30%	34.83%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	4.32%	4.13%	4.38%	4.23%	100	8.00%	72.00%	20.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	4.50%	3.86%	14.26%	4.21%	101	9.90%	68.32%	21.78%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	8.63%	7.90%	8.53%	8.06%	93	7.53%	66.67%	25.81%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	7.67%	6.85%	10.77%	7.24%	102	5.88%	54.90%	39.22%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.10: Philadelphia Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.79%	3.68%	23.11%	4.29%	26	7.69%	76.92%	15.38%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.41%	1.30%	8.28%	1.31%	31	22.58%	61.29%	16.13%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	21.27%	19.86%	6.61%	20.53%	49	2.04%	67.35%	30.61%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	4.04%	3.69%	8.57%	3.82%	49	14.29%	69.39%	16.33%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	10.77%	9.53%	11.50%	9.85%	46	8.70%	84.78%	6.52%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.75%	3.23%	13.95%	3.37%	50	28.00%	72.00%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.71%	3.50%	5.58%	3.64%	50	10.00%	82.00%	8.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	7.61%	6.19%	18.64%	7.02%	48	10.42%	81.25%	8.33%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	7.13%	6.47%	9.27%	6.75%	50	10.00%	70.00%	20.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.11: Phoenix Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improvement 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.51%	2.05%	54.48%	3.09%	20	30.00%	70.00%	.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.00%	.99%	.79%	1.03%	26	26.92%	61.54%	11.54%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	17.38%	12.03%	30.79%	14.24%	31	38.71%	61.29%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.21%	2.23%	30.54%	2.66%	29	41.38%	58.62%	.00%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	8.53%	6.36%	25.40%	7.49%	27	40.74%	48.15%	11.11%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	2.11%	1.93%	8.79%	1.91%	30	56.67%	43.33%	.00%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.27%	1.81%	44.63%	2.43%	35	45.71%	54.29%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	4.05%	2.59%	35.92%	3.53%	22	50.00%	50.00%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	5.67%	3.90%	31.14%	4.66%	34	61.76%	38.24%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.12: Riverside, CA - Inland Empire Region Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.20%	3.47%	17.41%	3.41%	7	42.86%	28.57%	28.57%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.58%	1.62%	-2.31%	1.64%	9	11.11%	66.67%	22.22%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	18.54%	14.14%	23.70%	16.06%	28	17.86%	71.43%	10.71%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	4.25%	3.35%	21.30%	3.68%	29	17.24%	79.31%	3.45%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.48%	9.60%	-1.30%	9.61%	21	19.05%	71.43%	9.52%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.94%	3.00%	23.85%	3.57%	30	13.33%	83.33%	3.33%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	4.21%	3.12%	25.92%	3.51%	31	16.13%	77.42%	6.45%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	7.05%	5.01%	29.03%	6.02%	25	16.00%	80.00%	4.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.79%	5.31%	21.80%	5.95%	31	19.35%	77.42%	3.23%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.13: San Francisco Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.41%	3.48%	21.15%	3.83%	18	16.67%	77.78%	5.56%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.89%	1.79%	5.17%	1.87%	23	13.04%	52.17%	34.78%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	18.43%	16.91%	8.25%	17.96%	46	10.87%	82.61%	6.52%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.49%	2.88%	17.47%	3.26%	46	23.91%	65.22%	10.87%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.84%	8.60%	12.63%	9.45%	36	11.11%	83.33%	5.56%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.92%	3.42%	12.88%	3.76%	45	11.11%	86.67%	2.22%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.67%	3.11%	15.20%	3.46%	48	16.67%	75.00%	8.33%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	6.81%	5.91%	13.16%	6.54%	40	30.00%	50.00%	20.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.57%	5.88%	10.47%	6.33%	48	12.50%	83.33%	4.17%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.14: Seattle Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.75%	4.99%	-5.13%	5.16%	10	.00%	60.00%	40.00%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	2.06%	1.93%	6.53%	1.96%	19	.00%	68.42%	31.58%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	16.34%	15.52%	5.02%	16.28%	22	9.09%	90.91%	.00%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.70%	3.00%	19.00%	3.30%	23	39.13%	56.52%	4.35%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	10.11%	9.58%	5.23%	10.31%	21	9.52%	71.43%	19.05%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.88%	3.96%	-1.97%	3.82%	23	4.35%	86.96%	8.70%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.36%	2.98%	11.35%	3.05%	24	20.83%	79.17%	.00%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	7.01%	6.02%	14.13%	6.47%	23	17.39%	82.61%	.00%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.23%	5.79%	7.13%	6.07%	24	16.67%	83.33%	.00%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%

Appendix K.15: Washington D.C. Metropolitan Area Quality Report

Category Benchmark	2006 Risk-Adjusted Mortality	2008 Risk-Adjusted Mortality	% Improve-ment 2006-2008	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metropolitan Area	4.92%	4.79%	2.53%	5.01%	7	.00%	57.14%	42.86%
National	4.30%	3.59%	16.46%	3.94%	1,110	15.00%	70.00%	15.00%
Top 15%	2.61%	1.99%	23.61%	2.29%	167	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metropolitan Area	1.60%	1.54%	4.26%	1.48%	9	.00%	100.00%	.00%
National	1.45%	1.31%	9.26%	1.36%	1,426	15.00%	70.00%	15.00%
Top15%	.71%	.72%	-2.33%	.71%	214	100.00%	.00%	.00%
Critical Care								
Metropolitan Area	18.57%	17.07%	8.08%	17.64%	27	25.93%	62.96%	11.11%
National	18.82%	16.73%	11.13%	17.75%	3,535	15.00%	70.00%	15.00%
Top 15%	14.18%	12.43%	12.36%	13.21%	530	100.00%	.00%	.00%
Gastrointestinal								
Metropolitan Area	3.25%	3.73%	-14.57%	3.39%	27	25.93%	66.67%	7.41%
National	3.84%	3.53%	7.95%	3.64%	3,913	15.00%	70.00%	15.00%
Top 15%	2.55%	2.33%	8.72%	2.40%	587	100.00%	.00%	.00%
Heart Attack								
Metropolitan Area	9.44%	9.71%	-2.88%	9.70%	22	13.64%	63.64%	22.73%
National	10.13%	9.07%	10.40%	9.59%	2,563	15.00%	70.00%	15.00%
Top15%	7.35%	6.30%	14.28%	6.79%	384	100.00%	.00%	.00%
Heart Failure								
Metropolitan Area	3.69%	3.13%	15.26%	3.30%	27	29.63%	66.67%	3.70%
National	4.01%	3.70%	7.77%	3.79%	4,189	15.00%	70.00%	15.00%
Top 15%	2.52%	2.24%	10.82%	2.32%	628	100.00%	.00%	.00%
Pulmonary								
Metropolitan Area	3.67%	3.51%	4.55%	3.45%	27	25.93%	70.37%	3.70%
National	4.00%	3.45%	13.64%	3.70%	4,498	15.00%	70.00%	15.00%
Top 15%	2.51%	2.05%	18.08%	2.24%	675	100.00%	.00%	.00%
Stroke								
Metropolitan Area	6.51%	5.77%	11.42%	6.12%	27	25.93%	66.67%	7.41%
National	7.51%	6.65%	11.45%	7.12%	3,028	15.00%	70.00%	15.00%
Top 15%	4.62%	4.09%	11.60%	4.35%	454	100.00%	.00%	.00%
Combined								
Metropolitan Area	6.45%	6.13%	4.93%	6.20%	27	29.63%	62.96%	7.41%
National	6.82%	6.09%	10.79%	6.41%	4,515	15.00%	70.00%	15.00%
Top 15%	5.27%	4.59%	12.84%	4.89%	677	100.00%	.00%	.00%