



The Tenth Annual
HealthGrades Hospital
Quality in America Study



October 2007



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The Tenth Annual HealthGrades Hospital Quality in America Study October 2007

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**The Tenth Annual HealthGrades
Hospital Quality in America Study
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Executive Summary

Although a myriad of metrics exists to evaluate quality of care, the most conclusive way to recognize that the quality of care is improving is to measure outcomes. Since 1998, HealthGrades has studied and measured the quality of care at the nation's approximately 5,000 hospitals and published the results of its annual research on the Web to assist consumers in choosing a hospital. For the first part of *The Tenth Annual HealthGrades Hospital Quality in America Study*, HealthGrades analyzed over 41 million Medicare discharges from every U.S. hospital from 2004 through 2006. 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 28 diagnoses and procedures from heart failure to hip replacement to pneumonia. Individual hospital quality results from this study are available at www.healthgrades.com.

Since 2004, mortality rates among Medicare patients have steadily declined. However, consistent with other studies, this study demonstrates that considerable variation in hospital quality continues to persist at the national, regional and state levels. Therefore, it is important and valuable to provide information on hospital quality and outcomes to prospective patients making decisions about where to get their medical treatments.

For the second part of this study, HealthGrades assessed quality differences between 1-, 3-, and 5-star rated hospitals by analyzing the in-hospital mortality rates for over 11 million Medicare discharges associated with 18 diagnoses and procedures. This analysis compared in-hospital risk-adjusted mortality rates for Medicare patients from 2004 through 2006 and found that these rates have improved, but vary widely across hospitals, diagnoses, and procedures. The diagnoses and procedures covered by the second part of this study include:

Atrial Fibrillation	Heart Failure
Bowel Obstruction	Pancreatitis
Chronic Obstructive Pulmonary Disease	Pneumonia
Coronary Bypass Surgery	Pulmonary Embolism
Coronary Interventional Procedures (Angioplasty/Stent)	Resection/Replacement Abdominal Aorta
Diabetic Acidosis and Coma	Respiratory Failure
Gastrointestinal Bleed	Sepsis
Gastrointestinal Surgeries and Procedures	Stroke
Heart Attack (Acute Myocardial Infarction)	Valve Replacement Surgery

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

Summary of Findings

Key findings of this study include:

- 1 Observed and risk-adjusted mortality rates declined since *The Ninth Annual HealthGrades Hospital Quality in America Study*.
 - The nation's in-hospital risk-adjusted mortality rate improved, on average, 11.84 percent from 2004 to 2006, but the degree of improvement varied widely by procedure and diagnosis studied (range: 0.39% to 19.19%).
 - Five-star hospitals' mortality rates continue to improve at a faster rate (12.84%) than 1- or 3-star hospitals (11.11% and 11.36%, respectively).

- 2 Large gaps persist between the "best" and the "worst" hospitals across all procedures and conditions studied. Five-star rated hospitals had significantly lower risk-adjusted mortality across all three years studied.
 - Across all procedures and conditions studied, there was an approximate 71 percent lower chance of dying in a 5-star rated hospital compared to a 1-star rated hospital.
 - Across all procedures and conditions studied, there was an approximate 52 percent 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 18 procedures and conditions studied, 266,604 Medicare lives could have potentially been saved from 2004 to 2006.
 - Fifty-two percent (138,417) of the potentially preventable deaths were associated with just four diagnoses:
 - 1) Sepsis (42,096)
 - 2) Pneumonia (37,563)
 - 3) Heart Failure (30,816)
 - 4) Respiratory Failure (27,942)

- 4 Variation in risk-adjusted mortality exists not only at the national level but also at the state and regional levels.
 - Across all procedures and conditions, the average number of states performing statistically significantly better than predicted was 14 while an average of 19 states performed statistically significantly worse than predicted.
 - The region with the lowest overall risk-adjusted mortality was the East North Central region (IL, IN, MI, OH, and WI) while the East South Central region (AL, KY, MS, and TN) had the highest mortality.

- 5 Greater improvement in performance between 2004 and 2006 was seen within certain regions of the country.
 - The region with the most overall improvement for all procedures and conditions was the West South Central region (AR, LA, OK, and TX), where the risk-adjusted mortality dropped by 13.5 percent. The least improvement was seen in the Mountain region (AZ, CO, ID, MT, NE, NV, NM, UT, and WY), with a decline of 8.8 percent.

- 6 Best-performing hospitals, defined as hospitals among the best 15 percent for risk-adjusted mortality overall, were clustered in different regions of the country.
 - The East North Central region (IL, IN, MI, OH, and WI), had the highest percentage of best-performing hospitals at 26 percent.
 - Less than seven percent of hospitals within the East South Central region (AL, KY, MS, and TN) and the New England region (CT, ME, MA, NH, RI, and VT) were top-performing hospitals.

Introduction

The past decade has seen an unprecedented level of concern and action focused on improving the quality of American healthcare. Organizations, professional associations, payers, regulators, accrediting bodies, and consumer groups have begun to make significant changes in their respective agendas and investments. These initiatives are designed to ensure that all dimensions of quality care are addressed: effectiveness, timeliness, patient safety and patient-centeredness.¹ Initiatives undertaken include quality improvement collaboratives and other change programs; explorations of pay-for-performance programs; the development of early formats for public reporting on performance; and, most important, efforts to devise better ways to measure quality in nearly all of its facets.²

While disparities in the quality of healthcare are widely recognized, there remains no clear consensus on how best to measure and identify those differences. Quality is generally measured by an evaluation of structure (e.g., optimal staffing ratio, effective capacity, or efficient through-put), process (e.g., core measures) or outcome (e.g., mortality or survival). Although the gap is narrowing between use of evidence and practice³, a discrepancy still exists between these process measurements and the effect on outcomes. Recent payer movements, such as pay-for-performance programs, attempt to reward adherence to the use of evidence with the hope that this will ultimately result in better outcomes⁴.

Adherence to evidence-based medicine is only one view of quality. Recent research has demonstrated that doing the right thing may not necessarily result in the right outcomes⁵. Thus, it is imperative for us to measure the end result of our processes, systems, and people. Measuring and reporting outcomes would arguably capture these various aspects of hospital care.

HealthGrades' annual research has found that while outcomes are improving, **significant variation in the quality of care** provided by the nation's hospitals has persisted over the last eight years despite numerous quality initiatives at the hospital, local, state and federal levels. As such, it is imperative for patients to gather easy-to-use information and learn as much about their healthcare and prospective providers as possible.

The objective of *The Tenth Annual HealthGrades Hospital Quality in America Study* is to identify, quantify and report trends in the quality of approximately 5,000 hospitals nationwide by measuring risk-adjusted in-hospital mortality, and simplifying the reporting of hospital performance across 18 procedures and conditions by using a star rating system that can be easily interpreted by users.

In addition to reporting on national metrics, *The Tenth Annual HealthGrades Hospital Study* also describes trends regarding geographic variation with the assumption that there is disparity in healthcare outcomes between states and regions. While many studies^{1,6-9} look at regional utilization and treatment modality variations, our study focuses on whether geographical differences relate to variations in outcomes.

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 condition. 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 Tenth Annual Hospital Quality Ratings Methods

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

- | | | | |
|----|--------------------------------------------------------|----|---------------------------------------|
| 1 | Appendectomy | 15 | Heart Failure |
| 2 | Atrial Fibrillation | 16 | Hip Fracture Repair |
| 3 | Back and Neck Surgery (except Spinal Fusion) | 17 | Pancreatitis |
| 4 | Back and Neck Surgery (Spinal Fusion) | 18 | Peripheral Vascular Bypass |
| 5 | Bowel Obstruction | 19 | Pneumonia |
| 6 | Carotid Surgery | 20 | Prostatectomy |
| 7 | Cholecystectomy (gallbladder surgery) | 21 | Pulmonary Embolism |
| 8 | Chronic Obstructive Pulmonary Disease (COPD) | 22 | Resection/Replacement Abdominal Aorta |
| 9 | Coronary Bypass Surgery (CABG) | 23 | Respiratory Failure |
| 10 | Coronary Interventional Procedures (Angioplasty/Stent) | 24 | Sepsis |
| 11 | Diabetic Acidosis and Coma | 25 | Stroke |
| 12 | Gastrointestinal Bleed | 26 | Total Hip Replacement |
| 13 | Gastrointestinal Surgeries and Procedures | 27 | Total Knee Replacement |
| 14 | Heart Attack (Acute Myocardial Infarction) | 28 | 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, NC, NJ, NV, NY, OR, PA, RI, TX, UT, VA, 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.

- First, it included virtually every hospital in the country, with the exception of military and Veterans Administration hospitals.
- Second, hospitals were required by law to submit complete and accurate information with substantial penalties for those that report inaccurate or incomplete data.
- Third, the Medicare population represented a majority of the patients for almost all of the clinical categories studied. For example, Medicare patients account for approximately 55 - 60 percent 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

Methodology for Ratings

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

Multivariate Logistic Regression-Based Ratings

The inpatient data for 27 diagnoses and procedures on the HealthGrades Web site represent three years of patient discharges from 2004 to 2006 for MedPAR. In addition, for appendectomy, HealthGrades analyzed inpatient data provided by 19 states that provide all-payer data (AZ, CA, FL, IA, MA, MD, ME, NC, NJ, NV, NY, OR, PA, RI, TX, UT, VA, 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 *Appendix A* 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 (*Appendix A*), a list of potential risk factors, and a list of post-surgical complications (*Appendix B*). The latter two lists were developed in the following manner:

- 1 Potential risk factors were identified as all diagnoses occurring in more than 0.5 percent of the patient population, demographic characteristics, and clinically relevant procedures.
- 2 Post-surgical complications were identified using a team 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 *Appendix B* 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 cohort (e.g., coronary bypass surgery) and quality measure (e.g., in-hospital mortality).

- 1 First, the predicted value (e.g., predicted mortality) was obtained using logistic regression models discussed in the next section.
- 2 Second, the predicted value was compared with the actual, or observed, value (e.g., actual mortality). 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 statistical test.

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 (where clinically relevant) 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 highly significant ($p < 0.05$) in predicting the outcome (mortality, in-hospital 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 percent to 80 percent of hospitals in each procedure/diagnosis are classified as three stars, with actual results statistically the same as predicted results. Approximately 10 percent to 15 percent were 1-star hospitals and 10 percent to 15 percent 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 Health Grades, Inc. 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 Health Grades, Inc. 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 II: Hospital Quality in America Study

The purpose of the second part of the study was to evaluate the variation in in-hospital mortality across 18 diagnoses and procedures from hospital to hospital and among states and regions. These 18 were chosen from the list of 28 in Part I because their outcome measurement was mortality. In Part I, the actual (observed) and predicted (expected) mortality rates were calculated for each of the 18 procedures and diagnoses for each hospital. The in-hospital observed and expected rates of all patients from each of the three hospital star rating groups (5-star, 3-star, and 1-star) were aggregated for each of the 18 procedures and diagnoses to obtain a 5-star, 3-star, and 1-star observed and expected in-hospital mortality rate by procedure and diagnosis.

Unadjusted (observed) mortality rates and numbers were evaluated nationally, regionally and at the state level. Because sicker patients will have higher associated observed mortality, 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** than expected given its patient population.
- An **O/E of greater than 1** means that the procedure/diagnosis measured had **more deaths** than expected given its patient populations.

A related measure is risk-adjusted mortality, 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 conditions.

Table 1. Conditions and Related Procedures/Diagnoses

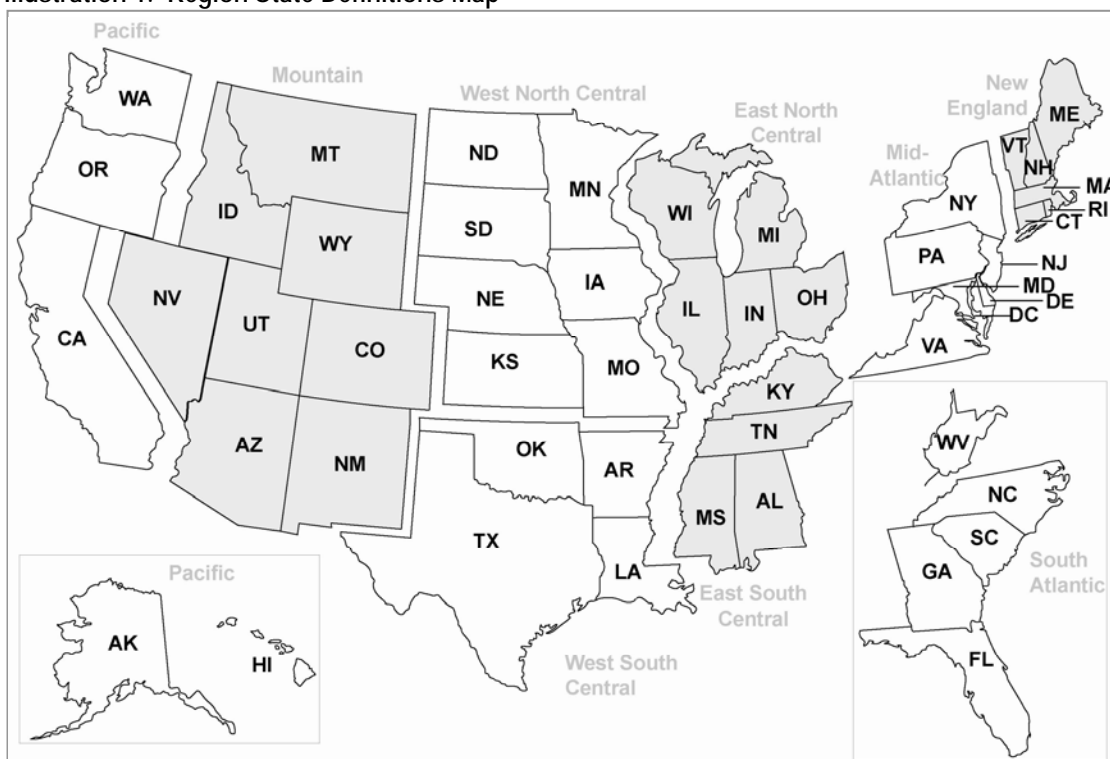
Conditions	Includes Procedures & Diagnoses
Cardiac Surgery	Coronary Bypass Surgery Valve Replacement Surgery
Treatment of Heart Attack	Heart Attack
Coronary Interventional Procedures	Coronary Interventional Procedures (Angioplasty/Stent)
Treatment of Heart Failure/Atrial Fibrillation	Heart Failure Atrial Fibrillation
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

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

Table 2. 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	
Maryland	New York	Arkansas	Oklahoma
Delaware	Pennsylvania	Louisiana	Texas
District of Columbia	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



Results Part 1: Hospital Quality Ratings

HealthGrades' ratings of more than 5,000 hospitals and over 41 million Medicare discharges, based on *The Tenth Annual HealthGrades Hospital Quality in America Study*, can be found at www.healthgrades.com. For all of the specific procedures and diagnoses rated, 10 percent to 15 percent of hospitals stand out as "best" performers (5-star rated), while another 10 percent to 15 percent 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

Since 2004, U.S. observed and risk-adjusted mortality rates have improved overall, but large gaps continue to exist between the "best" and the "worst" hospitals (see *Appendices C1, C2, C3 and D*). Risk-adjusted mortality rates improved, on average 11.84 percent from 2004 to 2006, but the degree of improvement varied widely by procedure and diagnosis (range: 0.39% to 19.19%). (See *Appendix E*.)

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

Most notably, 5-star rated hospitals had significantly and consistently lower unadjusted and adjusted mortality rates across all three years studied, compared to other rated hospitals (see *Appendices C1, C2, C3*). Five-star rated hospitals also improved, on average 12.84 percent from 2004 to 2006, which was 13 percent more than 3-star rated hospitals and 15.6 percent more than 1-star rated hospitals. (See *Table 3*.) The lower mortality associated with 5-star rated hospitals means that across all cohorts studied, there was an approximate:

- 71 percent lower chance of dying in a 5-star rated hospital as compared to a 1-star rated hospital, and a
- 52 percent lower chance of dying in a 5-star rated hospital as compared to the U.S. hospital average (see *Appendix E*).

While Improvements Made, the Quality Chasm Persists

These findings, consistent with previous HealthGrades 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 18 conditions and procedures studied, 266,604 Medicare lives could have potentially been saved during 2004-2006 (see *Appendix E*).

Table 3. Average Risk-Adjusted Mortality Rate Improvements Across All Procedures and Diagnoses by Hospital Star Rating Category 2004-2006

Overall Average Risk-Adjusted Mortality Rate Improvements*	Hospital Quality			
	U.S.	5-star	3-star	1-star
	11.97%	12.84%	11.36%	11.11%

* 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 (2004 O/E minus 2006 O/E) divided by 2004 O/E.

Five-Star Rated Hospitals Save Medicare Lives

Of the total 266,604 Medicare potentially preventable deaths associated with the 18 conditions and procedures studied, 52 percent were associated with just four common hospital diagnoses:

- | | |
|-----------------------|---------------------------------|
| 1) Sepsis (42,096) | 3) Heart Failure (30,816) |
| 2) Pneumonia (37,563) | 4) Respiratory Failure (27,942) |

Five-star rated hospitals consistently performed significantly better than expected across these four high-risk inpatient diagnoses. We found an overall average improvement of almost 12.5 percent among these four diagnoses from 2004 to 2006.

Variation in Quality Present Among the States and Regions

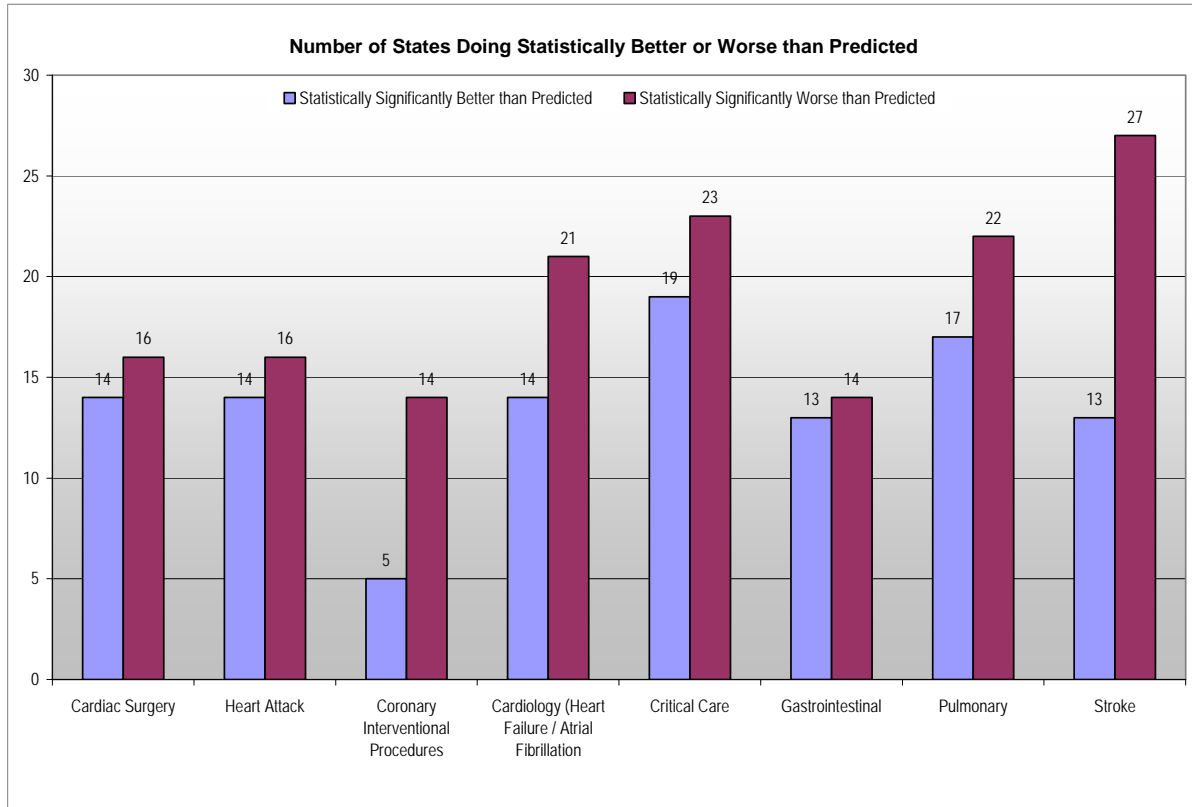
When looking at risk-adjusted mortality from a regional perspective, the overall best performance was in hospitals located in the East North Central region (IL, IN, MI, OH, and WI). The states within East South Central had the poorest performance (AL, KY, MS, and TN). *Table 4* summarizes regions by 5-, 3-, and 1-star performance (see *Appendix F* for observed-to-expected ratios).

Table 4. Regional Star Ratings

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

When individual states were evaluated across the eight conditions, there was also great variability seen in performance. Across all procedures and conditions, the average number of states performing statistically significantly better than predicted was 14, while an average of 19 states performed statistically significantly worse than predicted (see *Illustration 2*).

Illustration 2. Number of States Doing Statistically Better or Worse than Predicted



States and regions were also evaluated by looking at the percentage of hospitals that were best-performing (defined as being in the top 15 percent of hospitals). More best-performing hospitals were clustered within certain regions of the U.S. In the East North Central region (IL, IN, MI, OH, and WI), 26 percent of the hospitals were best-performing hospitals in all the conditions combined. By contrast, less than seven percent of hospitals within the East South Central region (AL, KY, MS, and TN) or the New England region (CT, ME, MA, NH, RI, and VT) fulfilled the definition for best-performing hospitals in all the conditions combined (regional data can be found in *Appendix G*).

Table 5 shows top five states with the greatest number of best-performing hospitals by condition.

Table 5. Top 5 States with Greatest Percentage of Best-Performing Hospitals

Condition	State	Condition	State
Cardiac Surgery		Critical Care	
	Massachusetts		Florida
	Colorado		Arizona
	Ohio		Ohio
	Pennsylvania		Maryland
	Michigan		Michigan
Heart Attack		Gastrointestinal	
	Colorado		Maryland
	Minnesota		Florida
	Michigan		Arizona
	Florida		Ohio
	Ohio		Michigan
Coronary Interventional Procedures		Pulmonary	
	New York		Florida
	Florida		Maryland
	Illinois		Ohio
	Ohio		Arizona
	Connecticut		Michigan
Heart Failure/Atrial Fibrillation		Stroke	
	Maryland		Florida
	Florida		Arizona
	Arizona		Ohio
	Ohio		Illinois
	Illinois		California

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

When evaluating performance improvement across regions and states, the greatest improvement in performance between 2004 and 2006 was in the West South Central region (AR, LA, OK, and TX) (see *Appendix H*).

Indeed, individual states within the West South Central region (AR, LA, OK, and TX) as well as the Mid-Atlantic region (MD, VA, DC, DE, NY, NJ, and PA) had the most mentions of top five states showing improvement from 2004 to 2006 in procedures and conditions (see *Table 6*).

Table 6: Top 5 States Showing Most Improvement by Condition

Service Line	Five Most Improved States	Service Line	Five Most Improved States
Cardiac Surgery	South Dakota South Carolina Alabama California Texas	Critical Care	Tennessee Maryland Pennsylvania Texas North Carolina
Heart Attack	Arkansas Tennessee South Carolina Texas California	Gastrointestinal	Maryland Virginia Texas Ohio New York
Coronary Interventional Procedures	New Hampshire Oklahoma Oregon Louisiana California	Pulmonary	Florida Ohio Pennsylvania Texas New York
Heart Failure/Atrial Fibrillation	Maryland Mississippi Ohio Pennsylvania Texas	Stroke	Indiana Washington South Carolina Texas Virginia

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

Discussion

The Tenth Annual HealthGrades Hospital Quality in America Study demonstrates that while inpatient outcomes continue to improve for Medicare beneficiaries across a wide array of conditions and procedures, significant variation in quality persists. At the hospital level, this can be seen in the quality gap between the best and worst hospitals. Variability continues to echo at the state level: when outcome is organized by states, there is a large gap between the states with the highest and lowest mortality. Finally, when segregated according to regions, the improvement and performance of hospitals clustered geographically—East North Central region had the best performance and the West South Central region showed the most improvement.

The inference made is that the quality programs initiated at the hospital, state or regional levels differ in the success with which they are created, implemented and/or monitored. Further, emulating practices from exemplary hospitals within those states or regions showing the most improvement or best performance can result in accelerated improvement. If this focus were targeted to four key quality areas (heart failure, respiratory failure, sepsis, and pneumonia) the nation could achieve up to a 50-percent reduction in potentially preventable deaths. By continuing to prioritize and work diligently to decrease this persistent variation, we can work towards better than expected outcomes resulting in hundreds of thousands of lives saved. Even moving just the bottom group of hospitals up to the national averages would result in substantial improvement.

Given these stark quality differences among our nation's hospitals, it is imperative that consumers and hospitals have access to quality information. Fortunately, the quality landscape has been gaining considerable momentum toward embracing and supporting consumer choice in healthcare, through public reporting of provider performance and, more recently, performance-based provider payment. The need for an informative benchmark for hospitals to better direct their improvement opportunities remains a relevant and important imperative.⁹

For the sizable investments being made in healthcare services, Americans should be receiving much greater value from the care they currently obtain. Progress continues to be slow and the quality gap remains wide. The consequence of our inability to effectively translate knowledge into action will result in thousands of potentially preventable deaths among Medicare beneficiaries each year. Improving performance measurement, aligning payment incentives with quality improvement goals and making comparative information available to all stakeholders will enable the nation to provide better healthcare services and provide high-quality, patient-centered care consistently and efficiently to all Americans.

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Appendix A: Patient Cohorts and Related ICD-9-CM Codes

Patient Cohort	ICD-9-CM Procedure/Diagnosis Codes and Criteria
Appendectomy	Inclusions
	Principal Procedure: 47.01, 47.09
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
Atrial Fibrillation	Inclusions
	Principal Diagnosis: 427.31
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 414.06, 414.07, V42.1, V66.7
Back and Neck Surgery (Spinal Fusion)	Inclusions
	Principal Procedure: 81.00, 81.01, 81.02, 81.03, 81.04, 81.05, 81.06, 81.07, 81.08, 81.61, 81.62, 81.63, 81.64
	Exclusions
	Procedures (Primary or Secondary): 03.02, 37.51, 37.52, 37.53, 37.54, 37.5, 78.69, 81.3, 81.30, 81.31, 81.32, 81.33, 81.34, 81.35, 81.36, 81.37, 81.38, 81.39, 81.65, 81.66, 84.58, 84.59, 84.60, 84.61, 84.62, 84.63, 84.64, 84.65, 84.66, 84.67, 84.68, 84.69
	Principal Diagnoses: 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49
	Diagnoses (Primary or Secondary): 722.80, 722.81, 722.82, 722.83, 996.45, 996.46, V45.4
Back and Neck Surgery (except Spinal Fusion)	Inclusions
	Principal Procedure: 03.09, 03.53, 80.50, 80.51, 80.59, 84.58, 84.59, 84.60, 84.61, 84.62, 84.63, 84.64, 84.65
	Exclusions
	Procedures (Primary or Secondary): 03.02, 37.5, 37.51, 37.52, 37.53, 37.54, 78.49, 78.69, 81.00, 81.01, 81.02, 81.03, 81.04, 81.05, 81.06, 81.07, 81.08, 81.3, 81.30, 81.31, 81.32, 81.33, 81.34, 81.35, 81.36, 81.37, 81.38, 81.39, 81.61, 81.62, 81.63, 81.64, 81.65, 81.66, 84.66, 84.67, 84.68, 84.69
	Principal Diagnoses: 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49
	Diagnoses (Primary or Secondary): 722.80, 722.81, 722.82, 722.83, 996.45, 996.46, V42.4, V45.4, V54.0, V54.01, V54.09

Bowel Obstruction	Inclusions
	Principal Diagnosis: 532.01, 532.11, 532.21, 532.31, 532.41, 532.51, 532.61, 532.71, 532.91, 534.01, 534.11, 534.21, 534.31, 534.41, 534.51, 534.61, 534.71, 534.91, 537.2, 537.3, 550.10, 550.11, 550.12, 550.13, 552.00, 552.01, 552.02, 552.03, 552.1, 552.20, 552.21, 552.29, 552.8, 552.9, 560.0, 560.1, 560.2, 560.31, 560.39, 560.81, 560.89, 560.9, 936, 937
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5 Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7
Carotid Surgery	Inclusions
	Principal Procedure: 00.61, 00.63, 38.12, 39.72
	Exclusions
	Procedures (Primary or Secondary): 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.17, 36.19, 36.1, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 38.08, 38.16, 38.18, 38.36, 39.24, 39.25, 39.29, 39.59, 39.90
Cholecystectomy	Inclusions
	Principal Procedure: 51.21, 51.22, 51.23, 51.24
	Exclusions
	Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 Diagnoses (Primary or Secondary): V66.7
Chronic Obstructive Pulmonary Disease (COPD)	Inclusions
	Principal Diagnosis: 491.1, 491.20, 491.21, 491.22, 491.8, 491.9, 492.8, 493.20, 493.21, 493.22, 494, 494.0, 494.1, 496
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5 Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 480.3, 480.8, V66.7
Coronary Bypass Surgery	Inclusions
	Principal Procedure: 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.19
	Exclusions
	Procedures (Primary or Secondary): 35.10, 35.11, 35.12, 35.13, 35.14, 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28, 35.55, 35.1, 35.2, 36.33, 36.34, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 38.12, 38.34, 38.44, 38.64, 39.71, 44.12 Diagnoses (Primary or Secondary): 414.06, 414.07, 441.00, 441.01, 441.02, 441.03, V42.1

Coronary Interventional Procedures	Inclusions
	Principal Procedure: 00.66, 36.01, 36.02, 36.05, 36.06, 36.07, 36.09
	Exclusions
	Procedures (Primary or Secondary): 35.10, 35.11, 35.12, 35.13, 35.14, 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28, 35.1, 35.2, 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.19, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 414.06, 414.07, V42.1
Diabetic Acidosis and Coma	Inclusions
	Principal Diagnosis: 250.10, 250.11, 250.12, 250.13, 250.20, 250.21, 250.22, 250.23, 250.30, 250.31, 250.32, 250.33, 250.80, 250.81, 250.82, 250.83
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7
Gastrointestinal Bleed	Inclusions
	Principal Diagnosis: 456.0, 456.20, 530.2, 530.21, 530.7, 530.82, 531.00, 531.01, 531.20, 531.21, 531.40, 531.41, 531.60, 531.61, 532.00, 532.01, 532.20, 532.21, 532.40, 532.41, 532.60, 532.61, 533.00, 533.01, 533.20, 533.21, 533.40, 533.41, 533.60, 533.61, 534.0, 534.00, 534.01, 534.20, 534.21, 534.40, 534.41, 534.60, 534.61, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 537.83, 537.84, 562.02, 562.03, 562.12, 562.13, 569.3, 569.82, 569.85, 569.86, 578, 578.0, 578.1, 578.9
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7
Gastrointestinal Surgeries and Procedures	Inclusions
	Principal Procedure: 43.81, 43.89, 43.91, 43.99, 43.5, 43.6, 43.7, 44.00, 44.01, 44.02, 44.03, 44.40, 44.41, 44.42, 44.63, 44.64, 44.65, 44.66, 44.69, 45.61, 45.62, 45.63, 45.71, 45.72, 45.73, 45.74, 45.75, 45.76, 45.79, 45.90, 45.91, 45.92, 45.93, 45.94, 45.95, 45.8
	Exclusions
	Diagnoses (Primary or Secondary): 151.0, 151.1, 151.2, 151.3, 151.4, 151.5, 151.6, 151.8, 151.9, 152.0, 152.1, 152.2, 152.3, 152.8, 152.9, 153.0, 153.1, 153.2, 153.3, 153.4, 153.5, 153.6, 153.7, 153.8, 153.9, 154.0, 154.1, 154.2, 154.3, 154.8, 155.0, 155.1, 155.2, 156.0, 156.1, 156.2, 156.8, 156.9, 157.0, 157.1, 157.2, 157.3, 157.4, 157.8, 157.9, 158.0, 158.8, 158.9, 159.0, 159.1, 159.8, 159.9, 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89

Heart Attack	Inclusions
	Principal Diagnosis: 410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, 410.91
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 414.06, 414.07, V42.1, V66.7, 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 414.06, 414.07, V42.1, V66.7
Heart Failure	Inclusions
	Principal Diagnosis: 398.91, 402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.2, 428.20, 428.21, 428.22, 428.23, 428.3, 428.30, 428.31, 428.32, 428.33, 428.4, 428.40, 428.41, 428.42, 428.43, 428.9
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 39.95
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 414.06, 414.07, V42.1, V66.7
Hip Fracture Repair	Inclusions
	Principal Procedure: 79.05, 79.15, 79.25, 79.35, 81.52
	Exclusions
	Procedures (Primary or Secondary): 00.85, 37.51, 37.52, 37.53, 37.54, 37.5, 78.65, 78.66, 78.67, 80.05, 80.06, 81.51, 81.53, 81.54, 81.55
	Principal Diagnoses: 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49, V66
	Diagnoses (Primary or Secondary): 800.6, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.30, 820.31, 820.32, 820.9, 821.10, 821.11, 821.30, 821.31, 821.32, 821.33, 821.39, 996.45, 996.46
	Diagnoses (Primary or Secondary when occurs with V1588, V424, V4364, V4365, V454, V5401, V5402, V5409): 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49
Pancreatitis	Inclusions
	Principal Diagnosis: 577.0, 577.1
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7

Peripheral Vascular Bypass	<p>Inclusions</p> <p>Principal Procedure: 39.29</p> <p>Principal Diagnosis: 250.60, 250.61, 250.62, 250.63, 250.70, 250.71, 250.72, 250.73, 250.80, 250.81, 250.82, 250.83, 440.20, 440.21, 440.22, 440.23, 440.24, 440.29, 440.30, 440.32, 442.2, 442.3, 443.89, 443.9, 444.22, 444.81, 445.02, 447.1, 681.10, 682.6, 682.7, 686.8, 707.10, 707.12, 707.13, 707.14, 707.15, 707.19, 707.8, 730.06, 730.07, 730.16, 730.17, 730.18, 730.26, 730.27, 785.4, 902.53, 904.41</p> <p>Exclusions</p> <p>Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 39.25, 39.49</p> <p>Principal Diagnoses: 445.01, 996.74</p> <p>Diagnoses (Primary or Secondary): 440.31</p>
Pneumonia	<p>Inclusions</p> <p>Principal Diagnosis: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0</p> <p>Exclusions</p> <p>Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63</p> <p>Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, 480.3, V66.7</p>
Prostatectomy	<p>Inclusions</p> <p>Principal Procedure: 60.21, 60.29, 60.61, 60.62, 60.69, 60.3, 60.4, 60.5</p> <p>Exclusions</p> <p>Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5</p>
Pulmonary Embolism	<p>Inclusions</p> <p>Principal Diagnosis: 415.11, 415.19</p> <p>Exclusions</p> <p>Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5</p> <p>Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7</p>

Resection / Replacement of Abdominal Aorta	Inclusions
	Principal Procedure: 38.34, 38.44, 38.64, 39.71
	Exclusions
	Procedures (Primary or Secondary): 00.61, 35.10, 35.11, 35.12, 35.13, 35.14, 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28, 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.17, 36.19, 36.1, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 38.08, 38.16, 38.18, 38.36, 38.45, 39.24, 39.25, 39.29, 39.50, 39.59
	Diagnoses (Primary or Secondary): 441.00, 441.01, 441.02, 441.03, 441.1, 441.2, 441.6, 441.7, 441.9
Respiratory Failure	Inclusions
	Principal Diagnosis: 518.81, 518.84
	Exclusions
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7
Sepsis	Inclusions
	Principal Diagnosis: 003.1, 022.3, 027.0, 036.2, 036.3, 038.0, 038.10, 038.11, 038.19, 038.2, 038.3, 038.40, 038.41, 038.42, 038.43, 038.44, 038.49, 038.8, 038.9, 054.5, 785.52, 785.59, 995.90, 995.91, 995.92
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7
Stroke	Inclusions
	Principal Diagnosis: 430, 431, 432.9, 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 436
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5
	Diagnoses (Primary or Secondary): 196.0, 196.1, 196.2, 196.3, 196.5, 196.6, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.81, 198.82, 198.89, V66.7

Total Hip Replacement	Inclusions
	Principal Procedure: 81.51
	Exclusions
	Procedures (Primary or Secondary): 00.70, 00.71, 00.72, 00.73, 00.80, 00.81, 00.82, 00.83, 00.84, 00.85, 00.86, 00.87, 37.51, 37.52, 37.53, 37.54, 37.5, 78.65, 78.67, 80.05, 80.06, 81.53, 81.54, 81.55
	Principal Diagnoses: 996.4, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49
	Diagnoses (Primary or Secondary): 996.45, 996.46, E800, E800.0, E800.1, E800.2, E800.3, E800.8, E800.9, E801, E801.0, E801.1, E801.2, E801.3, E801.8, E801.9, E802, E802.0, E802.1, E802.2, E802.3, E802.8, E802.9, E803, E803.0, E803.1, E803.2, E803.3, E803.8, E803.9, E804, E804.0, E804.1, E804.2, E804.3, E804.8, E804.9, E805, E805.0, E805.1, E805.2, E805.3, E805.8, E805.9, E806, E806.0, E806.1, E806.2, E806.3, E806.8, E806.9, E807, E807.0, E807.1, E807.2, E807.3, E807.8, E807.9, E810, E810.0, E810.1, E810.2, E810.3, E810.4, E810.5, E810.6, E810.7, E810.8, E810.9, E811, E811.0, E811.1, E811.2, E811.3, E811.4, E811.5, E811.6, E811.7, E811.8, E811.9, E812, E812.0, E812.1, E812.2, E812.3, E812.4, E812.5, E812.6, E812.7, E812.8, E812.9, E813, E813.0, E813.1, E813.2, E813.3, E813.4, E813.5, E813.6, E813.7, E813.8, E813.9, E814, E814.0, E814.1, E814.2, E814.3, E814.4, E814.5, E814.6, E814.7, E814.8, E814.9, E815, E815.0, E815.1, E815.2, E815.3, E815.4, E815.5, E815.6, E815.7, E815.8, E815.9, E816, E816.0, E816.1, E816.2, E816.3, E816.4, E816.5, E816.6, E816.7, E816.8, E816.9, E817, E817.0, E817.1, E817.2, E817.3, E817.4, E817.5, E817.6, E817.7, E817.8, E817.9, E818, E818.0, E818.1, E818.2, E818.3, E818.4, E818.5, E818.6, E818.7, E818.8, E818.9, E819, E819.0, E819.1, E819.2, E819.3, E819.4, E819.5, E819.6, E819.7, E819.8, E819.9, E820, E820.0, E820.1, E820.2, E820.3, E820.4, E820.5, E820.6, E820.7, E820.8, E820.9, E821, E821.0, E821.1, E821.2, E821.3, E821.4, E821.5, E821.6, E821.7, E821.8, E821.9, E822, E822.0, E822.1, E822.2, E822.3, E822.4, E822.5, E822.6, E822.7, E822.8, E822.9, E823, E823.0, E823.1, E823.2, E823.3, E823.4, E823.5, E823.6, E823.7, E823.8, E823.9, E824, E824.0, E824.1, E824.2, E824.3, E824.4, E824.5, E824.6, E824.7, E824.8, E824.9, E825, E825.0, E825.1, E825.2, E825.3, E825.4, E825.5, E825.6, E825.7, E825.8, E825.9, E826, E826.0, E826.1, E826.2, E826.3, E826.4, E826.8, E826.9, E827, E827.0, E827.2, E827.3, E827.4, E827.8, E827.9, E828, E828.0, E828.2, E828.4, E828.8, E828.9, E829, E829.0, E829.4, E829.8, E829.9, E830, E830.0, E830.1, E830.2, E830.3, E830.4, E830.5, E830.6, E830.8, E830.9, E831, E831.0, E831.1, E831.2, E831.3, E831.4, E831.5, E831.6, E831.8, E831.9, E832, E832.0, E832.1, E832.2, E832.3, E832.4, E832.5, E832.6, E832.8, E832.9, E833, E833.0, E833.1, E833.2, E833.3, E833.4, E833.5, E833.6, E833.8, E833.9, E834, E834.0, E834.1, E834.2, E834.3, E834.4, E834.5, E834.6, E834.8, E834.9, E835, E835.0, E835.1, E835.2, E835.3, E835.4, E835.5, E835.6, E835.8, E835.9, E836, E836.0, E836.1, E836.2, E836.3, E836.4, E836.5, E836.6, E836.8, E836.9, E837, E837.0, E837.1, E837.2, E837.3, E837.4, E837.5, E837.6, E837.8, E837.9, E838, E838.0, E838.1, E838.2, E838.3, E838.4, E838.5, E838.6, E838.8, E838.9, E840, E840.0, E840.1, E840.2, E840.3, E840.4, E840.5, E840.6, E840.7, E840.8, E840.9, E841, E841.0, E841.1, E841.2, E841.3, E841.4, E841.5, E841.6, E841.7, E841.8, E841.9, E842, E842.6, E842.7, E842.8, E842.9, E843, E843.0, E843.1, E843.2, E843.3, E843.4, E843.5, E843.6, E843.7, E843.8, E843.9, E844, E844.0, E844.1, E844.2, E844.3, E844.4, E844.5, E844.6, E844.7, E844.8, E844.9, E845, E845.0, E845.8, E845.9, E846, E847, E848, E849, E849.0, E849.1, E849.2, E849.3,

	E849.4, E849.5, E849.6, E849.7, E849.8, E849.9, E880, E880.0, E880.1, E880.9, E881, E881.0, E881.1, E882, E883, E883.0, E883.1, E883.2, E883.9, E884, E884.0, E884.1, E884.2, E884.3, E884.4, E884.5, E884.6, E884.9, E885, E885.0, E885.1, E885.2, E885.3, E885.4, E885.9, E886, E886.0, E886.9, E887, E888, E888.0, E888.1, E888.8, E888.9, E890.0, E890.8, E891.0, E891.8, E916, E917.0, E917.1, E917.2, E917.3, E917.4, E917.5, E917.6, E917.7, E917.8, E917.9, E918, E919.0, E919.1, E919.2, E919.3, E919.4, E919.5, E919.6, E919.7, E919.8, E919.9, E920, E920.0, E920.1, E920.2, E920.3, E920.4, E920.5, E920.8, E920.9, E921, E921.0, E921.1, E921.8, E921.9, E922, E922.0, E922.1, E922.2, E922.3, E922.4, E922.5, E922.8, E922.9, E923, E923.0, E923.1, E923.2, E923.8, E923.9, E928.8, E928.9, E929, E929.0, E929.1, E929.2, E929.3, E929.4, E929.5, E929.8, E929.9, E955.0, E955.1, E955.2, E955.3, E955.4, E955.5, E955.6, E955.7, E955.9, E956, E957.0, E957.1, E957.2, E957.9, E958.0, E958.5, E958.6, E960.0, E965.0, E965.1, E965.2, E965.3, E965.4, E965.5, E965.6, E965.7, E965.8, E965.9, E966, E968.1, E968.2, E968.5, E968.6, E969, E970, E971, E973, E974, E977, E985, E985.0, E985.1, E985.2, E985.3, E985.4, E985.5, E985.6, E985.7, E986, E987, E987.0, E987.1, E987.2, E987.9, E988, E988.0, E988.5, E988.6, E989, V15.5, V58.43, V58.49
Total Knee Replacement	Inclusions
	Principal Procedure: 81.54
	Exclusions
	Procedures (Primary or Secondary): 00.74, 00.75, 00.76, 00.80, 00.81, 00.82, 00.83, 00.84, 37.51, 37.52, 37.53, 37.54, 37.5, 78.65, 78.67, 80.05, 80.06, 81.51, 81.52, 81.53, 81.55
	Principal Diagnoses: 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.47, 996.49
	Diagnoses (Primary or Secondary): 996.45, 996.46
Valve Replacement Surgery	Inclusions
	Principal Procedure: 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28
	Exclusions
	Procedures (Primary or Secondary): 35.33, 35.55, 35.1, 36.33, 36.34, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, 38.12, 38.34, 38.44, 38.64, 39.71, 44.12
	Diagnoses (Primary or Secondary): 414.06, 414.07, 441.00, 441.01, 441.02, 441.03, 441.2, V42.1

Appendix B: Major Complications

Major Complications – Appendectomy

Major Complications – Appendectomy			
008.45	C. DIFFICILE ENTERITIS	997.1	SURG COMP-HEART
292.81	DRUG-INDUCED DELIRIUM	997.3	SURG COMP-RESP NEC
415.11	IATRO PULM EMBOL/INFARCT	997.4	SURG COMP-DIGESTIVE
415.19	PULMON EMBOL/INFARCT NEC	997.5	SURG COMP-URINARY NEC
427.5	CARDIAC ARREST	998.0	POSTOPERATIVE SHOCK
427.41	VENTRICULAR FIBRILLATION	998.2	ACCIDENTAL OP LACERATION
512.1	IATROGENIC PNEUMOTHORAX	998.11	HEMORRHAGE COMP PX
518.5	POSTTR PULMON INSUFF	998.31	DISRUPT INTERNAL OP WND
518.81	AC RESPIRATORY FAILURE	998.32	DISRUPT EXTERNAL OP WND
997.02	IATROGEN CV INFARCT/HEM	998.59	POSTOP INFECTION NEC

Dependent Complications – Appendectomy

Must occur with 997.1 Cardiac Complications			
410.01	ANTEROLAT AMI-INITIAL	427.32	ATRIAL FLUTTER
410.11	ANT AMI NEC-INITIAL	427.89	OTH CARDIAC DYSRHYTHMIAS
410.21	INFEROLAT AMI-INITIAL	428.0	CHF NOS
410.51	LAT AMI NEC-INITIAL	428.1	LEFT HEART FAILURE
410.61	POSTERIOR AMI-INITIAL	428.20	SYSTOLIC HF NOS
410.71	SUBEND INFARCT-INITIAL	428.21	ACUTE SYSTOLIC HF
410.81	AMI NEC-INITIAL EPISODE	428.30	DIASTOLIC HF NOS
410.91	AMI NOS-INITIAL EPISODE	428.31	ACUTE DIASTOLIC HF
427.0	PSVT	428.33	AC & CHR DIASTOLIC HF
427.1	PVT	428.40	SYS & DIASTOLIC HF NOS
427.31	ATRIAL FIBRILLATION	428.9	HEART FAILURE NOS
Must occur with 997.3 Respiratory Complications			
480	VIRAL PNEUMONIA	482.49	STAPH PNEUMONIA NEC
480.0	ADENOVIRAL PNEUMONIA	482.8	OTH BACTERIAL PNEUMONIA
480.1	RSV PNEUMONIA	482.81	PNEUMONIA D/T ANAEROBES
480.2	PARINFLUENZA VIRAL PNEUM	482.82	E. COLI PNEUMONIA
480.3	SARS PNEUMONIA	482.83	GRAM-NEG PNEUMONIA NEC
480.8	VIRAL PNEUMONIA NEC	482.84	LEGIONNAIRES' DISEASE
480.9	VIRAL PNEUMONIA NOS	482.89	BACTERIAL PNEUMONIA NEC
481	PNEUMOCOCCAL PNEUMONIA	483	PNEUMONIA ORGANISM NEC
482	OTHER BACT PNEUMONIA	483.0	M. PNEUMONIAE PNEUMONIA
482.0	K. PNEUMONIAE PNEUMONIA	483.1	CHLAMYDIAL PNEUMONIA
482.1	PSEUDOMONAL PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.2	H. INFLUENZAE PNEUMONIA	484	PNEUM IN OTH INF DIS
482.9	BACTERIAL PNEUMONIA NOS	484.1	PNEUMONIA IN CMV DISEASE
482.3	STREPTOCOCCAL PNEUMONIA	484.3	PNEUMONIA IN WHOOP COUGH
482.30	STREP PNEUMONIA NOS	484.5	PNEUMONIA IN ANTHRAX
482.31	GROUP A STREP PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
482.32	GROUP B STREP PNEUMONIA	484.7	PNEUM IN SYST MYCOSESNEC
482.39	STREP PNEUMONIA NEC	484.8	PNEUM IN INFECT DIS NEC
482.4	STAPHYLOCOCCAL PNEUMONIA	485	BRONCHOPNEUMONIA ORG NOS
482.40	STAPH PNEUMONIA NOS	486	PNEUMONIA ORGANISM NOS
482.41	STAPH AUREUS PNEUMONIA	507.0	FOOD/VOMIT PNEUMONITIS

Dependent Complications – Appendectomy (continued)

Must occur with 997.5 Urinary Complications			
584.5	AC RF W TUBULAR NEPHR	788.20	RETENTION OF URINE NOS
584.8	ACUTE RENAL FAILURE NEC	788.29	RETENTION OF URINE NEC
584.9	ACUTE RENAL FAILURE NOS		
Must occur with 998.11 and 998.2 Hemorrhage Complicating a Procedure with Accidental Puncture or Laceration During a Procedure			
568.81	HEMOPERITONEUM		
Must occur with 997.4 and 998.2 Digestive System Complications with Accidental Puncture or Laceration During a Procedure			
569.83	INTESTINAL PERFORATION		
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.11	STAPH AUREUS SEPTICEMIA
038.0	STREPTOCOCCAL SEPTICEMIA	038.19	STAPH SEPTICEMIA NEC
038.1	STAPH SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.2	PNEUMOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.3	ANAEROBIC SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.4	OTH GRAM-NEG SEPTICEMIA	038.43	PSEUDOMONAS SEPTICEMIA
038.8	SEPTICEMIA NEC	038.44	SERRATIA SEPTICEMIA
038.9	SEPTICEMIA NOS	038.49	GRAM-NEG SEPTICEMIA NEC
038.10	STAPH SEPTICEMIA NOS	682.2	TRUNK CELLULITIS

Major Complications – Back and Neck Surgery (Spinal Fusion)

Major Complications – Back and Neck Surgery (Spinal Fusion)	
292.81	DRUG-INDUCED DELIRIUM
293.0	DELIRIUM D/T CCE
410.01	ANTEROLAT AMI-INITIAL
410.11	ANT AMI NEC-INITIAL
410.21	INFEROLAT AMI-INITIAL
410.31	INFEROPOST AMI-INITIAL
410.41	INF AMI NEC-INITIAL
410.51	LAT AMI NEC-INITIAL
410.61	POSTERIOR AMI-INITIAL
410.71	SUBEND INFARCT-INITIAL
410.81	AMI NEC-INITIAL EPISODE
410.91	AMI NOS-INITIAL EPISODE
415.11	IATRO PULM EMBOL/INFARCT
415.19	PULMON EMBOL/INFARCT NEC
480	VIRAL PNEUMONIA
480.0	ADENOVIRAL PNEUMONIA
480.1	RSV PNEUMONIA
480.2	PARINFLUENZA VIRAL PNEUM
480.3	SARS PNEUMONIA
480.8	VIRAL PNEUMONIA NEC
480.9	VIRAL PNEUMONIA NOS
481	PNEUMOCOCCAL PNEUMONIA
482	OTHER BACT PNEUMONIA
482.0	K. PNEUMONIAE PNEUMONIA
482.1	PSEUDOMONAL PNEUMONIA
482.2	H. INFLUENZAE PNEUMONIA
482.3	STREPTOCOCCAL PNEUMONIA
482.4	PNEUMONIA-STAPHYLOCOCCUS
482.30	STREP PNEUMONIA NOS
482.31	GROUP A STREP PNEUMONIA
482.32	GROUP B STREP PNEUMONIA
482.39	STREP PNEUMONIA NEC
482.4	STAPHYLOCOCCAL PNEUMONIA
482.40	STAPH PNEUMONIA NOS
482.41	STAPH AUREUS PNEUMONIA
482.49	STAPH PNEUMONIA NEC
482.8	OTH BACTERIAL PNEUMONIA
482.81	PNEUMONIA D/T ANAEROBES
482.82	E. COLI PNEUMONIA
482.83	GRAM-NEG PNEUMONIA NEC
482.84	LEGIONNAIRES' DISEASE
482.89	BACTERIAL PNEUMONIA NEC
482.9	BACTERIAL PNEUMONIA NOS
483	PNEUMONIA ORGANISM NEC
483.0	M. PNEUMONIAE PNEUMONIA
483.1	CHLAMYDIAL PNEUMONIA
483.8	PNEUMONIA D/T ORG NEC
484	PNEUM IN OTH INF DIS
484.1	PNEUMONIA IN CMV DISEASE
484.3	PNEUMONIA IN WHOOP COUGH
484.5	PNEUMONIA IN ANTHRAX
484.6	PNEUM IN ASPERGILLOSIS
484.7	PNEUM IN SYST MYCOSESNEC
484.8	PNEUM IN INFECT DIS NEC
485	BRONCHOPNEUMONIA ORG NOS
486	PNEUMONIA ORGANISM NOS
507.0	FOOD/VOMIT PNEUMONITIS
511.9	PLEURAL EFFUSION NOS
518.5	POSTTR PULMON INSUFF
518.81	AC RESPIRATORY FAILURE
584.5	AC RF W TUBULAR NEPHR
584.8	ACUTE RENAL FAILURE NEC
584.9	ACUTE RENAL FAILURE NOS
995.91	SEPSIS
995.92	SEVERE SEPSIS
996.4	MECH COMP INT ORTH DEV
996.40	MECH COMP INT ORTH NOS
996.42	DISLOCATION JOINT PROSTH
996.41	MECH LOOSENING JT PROSTH
996.43	PROSTH JOINT FAILURE
996.44	PERI-PROSTHETIC FRACTURE
996.45	PERI-PROSTH OSTEOLYSIS
996.46	JT PROSTH SURFACE WEAR
996.47	MECH COMP JT PROSTH NEC
996.49	MECH COMP INT ORTH NEC
996.77	COMP NEC D/T JT PROSTH
996.78	COMP NEC ORTH DEV NEC
997.02	IATROGEN CV INFARCT/HEM
997.09	NERV SYST SURG COMP NEC
997.1	SURG COMP-HEART
997.3	SURG COMP-RESP NEC
997.4	SURG COMP-DIGESTIVE
997.5	SURG COMP-URINARY NEC
998.0	POSTOPERATIVE SHOCK
998.11	HEMORRHAGE COMP PX
998.2	ACCIDENTAL OP LACERATION
998.3	POSTOP WOUND DISRUPTION
998.31	DISRUPT INTERNAL OP WND
998.32	DISRUPT EXTERNAL OP WND
998.59	POSTOP INFECTION NEC

Dependent Complications – Back and Neck Surgery (Spinal Fusion)

Must occur with 997.1 Cardiac Complications			
427.0	PSVT	428.23	AC & CHR SYSTOLIC HF
427.1	PVT	428.3	DIASTOLIC HEART FAILURE
427.31	ATRIAL FIBRILLATION	428.30	DIASTOLIC HF NOS
427.32	ATRIAL FLUTTER	428.31	ACUTE DIASTOLIC HF
427.89	OTH CARDIAC DYSRHYTHMIAS	428.33	AC & CHR DIASTOLIC HF
427.9	CARDIAC DYSRHYTHMIA NOS	428.4	SYSTOLIC & DIASTOLIC HF
428.0	CHF NOS	428.40	SYS & DIASTOLIC HF NOS
428.1	LEFT HEART FAILURE	428.41	AC SYS & DIASTOLIC HF
428.2	SYSTOLIC HEART FAILURE	428.43	ACCHR SYS & DIASTOLIC HF
428.20	SYSTOLIC HF NOS	428.9	HEART FAILURE NOS
428.21	ACUTE SYSTOLIC HF		
Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
593.9	RENAL/URETER DISORD NOS	788.20	RETENTION OF URINE NOS
599.0	URINARY TRACT INF NOS	788.29	RETENTION OF URINE NEC
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA		

Major Complications – Back and Neck Surgery (except Spinal Fusion)

Major Complications – Back and Neck Surgery (except Spinal Fusion)			
292.81	DRUG-INDUCED DELIRIUM	483.0	M. PNEUMONIAE PNEUMONIA
293.0	DELIRIUM D/T CCE	483.1	CHLAMYDIAL PNEUMONIA
410.01	ANTEROLAT AMI-INITIAL	483.8	PNEUMONIA D/T ORG NEC
410.11	ANT AMI NEC-INITIAL	484	PNEUM IN OTH INF DIS
410.21	INFEROLAT AMI-INITIAL	484.1	PNEUMONIA IN CMV DISEASE
410.31	INFEROPOST AMI-INITIAL	484.3	PNEUMONIA IN WHOOP COUGH
410.41	INF AMI NEC-INITIAL	484.5	PNEUMONIA IN ANTHRAX
410.51	LAT AMI NEC-INITIAL	484.6	PNEUM IN ASPERGILLOSIS
410.61	POSTERIOR AMI-INITIAL	484.7	PNEUM IN SYST MYCOSESNEC
410.71	SUBEND INFARCT-INITIAL	484.8	PNEUM IN INFECT DIS NEC
410.81	AMI NEC-INITIAL EPISODE	485	BRONCHOPNEUMONIA ORG NOS
410.91	AMI NOS-INITIAL EPISODE	486	PNEUMONIA ORGANISM NOS
480	VIRAL PNEUMONIA	507.0	FOOD/VOMIT PNEUMONITIS
480.0	ADENOVIRAL PNEUMONIA	511.9	PLEURAL EFFUSION NOS
480.1	RSV PNEUMONIA	518.5	POSTTR PULMON INSUFF
480.2	PARINFLUENZA VIRAL PNEUM	518.81	AC RESPIRATORY FAILURE
480.3	SARS PNEUMONIA	584.5	AC RF W TUBULAR NEPHR
480.8	VIRAL PNEUMONIA NEC	584.8	ACUTE RENAL FAILURE NEC
480.9	VIRAL PNEUMONIA NOS	584.9	ACUTE RENAL FAILURE NOS
481	PNEUMOCOCCAL PNEUMONIA	995.91	SEPSIS
482	OTHER BACT PNEUMONIA	995.92	SEVERE SEPSIS
482.0	K. PNEUMONIAE PNEUMONIA	996.4	MECH COMP INT ORTH DEV
482.1	PSEUDOMONAL PNEUMONIA	996.40	MECH COMP INT ORTH NOS
482.2	H. INFLUENZAE PNEUMONIA	996.41	MECH LOOSENING JT PROSTH
482.3	STREPTOCOCCAL PNEUMONIA	996.42	DISLOCATION JOINT PROSTH
482.30	STREP PNEUMONIA NOS	996.43	PROSTH JOINT FAILURE
482.31	GROUP A STREP PNEUMONIA	996.44	PERI-PROSTHETIC FRACTURE
482.32	GROUP B STREP PNEUMONIA	996.47	MECH COMP JT PROSTH NEC
482.39	STREP PNEUMONIA NEC	996.49	MECH COMP INT ORTH NEC
482.4	STAPHYLOCOCCAL PNEUMONIA	996.77	COMP NEC D/T JT PROSTH
482.40	STAPH PNEUMONIA NOS	996.78	COMP NEC ORTH DEV NEC
482.41	STAPH AUREUS PNEUMONIA	997.00	NERV SYST SURG COMP NOS
482.49	STAPH PNEUMONIA NEC	997.02	IATROGEN CV INFARCT/HEM
482.8	OTH BACTERIAL PNEUMONIA	997.09	NERV SYST SURG COMP NEC
482.81	PNEUMONIA D/T ANAEROBES	997.1	SURG COMP-HEART
482.82	E. COLI PNEUMONIA	997.3	SURG COMP-RESP NEC
482.83	GRAM-NEG PNEUMONIA NEC	997.4	SURG COMP-DIGESTIVE
482.84	LEGIONNAIRES' DISEASE	997.5	SURG COMP-URINARY NEC
482.89	BACTERIAL PNEUMONIA NEC	998.11	HEMORRHAGE COMP PX
482.9	BACTERIAL PNEUMONIA NOS	998.2	ACCIDENTAL OP LACERATION
483	PNEUMONIA ORGANISM NEC	998.59	POSTOP INFECTION NEC

Dependent Complications - Back and Neck Surgery (except Spinal Fusion)

Must occur with 997.1 Cardiac Complications			
427.0	PSVT	428.23	AC & CHR SYSTOLIC HF
427.1	PVT	428.3	DIASTOLIC HEART FAILURE
427.31	ATRIAL FIBRILLATION	428.30	DIASTOLIC HF NOS
427.89	OTH CARDIAC DYSRHYTHMIAS	428.31	ACUTE DIASTOLIC HF
427.9	CARDIAC DYSRHYTHMIA NOS	428.33	AC & CHR DIASTOLIC HF
428.0	CHF NOS	428.4	SYSTOLIC & DIASTOLIC HF
428.1	LEFT HEART FAILURE	428.40	SYS & DIASTOLIC HF NOS
428.2	SYSTOLIC HEART FAILURE	428.41	AC SYS & DIASTOLIC HF
428.20	SYSTOLIC HF NOS	428.9	HEART FAILURE NOS
428.21	ACUTE SYSTOLIC HF		
Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
593.9	KIDNEY & URETER DIS, NOS	788.20	RETENTION OF URINE, NOS
599.0	URINARY TRACT INF NOS	788.29	RETENTION OF URINE, NEC
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA		

Major Complications – Carotid Surgery

Major Complications – Carotid Surgery			
410.01	ANTEROLAT AMI-INITIAL	482.89	BACTERIAL PNEUMONIA NEC
410.11	ANT AMI NEC-INITIAL	482.9	BACTERIAL PNEUMONIA NOS
410.21	INFEROLAT AMI-INITIAL	483	PNEUMONIA ORGANISM NEC
410.51	LAT AMI NEC-INITIAL	483.0	M. PNEUMONIAE PNEUMONIA
410.61	POSTERIOR AMI-INITIAL	483.1	CHLAMYDIAL PNEUMONIA
410.71	SUBEND INFARCT-INITIAL	483.8	PNEUMONIA D/T ORG NEC
410.81	AMI NEC-INITIAL EPISODE	484	PNEUM IN OTH INF DIS
410.91	AMI NOS-INITIAL EPISODE	484.1	PNEUMONIA IN CMV DISEASE
427.5	CARDIAC ARREST	484.3	PNEUMONIA IN WHOOP COUGH
480	VIRAL PNEUMONIA	484.5	PNEUMONIA IN ANTHRAX
480.0	ADENOVIRAL PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
480.1	RSV PNEUMONIA	484.7	PNEUM IN SYST MYCOSES NEC
480.2	PARINFLUENZA VIRAL PNEUM	484.8	PNEUM IN INFECT DIS NEC
480.3	SARS PNEUMONIA	485	BRONCHOPNEUMONIA ORG NOS
480.8	VIRAL PNEUMONIA NEC	486	PNEUMONIA ORGANISM NOS
480.9	VIRAL PNEUMONIA NOS	507.0	FOOD/VOMIT PNEUMONITIS
481	PNEUMOCOCCAL PNEUMONIA	518.5	POSTTR PULMON INSUFF
482	OTHER BACT PNEUMONIA	518.81	AC RESPIRATORY FAILURE
482.0	K. PNEUMONIAE PNEUMONIA	780.01	COMA
482.1	PSEUDOMONAL PNEUMONIA	951.7	INJURY HYPOGLOSSAL NERVE
482.2	H. INFLUENZAE PNEUMONIA	957.1	INJURY TO NERVE NEC
482.3	STREPTOCOCCAL PNEUMONIA	997.00	NERV SYST SURG COMP NOS
482.30	STREP PNEUMONIA NOS	997.01	CNS SURG COMP
482.31	GROUP A STREP PNEUMONIA	997.02	IATROGEN CV INFARCT/HEM
482.32	GROUP B STREP PNEUMONIA	997.09	NERV SYST SURG COMP NEC
482.39	STREP PNEUMONIA NEC	997.1	SURG COMP-HEART
482.4	STAPHYLOCOCCAL PNEUMONIA	997.3	SURG COMP-RESP NEC
482.40	STAPH PNEUMONIA NOS	997.4	SURG COMP-DIGESTIVE
482.41	STAPH AUREUS PNEUMONIA	997.5	SURG COMP-URINARY NEC
482.49	STAPH PNEUMONIA NEC	997.91	SURG COMP-HYPERTENSION
482.8	OTH BACTERIAL PNEUMONIA	998.0	POSTOPERATIVE SHOCK
482.81	PNEUMONIA D/T ANAEROBES	998.11	HEMORRHAGE COMP PX
482.82	E. COLI PNEUMONIA	998.2	ACCIDENTAL OP LACERATION
482.83	GRAM-NEG PNEUMONIA NEC	998.59	POSTOP INFECTION NEC
482.84	LEGIONNAIRES' DISEASE		

Dependent Complications - Carotid Surgery

Must occur with 997.02 Nervous System Complications			
434.11	CEREBRAL EMBOLISM-INFRACT	434.91	CEREBR ART OCCL-INFARCTN
Must occur with 997.1 Cardiac Complications			
427.1	PVT	428.3	DIASTOLIC HEART FAILURE
427.31	ATRIAL FIBRILLATION	428.30	DIASTOLIC HF NOS
427.89	OTH CARDIAC DYSRHYTHMIAS	428.31	ACUTE DIASTOLIC HF
428.0	CHF NOS	428.33	AC & CHR DIASTOLIC HF
428.1	LEFT HEART FAILURE	428.4	SYSTOLIC & DIASTOLIC HF
428.2	SYSTOLIC HEART FAILURE	428.40	SYS & DIASTOLIC HF NOS
428.20	SYSTOLIC HF NOS	428.41	AC SYS & DIASTOLIC HF
428.21	ACUTE SYSTOLIC HF	428.43	ACCHR SYS & DIASTOLIC HF
428.23	AC & CHR SYSTOLIC HF	428.9	HEART FAILURE NOS

Dependent Complications - Carotid Surgery (continued)

Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
584.5	AC RF W TUBULAR NEPHR	593.9	RENAL/URETER DISORD NOS
584.8	ACUTE RENAL FAILURE NEC	599.0	URINARY TRACT INF NOS
584.9	ACUTE RENAL FAILURE NOS	788.20	RETENTION OF URINE NOS
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA		

Major Complications – Cholecystectomy

Major Complications – Cholecystectomy			
008.45	C. DIFFICILE ENTERITIS	997.4	SURG COMP-DIGESTIVE
292.81	DRUG-INDUCED DELIRIUM	997.5	SURG COMP-URINARY NEC
415.11	IATRO PULM EMBOL/INFARCT	998.0	POSTOPERATIVE SHOCK
415.19	PULMON EMBOL/INFARCT NEC	998.11	HEMORRHAGE COMP PX
512.1	IATROGENIC PNEUMOTHORAX	998.2	ACCIDENTAL OP LACERATION
518.5	POSTTR PULMON INSUFF	998.3	POSTOP WOUND DISRUPTION
518.81	AC RESPIRATORY FAILURE	998.31	DISRUPT INTERNAL OP WND
997.02	IATROGEN CV INFARCT/HEM	998.32	DISRUPT EXTERNAL OP WND
997.1	SURG COMP-HEART	998.59	POSTOP INFECTION NEC
997.3	SURG COMP-RESP NEC		

Dependent Complications - Cholecystectomy

Must occur with 997.1 Cardiac Complications			
410.01	ANTEROLAT AMI-INITIAL	428.1	LEFT HEART FAILURE
410.11	ANT AMI NEC-INITIAL	428.2	SYSTOLIC HEART FAILURE
410.21	INFEROLAT AMI-INITIAL	428.20	SYSTOLIC HF NOS
410.51	LAT AMI NEC-INITIAL	428.21	ACUTE SYSTOLIC HF
410.61	POSTERIOR AMI-INITIAL	428.23	AC & CHR SYSTOLIC HF
410.71	SUBEND INFARCT-INITIAL	428.3	DIASTOLIC HEART FAILURE
410.81	AMI NEC-INITIAL EPISODE	428.30	DIASTOLIC HF NOS
410.91	AMI NOS-INITIAL EPISODE	428.31	ACUTE DIASTOLIC HF
427.0	PSVT	428.33	AC & CHR DIASTOLIC HF
427.1	PVT	428.4	SYSTOLIC & DIASTOLIC HF
427.31	ATRIAL FIBRILLATION	428.40	SYS & DIASTOLIC HF NOS
427.32	ATRIAL FLUTTER	428.41	AC SYS & DIASTOLIC HF
427.41	VENTRICULAR FIBRILLATION	428.43	ACCHR SYS & DIASTOLIC HF
427.89	OTH CARDIAC DYSRHYTHMIAS	428.9	HEART FAILURE NOS
428.0	CHF NOS		

Dependent Complications – Cholecystectomy (continued)

Must occur with 997.3 Respiratory Complications			
480	VIRAL PNEUMONIA	482.82	E. COLI PNEUMONIA
480.0	ADENOVIRAL PNEUMONIA	482.83	GRAM-NEG PNEUMONIA NEC
480.1	RSV PNEUMONIA	482.84	LEGIONNAIRES' DISEASE
480.2	PARINFLUENZA VIRAL PNEUM	482.89	BACTERIAL PNEUMONIA NEC
480.3	SARS PNEUMONIA	482.9	BACTERIAL PNEUMONIA NOS
480.8	VIRAL PNEUMONIA NEC	483	PNEUMONIA ORGANISM NEC
480.9	VIRAL PNEUMONIA NOS	483.0	M. PNEUMONIAE PNEUMONIA
481	PNEUMOCOCCAL PNEUMONIA	483.1	CHLAMYDIAL PNEUMONIA
482	OTHER BACT PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.0	K. PNEUMONIAE PNEUMONIA	484	PNEUM IN OTH INF DIS
482.1	PSEUDOMONAL PNEUMONIA	484.1	PNEUMONIA IN CMV DISEASE
482.2	H. INFLUENZAE PNEUMONIA	484.3	PNEUMONIA IN WHOOP COUGH
482.3	STREPTOCOCCAL PNEUMONIA	484.5	PNEUMONIA IN ANTHRAX
482.30	STREP PNEUMONIA NOS	484.6	PNEUM IN ASPERGILLOSIS
482.31	GROUP A STREP PNEUMONIA	484.7	PNEUM IN SYST MYCOSES NEC
482.32	GROUP B STREP PNEUMONIA	484.8	PNEUM IN INFECT DIS NEC
482.39	STREP PNEUMONIA NEC	485	BRONCHOPNEUMONIA ORG NOS
482.4	STAPHYLOCOCCAL PNEUMONIA	486	PNEUMONIA ORGANISM NOS
482.40	STAPH PNEUMONIA NOS	507.0	FOOD/VOMIT PNEUMONITIS
482.41	STAPH AUREUS PNEUMONIA	799.0	ASPHYXIA & HYPOXEMIA
482.49	STAPH PNEUMONIA NEC	799.01	ASPHYXIA
482.8	OTH BACTERIAL PNEUMONIA	799.02	HYPOXEMIA
482.81	PNEUMONIA D/T ANAEROBES		
Must occur with 997.5 Urinary Complications			
584.5	AC RF W TUBULAR NEPHR	599.0	URINARY TRACT INF NOS
584.8	ACUTE RENAL FAILURE NEC	788.20	RETENTION OF URINE NOS
584.9	ACUTE RENAL FAILURE NOS	788.29	RETENTION OF URINE NEC
Must occur with 998.11 and 998.2 Hemorrhage Complicating a Procedure with Accidental Puncture or Laceration During a Procedure			
568.81	HEMOPERITONEUM		
Must occur with 997.4 and 998.2 Digestive System Complications with Accidental Puncture or Laceration During a Procedure			
569.83	PERFORATION OF INTESTINE		
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.0	STREPTOCOCCAL SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.43	PSEUDOMONAS SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.44	SERRATIA SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.49	GRAM-NEG SEPTICEMIA NEC
038.19	STAPH SEPTICEMIA NEC	038.8	SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.9	SEPTICEMIA NOS
038.3	ANAEROBIC SEPTICEMIA	682.2	TRUNK CELLULITIS
038.4	OTH GRAM-NEG SEPTICEMIA	785.52	SEPTIC SHOCK
038.40	GRAM-NEG SEPTICEMIA NOS	995.91	SEPSIS

Major Complications – Hip Fracture Repair

Major Complications – Hip Fracture Repair			
292.81	DRUG-INDUCED DELIRIUM	996.78	COMP NEC ORTH DEV NEC
293.0	DELIRIUM D/T CCE	997.02	IATROGEN CV INFARCT/HEM
415.11	IATRO PULM EMBOL/INFARCT	997.1	SURG COMP-HEART
415.19	PULMON EMBOL/INFARCT NEC	997.3	SURG COMP-RESP NEC
512.1	IATROGENIC PNEUMOTHORAX	997.4	SURG COMP-DIGESTIVE
518.5	POSTTR PULMON INSUFF	997.5	SURG COMP-URINARY NEC
560.1	PARALYTIC ILEUS	998.0	POSTOPERATIVE SHOCK
785.59	SHOCK W/O TRAUMA NEC	998.11	HEMORRHAGE COMP PX
996.77	COMP NEC D/T JT PROSTH	998.59	POSTOP INFECTION NEC

Dependent Complications – Hip Fracture Repair

Must occur with 997.1 Cardiac Complications			
410.01	ANTEROLAT AMI-INITIAL	427.89	OTH CARDIAC DYSRHYTHMIAS
410.11	ANT AMI NEC-INITIAL	428.0	CHF NOS
410.21	INFEROLAT AMI-INITIAL	428.1	LEFT HEART FAILURE
410.31	INFEROPOST AMI-INITIAL	428.20	SYSTOLIC HF NOS
410.41	INF AMI NEC-INITIAL	428.21	ACUTE SYSTOLIC HF
410.51	LAT AMI NEC-INITIAL	428.23	AC & CHR SYSTOLIC HF
410.61	POSTERIOR AMI-INITIAL	428.30	DIASTOLIC HF NOS
410.71	SUBEND INFARCT-INITIAL	428.31	ACUTE DIASTOLIC HF
410.81	AMI NEC-INITIAL EPISODE	428.33	AC & CHR DIASTOLIC HF
410.91	AMI NOS-INITIAL EPISODE	428.40	SYS & DIASTOLIC HF NOS
427.0	PSVT	428.41	AC SYS & DIASTOLIC HF
427.1	PVT	428.43	ACCHR SYS & DIASTOLIC HF
427.31	ATRIAL FIBRILLATION	428.9	HEART FAILURE NOS
427.32	ATRIAL FLUTTER		
Must occur with 997.3 Respiratory Complications			
480.9	VIRAL PNEUMONIA NOS	482.89	BACTERIAL PNEUMONIA NEC
481	PNEUMOCOCCAL PNEUMONIA	482.9	BACTERIAL PNEUMONIA NOS
482.0	K. PNEUMONIAE PNEUMONIA	483.0	M. PNEUMONIAE PNEUMONIA
482.1	PSEUDOMONAL PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.2	H. INFLUENZAE PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
482.30	STREP PNEUMONIA NOS	484.7	PNEUM IN SYST MYCOSESNEC
482.32	GROUP B STREP PNEUMONIA	484.8	PNEUM IN INFECT DIS NEC
482.39	STREP PNEUMONIA NEC	485	BRONCHOPNEUMONIA ORG NOS
482.40	STAPH PNEUMONIA NOS	486	PNEUMONIA ORGANISM NOS
482.41	STAPH AUREUS PNEUMONIA	507.0	FOOD/VOMIT PNEUMONITIS
482.49	STAPH PNEUMONIA NEC	518.81	AC RESPIRATORY FAILURE
482.82	E. COLI PNEUMONIA	518.82	OTHER PULMONARY INSUFF
482.83	GRAM-NEG PNEUMONIA NEC	518.84	AC & CHR RESP FAILURE
482.84	LEGIONNAIRES' DISEASE		
Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
584.5	AC REN FAIL-LES TUBL, NEC	593.9	KIDNEY & URETER DIS, NOS
584.8	AC REN FAIL-PATH LES, NEC	788.20	RETENTION OF URINE, NOS
584.9	ACUTE RENAL FAILURE, NOS		

Dependent Complications – Hip Fracture Repair (continued)

Must occur with 998.59 Postoperative Infection			
008.45	C. DIFFICILE ENTERITIS	038.42	E. COLI SEPTICEMIA
038.0	STREPTOCOCCAL SEPTICEMIA	038.43	PSEUDOMONAS SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.44	SERRATIA SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.49	GRAM-NEG SEPTICEMIA NEC
038.19	STAPH SEPTICEMIA NEC	038.8	SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.9	SEPTICEMIA NOS
038.3	ANAEROBIC SEPTICEMIA	041.4	E. COLI INFECT NOS
038.40	GRAM-NEG SEPTICEMIA NOS	785.52	SEPTIC SHOCK
038.41	H. INFLUENZAE SEPTICEMIA	995.91	SEPSIS

Major Complications – Peripheral Vascular Bypass

Major Complications – Peripheral Vascular Bypass			
008.45	C. DIFFICILE ENTERITIS	997.5	SURG COMP-URINARY NEC
518.5	POSTTR PULMON INSUFF	998.0	POSTOPERATIVE SHOCK
997.1	SURG COMP-HEART	998.11	HEMORRHAGE COMP PX
997.3	SURG COMP-RESP NEC	998.2	ACCIDENTAL OP LACERATION
997.4	SURG COMP-DIGESTIVE	998.59	POSTOP INFECTION NEC
Must occur with 997.1 Cardiac Complications			
410.01	ANTEROLAT AMI-INITIAL	428.2	SYSTOLIC HEART FAILURE
410.11	ANT AMI NEC-INITIAL	428.20	SYSTOLIC HF NOS
410.21	INFEROLAT AMI-INITIAL	428.21	ACUTE SYSTOLIC HF
410.51	LAT AMI NEC-INITIAL	428.23	AC & CHR SYSTOLIC HF
410.61	POSTERIOR AMI-INITIAL	428.3	DIASTOLIC HEART FAILURE
410.71	SUBEND INFARCT-INITIAL	428.30	DIASTOLIC HF NOS
410.81	AMI NEC-INITIAL EPISODE	428.31	ACUTE DIASTOLIC HF
410.91	AMI NOS-INITIAL EPISODE	428.33	AC & CHR DIASTOLIC HF
427.1	PVT	428.4	SYSTOLIC & DIASTOLIC HF
427.31	ATRIAL FIBRILLATION	428.40	SYS & DIASTOLIC HF NOS
427.32	ATRIAL FLUTTER	428.41	AC SYS & DIASTOLIC HF
427.89	OTH CARDIAC DYSRHYTHMIAS	428.43	ACCHR SYS & DIASTOLIC HF
428.0	CHF NOS	428.9	HEART FAILURE NOS
428.1	LEFT HEART FAILURE		

Dependent Complications – Peripheral Vascular Bypass

Must occur with 997.3 Respiratory Complications			
480	VIRAL PNEUMONIA	482.81	PNEUMONIA D/T ANAEROBES
480.0	ADENOVIRAL PNEUMONIA	482.82	E. COLI PNEUMONIA
480.1	RSV PNEUMONIA	482.83	GRAM-NEG PNEUMONIA NEC
480.2	PARINFLUENZA VIRAL PNEUM	482.84	LEGIONNAIRES' DISEASE
480.3	SARS PNEUMONIA	482.89	BACTERIAL PNEUMONIA NEC
480.8	VIRAL PNEUMONIA NEC	482.9	BACTERIAL PNEUMONIA NOS
480.9	VIRAL PNEUMONIA NOS	483	PNEUMONIA ORGANISM NEC
481	PNEUMOCOCCAL PNEUMONIA	483.0	M. PNEUMONIAE PNEUMONIA
482	OTHER BACT PNEUMONIA	483.1	CHLAMYDIAL PNEUMONIA
482.0	K. PNEUMONIAE PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.1	PSEUDOMONAL PNEUMONIA	484	PNEUM IN OTH INF DIS
482.2	H. INFLUENZAE PNEUMONIA	484.1	PNEUMONIA IN CMV DISEASE
482.3	STREPTOCOCCAL PNEUMONIA	484.3	PNEUMONIA IN WHOOP COUGH
482.30	STREP PNEUMONIA NOS	484.5	PNEUMONIA IN ANTHRAX
482.31	GROUP A STREP PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
482.32	GROUP B STREP PNEUMONIA	484.7	PNEUM IN SYST MYCOSES NEC
482.39	STREP PNEUMONIA NEC	484.8	PNEUM IN INFECT DIS NEC
482.4	STAPHYLOCOCCAL PNEUMONIA	485	BRONCHOPNEUMONIA ORG NOS
482.40	STAPH PNEUMONIA NOS	486	PNEUMONIA ORGANISM NOS
482.41	STAPH AUREUS PNEUMONIA	507.0	FOOD/VOMIT PNEUMONITIS
482.49	STAPH PNEUMONIA NEC	518.81	AC RESPIRATORY FAILURE
482.8	OTH BACTERIAL PNEUMONIA		
Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
584.5	AC RF W TUBULAR NEPHR	593.9	RENAL/URETER DISORD NOS
584.8	ACUTE RENAL FAILURE NEC	599.0	URINARY TRACT INF NOS
584.9	ACUTE RENAL FAILURE NOS	788.20	RETENTION OF URINE NOS
Must occur with 998.59 and 998.51 Postoperative Infection with Infected Postoperative Seroma			
041.04	BACTR INF DT GRP D STREP	041.7	PSEUDOMONAS IN OTHER DIS
041.11	BACTERL INF DT S. AUREUS		
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA	995.92	SEVERE SEPSIS

Major Complications – Prostatectomy

Major Complications – Prostatectomy			
008.45	C. DIFFICILE ENTERITIS	427.5	CARDIAC ARREST
410.01	ANTEROLAT AMI-INITIAL	507.0	FOOD/VOMIT PNEUMONITIS
410.11	ANT AMI NEC-INITIAL	518.5	POSTTR PULMON INSUFF
410.21	INFEROLAT AMI-INITIAL	518.81	AC RESPIRATORY FAILURE
410.31	INFEROPOST AMI-INITIAL	996.76	COMP NEC D/T GU DEVICE
410.41	INF AMI NEC-INITIAL	997.1	SURG COMP-HEART
410.51	LAT AMI NEC-INITIAL	997.3	SURG COMP-RESP NEC
410.61	POSTERIOR AMI-INITIAL	997.4	SURG COMP-DIGESTIVE
410.71	SUBEND INFARCT-INITIAL	997.5	SURG COMP-URINARY NEC
410.81	AMI NEC-INITIAL EPISODE	998.11	HEMORRHAGE COMP PX
410.91	AMI NOS-INITIAL EPISODE	998.2	ACCIDENTAL OP LACERATION

Dependent Complications – Prostatectomy

Must occur with 997.1 Cardiac Complications			
427.1	PVT	428.3	DIASTOLIC HEART FAILURE
427.31	ATRIAL FIBRILLATION	428.30	DIASTOLIC HF NOS
427.89	OTH CARDIAC DYSRHYTHMIAS	428.31	ACUTE DIASTOLIC HF
428.0	CHF NOS	428.33	AC & CHR DIASTOLIC HF
428.1	LEFT HEART FAILURE	428.4	SYSTOLIC & DIASTOLIC HF
428.2	SYSTOLIC HEART FAILURE	428.40	SYS & DIASTOLIC HF NOS
428.20	SYSTOLIC HF NOS	428.41	AC SYS & DIASTOLIC HF
428.21	ACUTE SYSTOLIC HF	428.43	ACCHR SYS & DIASTOLIC HF
428.23	AC & CHR SYSTOLIC HF	428.9	HEART FAILURE NOS
Must occur with 997.3 Respiratory Complications			
480	VIRAL PNEUMONIA	482.8	OTH BACTERIAL PNEUMONIA
480.0	ADENOVIRAL PNEUMONIA	482.81	PNEUMONIA D/T ANAEROBES
480.1	RSV PNEUMONIA	482.82	E. COLI PNEUMONIA
480.2	PARINFLUENZA VIRAL PNEUM	482.83	GRAM-NEG PNEUMONIA NEC
480.3	SARS PNEUMONIA	482.84	LEGIONNAIRES' DISEASE
480.8	VIRAL PNEUMONIA NEC	482.89	BACTERIAL PNEUMONIA NEC
480.9	VIRAL PNEUMONIA NOS	482.9	BACTERIAL PNEUMONIA NOS
481	PNEUMOCOCCAL PNEUMONIA	483	PNEUMONIA ORGANISM NEC
482	OTHER BACT PNEUMONIA	483.0	M. PNEUMONIAE PNEUMONIA
482.0	K. PNEUMONIAE PNEUMONIA	483.1	CHLAMYDIAL PNEUMONIA
482.1	PSEUDOMONAL PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.2	H. INFLUENZAE PNEUMONIA	484	PNEUM IN OTH INF DIS
482.3	STREPTOCOCCAL PNEUMONIA	484.1	PNEUMONIA IN CMV DISEASE
482.30	STREP PNEUMONIA NOS	484.3	PNEUMONIA IN WHOOP COUGH
482.31	GROUP A STREP PNEUMONIA	484.5	PNEUMONIA IN ANTHRAX
482.32	GROUP B STREP PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
482.39	STREP PNEUMONIA NEC	484.7	PNEUM IN SYST MYCOSES NEC
482.4	STAPHYLOCOCCAL PNEUMONIA	484.8	PNEUM IN INFECT DIS NEC
482.40	STAPH PNEUMONIA NOS	485	BRONCHOPNEUMONIA ORG NOS
482.41	STAPH AUREUS PNEUMONIA	486	PNEUMONIA ORGANISM NOS
482.49	STAPH PNEUMONIA NEC		

Dependent Complications – Prostatectomy (continued)

Must occur with 997.4 Digestive Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
584.5	AC REN FAIL-LES TUBL, NEC	584.9	ACUTE RENAL FAILURE, NOS
584.8	AC REN FAIL-PATH LES, NEC		
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA		

Major Complications – Total Hip Replacement

Major Complications – Total Hip Replacement	
292.81	DRUG-INDUCED DELIRIUM
410.01	ANTEROLAT AMI-INITIAL
410.11	ANT AMI NEC-INITIAL
410.21	INFEROLAT AMI-INITIAL
410.31	INFEROPOST AMI-INITIAL
410.41	INF AMI NEC-INITIAL
410.51	LAT AMI NEC-INITIAL
410.61	POSTERIOR AMI-INITIAL
410.71	SUBEND INFARCT-INITIAL
410.81	AMI NEC-INITIAL EPISODE
410.91	AMI NOS-INITIAL EPISODE
415.11	IATRO PULM EMBOL/INFARCT
415.19	PULMON EMBOL/INFARCT NEC
480	VIRAL PNEUMONIA
480.0	ADENOVIRAL PNEUMONIA
480.1	RSV PNEUMONIA
480.2	PARINFLUENZA VIRAL PNEUM
480.3	SARS PNEUMONIA
480.8	VIRAL PNEUMONIA NEC
480.9	VIRAL PNEUMONIA NOS
481	PNEUMOCOCCAL PNEUMONIA
482	OTHER BACT PNEUMONIA
482.0	K. PNEUMONIAE PNEUMONIA
482.1	PSEUDOMONAL PNEUMONIA
482.2	H. INFLUENZAE PNEUMONIA
482.3	STREPTOCOCCAL PNEUMONIA
482.30	STREP PNEUMONIA NOS
482.31	GROUP A STREP PNEUMONIA
482.32	GROUP B STREP PNEUMONIA
482.39	STREP PNEUMONIA NEC
482.4	STAPHYLOCOCCAL PNEUMONIA
482.40	STAPH PNEUMONIA NOS
482.41	STAPH AUREUS PNEUMONIA
482.49	STAPH PNEUMONIA NEC
482.8	OTH BACTERIAL PNEUMONIA
482.81	PNEUMONIA D/T ANAEROBES
482.82	E. COLI PNEUMONIA
482.83	GRAM-NEG PNEUMONIA NEC
482.84	LEGIONNAIRES' DISEASE
482.89	BACTERIAL PNEUMONIA NEC
482.9	BACTERIAL PNEUMONIA NOS
483	PNEUMONIA ORGANISM NEC
483.0	M. PNEUMONIAE PNEUMONIA
483.1	CHLAMYDIAL PNEUMONIA
483.8	PNEUMONIA D/T ORG NEC
484	PNEUM IN OTH INF DIS
484.1	PNEUMONIA IN CMV DISEASE
484.3	PNEUMONIA IN WHOOP COUGH
484.5	PNEUMONIA IN ANTHRAX
484.6	PNEUM IN ASPERGILLOSIS
484.7	PNEUM IN SYST MYCOSESNEC
484.8	PNEUM IN INFECT DIS NEC
485	BRONCHOPNEUMONIA ORG NOS
486	PNEUMONIA ORGANISM NOS
507.0	FOOD/VOMIT PNEUMONITIS
518.5	POSTTR PULMON INSUFF
518.81	AC RESPIRATORY FAILURE
584.5	AC RF W TUBULAR NEPHR
584.8	ACUTE RENAL FAILURE NEC
584.9	ACUTE RENAL FAILURE NOS
707.0	DECUBITUS ULCER
707.00	DECUBITUS ULCER-SITE NOS
707.01	DECUBITUS ULCER-ELBOW
707.02	DECUBITUS ULCER-UP BACK
707.03	DECUBITUS ULCER-LOW BACK
707.04	DECUBITUS ULCER-HIP
707.05	DECUBITUS ULCER-BUTTOCK
707.06	DECUBITUS ULCER-ANKLE
707.07	DECUBITUS ULCER-HEEL
707.09	DECUBITUS ULCER-SITE NEC
799.1	RESPIRATORY ARREST
995.92	SEVERE SEPSIS
996.4	MECH COMP INT ORTH DEV
996.40	MECH COMP INT ORTH NOS
996.41	MECH LOOSENING JT PROSTH
996.42	DISLOCATION JOINT PROSTH
996.43	PROSTH JOINT FAILURE
996.44	PERI-PROSTHETIC FRACTURE
996.47	MECH COMP JT PROSTH NEC
996.77	COMP NEC D/T JT PROSTH
996.78	COMP NEC ORTH DEV NEC
997.02	IATROGEN CV INFARCT/HEM
997.1	SURG COMP-HEART
997.3	SURG COMP-RESP NEC
997.4	SURG COMP-DIGESTIVE
997.5	SURG COMP-URINARY NEC
998.0	POSTOPERATIVE SHOCK
998.11	HEMORRHAGE COMP PX
998.59	POSTOP INFECTION NEC
999.8	TRANSFUSION REACTION NEC

Dependent Complications – Total Hip Replacement

Must occur with 997.1 Cardiac Complications			
427.0	PSVT	428.3	DIASTOLIC HEART FAILURE
427.1	PVT	428.30	DIASTOLIC HF NOS
427.31	ATRIAL FIBRILLATION	428.31	ACUTE DIASTOLIC HF
427.89	OTH CARDIAC DYSRHYTHMIAS	428.33	AC & CHR DIASTOLIC HF
427.9	CARDIAC DYSRHYTHMIA NOS	428.4	SYSTOLIC & DIASTOLIC HF
428.0	CHF NOS	428.40	SYS & DIASTOLIC HF NOS
428.1	LEFT HEART FAILURE	428.41	AC SYS & DIASTOLIC HF
428.2	SYSTOLIC HEART FAILURE	428.43	ACCHR SYS & DIASTOLIC HF
428.20	SYSTOLIC HF NOS	428.9	HEART FAILURE NOS
428.21	ACUTE SYSTOLIC HF	785.0	TACHYCARDIA NOS
428.23	AC & CHR SYSTOLIC HF		
Must occur with 997.4 Digestive Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
593.9	KIDNEY & URETER DIS, NOS	788.20	RETENTION OF URINE, NOS
599.0	URINARY TRACT INFECT, NOS	788.29	RETENTION OF URINE, NEC
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	GRAM-NEG SEPTICEMIA NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	H. INFLUENZAE SEPTICEMIA
038.1	STAPH SEPTICEMIA	038.42	E. COLI SEPTICEMIA
038.10	STAPH SEPTICEMIA NOS	038.43	PSEUDOMONAS SEPTICEMIA
038.11	STAPH AUREUS SEPTICEMIA	038.44	SERRATIA SEPTICEMIA
038.19	STAPH SEPTICEMIA NEC	038.49	GRAM-NEG SEPTICEMIA NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	SEPTICEMIA NEC
038.3	ANAEROBIC SEPTICEMIA	038.9	SEPTICEMIA NOS
038.4	OTH GRAM-NEG SEPTICEMIA		

Major Complications – Total Knee Replacement

Major Complications – Total Knee Replacement			
292.81	DRUG-INDUCED DELIRIUM	484.1	PNEUMONIA IN CMV DISEASE
410.01	ANTEROLAT AMI-INITIAL	484.3	PNEUMONIA IN WHOOP COUGH
410.11	ANT AMI NEC-INITIAL	484.5	PNEUMONIA IN ANTHRAX
410.21	INFEROLAT AMI-INITIAL	484.6	PNEUM IN ASPERGILLOSIS
410.31	INFEROPOST AMI-INITIAL	484.7	PNEUM IN SYST MYCOSESNEC
410.41	INF AMI NEC-INITIAL	484.8	PNEUM IN INFECT DIS NEC
410.51	LAT AMI NEC-INITIAL	485	BRONCHOPNEUMONIA ORG NOS
410.61	POSTERIOR AMI-INITIAL	486	PNEUMONIA ORGANISM NOS
410.71	SUBEND INFARCT-INITIAL	507.0	FOOD/VOMIT PNEUMONITIS
410.81	AMI NEC-INITIAL EPISODE	518.5	POSTTR PULMON INSUFF
410.91	AMI NOS-INITIAL EPISODE	518.81	AC RESPIRATORY FAILURE
415.11	IATRO PULM EMBOL/INFARCT	584.5	AC RF W TUBULAR NEPHR
415.19	PULMON EMBOL/INFARCT NEC	584.8	ACUTE RENAL FAILURE NEC
480	VIRAL PNEUMONIA	584.9	ACUTE RENAL FAILURE NOS
480.0	ADENOVIRAL PNEUMONIA	707.0	DECUBITUS ULCER
480.1	RSV PNEUMONIA	707.00	DECUBITUS ULCER-SITE NOS
480.2	PARINFLUENZA VIRAL PNEUM	707.01	DECUBITUS ULCER-ELBOW
480.3	SARS PNEUMONIA	707.02	DECUBITUS ULCER-UP BACK
480.8	VIRAL PNEUMONIA NEC	707.03	DECUBITUS ULCER-LOW BACK
480.9	VIRAL PNEUMONIA NOS	707.04	DECUBITUS ULCER-HIP
481	PNEUMOCOCCAL PNEUMONIA	707.05	DECUBITUS ULCER-BUTTOCK
482	OTHER BACT PNEUMONIA	707.06	DECUBITUS ULCER-ANKLE
482.0	K. PNEUMONIAE PNEUMONIA	707.07	DECUBITUS ULCER-HEEL
482.1	PSEUDOMONAL PNEUMONIA	707.09	DECUBITUS ULCER-SITE NEC
482.2	H. INFLUENZAE PNEUMONIA	799.1	RESPIRATORY ARREST
482.3	STREPTOCOCCAL PNEUMONIA	995.92	SEVERE SEPSIS
482.30	STREP PNEUMONIA NOS	996.4	MECH COMP INT ORTH NOS
482.31	GROUP A STREP PNEUMONIA	996.40	MECH COMP INT ORTH NOS
482.32	GROUP B STREP PNEUMONIA	996.41	MECH LOOSENING JT PROSTH
482.39	STREP PNEUMONIA NEC	996.42	DISLOCATION JOINT PROSTH
482.4	STAPHYLOCOCCAL PNEUMONIA	996.43	PROSTH JOINT FAILURE
482.40	STAPH PNEUMONIA NOS	996.44	PERI-PROSTHETIC FRACTURE
482.41	STAPH AUREUS PNEUMONIA	996.47	MECH COMP JT PROSTH NEC
482.49	STAPH PNEUMONIA NEC	996.49	MECH COMP INT ORTH NEC
482.8	OTH BACTERIAL PNEUMONIA	996.77	COMP NEC D/T JT PROSTH
482.81	PNEUMONIA D/T ANAEROBES	996.78	COMP NEC ORTH DEV NEC
482.82	E. COLI PNEUMONIA	997.02	IATROGEN CV INFARCT/HEM
482.83	GRAM-NEG PNEUMONIA NEC	997.1	SURG COMP-HEART
482.84	LEGIONNAIRES' DISEASE	997.3	SURG COMP-RESP NEC
482.89	BACTERIAL PNEUMONIA NEC	997.4	SURG COMP-DIGESTIVE
482.9	BACTERIAL PNEUMONIA NOS	997.5	SURG COMP-URINARY NEC
483	PNEUMONIA ORGANISM NEC	998.0	POSTOPERATIVE SHOCK
483.0	M. PNEUMONIAE PNEUMONIA	998.11	HEMORRHAGE COMP PX
483.1	CHLAMYDIAL PNEUMONIA	998.59	POSTOP INFECTION NEC
483.8	PNEUMONIA D/T ORG NEC	999.8	TRANSFUSION REACTION NEC
484	PNEUM IN OTH INF DIS		

Dependent Complications – Total Knee Replacement

Must occur with 997.1 Cardiac Complications			
427.0	PSVT	428.3	DIASTOLIC HEART FAILURE
427.1	PVT	428.30	DIASTOLIC HF NOS
427.31	ATRIAL FIBRILLATION	428.31	ACUTE DIASTOLIC HF
427.89	OTH CARDIAC DYSRHYTHMIAS	428.33	AC & CHR DIASTOLIC HF
427.9	CARDIAC DYSRHYTHMIA NOS	428.4	SYSTOLIC & DIASTOLIC HF
428.0	CHF NOS	428.40	SYS & DIASTOLIC HF NOS
428.1	LEFT HEART FAILURE	428.41	AC SYS & DIASTOLIC HF
428.2	SYSTOLIC HEART FAILURE	428.43	ACCHR SYS & DIASTOLIC HF
428.20	SYSTOLIC HF NOS	428.9	HEART FAILURE NOS
428.21	ACUTE SYSTOLIC HF	785.0	TACHYCARDIA NOS
428.23	AC & CHR SYSTOLIC HF		
Must occur with 997.4 Digestive System Complications			
560.1	PARALYTIC ILEUS		
Must occur with 997.5 Urinary Complications			
593.9	KIDNEY & URETER DIS, NOS	788.20	RETENTION OF URINE, NOS
599.0	URINARY TRACT INFECT, NOS	788.29	RETENTION OF URINE, NEC
Must occur with 998.59 Postoperative Infection			
038	SEPTICEMIA	038.40	SEPTICEMIA GRAM-NEGS, NOS
038.0	STREPTOCOCCAL SEPTICEMIA	038.41	SEPTICEMIA-H. INFLUENZAE
038.1	STAPHYLOCOCCAL SEPTICEMIA	038.42	SEPTICEMIA DT E. COLI
038.10	STAPHLOCOCC SEPTICEM, NOS	038.43	SEPTICEMIA - PSEUDOMONAS
038.11	SEPTICEMIA-STAPH AUREUS	038.44	SEPTICEMIA DT SERRATIA
038.19	STAPHLOCOCC SEPTICEM, NEC	038.49	SEPTICEMIA GRAM-NEG, NEC
038.2	PNEUMOCOCCAL SEPTICEMIA	038.8	OTH SPECIFIED SEPTICEMIA
038.3	SEPTICEMIA DT ANAEROBES	038.9	UNSPECIFIED SEPTICEMIA
038.4	SEPTICEMIA GRAM-NEGS, NEC		

Appendix C.1:
Unadjusted Observed Mortality Rates & Change by Year in
5-Star Rated Hospitals 2004-2006

Hospitalization Diagnosis or Procedure	Observed Mortality Rate 2004-2006	Observed Mortality Rate 2004	Observed Mortality Rate 2005	Observed Mortality Rate 2006	Change 2004-2005	Change 2005-2006	Change 2004-2006
Atrial Fibrillation	0.31%	0.37%	0.30%	0.25%	-20.91%	-14.10%	-32.06%
Bowel Obstruction	2.09%	2.22%	2.05%	2.00%	-7.36%	-2.44%	-9.62%
Chronic Obstructive Pulmonary Disease	1.30%	1.50%	1.29%	1.12%	-14.22%	-12.71%	-25.12%
Coronary Bypass Surgery	1.53%	1.47%	1.63%	1.49%	10.79%	-8.72%	1.13%
Coronary Interventional Procedures (Angioplasty/Stent)	0.47%	0.49%	0.53%	0.41%	8.21%	-22.47%	-16.11%
Diabetic Acidosis and Coma	0.33%	0.14%	0.65%	0.21%	368.76%	-66.93%	55.03%
Gastrointestinal Bleed	1.78%	1.86%	1.79%	1.68%	-3.89%	-5.92%	-9.58%
Gastrointestinal Surgeries and Procedures	6.28%	6.13%	6.28%	6.42%	2.43%	2.14%	4.62%
Heart Attack (Acute Myocardial Infarction)	8.03%	8.54%	7.98%	7.54%	-6.53%	-5.51%	-11.68%
Heart Failure	2.97%	3.27%	2.96%	2.67%	-9.52%	-9.76%	-18.34%
Pancreatitis	0.62%	0.51%	0.71%	0.65%	39.93%	-9.43%	26.73%
Pneumonia	4.05%	4.82%	3.79%	3.49%	-21.36%	-7.88%	-27.56%
Pulmonary Embolism	1.83%	1.97%	1.84%	1.69%	-6.86%	-8.18%	-14.48%
Resection/Replacement Abdominal Aortic	2.21%	1.87%	2.50%	2.23%	33.97%	-10.83%	19.46%
Respiratory Failure	15.77%	17.28%	15.49%	14.89%	-10.37%	-3.84%	-13.81%
Sepsis	16.48%	16.98%	16.62%	15.99%	-2.13%	-3.76%	-5.80%
Stroke	7.94%	8.28%	8.02%	7.48%	-3.18%	-6.67%	-9.63%
Valve Replacement Surgery	3.76%	4.08%	3.42%	3.79%	-16.25%	10.85%	-7.16%

Appendix C.2: Unadjusted Observed Mortality Rates & Change by Year in 3-Star Rated Hospitals 2004-2006

Hospitalization Diagnosis or Procedure	Observed Mortality Rate 2004-2006	Observed Mortality Rate 2004	Observed Mortality Rate 2005	Observed Mortality Rate 2006	Change 2004-2006	Change 2005-2006	Change 2004-2006
Atrial Fibrillation	1.24%	1.24%	1.26%	1.21%	1.34%	-4.23%	-2.94%
Bowel Obstruction	4.03%	4.25%	4.04%	3.80%	-4.88%	-6.05%	-10.63%
Chronic Obstructive Pulmonary Disease	2.09%	2.32%	2.06%	1.86%	-11.26%	-9.56%	-19.74%
Coronary Bypass Surgery	2.82%	2.86%	2.88%	2.69%	0.81%	-6.45%	-5.69%
Coronary Interventional Procedures (Angioplasty/Stent)	1.15%	1.17%	1.17%	1.11%	0.11%	-4.74%	-4.63%
Diabetic Acidosis and Coma	1.67%	1.95%	1.65%	1.42%	-15.20%	-14.23%	-27.27%
Gastrointestinal Bleed	2.91%	3.08%	2.88%	2.75%	-6.72%	-4.28%	-10.72%
Gastrointestinal Surgeries and Procedures	10.21%	9.99%	10.49%	10.14%	5.00%	-3.33%	1.50%
Heart Attack (Acute Myocardial Infarction)	10.86%	11.55%	10.95%	9.99%	-5.14%	-8.78%	-13.46%
Heart Failure	4.10%	4.42%	4.13%	3.74%	-6.50%	-9.47%	-15.36%
Pancreatitis	2.84%	3.11%	2.81%	2.58%	-9.40%	-8.28%	-16.90%
Pneumonia	5.53%	6.36%	5.33%	4.82%	-16.15%	-9.65%	-24.24%
Pulmonary Embolism	4.92%	5.66%	4.82%	4.37%	-14.92%	-9.29%	-22.83%
Resection/Replacement Abdominal Aortic	4.34%	4.47%	4.49%	4.06%	0.27%	-9.47%	-9.22%
Respiratory Failure	23.42%	24.43%	23.20%	22.87%	-5.04%	-1.43%	-6.40%
Sepsis	21.56%	21.73%	21.79%	21.21%	0.25%	-2.65%	-2.40%
Stroke	10.45%	10.97%	10.51%	9.85%	-4.20%	-6.27%	-10.20%
Valve Replacement Surgery	6.82%	6.92%	6.74%	6.78%	-2.55%	0.57%	-2.00%

Appendix C.3: Unadjusted Observed Mortality Rates & Change by Year in 1-Star Rated Hospitals 2004-2006

Hospitalization Diagnosis or Procedure	Observed Mortality Rate 2004-2006	Observed Mortality Rate 2004	Observed Mortality Rate 2005	Observed Mortality Rate 2006	Change 2004-2006	Change 2005-2006	Change 2004-2006
Atrial Fibrillation	3.36%	3.29%	3.35%	3.43%	1.93%	2.23%	4.20%
Bowel Obstruction	7.87%	8.09%	7.83%	7.70%	-3.31%	-1.62%	-4.88%
Chronic Obstructive Pulmonary Disease	4.21%	4.47%	4.31%	3.79%	-3.53%	-12.05%	-15.15%
Coronary Bypass Surgery	5.35%	5.61%	5.16%	5.23%	-8.13%	1.51%	-6.74%
Coronary Interventional Procedures (Angioplasty/Stent)	1.94%	1.98%	1.97%	1.88%	-0.82%	-4.33%	-5.12%
Diabetic Acidosis and Coma	5.99%	6.92%	5.94%	5.05%	-14.15%	-15.07%	-27.08%
Gastrointestinal Bleed	5.20%	5.42%	5.12%	5.03%	-5.48%	-1.86%	-7.24%
Gastrointestinal Surgeries and Procedures	15.77%	15.34%	16.29%	15.67%	6.21%	-3.79%	2.18%
Heart Attack (Acute Myocardial Infarction)	13.82%	14.38%	13.98%	13.02%	-2.77%	-6.86%	-9.45%
Heart Failure	6.31%	6.62%	6.41%	5.87%	-3.27%	-8.31%	-11.30%
Pancreatitis	7.61%	8.19%	7.86%	6.70%	-4.03%	-14.73%	-18.17%
Pneumonia	8.67%	9.58%	8.51%	7.80%	-11.19%	-8.30%	-18.56%
Pulmonary Embolism	10.78%	12.62%	10.51%	9.34%	-16.77%	-11.07%	-25.98%
Resection/Replacement Abdominal Aortic	9.83%	9.81%	10.18%	9.50%	3.75%	-6.63%	-3.13%
Respiratory Failure	33.10%	34.66%	32.82%	32.17%	-5.31%	-2.00%	-7.21%
Sepsis	28.87%	29.05%	29.25%	28.35%	0.68%	-3.08%	-2.43%
Stroke	15.05%	15.37%	15.21%	14.53%	-1.08%	-4.44%	-5.48%
Valve Replacement Surgery	12.48%	12.93%	12.78%	11.66%	-1.17%	-8.72%	-9.79%

Appendix D: Risk-Adjusted Performance by Year

Hospitalization Diagnosis or Procedure	Year	U.S. Observed-to-Expected Ratio	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-Expected Ratio (95% CI)
Atrial Fibrillation	2004	1.07	2.49 (2.37 - 2.61)	.95	.28 (.13 - .43)
	2005	1.00	2.31 (2.19 - 2.42)	.91	.20 (.06 - .34)
	2006	.94	2.41 (2.30 - 2.53)	.83	.17 (.03 - .31)
	2004-2006	1.00	2.40 (2.33 - 2.47)	.90	.22 (.13 - .30)
Bowel Obstruction	2004	1.06	2.00 (1.93 - 2.07)	1.01	.49 (.42 - .56)
	2005	.99	1.92 (1.85 - 1.99)	.94	.44 (.37 - .51)
	2006	.95	1.87 (1.79 - 1.94)	.90	.43 (.36 - .50)
	2004-2006	1.00	1.93 (1.89 - 1.97)	.95	.45 (.41 - .49)
Chronic Obstructive Pulmonary Disease	2004	1.05	1.99 (1.94 - 2.04)	1.00	.50 (.45 - .54)
	2005	1.02	2.02 (1.97 - 2.07)	.96	.46 (.42 - .51)
	2006	.91	1.82 (1.76 - 1.87)	.88	.41 (.36 - .45)
	2004-2006	1.00	1.95 (1.92 - 1.98)	.95	.46 (.43 - .48)
Coronary Bypass Surgery	2004	1.08	2.03 (1.94 - 2.11)	1.02	.48 (.39 - .56)
	2005	.98	1.68 (1.59 - 1.76)	.94	.50 (.41 - .58)
	2006	.92	1.76 (1.66 - 1.86)	.88	.41 (.33 - .50)
	2004-2006	1.00	1.82 (1.77 - 1.88)	.95	.46 (.41 - .51)
Coronary Interventional Procedures (Angioplasty/Stent)	2004	.98	1.74 (1.64 - 1.83)	.97	.45 (.37 - .53)
	2005	1.05	1.89 (1.79 - 1.99)	1.04	.53 (.44 - .61)
	2006	.97	1.80 (1.70 - 1.90)	.96	.40 (.31 - .48)
	2004-2006	1.00	1.80 (1.75 - 1.86)	.99	.46 (.41 - .51)
Diabetic Acidosis and Coma	2004	1.07	3.17 (2.97 - 3.37)	.92	.05 (.00 - .32)
	2005	.96	2.72 (2.51 - 2.92)	.83	.21 (.00 - .45)
	2006	.89	2.70 (2.47 - 2.93)	.78	.08 (.00 - .37)
	2004-2006	.97	2.87 (2.75 - 2.99)	.85	.12 (.00 - .27)

Hospitalization Diagnosis or Procedure	Year	U.S. Observed-to-Expected Ratio	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-Expected Ratio (95% CI)
Gastrointestinal Bleed	2004	1.08	1.93 (1.87 - 1.99)	1.06	.57 (.52 - .62)
	2005	1.00	1.84 (1.78 - 1.90)	.97	.53 (.48 - .58)
	2006	.91	1.71 (1.65 - 1.77)	.88	.47 (.42 - .52)
	2004-2006	1.00	1.83 (1.80 - 1.87)	.97	.52 (.49 - .55)
Gastrointestinal Surgeries and Procedures	2004	1.05	1.69 (1.63 - 1.74)	1.04	.62 (.57 - .66)
	2005	.97	1.58 (1.53 - 1.63)	.97	.54 (.50 - .58)
	2006	.95	1.56 (1.51 - 1.61)	.95	.57 (.52 - .61)
	2004-2006	.99	1.61 (1.58 - 1.64)	.99	.57 (.55 - .60)
Heart Attack (Acute Myocardial Infarction)	2004	1.04	1.41 (1.39 - 1.44)	1.03	.75 (.73 - .77)
	2005	1.00	1.38 (1.36 - 1.41)	1.00	.70 (.68 - .72)
	2006	.95	1.30 (1.28 - 1.33)	.93	.69 (.67 - .72)
	2004-2006	1.00	1.37 (1.36 - 1.38)	.99	.72 (.70 - .73)
Heart Failure	2004	1.06	1.68 (1.66 - 1.71)	1.05	.68 (.66 - .70)
	2005	.99	1.63 (1.61 - 1.66)	.99	.62 (.60 - .64)
	2006	.94	1.55 (1.52 - 1.58)	.94	.58 (.56 - .60)
	2004-2006	1.00	1.62 (1.61 - 1.64)	.99	.63 (.62 - .64)
Pancreatitis	2004	1.11	2.80 (2.63 - 2.97)	1.03	.14 (.00 - .32)
	2005	.96	2.56 (2.39 - 2.72)	.87	.17 (.00 - .35)
	2006	.89	2.23 (2.06 - 2.41)	.84	.16 (.00 - .33)
	2004-2006	.99	2.54 (2.44 - 2.63)	.91	.16 (.06 - .26)
Pneumonia	2004	1.10	1.73 (1.70 - 1.75)	1.09	.71 (.69 - .72)
	2005	.97	1.57 (1.55 - 1.59)	.96	.59 (.57 - .61)
	2006	.92	1.51 (1.48 - 1.53)	.90	.57 (.55 - .59)
	2004-2006	1.00	1.61 (1.60 - 1.62)	.99	.63 (.62 - .64)
Pulmonary Embolism	2004	1.06	2.43 (2.28 - 2.58)	1.04	.31 (.19 - .43)
	2005	.91	2.00 (1.86 - 2.14)	.90	.29 (.17 - .40)
	2006	.87	1.93 (1.78 - 2.09)	.86	.29 (.17 - .41)
	2004-2006	.95	2.12 (2.03 - 2.20)	.93	.30 (.23 - .36)

Hospitalization Diagnosis or Procedure	Year	U.S. Observed-to-Expected Ratio	1-Star Observed-to-Expected Ratio (95% CI)	3-Star Observed-to-Expected Ratio	5-Star Observed-to-expected Ratio (95% CI)
Resection / Replacement Abdominal Aortic	2004	.93	2.00 (1.75 - 2.24)	.92	.36 (.16 - .55)
	2005	.99	1.98 (1.75 - 2.20)	.98	.41 (.24 - .58)
	2006	.93	2.19 (1.94 - 2.43)	.90	.42 (.23 - .61)
	2004-2006	.95	2.05 (1.91 - 2.19)	.94	.40 (.29 - .50)
Respiratory Failure	2004	1.05	1.47 (1.44 - 1.49)	1.06	.76 (.74 - .78)
	2005	.96	1.36 (1.34 - 1.38)	.98	.68 (.66 - .70)
	2006	.95	1.34 (1.32 - 1.36)	.97	.66 (.65 - .68)
	2004-2006	.98	1.38 (1.37 - 1.39)	1.00	.70 (.69 - .71)
Sepsis	2004	1.09	1.46 (1.45 - 1.48)	1.08	.81 (.80 - .82)
	2005	1.00	1.38 (1.36 - 1.39)	1.00	.73 (.72 - .74)
	2006	.93	1.29 (1.28 - 1.31)	.95	.68 (.67 - .69)
	2004-2006	.99	1.37 (1.36 - 1.38)	1.01	.73 (.72 - .74)
Stroke	2004	1.05	1.51 (1.49 - 1.53)	1.05	.72 (.70 - .74)
	2005	1.01	1.48 (1.45 - 1.50)	1.01	.69 (.67 - .70)
	2006	.93	1.38 (1.36 - 1.41)	.93	.63 (.62 - .65)
	2004-2006	1.00	1.46 (1.44 - 1.47)	1.00	.68 (.67 - .69)
Valve Replacement Surgery	2004	1.07	1.94 (1.84 - 2.04)	1.04	.57 (.49 - .66)
	2005	.96	1.71 (1.61 - 1.80)	.95	.45 (.37 - .53)
	2006	.93	1.54 (1.44 - 1.64)	.93	.49 (.41 - .58)
	2004-2006	.99	1.73 (1.67 - 1.78)	.97	.50 (.46 - .55)

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

Hospitalization Diagnosis or Procedure	Year	Percent of Improvement U.S. Average (2004-2006)	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 (2004-2006)
Atrial Fibrillation	2004	11.91%	88.62%	73.42%	5,899
	2005		91.23%	79.87%	
	2006		92.86%	81.62%	
	3-year aggregate		90.99%	78.36%	
Bowel Obstruction	2004	10.59%	75.70%	54.06%	10,538
	2005		77.08%	55.33%	
	2006		76.86%	54.45%	
	3-year aggregate		76.55%	54.64%	
Chronic Obstructive Pulmonary Disease	2004	12.80%	74.92%	52.35%	13,142
	2005		77.04%	54.61%	
	2006		77.65%	55.50%	
	3-year aggregate		76.49%	54.04%	
Coronary Bypass Surgery	2004	15.10%	76.46%	55.98%	4,886
	2005		70.46%	49.62%	
	2006		76.58%	55.17%	
	3-year aggregate		74.68%	53.72%	
Coronary Interventional Procedures (Angioplasty/Stent)	2004	.84%	73.97%	53.67%	5,980
	2005		71.94%	49.66%	
	2006		77.91%	58.98%	
	3-year aggregate		74.57%	53.99%	
Diabetic Acidosis and Coma	2004	16.56%	98.43%	95.32%	2,369
	2005		92.43%	78.50%	
	2006		96.96%	90.78%	
	3-year aggregate		95.96%	88.07%	

Appendix E: Risk-Adjusted Performance Improvement and Relative Risk Reductions

Hospitalization Diagnosis or Procedure	Year	Percent of Improvement U.S. Average (2004-2006)	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 (2004-2006)
Gastrointestinal Bleed	2004	15.89%	70.69%	47.83%	12,045
	2005		71.18%	46.77%	
	2006		72.49%	48.32%	
	3-year aggregate		71.45%	47.64%	
Gastrointestinal Surgeries and Procedures	2004	9.17%	63.29%	40.96%	10,258
	2005		65.70%	44.33%	
	2006		63.70%	40.58%	
	3-year aggregate		64.28%	42.01%	
Heart Attack (Acute Myocardial Infarction)	2004	8.93%	46.75%	27.69%	24,335
	2005		49.52%	30.25%	
	2006		46.81%	26.70%	
	3-year aggregate		47.74%	28.30%	
Heart Failure	2004	11.03%	59.37%	35.34%	30,816
	2005		62.10%	37.62%	
	2006		62.57%	38.27%	
	3-year aggregate		61.27%	36.98%	
Pancreatitis	2004	19.19%	95.00%	87.35%	3,424
	2005		93.17%	81.75%	
	2006		92.92%	82.34%	
	3-year aggregate		93.78%	84.01%	
Pneumonia	2004	16.11%	58.96%	35.40%	37,563
	2005		62.33%	38.71%	
	2006		62.25%	38.08%	
	3-year aggregate		60.99%	37.23%	
Pulmonary Embolism	2004	17.43%	87.35%	71.00%	4,444
	2005		85.66%	68.52%	
	2006		84.78%	66.40%	
	3-year aggregate		86.02%	68.75%	

Appendix E: Risk-Adjusted Performance Improvement and Relative Risk Reductions

Hospitalization Diagnosis or Procedure	Year	Percent of Improvement U.S. Average (2004-2006)	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 (2004-2006)
Resection/ Replacement Abdominal Aortic	2004	0.39%	82.13%	61.75%	1,421
	2005		79.12%	58.19%	
	2006		80.84%	54.86%	
	3-year aggregate		80.59%	58.12%	
Respiratory Failure	2004	9.06%	48.18%	27.47%	27,942
	2005		50.00%	29.39%	
	2006		50.32%	30.33%	
	3-year aggregate		49.57%	29.15%	
Sepsis	2004	14.05%	44.71%	25.41%	42,096
	2005		47.01%	26.68%	
	2006		47.21%	26.85%	
	3-year aggregate		46.64%	26.52%	
Stroke	2004	10.60%	52.39%	31.26%	25,616
	2005		53.57%	31.98%	
	2006		54.15%	32.07%	
	3-year aggregate		53.36%	31.78%	
Valve Replacement Surgery	2004	13.48%	70.46%	46.47%	3,830
	2005		73.88%	53.72%	
	2006		67.86%	46.72%	
	3-year aggregate		70.87%	49.01%	
Average			70.88%*	51.81%*	Total = 266,604

*These averages were calculated by averaging the 3-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, 55.9% fewer deaths than 1-star hospitals, and 34.5% fewer deaths than 3-star hospitals (risk-adjusted results).

Appendix F: Observed-to-Expected Ratios (O/E) by Service Line and Region

	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	0.88	1.09	0.90	1.00	0.99	1.01	1.04	1.00	1.19
Coronary Interventional Procedures (Angioplasty/Stent)	0.88	1.18	0.94	1.06	0.93	1.11	0.94	1.01	1.11
Heart Attack	0.91	1.08	1.03	0.93	0.95	1.01	0.98	0.98	1.07
Heart Failure and Atrial Fibrillation	0.87	1.20	1.03	0.90	1.01	1.03	0.93	1.03	1.05
Critical Care	0.87	1.08	1.06	0.91	1.12	0.98	0.98	0.96	1.00
Gastrointestinal	0.89	1.13	1.05	0.89	1.00	0.98	1.00	1.00	1.03
Pulmonary	0.86	1.11	1.06	0.93	1.03	0.97	0.98	1.00	1.00
Stroke	0.88	1.18	1.03	0.91	1.13	0.96	0.99	1.03	0.96
Combined	0.88	1.12	1.04	0.92	1.05	0.99	0.98	0.99	1.02

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 G: Percentage of Best-Performing Hospitals for Combined and Individual Conditions by Region

Region	Cardiac Surgery	Heart Attack	Coronary Interventional Procedures	Heart Failure and Atrial Fibrillation	Critical Care	Gastro-intestinal	Pulmonary	Stroke	Combined
New England	20.59%	21.52%	19.51%	14.12%	5.29%	14.12%	11.67%	5.96%	6.67%
Mid-Atlantic	24.66%	11.99%	21.81%	16.25%	10.23%	12.88%	11.54%	10.40%	13.04%
East North Central	21.46%	22.68%	22.58%	24.53%	23.59%	21.93%	25.00%	4.10%	25.92%
West North Central	12.63%	15.67%	12.82%	8.15%	12.04%	11.38%	9.38%	23.85%	7.76%
South Atlantic	12.50%	17.78%	22.30%	23.52%	21.30%	18.38%	19.56%	19.95%	23.50%
East South Central	8.64%	11.11%	4.85%	5.01%	7.95%	6.06%	10.67%	6.85%	6.67%
West South Central	6.98%	10.14%	11.00%	11.56%	12.25%	13.12%	14.06%	13.55%	12.75%
Mountain	15.79%	20.14%	10.43%	15.02%	19.44%	19.78%	15.95%	19.44%	16.95%
Pacific	12.08%	7.44%	5.62%	11.93%	14.68%	14.53%	12.75%	20.05%	13.62%

Appendix H: Percentage of Improvement for Combined and Individual Conditions by Region

	East North Central	East South Central	Mid-Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	12.8%	12.4%	14.2%	9.5%	8.9%	23.7%	10.1%	10.7%	19.3%
Heart Attack	8.5%	10.0%	6.2%	0.8%	8.7%	10.7%	9.0%	8.4%	14.9%
Coronary Interventional Procedures	-13.5%	-5.5%	4.4%	5.9%	7.7%	15.7%	1.9%	-22.3%	13.4%
Heart Failure and Atrial Fibrillation	14.0%	9.4%	12.6%	8.8%	7.6%	6.6%	10.3%	10.0%	9.9%
Critical Care	12.9%	13.7%	12.6%	8.2%	14.1%	10.9%	10.4%	11.1%	13.6%
Gastrointestinal	12.9%	7.9%	16.7%	10.4%	7.1%	9.1%	12.3%	8.8%	15.0%
Pulmonary	17.6%	15.9%	18.6%	13.4%	15.9%	8.5%	15.5%	13.4%	12.5%
Stroke	11.2%	10.8%	11.1%	12.8%	9.7%	10.2%	8.9%	8.4%	13.3%
Combined	12.6%	12.2%	12.7%	8.8%	10.6%	10.1%	10.7%	9.6%	13.5%

Appendix I.1: Alabama (AL) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.46%	4.06%	25.66%	4.54%	25	8.00%	60.00%	32.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	13.26%	11.92%	10.11%	12.92%	56	1.79%	57.14%	41.07%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.99%	1.30%	-31.01%	1.32%	29	6.90%	68.97%	24.14%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.32%	4.11%	4.81%	4.36%	99	2.02%	73.74%	24.24%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	22.32%	20.55%	7.91%	21.02%	91	3.30%	69.23%	27.47%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.26%	5.09%	3.17%	5.15%	93	6.45%	75.27%	18.28%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.74%	4.94%	14.02%	5.29%	99	4.04%	70.71%	25.25%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	13.15%	11.99%	8.83%	12.96%	69	5.80%	68.12%	26.09%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.06%	7.37%	8.59%	7.74%	100	2.00%	63.00%	35.00%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.2: Alaska (AK) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	.70%	2.25%	-221.1%	1.97%	2	50.00%	50.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	14.72%	11.54%	21.58%	13.03%	3	.00%	66.67%	33.33%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.97%	1.54%	-58.17%	1.06%	2	.00%	100.00%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.93%	3.86%	21.82%	4.18%	12	.00%	91.67%	8.33%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	23.81%	16.92%	28.92%	18.25%	8	.00%	87.50%	12.50%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.86%	4.11%	15.46%	4.74%	11	.00%	90.91%	9.09%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.56%	3.55%	22.24%	4.10%	16	.00%	93.75%	6.25%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	17.09%	12.58%	26.39%	14.51%	7	.00%	85.71%	14.29%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.87%	6.38%	18.99%	6.84%	17	.00%	94.12%	5.88%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.3: Arkansas (AR) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.74%	4.97%	26.21%	5.50%	20	.00%	65.00%	35.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	13.92%	10.76%	22.75%	12.72%	41	4.88%	60.98%	34.15%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.20%	1.18%	1.57%	1.28%	22	9.09%	68.18%	22.73%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	5.25%	5.31%	-.98%	5.12%	79	3.80%	54.43%	41.77%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.89%	18.49%	15.52%	20.17%	64	4.69%	68.75%	26.56%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.63%	5.44%	3.33%	5.27%	72	6.94%	69.44%	23.61%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.67%	5.14%	9.45%	5.41%	79	6.33%	63.29%	30.38%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	14.31%	12.56%	12.27%	13.32%	48	.00%	68.75%	31.25%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.53%	7.46%	12.51%	7.93%	79	6.33%	51.90%	41.77%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.4: Arizona (AZ) Quality Report

- Arizona is one of the top five states nationwide with the highest percentage of best-performing hospitals in critical care, treatment of heart failure/atrial fibrillation, gastrointestinal care, pulmonary care, and stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.48%	3.76%	-8.26%	3.57%	24	12.50%	83.33%	4.17%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	8.99%	9.32%	-3.69%	9.39%	44	25.00%	72.73%	2.27%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.23%	1.02%	17.57%	1.19%	39	10.26%	76.92%	12.82%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	2.67%	2.28%	14.48%	2.45%	60	40.00%	55.00%	5.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	16.45%	15.30%	6.97%	15.62%	54	35.19%	57.41%	7.41%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.03%	3.52%	12.70%	3.65%	54	31.48%	62.96%	5.56%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.67%	3.37%	7.96%	3.35%	70	38.57%	55.71%	5.71%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	7.89%	6.84%	13.28%	7.11%	44	43.18%	54.55%	2.27%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.54%	5.20%	6.21%	5.28%	71	36.62%	59.15%	4.23%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.5: California (CA) Quality Report

- California is one of the top five states nationwide showing the most improvement in cardiac surgery, treatment of heart attack, and coronary interventional procedures.
- California is one of the top five states nationwide with the highest percentage of best-performing hospitals in stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.68%	3.50%	25.27%	3.93%	113	15.04%	74.34%	10.62%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.60%	10.41%	10.27%	10.99%	238	4.62%	86.13%	9.24%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.28%	1.08%	15.69%	1.23%	128	7.03%	74.22%	18.75%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.77%	3.51%	6.98%	3.62%	330	13.94%	75.45%	10.61%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.95%	17.18%	9.37%	17.73%	313	17.57%	71.57%	10.86%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.56%	4.18%	8.44%	4.31%	324	13.89%	73.77%	12.35%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.32%	4.03%	6.54%	4.17%	341	15.84%	72.14%	12.02%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.24%	9.31%	9.08%	9.80%	273	24.91%	63.74%	11.36%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.73%	6.14%	8.71%	6.37%	342	18.42%	71.93%	9.65%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.6: Colorado (CO) Quality Report

- Colorado is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery and treatment of heart attack.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.35%	3.39%	-1.00%	3.64%	17	29.41%	64.71%	5.88%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	9.11%	8.57%	5.99%	8.94%	29	37.93%	62.07%	.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.29%	1.16%	9.95%	1.17%	26	11.54%	73.08%	15.38%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	2.80%	2.58%	8.17%	2.72%	62	20.97%	74.19%	4.84%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	14.78%	14.29%	3.27%	14.13%	42	23.81%	76.19%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.72%	3.03%	18.62%	3.35%	55	27.27%	69.09%	3.64%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.89%	3.17%	18.50%	3.53%	64	21.88%	67.19%	10.94%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	9.54%	8.01%	16.03%	8.89%	39	28.21%	71.79%	.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.57%	5.01%	10.13%	5.25%	65	26.15%	69.23%	4.62%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.7: Connecticut (CT) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.48%	3.71%	17.21%	4.03%	10	20.00%	70.00%	10.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	9.74%	9.25%	5.09%	9.72%	30	23.33%	73.33%	3.33%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.95%	.86%	8.78%	.98%	10	30.00%	60.00%	10.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.43%	3.04%	11.38%	3.35%	30	20.00%	66.67%	13.33%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.84%	18.12%	13.09%	18.81%	30	16.67%	60.00%	23.33%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.42%	4.18%	5.30%	4.24%	30	16.67%	76.67%	6.67%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.72%	3.67%	22.18%	4.27%	30	16.67%	70.00%	13.33%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.31%	10.93%	11.18%	11.58%	30	6.67%	66.67%	26.67%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.91%	6.11%	11.54%	6.48%	30	16.67%	73.33%	10.00%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.8: Delaware (DE) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.65%	4.30%	-17.74%	3.56%	3	33.33%	66.67%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.07%	12.16%	-9.77%	11.63%	5	20.00%	20.00%	60.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.94%	1.75%	9.63%	1.51%	3	.00%	33.33%	66.67%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.51%	2.28%	35.07%	2.82%	5	60.00%	40.00%	.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.45%	14.60%	16.34%	16.52%	5	20.00%	80.00%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.45%	3.96%	11.16%	4.19%	5	20.00%	60.00%	20.00%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.77%	3.07%	18.64%	3.44%	5	40.00%	60.00%	.00%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.92%	10.28%	13.69%	11.16%	5	.00%	80.00%	20.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.45%	5.51%	14.52%	6.00%	5	20.00%	80.00%	.00%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.9: District of Columbia (DC) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.95%	5.06%	27.23%	5.64%	2	.00%	.00%	100.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.02%	9.82%	18.34%	11.92%	7	14.29%	71.43%	14.29%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.66%	1.09%	-65.30%	1.12%	4	.00%	100.00%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.07%	3.11%	-1.28%	3.10%	7	14.29%	85.71%	.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.47%	18.44%	9.94%	20.08%	7	.00%	85.71%	14.29%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.94%	4.60%	-17.00%	4.24%	7	28.57%	57.14%	14.29%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.18%	4.35%	-4.05%	4.24%	7	.00%	100.00%	.00%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	8.94%	9.02%	-.82%	9.20%	7	57.14%	42.86%	.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.58%	6.34%	3.70%	6.64%	7	.00%	85.71%	14.29%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.10: Florida (FL) Quality Report

- Florida is one of the top five states nationwide showing the most improvement in pulmonary care.
- Florida is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart attack, stroke care, pulmonary care, coronary interventional procedures, treatment of heart failure/atrial fibrillation, critical care and gastrointestinal services.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.40%	4.07%	7.55%	4.14%	66	12.12%	74.24%	13.64%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.29%	9.40%	8.69%	9.76%	157	30.57%	57.32%	12.10%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.92%	.89%	3.64%	.92%	70	38.57%	54.29%	7.14%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	2.75%	2.54%	7.52%	2.63%	181	48.07%	48.07%	3.87%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	16.39%	15.25%	6.97%	15.71%	175	40.00%	54.86%	5.14%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.07%	3.46%	14.99%	3.79%	175	36.57%	56.57%	6.86%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.80%	2.99%	21.30%	3.40%	184	44.57%	52.17%	3.26%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	8.52%	7.73%	9.28%	8.28%	165	44.85%	55.15%	.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.74%	5.19%	9.55%	5.45%	186	51.08%	45.70%	3.23%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.11: Georgia (GA) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.86%	4.14%	14.75%	4.40%	19	5.26%	63.16%	31.58%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.29%	10.95%	2.96%	11.32%	75	10.67%	65.33%	24.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.92%	1.05%	-13.82%	1.06%	20	15.00%	75.00%	10.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.84%	3.38%	11.99%	3.62%	142	11.97%	73.94%	14.08%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.65%	17.73%	14.14%	18.82%	121	11.57%	76.03%	12.40%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.85%	4.35%	10.37%	4.53%	124	11.29%	74.19%	14.52%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.79%	4.50%	6.13%	4.54%	143	9.79%	75.52%	14.69%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.83%	11.27%	4.71%	11.50%	91	8.79%	72.53%	18.68%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.20%	6.52%	9.49%	6.80%	143	11.89%	72.73%	15.38%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.12: Hawaii (HI) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.05%	5.12%	15.44%	5.45%	5	.00%	60.00%	40.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.65%	12.41%	1.93%	12.20%	12	.00%	75.00%	25.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.10%	1.82%	-65.09%	1.41%	6	.00%	83.33%	16.67%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.97%	4.24%	-6.84%	4.13%	16	.00%	93.75%	6.25%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.90%	18.82%	14.05%	19.97%	14	.00%	92.86%	7.14%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.57%	5.38%	3.33%	5.61%	14	.00%	71.43%	28.57%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	6.52%	6.55%	-.54%	6.07%	16	.00%	68.75%	31.25%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.22%	11.01%	-7.78%	11.31%	14	.00%	92.86%	7.14%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.82%	7.52%	3.93%	7.60%	17	.00%	76.47%	23.53%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.13: Idaho (ID) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.26%	3.11%	50.22%	4.96%	5	40.00%	40.00%	20.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.17%	10.87%	2.72%	11.68%	10	10.00%	70.00%	20.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.31%	1.08%	17.56%	1.18%	7	28.57%	57.14%	14.29%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.98%	4.83%	-21.55%	4.60%	34	.00%	82.35%	17.65%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.45%	19.73%	3.48%	19.87%	16	.00%	100.00%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.05%	4.46%	11.71%	4.75%	31	6.45%	80.65%	12.90%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.77%	5.42%	6.04%	5.52%	35	.00%	77.14%	22.86%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	13.03%	13.83%	-6.18%	13.94%	14	.00%	57.14%	42.86%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.66%	7.48%	2.31%	7.68%	35	.00%	91.43%	8.57%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.14: Illinois (IL) Quality Report

- Illinois is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures, treatment of heart failure/atrial fibrillation, and stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.94%	3.40%	13.66%	3.67%	63	14.29%	79.37%	6.35%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.29%	9.27%	9.86%	9.84%	127	20.47%	71.65%	7.87%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.75%	.96%	-28.47%	.86%	76	31.58%	63.16%	5.26%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.25%	2.93%	9.59%	3.10%	184	28.26%	57.07%	14.67%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.66%	15.61%	11.61%	16.51%	167	20.96%	67.66%	11.38%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.52%	3.77%	16.50%	4.07%	179	22.91%	60.34%	16.76%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.15%	3.48%	16.20%	3.84%	184	27.17%	65.76%	7.07%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	9.60%	8.80%	8.37%	9.25%	151	26.49%	63.58%	9.93%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.20%	5.50%	11.22%	5.85%	184	28.26%	60.87%	10.87%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.15: Indiana (IN) Quality Report

- Indiana is one of the top fives states nationwide showing the most improvement in stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.79%	3.44%	9.07%	3.71%	32	15.63%	78.13%	6.25%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.45%	10.15%	11.37%	10.89%	71	12.68%	77.46%	9.86%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.03%	.96%	6.45%	1.05%	43	13.95%	79.07%	6.98%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.04%	3.37%	16.47%	3.66%	112	11.61%	75.89%	12.50%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	19.18%	16.15%	15.78%	17.48%	100	11.00%	81.00%	8.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.57%	4.15%	9.09%	4.32%	109	11.93%	72.48%	15.60%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.68%	3.75%	19.99%	4.20%	112	14.29%	71.43%	14.29%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.29%	8.94%	20.86%	10.15%	92	7.61%	82.61%	9.78%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.94%	5.86%	15.62%	6.38%	114	12.28%	73.68%	14.04%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.16: Iowa (IA) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.20%	5.00%	3.95%	4.91%	12	8.33%	58.33%	33.33%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.99%	9.14%	16.85%	10.09%	40	20.00%	70.00%	10.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.15%	1.16%	-.81%	1.11%	18	22.22%	66.67%	11.11%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.13%	3.55%	13.91%	3.82%	111	8.11%	75.68%	16.22%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.02%	15.13%	11.11%	16.22%	65	10.77%	78.46%	10.77%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.76%	4.38%	8.03%	4.62%	102	6.86%	81.37%	11.76%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.33%	4.24%	20.48%	4.75%	114	10.53%	68.42%	21.05%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	13.06%	10.50%	19.61%	11.74%	65	1.54%	83.08%	15.38%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.13%	6.09%	14.67%	6.59%	114	6.14%	80.70%	13.16%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.17: Kansas (KS) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.33%	3.07%	29.17%	3.99%	15	13.33%	80.00%	6.67%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.86%	9.92%	16.37%	10.85%	29	10.34%	79.31%	10.34%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.15%	1.52%	-31.96%	1.27%	19	5.26%	68.42%	26.32%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.13%	3.87%	6.31%	3.93%	105	5.71%	79.05%	15.24%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	22.58%	18.20%	19.40%	19.58%	50	6.00%	78.00%	16.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.79%	4.39%	8.34%	4.56%	83	6.02%	83.13%	10.84%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.94%	4.34%	12.20%	4.63%	123	7.32%	81.30%	11.38%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.19%	9.07%	18.96%	10.45%	50	8.00%	84.00%	8.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.42%	6.47%	12.90%	6.91%	126	3.17%	88.89%	7.94%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.18: Kentucky (KY) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.50%	3.67%	18.53%	3.93%	17	17.65%	70.59%	11.76%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.20%	10.10%	9.81%	10.42%	56	23.21%	64.29%	12.50%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.20%	1.26%	-5.57%	1.21%	20	.00%	85.00%	15.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.71%	3.59%	3.30%	3.67%	96	11.46%	68.75%	19.79%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.21%	15.28%	11.18%	16.18%	82	19.51%	75.61%	4.88%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.76%	4.53%	4.91%	4.50%	90	5.56%	80.00%	14.44%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.48%	3.80%	15.08%	4.02%	96	18.75%	67.71%	13.54%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.30%	11.46%	6.82%	12.05%	55	5.45%	78.18%	16.36%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.68%	6.00%	10.21%	6.27%	96	14.58%	72.92%	12.50%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.19: Louisiana (LA) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.19%	4.20%	-.29%	4.35%	33	12.12%	69.70%	18.18%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.13%	10.48%	13.55%	11.44%	64	7.81%	70.31%	21.88%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.39%	1.12%	19.21%	1.25%	44	9.09%	72.73%	18.18%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.96%	3.69%	6.83%	3.77%	112	10.71%	75.00%	14.29%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	19.99%	19.00%	4.94%	18.77%	90	10.00%	75.56%	14.44%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.99%	4.85%	2.93%	4.82%	96	7.29%	70.83%	21.88%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.56%	4.17%	8.65%	4.28%	111	11.71%	74.77%	13.51%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.66%	11.07%	5.02%	11.47%	70	4.29%	84.29%	11.43%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.17%	6.74%	6.01%	6.82%	117	8.55%	73.50%	17.95%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.20: Maine (ME) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.87%	3.80%	21.90%	4.76%	3	.00%	100.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.36%	9.69%	6.53%	10.31%	28	10.71%	85.71%	3.57%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.01%	.72%	29.18%	.89%	4	25.00%	75.00%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.19%	4.01%	4.47%	4.09%	35	8.57%	77.14%	14.29%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.52%	19.00%	11.73%	19.28%	31	9.68%	70.97%	19.35%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.77%	5.07%	-6.23%	4.97%	35	11.43%	71.43%	17.14%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.04%	4.32%	14.28%	4.69%	36	2.78%	83.33%	13.89%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	14.30%	12.86%	10.08%	13.15%	24	.00%	75.00%	25.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.41%	6.72%	9.31%	7.00%	36	2.78%	86.11%	11.11%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.21: Maryland (MD) Quality Report

- Maryland is one of the top five states nationwide showing the most improvement in the treatment of heart failure/atrial fibrillation, critical care, and gastrointestinal care.
- Maryland is one of the top five states nationwide with the highest percentage of best-performing hospitals in pulmonary care, gastrointestinal care, treatment of heart failure/atrial fibrillation, and critical care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.36%	3.83%	28.60%	4.61%	9	22.22%	22.22%	55.56%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.30%	10.25%	9.22%	10.62%	44	25.00%	65.91%	9.09%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.50%	1.25%	17.06%	1.35%	16	12.50%	68.75%	18.75%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	2.99%	2.21%	26.12%	2.55%	45	62.22%	37.78%	.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.69%	15.14%	18.97%	16.48%	45	33.33%	57.78%	8.89%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.30%	2.98%	30.82%	3.67%	45	37.78%	60.00%	2.22%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.07%	3.11%	23.55%	3.59%	45	42.22%	55.56%	2.22%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.00%	9.38%	14.70%	10.07%	42	14.29%	76.19%	9.52%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.51%	5.19%	20.33%	5.77%	46	41.30%	54.35%	4.35%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.22: Massachusetts (MA) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.90%	3.17%	-9.48%	3.13%	14	35.71%	64.29%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.13%	10.03%	9.92%	10.63%	59	25.42%	61.02%	13.56%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.94%	1.00%	-6.93%	1.00%	16	18.75%	68.75%	12.50%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.66%	3.33%	9.11%	3.46%	63	20.63%	65.08%	14.29%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	23.24%	19.33%	16.80%	20.98%	62	1.61%	70.97%	27.42%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.53%	3.80%	16.04%	4.24%	63	15.87%	73.02%	11.11%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.93%	4.01%	18.70%	4.42%	64	18.75%	67.19%	14.06%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.86%	11.52%	10.40%	12.19%	54	7.41%	68.52%	24.07%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.28%	6.39%	12.27%	6.82%	64	7.81%	78.13%	14.06%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.23: Michigan (MI) Quality Report

- Michigan is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery, treatment of heart attack, gastrointestinal care, pulmonary care, and critical care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.03%	3.76%	6.65%	3.78%	31	25.81%	64.52%	9.68%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.07%	9.52%	5.46%	9.93%	92	32.61%	58.70%	8.70%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.93%	1.13%	-21.72%	1.09%	33	21.21%	63.64%	15.15%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.18%	2.73%	14.25%	2.98%	126	29.37%	64.29%	6.35%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	16.13%	14.26%	11.57%	14.94%	112	32.14%	62.50%	5.36%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.84%	3.69%	3.75%	3.76%	121	26.45%	70.25%	3.31%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.88%	3.26%	16.02%	3.54%	128	30.47%	65.63%	3.91%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	9.78%	8.56%	12.49%	9.21%	102	25.49%	65.69%	8.82%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.85%	5.24%	10.45%	5.53%	130	31.54%	65.38%	3.08%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.24: Minnesota (MN) 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.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.52%	3.60%	-2.37%	3.53%	14	28.57%	71.43%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	9.24%	8.83%	4.43%	9.17%	45	33.33%	66.67%	.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.04%	1.13%	-9.24%	1.11%	16	18.75%	75.00%	6.25%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.30%	2.94%	10.78%	3.09%	123	13.82%	75.61%	10.57%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.36%	14.29%	17.66%	15.65%	68	14.71%	80.88%	4.41%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.63%	3.31%	8.77%	3.50%	103	19.42%	71.84%	8.74%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.16%	3.27%	21.57%	3.78%	127	9.45%	85.83%	4.72%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.73%	9.20%	14.29%	10.15%	70	12.86%	71.43%	15.71%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.05%	5.28%	12.68%	5.67%	132	13.64%	84.85%	1.52%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.25: Mississippi (MS) Quality Report

- Mississippi is one of the top five states nationwide showing the most improvement in the treatment of heart failure/atrial fibrillation.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.63%	6.07%	-30.99%	5.11%	17	.00%	82.35%	17.65%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.77%	13.97%	-9.41%	13.31%	38	5.26%	60.53%	34.21%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.63%	1.43%	12.08%	1.58%	19	5.26%	68.42%	26.32%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	6.22%	4.89%	21.38%	5.55%	87	1.15%	50.57%	48.28%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	26.12%	23.19%	11.21%	24.29%	68	.00%	52.94%	47.06%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	6.26%	5.68%	9.32%	5.86%	69	2.90%	53.62%	43.48%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	7.06%	5.99%	15.05%	6.43%	92	2.17%	58.70%	39.13%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	14.19%	12.40%	12.65%	13.26%	55	.00%	70.91%	29.09%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	9.56%	8.49%	11.20%	8.94%	92	1.09%	51.09%	47.83%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.26: Missouri (MO) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.81%	4.49%	6.56%	4.55%	34	5.88%	76.47%	17.65%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.33%	11.46%	7.03%	11.84%	65	6.15%	69.23%	24.62%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.99%	1.25%	-26.71%	1.18%	39	5.13%	82.05%	12.82%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.89%	3.55%	8.77%	3.77%	111	10.81%	74.77%	14.41%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.74%	17.18%	8.37%	17.40%	90	15.56%	67.78%	16.67%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.92%	4.47%	9.07%	4.64%	103	12.62%	71.84%	15.53%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.62%	3.97%	14.07%	4.32%	112	16.07%	72.32%	11.61%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.79%	10.49%	2.77%	10.85%	81	7.41%	79.01%	13.58%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.95%	6.39%	7.98%	6.62%	112	12.50%	72.32%	15.18%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.27: Montana (MT) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.84%	5.83%	-105.4%	4.03%	5	20.00%	60.00%	20.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.97%	9.85%	10.21%	10.46%	11	9.09%	81.82%	9.09%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.97%	1.19%	-23.06%	1.12%	9	11.11%	66.67%	22.22%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.15%	3.52%	15.07%	3.77%	40	5.00%	85.00%	10.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	24.35%	16.92%	30.49%	18.90%	20	5.00%	70.00%	25.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.93%	4.30%	-9.53%	4.17%	26	15.38%	73.08%	11.54%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	6.08%	5.21%	14.34%	5.55%	51	.00%	80.39%	19.61%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.36%	11.47%	7.17%	12.27%	17	5.88%	70.59%	23.53%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.63%	6.81%	10.76%	7.14%	53	3.77%	84.91%	11.32%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.28: Nebraska (NE) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.79%	3.48%	27.25%	3.87%	10	10.00%	90.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.00%	10.82%	9.86%	11.83%	17	.00%	70.59%	29.41%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.05%	.97%	7.76%	1.14%	15	13.33%	73.33%	13.33%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	5.09%	4.10%	19.41%	4.43%	70	1.43%	75.71%	22.86%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	22.45%	20.37%	9.28%	21.40%	25	.00%	88.00%	12.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	6.11%	4.69%	23.18%	5.13%	52	3.85%	75.00%	21.15%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.32%	5.40%	-1.39%	5.12%	81	2.47%	85.19%	12.35%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.89%	12.10%	-11.16%	11.92%	31	3.23%	70.97%	25.81%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.97%	7.31%	8.17%	7.55%	81	2.47%	86.42%	11.11%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.29: Nevada (NV) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.54%	4.45%	19.70%	5.06%	9	11.11%	44.44%	44.44%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.63%	12.16%	-4.60%	11.62%	15	.00%	93.33%	6.67%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.80%	1.25%	30.36%	1.48%	11	.00%	72.73%	27.27%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.38%	4.00%	-18.52%	3.65%	26	11.54%	80.77%	7.69%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.30%	18.38%	-.47%	18.05%	19	5.26%	89.47%	5.26%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.27%	4.51%	-5.49%	4.43%	23	21.74%	60.87%	17.39%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.30%	3.99%	7.39%	3.97%	28	17.86%	75.00%	7.14%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.76%	8.68%	19.39%	10.16%	18	16.67%	66.67%	16.67%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.65%	6.56%	1.44%	6.53%	28	7.14%	82.14%	10.71%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.30: New Hampshire (NH) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.77%	6.58%	-14.07%	6.15%	4	.00%	50.00%	50.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.02%	9.44%	14.37%	10.27%	21	28.57%	61.90%	9.52%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.81%	1.21%	33.13%	1.54%	7	.00%	71.43%	28.57%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.40%	4.36%	.99%	4.34%	25	8.00%	76.00%	16.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	24.04%	21.10%	12.23%	22.65%	25	.00%	80.00%	20.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.29%	4.51%	-5.08%	4.55%	26	11.54%	80.77%	7.69%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.61%	5.01%	10.68%	5.31%	26	3.85%	76.92%	19.23%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	14.05%	11.66%	17.05%	12.28%	23	4.35%	69.57%	26.09%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.88%	7.19%	8.72%	7.54%	26	3.85%	73.08%	23.08%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.31: New Jersey (NJ) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.71%	3.56%	4.25%	3.65%	18	22.22%	77.78%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.76%	11.41%	2.94%	11.59%	71	8.45%	67.61%	23.94%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.27%	1.21%	5.24%	1.24%	28	17.86%	60.71%	21.43%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.84%	3.44%	10.50%	3.65%	76	13.16%	73.68%	13.16%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.71%	18.64%	10.03%	19.50%	75	6.67%	64.00%	29.33%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.57%	4.31%	5.69%	4.53%	74	13.51%	66.22%	20.27%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.99%	3.98%	20.29%	4.51%	76	11.84%	68.42%	19.74%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.63%	9.37%	11.88%	10.16%	72	18.06%	70.83%	11.11%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.15%	6.43%	10.08%	6.80%	76	10.53%	65.79%	23.68%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.32: New Mexico (NM) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.68%	4.36%	6.90%	4.54%	6	.00%	83.33%	16.67%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.16%	10.29%	-1.24%	10.48%	13	23.08%	69.23%	7.69%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.04%	1.17%	-11.87%	1.05%	7	14.29%	71.43%	14.29%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.86%	3.59%	26.07%	4.44%	37	5.41%	83.78%	10.81%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.35%	17.25%	19.22%	18.77%	27	18.52%	70.37%	11.11%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.18%	3.99%	23.02%	4.74%	34	2.94%	82.35%	14.71%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	6.36%	4.53%	28.76%	5.38%	41	7.32%	73.17%	19.51%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.88%	11.75%	8.79%	12.93%	18	.00%	77.78%	22.22%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.11%	6.51%	19.78%	7.32%	41	12.20%	73.17%	14.63%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.33: New York (NY) Quality Report

- New York is one of the top five states nationwide showing the most improvement in gastrointestinal care and pulmonary care.
- New York is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.60%	3.16%	12.42%	3.56%	36	22.22%	69.44%	8.33%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.71%	12.00%	5.62%	12.26%	169	5.33%	63.91%	30.77%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.75%	.76%	-1.72%	.74%	41	48.78%	48.78%	2.44%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.63%	4.25%	8.41%	4.49%	187	3.21%	57.75%	39.04%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	22.41%	20.25%	9.62%	21.03%	181	4.42%	56.91%	38.67%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.83%	4.91%	15.71%	5.30%	182	2.20%	64.29%	33.52%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.91%	5.03%	14.87%	5.46%	191	2.62%	60.21%	37.17%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	13.03%	11.81%	9.36%	12.32%	173	2.89%	68.79%	28.32%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.17%	7.30%	10.58%	7.69%	191	2.09%	51.31%	46.60%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.34: North Carolina (NC) Quality Report

- North Carolina is one of the top five states nationwide showing the most improvement in critical care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.50%	4.86%	-8.10%	4.70%	21	19.05%	57.14%	23.81%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.25%	10.88%	11.23%	11.72%	80	8.75%	68.75%	22.50%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.41%	1.36%	3.82%	1.31%	23	.00%	82.61%	17.39%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.17%	3.64%	12.59%	3.94%	107	13.08%	71.03%	15.89%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.21%	18.29%	13.77%	19.39%	101	14.85%	53.47%	31.68%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.17%	4.82%	6.85%	4.90%	105	10.48%	62.86%	26.67%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.76%	4.85%	15.84%	5.26%	109	6.42%	58.72%	34.86%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	13.78%	12.15%	11.83%	12.74%	90	2.22%	72.22%	25.56%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.87%	6.87%	12.65%	7.30%	109	11.01%	57.80%	31.19%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.35: North Dakota (ND) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.35%	5.08%	-51.79%	3.90%	6	16.67%	66.67%	16.67%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	8.52%	9.76%	-14.55%	9.43%	11	18.18%	81.82%	.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.43%	1.38%	-220.6%	1.00%	6	33.33%	66.67%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.45%	3.15%	8.72%	3.16%	37	5.41%	91.89%	2.70%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	14.77%	14.68%	.62%	14.63%	14	21.43%	78.57%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.66%	4.17%	10.51%	4.35%	23	17.39%	78.26%	4.35%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.77%	3.58%	5.26%	3.67%	42	14.29%	80.95%	4.76%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.77%	14.18%	-31.70%	12.71%	11	.00%	72.73%	27.27%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.65%	6.03%	-6.78%	5.87%	41	7.32%	90.24%	2.44%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.36: Ohio (OH) Quality Report

- Ohio is one of the top five states nationwide showing the most improvement in the treatment of heart failure/atrial fibrillation, gastrointestinal care and pulmonary care.
- Ohio is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery, coronary interventional procedures, treatment of heart attack, treatment of heart failure, gastrointestinal care, critical care, pulmonary care, and stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.57%	3.15%	11.60%	3.34%	52	28.85%	65.38%	5.77%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	9.59%	9.00%	6.12%	9.37%	122	28.69%	68.03%	3.28%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.80%	.97%	-21.71%	.93%	59	30.51%	64.41%	5.08%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.07%	2.54%	17.49%	2.83%	155	34.84%	61.94%	3.23%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	15.62%	13.54%	13.35%	14.45%	147	34.01%	63.27%	2.72%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.05%	3.27%	19.12%	3.64%	156	29.49%	66.67%	3.85%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.88%	3.06%	21.14%	3.47%	157	38.85%	55.41%	5.73%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	8.84%	8.35%	5.54%	8.73%	131	36.64%	58.02%	5.34%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	5.68%	4.90%	13.63%	5.29%	157	39.49%	58.60%	1.91%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.37: Oklahoma (OK) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.14%	5.11%	16.85%	5.53%	17	.00%	64.71%	35.29%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.66%	12.47%	1.54%	12.88%	43	4.65%	69.77%	25.58%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.70%	1.15%	32.50%	1.39%	22	9.09%	68.18%	22.73%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.24%	3.98%	6.19%	4.05%	97	7.22%	77.32%	15.46%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	22.13%	19.77%	10.65%	21.16%	74	4.05%	72.97%	22.97%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	6.10%	5.08%	16.78%	5.40%	80	7.50%	71.25%	21.25%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.55%	4.95%	10.84%	5.25%	111	1.80%	79.28%	18.92%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.94%	11.06%	7.34%	11.72%	56	.00%	87.50%	12.50%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.08%	7.27%	9.98%	7.70%	111	1.80%	75.68%	22.52%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.38: Oregon (OR) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.92%	3.85%	21.67%	4.63%	11	.00%	90.91%	9.09%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.70%	9.67%	9.62%	10.33%	35	17.14%	74.29%	8.57%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.49%	1.04%	30.29%	1.24%	13	.00%	84.62%	15.38%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.54%	4.47%	1.58%	4.30%	54	3.70%	85.19%	11.11%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.34%	17.68%	17.17%	18.76%	45	6.67%	84.44%	8.89%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.79%	3.90%	18.59%	4.34%	53	18.87%	69.81%	11.32%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.17%	4.38%	15.22%	4.77%	56	3.57%	80.36%	16.07%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.86%	11.86%	7.75%	12.03%	43	4.65%	83.72%	11.63%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.51%	6.51%	13.34%	6.91%	57	3.51%	89.47%	7.02%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.39: Pennsylvania (PA) Quality Report

- Pennsylvania is one of the top five states nationwide showing the most improvement in the treatment of heart failure/atrial fibrillation, critical care, and pulmonary care.
- Pennsylvania is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.88%	3.11%	19.72%	3.48%	60	28.33%	68.33%	3.33%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.35%	9.75%	5.74%	10.04%	150	18.00%	73.33%	8.67%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.96%	.95%	1.35%	1.01%	67	17.91%	73.13%	8.96%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.60%	3.08%	14.47%	3.33%	166	21.08%	69.28%	9.64%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.15%	16.98%	15.73%	18.22%	165	10.91%	77.58%	11.52%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.70%	4.00%	15.00%	4.35%	168	15.48%	67.26%	17.26%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.75%	3.75%	21.10%	4.30%	167	11.98%	77.25%	10.78%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.70%	9.73%	9.10%	10.45%	150	12.67%	76.67%	10.67%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.80%	5.89%	13.36%	6.34%	169	18.93%	72.19%	8.88%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.40: Rhode Island (RI) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	8.49%	4.61%	45.77%	4.91%	2	.00%	100.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.20%	11.15%	.42%	10.86%	10	10.00%	80.00%	10.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.99%	.94%	4.72%	.99%	3	33.33%	33.33%	33.33%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.69%	3.33%	9.84%	3.67%	10	10.00%	90.00%	.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.97%	19.76%	10.04%	20.76%	10	.00%	80.00%	20.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.19%	4.61%	-10.10%	4.58%	10	20.00%	60.00%	20.00%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.22%	4.69%	-10.97%	4.41%	10	10.00%	90.00%	.00%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.31%	11.58%	-2.34%	11.91%	10	10.00%	60.00%	30.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.01%	6.86%	2.11%	6.97%	10	.00%	100.00%	.00%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.41: South Carolina (SC) Quality Report

- South Carolina is one of the top five states nationwide showing the most improvement in cardiac surgery, treatment of heart attack, and stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.12%	3.37%	34.28%	4.19%	16	18.75%	62.50%	18.75%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.40%	10.29%	17.03%	11.57%	41	7.32%	68.29%	24.39%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.41%	1.18%	16.60%	1.31%	17	.00%	70.59%	29.41%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	5.09%	4.33%	14.98%	4.71%	58	5.17%	62.07%	32.76%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.90%	19.25%	12.10%	20.34%	55	7.27%	63.64%	29.09%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	6.20%	4.84%	21.98%	5.43%	57	1.75%	63.16%	35.09%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.64%	4.84%	14.25%	5.31%	59	5.08%	64.41%	30.51%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	15.50%	12.91%	16.67%	14.04%	43	.00%	58.14%	41.86%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.43%	7.10%	15.75%	7.74%	59	5.08%	62.71%	32.20%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.42: South Dakota (SD) Quality Report

- South Dakota is one of the top fives states nationwide showing the most improvement in cardiac surgery.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.24%	2.36%	54.94%	3.26%	4	25.00%	50.00%	25.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	9.31%	8.46%	9.12%	9.28%	10	20.00%	80.00%	.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.53%	1.01%	-92.49%	.84%	4	25.00%	75.00%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.67%	3.68%	-.24%	3.71%	44	4.55%	81.82%	13.64%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.09%	18.19%	-6.43%	18.20%	12	16.67%	66.67%	16.67%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.54%	4.32%	-22.00%	3.87%	26	19.23%	69.23%	11.54%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.72%	4.42%	6.42%	4.37%	51	3.92%	90.20%	5.88%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.29%	9.92%	19.34%	11.63%	13	7.69%	69.23%	23.08%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.37%	6.32%	.93%	6.36%	51	5.88%	88.24%	5.88%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.43: Tennessee (TN) Quality Report

- Tennessee is one of the top five states nationwide showing the most improvement in the treatment of heart attack and critical care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.92%	4.51%	8.26%	4.57%	22	9.09%	68.18%	22.73%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	12.54%	10.39%	17.14%	11.46%	75	12.00%	66.67%	21.33%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.38%	1.34%	2.51%	1.33%	35	5.71%	74.29%	20.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.41%	4.01%	9.11%	4.19%	117	5.13%	71.79%	23.08%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.95%	17.49%	20.32%	19.41%	111	8.11%	65.77%	26.13%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.20%	4.55%	12.49%	4.75%	111	8.11%	74.77%	17.12%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.20%	4.21%	19.02%	4.71%	116	16.38%	62.07%	21.55%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.79%	11.09%	13.28%	12.33%	89	4.49%	67.42%	28.09%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.83%	6.55%	16.30%	7.16%	117	8.55%	64.96%	26.50%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.44: Texas (TX) Quality Report

- Texas is one of the top five states nationwide showing the most improvement in cardiac surgery, treatment of heart attack, treatment of heart failure/atrial fibrillation, critical care, gastrointestinal care, pulmonary care, and stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.44%	4.27%	21.42%	4.81%	102	7.84%	63.73%	28.43%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.96%	10.07%	15.86%	11.16%	197	13.20%	70.05%	16.75%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.27%	1.17%	7.64%	1.22%	121	12.40%	66.12%	21.49%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.76%	3.24%	13.99%	3.48%	326	15.03%	72.09%	12.88%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.59%	15.81%	14.95%	16.86%	270	17.04%	74.81%	8.15%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.54%	3.62%	20.23%	4.13%	293	18.09%	70.99%	10.92%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.49%	3.82%	15.10%	4.10%	346	20.52%	66.47%	13.01%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.19%	8.54%	16.21%	9.29%	217	23.04%	71.89%	5.07%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.81%	5.74%	15.77%	6.22%	352	19.03%	69.60%	11.36%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.45: Utah (UT) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.53%	3.13%	43.30%	4.20%	8	.00%	100.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.03%	9.71%	11.92%	10.37%	15	6.67%	93.33%	.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.92%	1.07%	-16.30%	1.06%	14	7.14%	85.71%	7.14%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.12%	3.09%	24.90%	3.36%	32	9.38%	87.50%	3.13%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	17.25%	13.76%	20.23%	15.23%	25	24.00%	76.00%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	3.77%	3.58%	5.04%	3.52%	30	30.00%	66.67%	3.33%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	3.93%	3.42%	13.05%	3.48%	37	18.92%	75.68%	5.41%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.82%	9.90%	16.29%	10.89%	21	4.76%	80.95%	14.29%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.43%	5.32%	17.23%	5.72%	37	18.92%	78.38%	2.70%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.46: Vermont (VT) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.30%	5.32%	-.39%	5.65%	1	.00%	.00%	100.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	14.57%	10.61%	27.21%	11.35%	10	20.00%	70.00%	10.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.97%	1.16%	-19.66%	1.25%	1	.00%	100.00%	.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.64%	6.04%	-30.10%	5.35%	14	.00%	57.14%	42.86%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	21.70%	19.40%	10.58%	21.98%	12	.00%	91.67%	8.33%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.51%	5.12%	6.95%	5.11%	13	7.69%	76.92%	15.38%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.55%	5.66%	-2.03%	5.81%	14	7.14%	57.14%	35.71%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	10.19%	11.64%	-14.22%	12.36%	10	10.00%	40.00%	50.00%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.10%	7.79%	3.80%	8.12%	14	.00%	57.14%	42.86%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.47: Virginia (VA) Quality Report

- Virginia is one of the top fives states nationwide showing the most improvement in stroke care.

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.80%	3.38%	11.05%	3.53%	18	22.22%	72.22%	5.56%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.27%	9.83%	12.71%	10.75%	71	9.86%	80.28%	9.86%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.08%	.95%	11.75%	1.13%	29	6.90%	89.66%	3.45%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.96%	3.71%	6.50%	3.74%	80	11.25%	75.00%	13.75%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	19.66%	16.93%	13.87%	18.17%	79	12.66%	64.56%	22.78%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	5.26%	3.89%	26.19%	4.57%	78	15.38%	62.82%	21.79%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.14%	4.11%	20.03%	4.57%	81	13.58%	67.90%	18.52%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.94%	10.01%	16.15%	11.14%	70	10.00%	68.57%	21.43%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.23%	6.12%	15.43%	6.65%	81	13.58%	64.20%	22.22%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.48: Washington (WA) Quality Report

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

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.32%	4.11%	22.76%	4.74%	18	.00%	66.67%	33.33%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.83%	10.05%	14.99%	10.78%	48	16.67%	66.67%	16.67%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	1.20%	16.55%	1.36%	29	3.45%	62.07%	34.48%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.70%	3.35%	9.41%	3.57%	74	13.51%	81.08%	5.41%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	18.53%	15.69%	15.34%	16.83%	56	10.71%	82.14%	7.14%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.30%	4.01%	6.73%	3.98%	66	19.70%	74.24%	6.06%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.93%	4.01%	18.72%	4.39%	81	11.11%	79.01%	9.88%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.85%	9.52%	19.66%	10.95%	52	15.38%	75.00%	9.62%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.97%	5.89%	15.49%	6.37%	81	6.17%	90.12%	3.70%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.49: West Virginia (WV) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.62%	3.44%	25.50%	3.94%	6	.00%	100.00%	.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	11.95%	10.52%	12.00%	11.46%	35	8.57%	65.71%	25.71%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.16%	1.13%	2.30%	1.19%	9	11.11%	55.56%	33.33%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	4.22%	3.63%	13.91%	3.99%	52	11.54%	63.46%	25.00%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.28%	18.31%	9.70%	19.00%	41	4.88%	65.85%	29.27%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.97%	4.76%	4.15%	4.90%	45	6.67%	73.33%	20.00%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.35%	4.68%	12.50%	4.93%	52	1.92%	73.08%	25.00%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	12.39%	11.87%	4.19%	12.41%	37	2.70%	78.38%	18.92%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	7.54%	6.75%	10.50%	7.13%	52	3.85%	69.23%	26.92%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.50: Wisconsin (WI) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.20%	3.12%	25.89%	3.62%	27	25.93%	70.37%	3.70%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	10.97%	9.51%	13.36%	10.33%	73	13.70%	80.82%	5.48%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.20%	1.10%	8.19%	1.20%	37	2.70%	83.78%	13.51%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	3.76%	3.33%	11.56%	3.57%	120	12.50%	75.83%	11.67%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	19.00%	15.63%	17.72%	16.71%	93	15.05%	81.72%	3.23%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.41%	3.83%	13.20%	4.07%	110	14.55%	74.55%	10.91%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	4.74%	4.15%	12.59%	4.41%	119	7.56%	82.35%	10.08%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	11.40%	10.19%	10.61%	10.71%	90	15.56%	65.56%	18.89%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	6.85%	5.86%	14.42%	6.29%	121	11.57%	80.17%	8.26%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%

Appendix I.51: Wyoming (WY) Quality Report

Category Benchmark	2004 Risk-Adjusted Mortality	2006 Risk-Adjusted Mortality	% Improvement 2004-2006	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	8.36%	6.60%	21.09%	6.96%	2	.00%	50.00%	50.00%
National	4.44%	3.81%	14.20%	4.11%	1,086	15.00%	70.00%	15.00%
Top 15%	1.99%	1.85%	6.85%	2.39%	163	100.00%	.00%	.00%
Heart Attack								
State	14.00%	16.08%	-14.91%	13.90%	2	.00%	50.00%	50.00%
National	11.25%	10.24%	8.95%	10.87%	2,810	15.00%	70.00%	15.00%
Top 15%	6.66%	6.30%	5.35%	7.83%	422	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.21%	3.12%	-157.5%	1.93%	2	.00%	50.00%	50.00%
National	1.10%	1.09%	.67%	1.13%	1,338	15.00%	70.00%	15.00%
Top 15%	.37%	.34%	8.80%	.56%	201	100.00%	.00%	.00%
Heart Failure / Atrial Fibrillation								
State	5.41%	4.36%	19.55%	4.54%	22	.00%	86.36%	13.64%
National	3.76%	3.35%	10.85%	3.58%	4,393	15.00%	70.00%	15.00%
Top 15%	2.04%	1.84%	9.86%	2.30%	659	100.00%	.00%	.00%
Critical Care								
State	20.49%	22.73%	-10.92%	19.38%	13	.00%	100.00%	.00%
National	19.29%	16.93%	12.21%	18.02%	3,665	15.00%	70.00%	15.00%
Top 15%	13.19%	12.16%	7.86%	13.30%	550	100.00%	.00%	.00%
Gastrointestinal								
State	4.43%	3.95%	10.80%	4.66%	20	5.00%	85.00%	10.00%
National	4.68%	4.10%	12.43%	4.39%	4,054	15.00%	70.00%	15.00%
Top 15%	2.55%	2.39%	6.14%	2.94%	608	100.00%	.00%	.00%
Pulmonary								
State	5.86%	4.99%	14.79%	5.52%	25	.00%	84.00%	16.00%
National	4.73%	4.01%	15.32%	4.40%	4,560	15.00%	70.00%	15.00%
Top 15%	2.61%	2.22%	14.88%	2.76%	684	100.00%	.00%	.00%
Stroke								
State	14.67%	12.69%	13.48%	13.32%	9	.00%	77.78%	22.22%
National	11.11%	9.93%	10.61%	10.69%	3,211	15.00%	70.00%	15.00%
Top 15%	6.44%	6.16%	4.34%	7.25%	482	100.00%	.00%	.00%
Combined								
State	8.32%	7.84%	5.83%	7.84%	24	4.17%	83.33%	12.50%
National	6.92%	6.11%	11.73%	6.53%	4,599	15.00%	70.00%	15.00%
Top 15%	5.00%	4.59%	8.12%	4.96%	690	100.00%	.00%	.00%