



The Eleventh Annual HealthGrades Hospital Quality in America Study

October 2008



HEALTHGRADES
The Eleventh Annual HealthGrades
Hospital Quality in America Study
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Executive Summary

Although many metrics exist to evaluate quality measures, one important way to recognize quality of care 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 Eleventh Annual HealthGrades Hospital Quality in America Study*, HealthGrades analyzed over 41 million Medicare discharges from every U.S. hospital from 2005 through 2007. Risk-adjusted mortality and complication rates were calculated and hospitals were assigned a 1-star (poor), 3-star (as expected), or 5-star (best) quality rating for 27 diagnoses and procedures from heart failure to hip replacement to pneumonia. Individual hospital quality results from this study are available at www.healthgrades.com.

For the second part of this study, HealthGrades assessed quality differences between 1-, 3-, and 5-star rated hospitals by analyzing the in-hospital mortality rates for over 11 million Medicare discharges associated with 17 diagnoses and procedures. This analysis compared in-hospital risk-adjusted mortality rates for Medicare patients from 2005 through 2007 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:

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
Heart Failure	

Also, in the second part of this study, HealthGrades evaluated the performance of individual states and regions across eight service areas: cardiac surgery, coronary interventional procedures, critical care, gastrointestinal services, heart attack treatment, heart failure, 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 Tenth Annual HealthGrades Hospital Quality in America Study*.
 - The nation's in-hospital risk-adjusted mortality rate improved, on average, 14.17 percent from 2005 to 2007, but the degree of improvement varied widely by procedure and diagnosis studied (range: 6.30% to 20.94%).
 - Five-star hospitals' mortality rates continue to improve at a faster rate (13.18%) than 1- or 3-star hospitals (12.30% and 13.14%, respectively).
- 2 Large gaps persist between the "best" and the "worst" hospitals across all procedures and diagnoses studied. Five-star rated hospitals had significantly lower risk-adjusted mortality across all three years studied.
 - Across all procedures and diagnoses studied, there was an approximate 70 percent lower chance of dying in a 5-star rated hospital compared to a 1-star rated hospital.
 - Across all procedures and diagnoses studied, there was an approximate 50 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 17 procedures and diagnoses studied, 237,420 Medicare lives could have potentially been saved from 2005 to 2007.
 - Fifty-four percent (128,749) of the potentially preventable deaths were associated with just four diagnoses:

1) Sepsis (41,670)	3) Heart Failure (28,004)
2) Pneumonia (31,671)	4) Respiratory Failure (27,404)
- 4 Variation in risk-adjusted mortality exists not only at the national level but also at the state and regional levels.
 - The greatest difference between the number of states with 1-star performance compared with those hospitals with 5-star performance occurred in heart failure, pulmonary, stroke and cardiac surgery.
 - 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 2005 and 2007 was seen within certain regions of the country.
 - The region with the most overall improvement for all procedures and diagnoses was the New England region (CT, MA, ME, NH, RI, and VT), where the risk-adjusted mortality dropped by 18 percent.
 - The region with the least improvement was the Pacific region (AK, CA, HI, OR, and WA), with a decline in risk-adjusted mortality of 13 percent.
- 6 Best-performing hospitals, defined as hospitals among the top 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 New England region (CT, MA, ME, NH, RI, and VT) were top-performing hospitals.
 - Several states consistently had hospitals with the top 15 percent for risk-adjusted mortality overall from last year's analysis to this year's analysis.
- 7 There is a relationship between volume and quality of care as measured by risk-adjusted mortality for several procedures: coronary bypass surgery, coronary interventional procedures, and resection/replacement abdominal aorta.
 - The improvement in risk-adjusted mortality from 2005 to 2007 ranged from a 20-percent decline for high-volume hospitals versus a 13-percent decline for low-volume hospitals.
 - On average, 5-star hospitals had higher volumes of procedures compared with 1-star hospitals.

Introduction

The past decade has seen an unprecedented level of concern and action focused on improving the quality of American healthcare. In this election year, with the widely divergent healthcare platforms currently advocating for reform, one aspect both parties unequivocally agree upon is the need for hospital payment to be tied to quality measures. Ideal measures will demonstrate a strong link to outcomes; provide actionable information; target those populations at high risk for poor quality of care; allow for patient exceptions that do not reflect differences in quality; include adequate risk adjustment; and be feasible to implement¹. Current initiatives include: quality improvement collaboratives; explorations of pay-for-performance programs; and early formats for public reporting on quality performance²

Currently No Consensus on How to Measure Quality

While disparities in the quality of healthcare are widely recognized, there is currently no clear consensus on what aspects of quality to measure. **Quality is generally determined** by an evaluation of: 1) Structure (e.g., optimal staffing ratio, effective capacity, or efficient through-put); 2) Process (e.g., core measures), or 3) Outcome (e.g., mortality or complications).

Although the gap is narrowing between use of evidence and practice³, further refinement still needs to occur to **develop process measures that are more tightly linked to outcomes** to enhance the quality of care that Americans receive. In 2007, the Deficit Reduction Act expanded the number of process measures linking performance with payment. This act represents the government's attempt to reward adherence to the use of evidence with the hope that this will ultimately result in better outcomes.

Quality Metrics Focusing on Both Process and Outcomes

Adherence to evidence-based medicine, appraised through process measures, assesses only discrete aspects of care rather than gauging global quality. Recent research has demonstrated that doing the right thing (adherence to performance/process measures) may **not** consistently result in the right outcomes (decreased mortality)^{1,5}. Thus, it is imperative to also measure the end result of processes, systems, and people. **Measuring and reporting outcomes help hospitals focus on the end goal: maximizing patient health and their goals**. The hope is that the combination of quality metrics which focus both on process and outcomes will provide the ideal motivation for our nation to improve its healthcare.

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 ten 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.

Study Objectives: Geographic Trends and Mortality Related to Hospital Volume

The objective of *The Eleventh 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 17 procedures and diagnoses by using a star rating system that can be easily interpreted by users.

In addition to reporting on national metrics, *The Eleventh 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 studies⁶⁻⁸ look at regional utilization and treatment modality variations, our study focuses on whether geographical differences relate to variations in outcomes. As well, this year the study evaluates differences in **mortality related to hospital volume** for certain procedures where outcome has previously been shown to correlate with hospital volume.⁹

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

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

HealthGrades analyzed patient outcome data for virtually every hospital in the country using initial data purchased from the Centers for Medicare and Medicaid Services (CMS). The Medicare data (MedPAR file) from CMS contained the inpatient records for Medicare patients. For appendectomy, HealthGrades analyzed inpatient data provided by 17 states that provide all-payer data (AZ, CA, FL, IA, MA, MD, ME, NJ, NV, NY, OR, PA, 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 diagnoses that could increase the patient's risk of mortality or complication.

Multivariate Logistic Regression-Based Ratings

The in-hospital data for 26 diagnoses and procedures on the HealthGrades Web site represent three years of patient discharges from 2005 to 2007 for MedPAR. In addition, for appendectomy, HealthGrades analyzed inpatient data provided by 17 states that provide all-payer data (AZ, CA, FL, IA, MA, MD, ME, NJ, NV, NY, OR, PA, 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 (predicted number of deaths or complications at each hospital) was obtained using logistic regression models discussed in the next section.
- 2 Second, the predicted value was compared with the actual, or observed, value (actual number of deaths or complications at each hospital). Any hospital that did not have at least 30 cases across three years of data was removed, and any hospital that did not have at least five cases in the most current year was removed.
- 3 Third, a test was conducted to determine whether the difference between the predicted and actual values was statistically significant. This test was performed to make sure that differences were very unlikely to be caused by chance alone.
- 4 Fourth, a star rating was assigned based upon the outcome of the 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 HealthGrades has taken steps to carefully compile these data using its methodology, no techniques are infallible, and therefore some information may be missing, outdated or incorrect.

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

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

Methods Part 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 17 diagnoses and procedures from hospital to hospital and among states and regions. These 17 were chosen from the list of 27 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 17 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 17 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

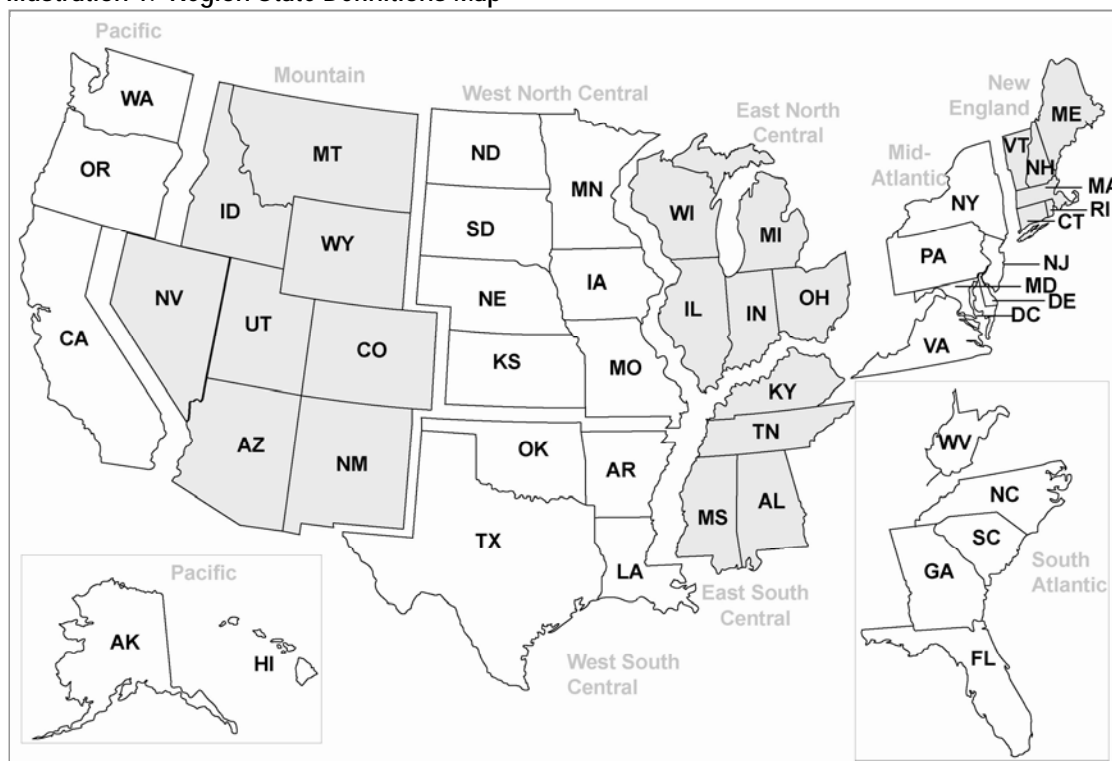
Conditions	Includes Procedures & Diagnoses
Cardiac Surgery	Coronary Bypass Surgery Valve Replacement Surgery
Treatment of Heart Attack	Heart Attack
Coronary Interventional Procedures	Coronary Interventional Procedures (Angioplasty/Stent)
Treatment of Heart Failure	Heart Failure
Critical Care	Respiratory Failure Pulmonary Embolism Diabetic Acidosis and Coma Sepsis
Gastrointestinal	Bowel Obstruction Gastrointestinal Bleed Gastrointestinal Surgeries and Procedures Pancreatitis
Pulmonary	Chronic Obstructive Pulmonary Disease Pneumonia
Stroke	Stroke

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	
Delaware	New York	Arkansas	Oklahoma
District of Columbia	Pennsylvania	Louisiana	Texas
Maryland	Virginia		
New Jersey			
East North Central		Pacific	
Illinois	Ohio	Alaska	Oregon
Indiana	Wisconsin	California	Washington
Michigan		Hawaii	
West North Central		Mountain	
Iowa	Nebraska	Arizona	Nevada
Kansas	North Dakota	Colorado	New Mexico
Minnesota	South Dakota	Idaho	Utah
Missouri		Montana	Wyoming
South Atlantic			
Florida	South Carolina		
Georgia	West Virginia		
North Carolina			

Illustration 1. Region State Definitions Map



Results Part 1: Hospital Quality Ratings

HealthGrades' ratings of more than 5,000 hospitals and over 41 million Medicare discharges, based on *The Eleventh 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 2005, U.S. observed and risk-adjusted mortality rates have improved overall, but gaps continue to exist between the "best" and the "worst" hospitals. Risk-adjusted mortality rates improved, on average 14.17 percent from 2005 to 2007, but the degree of improvement varied widely by procedure and diagnosis (range: 6.30% to 24.05%). (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. Five-star rated hospitals also improved, on average 13.18 percent from 2005 to 2007, which was 0.3 percent more than 3-star rated hospitals and 7.2 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:

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

Table 3. Average Risk-Adjusted Mortality Rate Improvements Across All Procedures and Diagnoses by Hospital Star Rating Category 2005-2007

Overall Average Risk-Adjusted Mortality Rate Improvements*	Hospital Quality			
	U.S.	5-star	3-star	1-star
	13.05%	13.18%	13.14%	12.30%

* 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 (2005 O/E minus 2007 O/E) divided by 2005 O/E.

While Improvements Made, the Quality Chasm Persists

These findings, consistent with previous *HealthGrades Hospital Quality in America* studies, underscore that while there have been improvements in the quality of care nationwide, a quality chasm still persists from hospital to hospital. The positive news is that compared with the *Tenth Annual HealthGrades Hospital Quality in America Study* the average difference between 1-star, 3-star, and 5-star hospitals has lessened considerably. However, the fact remains that if all hospitals had performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 237,420 Medicare lives could have potentially been saved during 2005-2007 (see *Appendix E*).

Five-Star Rated Hospitals Save Medicare Lives

Of the total 237,420 Medicare potentially preventable deaths associated with the 17 procedures and conditions studied, 54 percent were associated with just four common hospital diagnoses:

- | | |
|-----------------------|---------------------------------|
| 1) Sepsis (41,670) | 3) Heart Failure (28,004) |
| 2) Pneumonia (31,671) | 4) Respiratory Failure (27,404) |

Five-star rated hospitals consistently performed significantly better than expected across these four high-risk inpatient diagnoses. For 5-star hospitals, we found an overall average improvement of almost 12.4 percent among these four diagnoses from 2005 to 2007.

Variation in Quality Present Among the States and Regions

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

The South Atlantic states (FL, GA, NC, SC, and WV) had the worst ratings changes when compared to last year's ratings while the Mid-Atlantic states (DE, DC, MD, NJ, NY, PA, and VA) showed the most improvement in their risk-adjusted outcomes. The red and green areas of *Table 4* illustrate in which procedures/diagnoses saw improvement or decline in ratings for each region.

Table 4. Regional Star Ratings

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

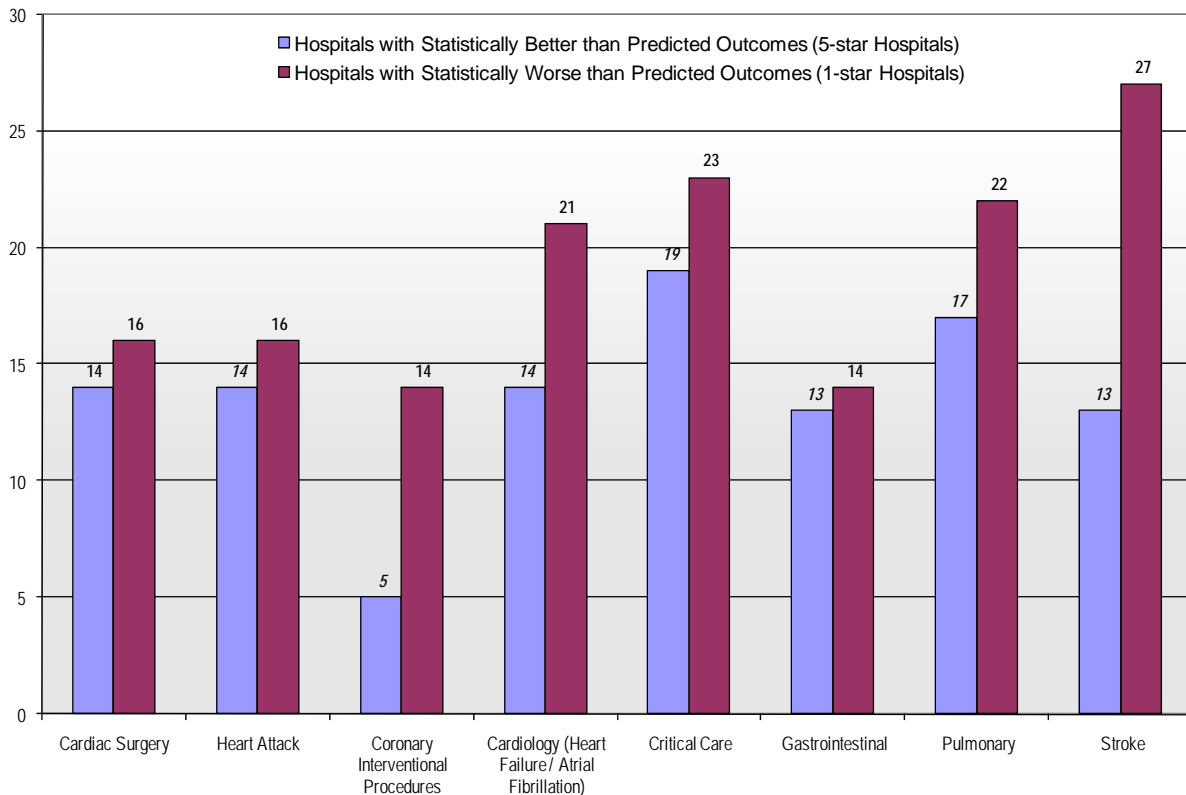
Black indicates no change in ratings compared to last year.

Green indicates ratings improved compared to last year.

Red indicates ratings worsened compared to last year.

When individual states were evaluated across the eight conditions, there was also great variability seen in performance. Across heart failure, pulmonary, stroke, and cardiac surgery procedures and diagnoses, there was a greater difference in the number of states with 1-star performance versus those with 5-star performance (see *Illustration 2*).

Illustration 2. Number of States Doing Statistically Better /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 procedures/diagnoses combined. By contrast, less than seven percent of hospitals within the West Central (North and South) regions (AR, IA, KS, LA, MN, MO, ND, NE, SD, TX, and OK) fulfilled the definition for best-performing hospitals in all the procedures/diagnoses combined (regional data can be found in *Appendix G*).

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

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

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

*Highlighted states were among the top five states with the greatest percentage of best-performing hospitals based on two years of studies (2007 and 2008).

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 2005 and 2007 was in the New England region (CT, ME, MA, NH, RI, and VT) (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, DC, DE, NY, NJ, PA, and VA,) had the most mentions of top five states showing improvement from 2005 to 2007 in procedures and diagnoses (see *Table 6*).

There were several states that consistently showed improvement with Texas showing consistent improvement in six out of eight procedures and diagnoses.

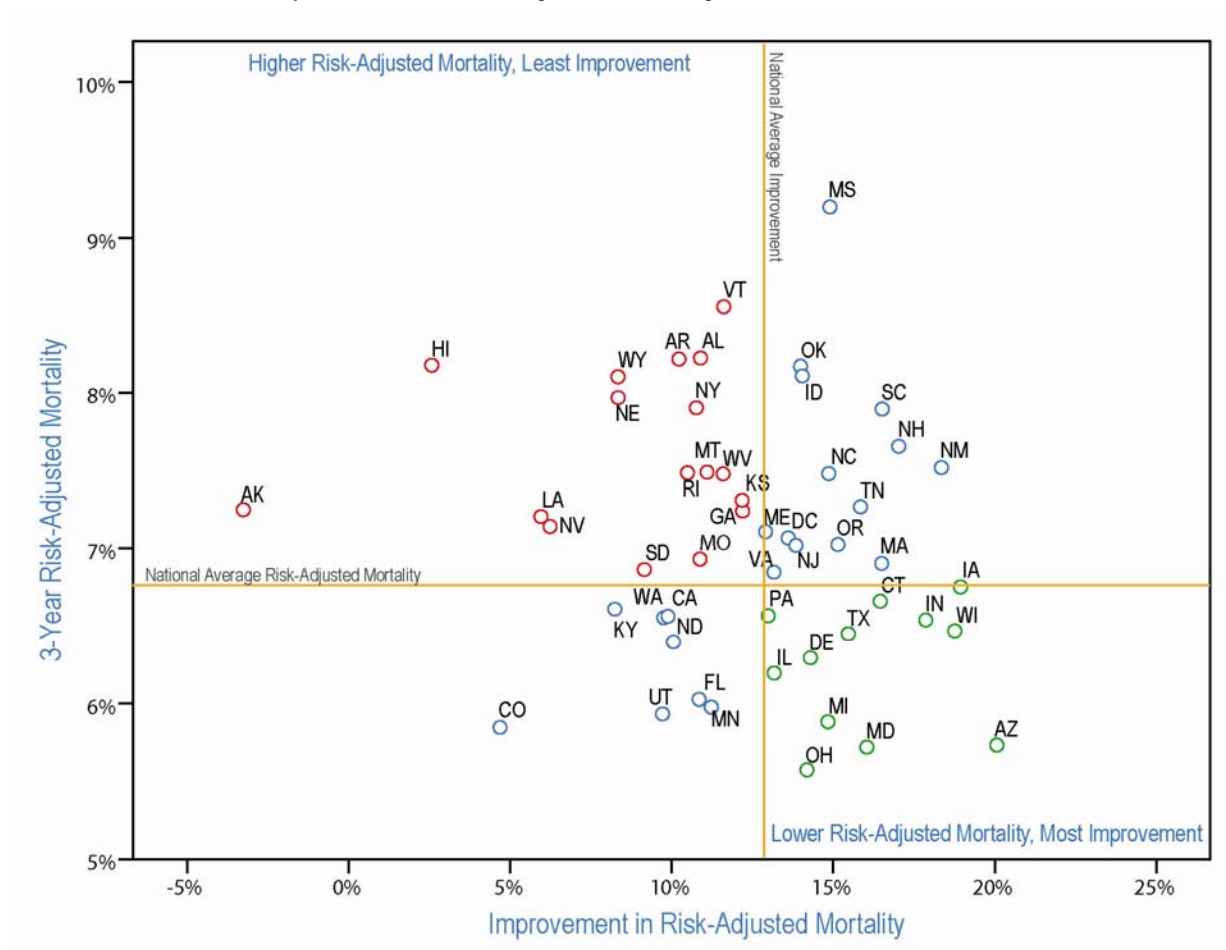
Table 6: Top 5 States Showing Most Improvement by Procedure/Condition

Procedure/ Diagnosis	State	Procedure/ Diagnosis	State
Cardiac Surgery		Critical Care	
	Idaho		Oklahoma
	Colorado		Tennessee*
	Massachusetts		Illinois
	Texas*		Pennsylvania*
	New York		Texas*
Heart Attack		Gastrointestinal	
	Arizona		Massachusetts
	Alabama		New Jersey
	Indiana		Texas*
	Texas*		Florida
	Florida		New York*
Coronary Interventional Procedures		Pulmonary	
	District of Columbia		Connecticut
	Massachusetts		Ohio*
	Alabama		New Jersey
	Michigan		Texas*
	Texas		North Carolina
Heart Failure		Stroke	
	Wisconsin		Tennessee
	Tennessee		Virginia*
	North Carolina		Michigan
	Texas*		New Jersey
	California		Florida

*Highlighted states have shown the most improvement for each procedure/diagnosis for two consecutive years. States for this table were chosen using statistical significance rather than raw percentages because of the low sample size of some of the states.

Illustration 3 shows individual state improvement in relation to mortality. States in the lower right quadrant showed the most improvement with the smallest three-year risk adjusted mortality (RAM) while states in the upper left quadrant showed the least improvement with the greatest three-year risk-adjusted mortality (RAM).

Illustration 3. State Improvement in Risk-Adjusted Mortality



High-Volume Hospitals Have Better Outcomes

HealthGrades evaluated those procedures for which the literature showed that volume was associated with outcome—coronary bypass surgery, coronary interventional procedures, and resection/replacement abdominal aorta.⁹ For these procedures, we found a relationship between higher volume hospitals where these procedures were performed and decreased risk-adjusted mortality (as reflected in the observed-to-expected ratio) (see Table 7).

For coronary bypass surgery, hospitals with more than 500 cases had a 20-percent improvement in risk-adjusted mortality compared to hospitals with less than 100 cases. The difference in improvement appears to attenuate for volumes greater than 250 cases.

For coronary interventional procedures, hospitals with more than 400 cases had a 13-percent improvement compared to hospitals with less than 200 cases. For resection/replacement abdominal aorta, there was a 15.6-percent improvement in those hospitals performing more than 50 procedures compared to hospitals performing less than 50.

Table: 7: Observed-to-Expected Mortality Ratio by Volume for Volume-Dependent Procedures

Procedure	Volume	Observed-to-Expected Ratio	% Improvement Highest Volume Category vs. Lowest Volume Category
Coronary Bypass Surgery			
	Less than 100	1.23	20%
	100 – 249	1.00	
	250 – 499	0.98	
	500 or more	0.96	
Coronary Interventional Procedures			
	Less than 200	1.13	13%
	200 - 399	1.09	
	400 or more	0.98	
Resection/Replacement Abdominal Aorta			
	Less than 50	1.09	15.6%
	50 or more	0.92	

The improvement in outcomes can further be seen in looking at the relationship between hospital volume and star ratings. In general, average volume for procedures increased as the star ratings changed from 1- to 5-star (*see Table 8*). In other words, higher volume hospitals tended to be 5-star rated.

Table: 8: Three-Year Average Volume by Star Rating

Procedure	Star Rating	Average Number of Cases (2005 – 2007)
Coronary Bypass Surgery		
	1-star	221
	3-star	247
	5-star	344
Coronary Interventional Procedures		
	1-star	671
	3-star	615
	5-star	1,304
Resection/Replacement Abdominal Aorta		
	1-star	62
	3-star	76
	5-star	103

Discussion

The Eleventh Annual HealthGrades Hospital Quality in America Study demonstrates that while inpatient outcomes continue to improve for Medicare beneficiaries across a wide array of procedures and diagnoses, significant variation in quality persists. At the hospital level, this can be seen in the quality gap between the best and worst hospitals and in the disparity in mortality given the number of procedures each hospital does. At a more granular level: when outcome was organized by states, there was a large variability in performance and risk-adjusted mortality. As well, individual states showed differing levels of consistency in improvement from one year to the next. Finally, when segregated according to regions, the improvement and performance of hospitals clustered geographically—East North Central region had the best performance and the New England 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. Numerous means exist to improve outcomes:

- Individual hospitals can utilize the results of public reporting to direct their own quality improvement efforts.
- Emulating practices from exemplary hospitals within those states or regions showing the most improvement or best performance can result in accelerated progress.
- States could cull aggregate hospital data to perform analyses of trends, determine systemic problems, and establish best practices to disseminate to all hospitals within that state.
- Policy should continue to reward establishing quality as a key success metric.

If quality improvement were targeted to four key procedures and diagnoses (heart failure, respiratory failure, sepsis, and pneumonia) the nation could reduce potentially preventable deaths by approximately 54 percent, which translates into hundreds of thousands of lives saved. Even moving just the bottom group of hospitals up to the national averages would result in substantial improvement.

Increasingly, the American public shoulders more of the costs of healthcare. Given these stark quality differences among our nation's hospitals, it becomes essential to make informed choices based on transparent, objective information. Fortunately, the quality landscape has been gaining considerable momentum towards supporting consumer preference 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.¹⁰

For the sizable investments being made in healthcare services, Americans should be receiving much greater value from the care they currently obtain. Although progress continues, evaluation of quality is in its infancy. 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 Diagnoses (Primary or Secondary): V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
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, 996.78 Diagnoses (Primary or Secondary): 198.5, 722.80, 722.81, 722.82, 722.83, 996.45, 996.46, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V45.4
Back and Neck Surgery (except Spinal Fusion)	Inclusions Principal Procedure: 03.09, 03.53, 80.50, 80.51, 80.59, 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, 81.09, 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, 996.78 Diagnoses (Primary or Secondary): 198.5, 722.80, 722.81, 722.82, 722.83, 996.45, 996.46, V42.0, V42.1, V42.4, V45.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63
	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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
Carotid Surgery	Inclusions
	Principal Procedure: 00.61, 00.63, 38.12, 39.72, 39.74
	Exclusions
	Procedures (Primary or Secondary): 36.1, 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.17, 36.19, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 38.08, 38.16, 38.18, 38.36, 39.24, 39.25, 39.29, 39.59, 39.90
	Diagnoses (Primary or Secondary): 430, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
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): V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63
	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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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): 35.1, 35.10, 35.11, 35.12, 35.13, 35.14, 35.2, 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28, 35.55, 36.33, 36.34, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
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): 35.1, 35.10, 35.11, 35.12, 35.13, 35.14, 35.2, 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, 36.19, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 Diagnoses (Primary or Secondary): 414.06, 414.07, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7

Gastrointestinal Surgeries and Procedures	Inclusions
	<p>Principal Procedure: 43.5, 43.6, 43.7, 43.81, 43.89, 43.91, 43.99, 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, 45.8, 45.90, 45.91, 45.92, 45.93, 45.94, 45.95</p> <p>Exclusions</p> <p>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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9</p>
Heart Attack	Inclusions
	<p>Principal Diagnosis: 410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, 410.91</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, 414.06, 414.07, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7</p>
Heart Failure	Inclusions
	<p>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</p> <p>Exclusions</p> <p>Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 39.95</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, 414.06, 414.07, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7</p>

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, 996.78 Diagnoses (Primary or Secondary): 800.6, 820.9, 820.10, 820.11, 820.12, 820.13, 820.19, 820.20, 820.30, 820.31, 820.32, 821.00, 821.01, 821.10, 821.11, 821.20, 821.21, 821.22, 821.23, 821.29, 821.30, 821.31, 821.32, 821.33, 821.39, 996.45, 996.46, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7 Diagnoses (Secondary <i>when occurs with V1588, V424, V4364, V4365, V454, V5401, V5402, V5409</i>): 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
Peripheral Vascular Bypass	Inclusions
	Principal Procedure: 39.29 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
	Exclusions
	Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 39.25, 39.49 Principal Diagnoses: 445.01, 996.74 Diagnoses (Primary or Secondary): 440.31, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9

Pneumonia	Inclusions
	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
	Exclusions
	Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
Prostatectomy	Inclusions
	Principal Procedure: 60.21, 60.29, 60.3, 60.4, 60.5, 60.61, 60.62, 60.69
	Exclusions
	Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 37.5, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
Pulmonary Embolism	Inclusions
	Principal Diagnosis: 415.11, 415.19
	Exclusions
	Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
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, 36.1, 36.10, 36.11, 36.12, 36.13, 36.14, 36.15, 36.16, 36.17, 36.19, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 38.08, 38.16, 38.18, 38.36, 38.45, 39.24, 39.25, 39.29, 39.50, 39.59 Procedures (Secondary only): 38.34, 38.44, 38.64, 39.71 Diagnoses (Primary or Secondary): 441.00, 441.01, 441.02, 441.03, 441.1, 441.2, 441.6, 441.7, 441.9, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9

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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
Sepsis	Inclusions
	Principal Diagnosis: 003.1, 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
	Exclusions
	Procedures (Primary or Secondary): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63
	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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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): 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63
	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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7
Total Hip Replacement	Inclusions
	Principal Procedure: 00.85, 00.86, 00.87, 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, 37.5, 37.51, 37.52, 37.53, 37.54, 78.65, 78.67, 80.05, 80.06, 81.53, 81.54, 81.55
	Diagnoses (Primary only): 820.09, 820.8, 996.4, 996.40, 996.41, 996.42, 996.43, 996.44, 996.45, 996.46, 996.47, 996.49, 996.78
	Diagnoses (Primary or Secondary): 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, V42.0, V42.1, V42.4, V42.6, V42.7,
 V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, 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, 37.5, 37.51, 37.52, 37.53, 37.54, 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, 996.78 Diagnoses (Primary or Secondary): 996.45, 996.46, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9
Valve Replacement Surgery	Inclusions
	Procedures (Primary or Secondary): 35.20, 35.21, 35.22, 35.23, 35.24, 35.25, 35.26, 35.27, 35.28
	Exclusions
	Procedures (Primary or Secondary): 35.1, 35.33, 35.55, 36.33, 36.34, 37.5, 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 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, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9

Appendix B: Major Complications

Major Complications – Appendectomy

Major Complications – Appendectomy			
292.81	DRUG-INDUCED DELIRIUM	997.1	SURG COMP-HEART
415.11	IATRO PULM EMBOL/INFARCT	997.3	SURG COMP-RESP NEC
415.19	PULMON EMBOL/INFARCT NEC	997.4	SURG COMP-DIGESTIVE
427.5	CARDIAC ARREST	997.5	SURG COMP-URINARY NEC
427.41	VENTRICULAR FIBRILLATION	998.0	POSTOPERATIVE SHOCK
512.1	IATROGENIC PNEUMOTHORAX	998.2	ACCIDENTAL OP LACERATION
518.5	POSTTR PULMON INSUFF	998.11	HEMORRHAGE COMP PX
518.7	TRALI	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 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

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	483.1	CHLAMYDIAL PNEUMONIA
293.0	DELIRIUM D/T CCE	483.8	PNEUMONIA D/T ORG NEC
410.01	ANTEROLAT AMI-INITIAL	484	PNEUM IN OTH INF DIS
410.11	ANT AMI NEC-INITIAL	484.1	PNEUMONIA IN CMV DISEASE
410.21	INFEROLAT AMI-INITIAL	484.3	PNEUMONIA IN WHOOP COUGH
410.31	INFEROPOST AMI-INITIAL	484.5	PNEUMONIA IN ANTHRAX
410.41	INF AMI NEC-INITIAL	484.6	PNEUM IN ASPERGILLOSIS
410.51	LAT AMI NEC-INITIAL	484.7	PNEUM IN SYST MYCOSES NEC
410.61	POSTERIOR AMI-INITIAL	484.8	PNEUM IN INFECT DIS NEC
410.71	SUBEND INFARCT-INITIAL	485	BRONCHOPNEUMONIA ORG NOS
410.81	AMI NEC-INITIAL EPISODE	486	PNEUMONIA ORGANISM NOS
410.91	AMI NOS-INITIAL EPISODE	507.0	FOOD/VOMIT PNEUMONITIS
415.11	IATRO PULM EMBOL/INFARCT	511.9	PLEURAL EFFUSION NOS
415.19	PULMON EMBOL/INFARCT NEC	518.5	POSTTR PULMON INSUFF
480	VIRAL PNEUMONIA	518.7	TRALI
480.0	ADENOVIRAL PNEUMONIA	518.81	AC RESPIRATORY FAILURE
480.1	RSV PNEUMONIA	584.5	AC RF W TUBULAR NEPHR
480.2	PARINFLUENZA VIRAL PNEUM	584.8	ACUTE RENAL FAILURE NEC
480.3	SARS PNEUMONIA	584.9	ACUTE RENAL FAILURE NOS
480.8	VIRAL PNEUMONIA NEC	995.91	SEPSIS
480.9	VIRAL PNEUMONIA NOS	995.92	SEVERE SEPSIS
481	PNEUMOCOCCAL PNEUMONIA	996.4	MECH COMP INT ORTH DEV
482	OTHER BACT PNEUMONIA	996.40	MECH COMP INT ORTH NOS
482.0	K. PNEUMONIAE PNEUMONIA	996.42	DISLOCATION JOINT PROSTH
482.1	PSEUDOMONAL PNEUMONIA	996.41	MECH LOOSENING JT PROSTH
482.2	H. INFLUENZAE PNEUMONIA	996.43	PROSTH JOINT FAILURE
482.3	STREPTOCOCCAL PNEUMONIA	996.44	PERI-PROSTHETIC FRACTURE
482.4	PNEUMONIA-STAPHYLOCOCCUS	996.47	MECH COMP JT PROSTH NEC
482.30	STREP PNEUMONIA NOS	996.49	MECH COMP INT ORTH NEC
482.31	GROUP A STREP PNEUMONIA	996.77	COMP NEC D/T JT PROSTH
482.32	GROUP B STREP PNEUMONIA	996.78	COMP NEC ORTH DEV NEC
482.39	STREP PNEUMONIA NEC	997.02	IATROGEN CV INFARCT/HEM
482.4	STAPHYLOCOCCAL PNEUMONIA	997.09	NERV SYST SURG COMP NEC
482.40	STAPH PNEUMONIA NOS	997.1	SURG COMP-HEART
482.41	STAPH AUREUS PNEUMONIA	997.3	SURG COMP-RESP NEC
482.49	STAPH PNEUMONIA NEC	997.4	SURG COMP-DIGESTIVE
482.8	OTH BACTERIAL PNEUMONIA	997.5	SURG COMP-URINARY NEC
482.81	PNEUMONIA D/T ANAEROBES	998.0	POSTOPERATIVE SHOCK
482.82	E. COLI PNEUMONIA	998.11	HEMORRHAGE COMP PX
482.83	GRAM-NEG PNEUMONIA NEC	998.2	ACCIDENTAL OP LACERATION
482.84	LEGIONNAIRES' DISEASE	998.3	POSTOP WOUND DISRUPTION
482.89	BACTERIAL PNEUMONIA NEC	998.31	DISRUPT INTERNAL OP WND
482.9	BACTERIAL PNEUMONIA NOS	998.32	DISRUPT EXTERNAL OP WND
483	PNEUMONIA ORGANISM NEC	998.59	POSTOP INFECTION NEC
483.0	M. PNEUMONIAE PNEUMONIA		

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	483.1	CHLAMYDIAL PNEUMONIA
293.0	DELIRIUM D/T CCE	483.8	PNEUMONIA D/T ORG NEC
410.01	ANTEROLAT AMI-INITIAL	484	PNEUM IN OTH INF DIS
410.11	ANT AMI NEC-INITIAL	484.1	PNEUMONIA IN CMV DISEASE
410.21	INFEROLAT AMI-INITIAL	484.3	PNEUMONIA IN WHOOP COUGH
410.31	INFEROPOST AMI-INITIAL	484.5	PNEUMONIA IN ANTHRAX
410.41	INF AMI NEC-INITIAL	484.6	PNEUM IN ASPERGILLOSIS
410.51	LAT AMI NEC-INITIAL	484.7	PNEUM IN SYST MYCOSES NEC
410.61	POSTERIOR AMI-INITIAL	484.8	PNEUM IN INFECT DIS NEC
410.71	SUBEND INFARCT-INITIAL	485	BRONCHOPNEUMONIA ORG NOS
410.81	AMI NEC-INITIAL EPISODE	486	PNEUMONIA ORGANISM NOS
410.91	AMI NOS-INITIAL EPISODE	507.0	FOOD/VOMIT PNEUMONITIS
480	VIRAL PNEUMONIA	511.9	PLEURAL EFFUSION NOS
480.0	ADENOVIRAL PNEUMONIA	518.5	POSTTR PULMON INSUFF
480.1	RSV PNEUMONIA	518.7	TRALI
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
483.0	M. PNEUMONIAE PNEUMONIA		

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	518.7	TRALI
482.0	K. PNEUMONIAE PNEUMONIA	518.81	AC RESPIRATORY FAILURE
482.1	PSEUDOMONAL PNEUMONIA	780.01	COMA
482.2	H. INFLUENZAE PNEUMONIA	951.7	INJURY HYPOGLOSSAL NERVE
482.3	STREPTOCOCCAL PNEUMONIA	957.1	INJURY TO NERVE NEC
482.30	STREP PNEUMONIA NOS	997.00	NERV SYST SURG COMP NOS
482.31	GROUP A STREP PNEUMONIA	997.01	CNS SURG COMP
482.32	GROUP B STREP PNEUMONIA	997.02	IATROGEN CV INFARCT/HEM
482.39	STREP PNEUMONIA NEC	997.09	NERV SYST SURG COMP NEC
482.4	STAPHYLOCOCCAL PNEUMONIA	997.1	SURG COMP-HEART
482.40	STAPH PNEUMONIA NOS	997.3	SURG COMP-RESP NEC
482.41	STAPH AUREUS PNEUMONIA	997.4	SURG COMP-DIGESTIVE
482.49	STAPH PNEUMONIA NEC	997.5	SURG COMP-URINARY NEC
482.8	OTH BACTERIAL PNEUMONIA	997.91	SURG COMP-HYPERTENSION
482.81	PNEUMONIA D/T ANAEROBES	998.0	POSTOPERATIVE SHOCK
482.82	E. COLI PNEUMONIA	998.11	HEMORRHAGE COMP PX
482.83	GRAM-NEG PNEUMONIA NEC	998.2	ACCIDENTAL OP LACERATION
482.84	LEGIONNAIRES' DISEASE	998.59	POSTOP INFECTION NEC

Dependent Complications - Carotid Surgery

Must occur with 997.02 Nervous System Complications			
434.11	CEREBRAL EMBOLISM-INFRCCT	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			
292.81	DRUG-INDUCED DELIRIUM	997.4	SURG COMP-DIGESTIVE
415.11	IATRO PULM EMBOL/INFARCT	997.5	SURG COMP-URINARY NEC
415.19	PULMON EMBOL/INFARCT NEC	998.0	POSTOPERATIVE SHOCK
512.1	IATROGENIC PNEUMOTHORAX	998.11	HEMORRHAGE COMP PX
518.5	POSTTR PULMON INSUFF	998.2	ACCIDENTAL OP LACERATION
518.7	TRALI	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	482.81	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	799.02	HYPOXEMIA
482.8	OTH BACTERIAL PNEUMONIA		
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
518.7	TRALI	998.0	POSTOPERATIVE SHOCK
560.1	PARALYTIC ILEUS	998.11	HEMORRHAGE COMP PX
785.59	SHOCK W/O TRAUMA NEC	998.59	POSTOP INFECTION NEC
996.77	COMP NEC D/T JT PROSTH		

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	482.84	LEGIONNAIRES' DISEASE
481	PNEUMOCOCCAL PNEUMONIA	482.89	BACTERIAL PNEUMONIA NEC
482	OTH BACTERIAL PNEUMONIA	482.9	BACTERIAL PNEUMONIA NOS
482.0	K. PNEUMONIAE PNEUMONIA	483	PNEUMONIA ORGANISM NEC
482.1	PSEUDOMONAL PNEUMONIA	483.0	M. PNEUMONIAE PNEUMONIA
482.2	H. INFLUENZAE PNEUMONIA	483.1	CHLAMYDIAL PNEUMONIA
482.3	STREPTOCOCCAL PNEUMONIA	483.8	PNEUMONIA D/T ORG NEC
482.30	STREP PNEUMONIA NOS	484	PNEUM IN OTH INF DIS
482.31	GROUP A STREP PNEUMONIA	484.1	PNEUM IN CMV DISEASE
482.32	GROUP B STREP PNEUMONIA	484.3	PNEUMONIA IN WHOOP COUGH
482.39	STREP PNEUMONIA NEC	484.5	PNEUMONIA IN ANTHRAX
482.4	STAPHYLOCOCCAL PNEUMONIA	484.6	PNEUM IN ASPERGILLOSIS
482.40	STAPH PNEUMONIA NOS	484.7	PNEUM IN SYST MYCOSES NEC
482.41	STAPH AUREUS PNEUMONIA	484.8	PNEUM IN INFECT DIS NEC
482.49	STAPH PNEUMONIA NEC	485	BRONCHOPNEUMONIA ORG NOS
482.8	BACTERIAL PNEUMONIA NEC	486	PNEUMONIA ORGANISM NOS
482.81	PNEUMONIA D/T ANAEROBES	507.0	FOOD/VOMIT PNEUMONITIS
482.82	E. COLI PNEUMONIA	518.82	OTHER PULMONARY INSUFF
482.83	GRAM-NEG PNEUMONIA NEC	518.84	AC & CHR RESP FAILURE
Must occur with 997.4 Digestive System Complications with Accidental Puncture			
560.1	PARALYTIC ILEUS		

Dependent Complications – Hip Fracture Repair (continued)

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	599.0	URINARY TRACT INF NOS
584.9	ACUTE RENAL FAILURE, NOS	788.20	RETENTION OF URINE, NOS

Dependent Complications – Hip Fracture Repair (continued)

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

Major Complications – Peripheral Vascular Bypass

Major Complications – Peripheral Vascular Bypass			
518.5	POSTTR PULMON INSUFF	997.5	SURG COMP-URINARY NEC
518.7	TRALI	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			
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	518.7	TRALI
410.31	INFEROPOST AMI-INITIAL	518.81	AC RESPIRATORY FAILURE
410.41	INF AMI NEC-INITIAL	996.76	COMP NEC D/T GU DEVICE
410.51	LAT AMI NEC-INITIAL	997.1	SURG COMP-HEART
410.61	POSTERIOR AMI-INITIAL	997.3	SURG COMP-RESP NEC
410.71	SUBEND INFARCT-INITIAL	997.4	SURG COMP-DIGESTIVE
410.81	AMI NEC-INITIAL EPISODE	997.5	SURG COMP-URINARY NEC
410.91	AMI NOS-INITIAL EPISODE	998.11	HEMORRHAGE COMP PX
427.5	CARDIAC ARREST	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	ACC HR 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	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	518.7	TRALI
415.11	IATRO PULM EMBOL/INFARCT	518.81	AC RESPIRATORY FAILURE
415.19	PULMON EMBOL/INFARCT NEC	584.5	AC RF W TUBULAR NEPHR
480	VIRAL PNEUMONIA	584.8	ACUTE RENAL FAILURE NEC
480.0	ADENOVIRAL PNEUMONIA	584.9	ACUTE RENAL FAILURE NOS
480.1	RSV PNEUMONIA	707.0	DECUBITUS ULCER
480.2	PARINFLUENZA VIRAL PNEUM	707.00	DECUBITUS ULCER-SITE NOS
480.3	SARS PNEUMONIA	707.01	DECUBITUS ULCER-ELBOW
480.8	VIRAL PNEUMONIA NEC	707.02	DECUBITUS ULCER-UP BACK
480.9	VIRAL PNEUMONIA NOS	707.03	DECUBITUS ULCER-LOW BACK
481	PNEUMOCOCCAL PNEUMONIA	707.04	DECUBITUS ULCER-HIP
482	OTHER BACT PNEUMONIA	707.05	DECUBITUS ULCER-BUTTOCK
482.0	K. PNEUMONIAE PNEUMONIA	707.06	DECUBITUS ULCER-ANKLE
482.1	PSEUDOMONAL PNEUMONIA	707.07	DECUBITUS ULCER-HEEL
482.2	H. INFLUENZAE PNEUMONIA	707.09	DECUBITUS ULCER-SITE NEC
482.3	STREPTOCOCCAL PNEUMONIA	799.1	RESPIRATORY ARREST
482.30	STREP PNEUMONIA NOS	995.92	SEVERE SEPSIS
482.31	GROUP A STREP PNEUMONIA	996.4	MECH COMP INT ORTH DEV
482.32	GROUP B STREP PNEUMONIA	996.40	MECH COMP INT ORTH NOS
482.39	STREP PNEUMONIA NEC	996.41	MECH LOOSENING JT PROSTH
482.4	STAPHYLOCOCCAL PNEUMONIA	996.42	DISLOCATION JOINT PROSTH
482.40	STAPH PNEUMONIA NOS	996.43	PROSTH JOINT FAILURE
482.41	STAPH AUREUS PNEUMONIA	996.44	PERI-PROSTHETIC FRACTURE
482.49	STAPH PNEUMONIA NEC	996.47	MECH COMP JT PROSTH 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 Hip Replacement

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	428.43	ACCHR SYS & DIASTOLIC HF
428.21	ACUTE SYSTOLIC HF	428.9	HEART FAILURE NOS
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 MYCOSES NEC
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	518.7	TRALI
415.11	IATRO PULM EMBOL/INFARCT	518.81	AC RESPIRATORY FAILURE
415.19	PULMON EMBOL/INFARCT NEC	584.5	AC RF W TUBULAR NEPHR
480	VIRAL PNEUMONIA	584.8	ACUTE RENAL FAILURE NEC
480.0	ADENOVIRAL PNEUMONIA	584.9	ACUTE RENAL FAILURE NOS
480.1	RSV PNEUMONIA	707.0	DECUBITUS ULCER
480.2	PARINFLUENZA VIRAL PNEUM	707.00	DECUBITUS ULCER-SITE NOS
480.3	SARS PNEUMONIA	707.01	DECUBITUS ULCER-ELBOW
480.8	VIRAL PNEUMONIA NEC	707.02	DECUBITUS ULCER-UP BACK
480.9	VIRAL PNEUMONIA NOS	707.03	DECUBITUS ULCER-LOW BACK
481	PNEUMOCOCCAL PNEUMONIA	707.04	DECUBITUS ULCER-HIP
482	OTHER BACT PNEUMONIA	707.05	DECUBITUS ULCER-BUTTOCK
482.0	K. PNEUMONIAE PNEUMONIA	707.06	DECUBITUS ULCER-ANKLE
482.1	PSEUDOMONAL PNEUMONIA	707.07	DECUBITUS ULCER-HEEL
482.2	H. INFLUENZAE PNEUMONIA	707.09	DECUBITUS ULCER-SITE NEC
482.3	STREPTOCOCCAL PNEUMONIA	799.1	RESPIRATORY ARREST
482.30	STREP PNEUMONIA NOS	995.92	SEVERE SEPSIS
482.31	GROUP A STREP PNEUMONIA	996.4	MECH COMP INT ORTH NOS
482.32	GROUP B STREP PNEUMONIA	996.40	MECH COMP INT ORTH NOS
482.39	STREP PNEUMONIA NEC	996.41	MECH LOOSENING JT PROSTH
482.4	STAPHYLOCOCCAL PNEUMONIA	996.42	DISLOCATION JOINT PROSTH
482.40	STAPH PNEUMONIA NOS	996.43	PROSTH JOINT FAILURE
482.41	STAPH AUREUS PNEUMONIA	996.44	PERI-PROSTHETIC FRACTURE
482.49	STAPH PNEUMONIA NEC	996.47	MECH COMP JT PROSTH NEC
482.8	OTH BACTERIAL PNEUMONIA	996.49	MECH COMP INT ORTH NEC
482.81	PNEUMONIA D/T ANAEROBES	996.77	COMP NEC D/T JT PROSTH
482.82	E. COLI PNEUMONIA	996.78	COMP NEC ORTH DEV NEC
482.83	GRAM-NEG PNEUMONIA NEC	997.02	IATROGEN CV INFARCT/HEM
482.84	LEGIONNAIRES' DISEASE	997.1	SURG COMP-HEART
482.89	BACTERIAL PNEUMONIA NEC	997.3	SURG COMP-RESP NEC
482.9	BACTERIAL PNEUMONIA NOS	997.4	SURG COMP-DIGESTIVE
483	PNEUMONIA ORGANISM NEC	997.5	SURG COMP-URINARY NEC
483.0	M. PNEUMONIAE PNEUMONIA	998.0	POSTOPERATIVE SHOCK
483.1	CHLAMYDIAL PNEUMONIA	998.11	HEMORRHAGE COMP PX
483.8	PNEUMONIA D/T ORG NEC	998.59	POSTOP INFECTION NEC
484	PNEUM IN OTH INF DIS	999.8	TRANSFUSION REACTION NEC

Dependent Complications – Total Knee Replacement

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	428.43	ACCHR SYS & DIASTOLIC HF
428.21	ACUTE SYSTOLIC HF	428.9	HEART FAILURE NOS
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: Observed to Expected Mortality by Year

Hospitalization Diagnosis or Procedure	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to- Expected Ratio
Bowel Obstruction	2005	3.90%	4.29%	1.10
	2006	4.20%	4.08%	0.97
	2007	4.28%	3.90%	0.91
	2005-2007	4.12%	4.09%	0.99
Chronic Obstructive Pulmonary Disease	2005	2.04%	2.27%	1.12
	2006	2.08%	2.03%	0.98
	2007	2.17%	1.92%	0.88
	2005-2007	2.09%	2.08%	1.00
Coronary Bypass Surgery	2005	2.79%	3.02%	1.08
	2006	2.89%	2.84%	0.98
	2007	2.91%	2.65%	0.91
	2005-2007	2.86%	2.85%	1.00
Coronary Interventional Procedures (Angioplasty/Stent)	2005	1.03%	1.15%	1.12
	2006	1.09%	1.08%	0.99
	2007	1.31%	1.17%	0.89
	2005-2007	1.14%	1.13%	1.00
Diabetic Acidosis and Coma	2005	1.83%	1.91%	1.04
	2006	1.76%	1.59%	0.90
	2007	1.58%	1.51%	0.95
	2005-2007	1.73%	1.67%	0.97
Gastrointestinal Bleed	2005	2.62%	3.00%	1.15
	2006	2.93%	2.89%	0.99
	2007	3.04%	2.64%	0.87
	2005-2007	2.85%	2.85%	1.00
Gastrointestinal Surgeries and Procedures	2004	10.13%	10.53%	1.04
	2005	10.43%	10.21%	0.98
	2006	10.70%	10.14%	0.95
	2004-2006	10.41%	10.30%	0.99

Hospitalization Diagnosis or Procedure	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to- Expected Ratio
Heart Attack (Acute Myocardial Infarction)	2005	10.37%	10.91%	1.05
	2006	10.05%	10.06%	1.00
	2007	10.35%	9.65%	0.93
	2005-2007	10.26%	10.23%	1.00
Heart Failure	2005	4.02%	4.32%	1.07
	2006	3.93%	3.93%	1.00
	2007	4.15%	3.79%	0.91
	2005-2007	4.03%	4.03%	1.00
Pancreatitis	2005	2.89%	3.10%	1.07
	2006	2.93%	2.77%	0.94
	2007	2.98%	2.76%	0.93
	2005-2007	2.93%	2.88%	0.98
Pneumonia	2005	5.15%	5.56%	1.08
	2006	5.16%	5.10%	0.99
	2007	5.24%	4.79%	0.91
	2005-2007	5.18%	5.18%	1.00
Pulmonary Embolism	2005	4.83%	5.04%	1.04
	2006	4.78%	4.51%	0.94
	2007	5.07%	4.30%	0.85
	2005-2007	4.90%	4.61%	0.94
Resection / Replacement Abdominal Aorta	2005	4.57%	4.62%	1.01
	2006	4.45%	4.18%	0.94
	2007	4.07%	3.69%	0.91
	2005-2007	4.37%	4.17%	0.95
Respiratory Failure	2005	23.11%	23.41%	1.01
	2006	23.37%	23.27%	1.00
	2007	22.45%	21.31%	0.95
	2005-2007	22.97%	22.64%	0.99

Hospitalization Diagnosis or Procedure	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to- Expected Ratio
Sepsis	2005	20.80%	22.41%	1.08
	2006	22.24%	21.90%	0.98
	2007	23.26%	21.85%	0.94
	2005-2007	22.15%	22.04%	0.99
Stroke	2005	10.39%	11.03%	1.06
	2006	10.55%	10.43%	0.99
	2007	10.65%	9.95%	0.93
	2005-2007	10.53%	10.49%	1.00
Valve Replacement Surgery	2005	6.87%	7.12%	1.04
	2006	7.09%	7.09%	1.00
	2007	7.10%	6.62%	0.93
	2005-2007	7.02%	6.95%	0.99

Appendix D: Risk-Adjusted Performance by Year

Hospitalization Diagnosis or Procedure	Year	1-Star Observed-to- Expected Ratio (95% CI)	3-Star Observed-to- Expected Ratio	5-Star Observed-to- Expected Ratio (95% CI)
Bowel Obstruction	2005	2.09 (2.01-2.16)	1.06	.53 (.47- .60)
	2006	1.95 (1.88-2.03)	0.93	.46 (.39- .52)
	2007	1.75 (1.68-1.82)	0.88	.43 (.36- .49)
	2005-2007	1.93 (1.89-1.97)	0.95	.47 (.43- .51)
Chronic Obstructive Pulmonary Disease	2005	2.20 (2.14-2.26)	1.06	.51 (.46- .56)
	2006	2.00 (1.94-2.07)	0.93	.39 (.34- .44)
	2007	1.77 (1.71-1.83)	0.85	.36 (.31- .41)
	2005-2007	2.00 (1.97-2.04)	0.95	.42 (.39- .45)
Coronary Bypass Surgery	2005	1.91 (1.81-2.01)	1.04	.49 (.38- .59)
	2006	1.99 (1.88-2.10)	0.93	.43 (.33- .53)
	2007	1.81 (1.70-1.92)	0.85	.40 (.29- .51)
	2005-2007	1.90 (1.84-1.97)	0.95	.44 (.38- .50)
Coronary Interventional Procedures (Angioplasty/Stent)	2005	1.90 (1.81-2.00)	1.08	.58 (.49- .67)
	2006	1.77 (1.68-1.86)	0.98	.40 (.31- .48)
	2007	1.71 (1.62-1.80)	0.85	.41 (.32- .50)
	2005-2007	1.79 (1.74-1.85)	0.96	.46 (.41- .51)
Diabetic Acidosis and Coma	2005	3.07 (2.85-3.29)	0.91	.13 (.00- .40)
	2006	2.63 (2.40-2.86)	0.79	.16 (.00- .42)
	2007	3.22 (2.97-3.48)	0.80	.17 (.00- .50)
	2005-2007	2.96 (2.82-3.10)	0.83	.15 (.00- .31)
Gastrointestinal Bleed	2005	2.00 (1.93-2.06)	1.12	.61 (.55- .67)
	2006	1.91 (1.84-1.97)	0.95	.49 (.44- .55)
	2007	1.66 (1.59-1.73)	0.84	.43 (.38- .49)
	2005-2007	1.86 (1.82-1.89)	0.97	.51 (.48- .54)
Gastrointestinal Surgeries and Procedures	2005	1.67 (1.61-1.72)	1.03	.61 (.56- .65)
	2006	1.66 (1.60-1.71)	0.97	.58 (.53- .62)
	2007	1.55 (1.50-1.60)	0.95	.53 (.48- .57)
	2005-2007	1.62 (1.59-1.65)	0.98	.57 (.55- .60)

Hospitalization Diagnosis or Procedure	Year	1-Star Observed-to- Expected Ratio (95% CI)	3-Star Observed-to- Expected Ratio	5-Star Observed-to- Expected Ratio (95% CI)
Heart Attack (Acute Myocardial Infarction)	2005	1.46 (1.43-1.49)	1.05	.73 (.71- .76)
	2006	1.39 (1.36-1.42)	0.99	.72 (.70- .75)
	2007	1.31 (1.28-1.33)	0.93	.66 (.64- .69)
	2005-2007	1.39 (1.37-1.40)	0.99	.71 (.69- .72)
Heart Failure	2005	1.73 (1.71-1.76)	1.07	.67 (.64- .69)
	2006	1.64 (1.61-1.67)	0.99	.62 (.59- .64)
	2007	1.51 (1.48-1.54)	0.90	.56 (.53- .58)
	2005-2007	1.63 (1.61-1.65)	0.99	.61 (.60- .63)
Pancreatitis	2005	2.84 (2.67-3.02)	0.94	.29 (.08- .49)
	2006	2.28 (2.12-2.45)	0.84	.20 (.00- .41)
	2007	2.40 (2.22-2.58)	0.84	.18 (.00- .36)
	2005-2007	2.51 (2.41-2.60)	0.87	.22 (.11- .34)
Pneumonia	2005	1.72 (1.69-1.74)	1.07	.67 (.65- .69)
	2006	1.64 (1.61-1.66)	0.96	.61 (.59- .63)
	2007	1.52 (1.49-1.54)	0.89	.55 (.53- .57)
	2005-2007	1.63 (1.62-1.64)	0.98	.61 (.60- .62)
Pulmonary Embolism	2005	2.33 (2.18-2.49)	1.03	.34 (.22- .46)
	2006	2.29 (2.12-2.45)	0.93	.27 (.15- .39)
	2007	1.84 (1.70-1.99)	0.84	.25 (.13- .37)
	2005-2007	2.14 (2.05-2.23)	0.93	.29 (.22- .36)
Resection / Replacement Abdominal Aorta	2005	1.93 (1.73-2.13)	0.99	.41 (.24- .59)
	2006	2.02 (1.82-2.22)	0.91	.40 (.22- .57)
	2007	2.24 (1.99-2.49)	0.89	.27 (.10- .44)
	2005-2007	2.05 (1.92-2.17)	0.93	.36 (.26- .46)
Respiratory Failure	2005	1.38 (1.36-1.40)	1.03	.72 (.70- .74)
	2006	1.36 (1.34-1.38)	1.01	.69 (.68- .71)
	2007	1.33 (1.31-1.35)	0.97	.65 (.63- .66)
	2005-2007	1.36 (1.35-1.37)	1.00	.69 (.68- .70)

Hospitalization Diagnosis or Procedure	Year	1-Star Observed-to- Expected Ratio (95% CI)	3-Star Observed-to- Expected Ratio	5-Star Observed-to- expected Ratio (95% CI)
Sepsis	2005	1.43 (1.42-1.44)	1.08	.81 (.80- .82)
	2006	1.33 (1.31-1.34)	1.00	.73 (.72- .74)
	2007	1.25 (1.24-1.26)	0.96	.70 (.69- .71)
	2005-2007	1.33 (1.32-1.34)	1.01	.74 (.74- .75)
Stroke	2005	1.51 (1.48-1.53)	1.05	.74 (.72- .76)
	2006	1.43 (1.41-1.46)	0.98	.68 (.65- .70)
	2007	1.34 (1.32-1.37)	0.93	.64 (.62- .66)
	2005-2007	1.43 (1.42-1.44)	0.99	.69 (.67- .70)
Valve Replacement Surgery	2005	1.85 (1.76-1.95)	1.03	.49 (.41- .57)
	2006	1.73 (1.63-1.83)	0.99	.55 (.47- .63)
	2007	1.62 (1.52-1.73)	0.93	.48 (.40- .56)
	2005-2007	1.74 (1.68-1.80)	0.98	.51 (.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 (2005-2007)	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 (2005-2007)
Bowel Obstruction	2005	17.26%	74.46%	51.54%	9,312
	2006		76.67%	53.06%	
	2007		75.50%	52.91%	
	3-year aggregate		75.62%	52.55%	
Chronic Obstructive Pulmonary Disease	2005	20.94%	76.90%	54.49%	11,958
	2006		80.59%	60.17%	
	2007		79.60%	59.09%	
	3-year aggregate		78.94%	57.69%	
Coronary Bypass Surgery	2005	15.92%	74.57%	55.13%	4,318
	2006		78.52%	56.51%	
	2007		77.65%	55.55%	
	3-year aggregate		76.85%	55.76%	
Coronary Interventional Procedures (Angioplasty/Stent)	2005	19.96%	69.60%	48.12%	5,664
	2006		77.59%	60.16%	
	2007		76.01%	53.97%	
	3-year aggregate		74.44%	54.04%	
Diabetic Acidosis and Coma	2005	8.62%	95.75%	87.48%	1,850
	2006		93.95%	82.37%	
	2007		94.60%	81.73%	
	3-year aggregate		94.84%	84.21%	
Gastrointestinal Bleed	2005	24.05%	69.38%	46.59%	10,827
	2006		74.11%	49.94%	
	2007		73.80%	50.00%	
	3-year aggregate		72.51%	48.89%	

Hospitalization Diagnosis or Procedure	Year	Percent of Improvement U.S. Average (2005-2007)	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 (2005-2007)
Gastrointestinal Surgeries and Procedures	2005	8.84%	63.44%	41.43%	9,714
	2006		65.11%	41.02%	
	2007		66.01%	44.47%	
	3-year aggregate		64.84%	42.29%	
Heart Attack (Acute Myocardial Infarction)	2005	11.33%	49.68%	30.21%	21,242
	2006		48.10%	27.96%	
	2007		49.37%	29.11%	
	3-year aggregate		49.08%	29.17%	
Heart Failure	2005	14.95%	61.57%	37.95%	28,004
	2006		62.39%	38.55%	
	2007		63.09%	39.01%	
	3-year aggregate		62.31%	38.47%	
Pancreatitis	2005	13.61%	89.90%	73.23%	2,681
	2006		91.12%	78.53%	
	2007		92.67%	81.06%	
	3-year aggregate		91.20%	77.57%	
Pneumonia	2005	15.33%	60.91%	37.84%	31,671
	2006		63.00%	38.80%	
	2007		63.86%	39.90%	
	3-year aggregate		62.40%	38.70%	
Pulmonary Embolism	2005	18.64%	85.29%	67.09%	4,064
	2006		88.25%	71.48%	
	2007		86.38%	70.44%	
	3-year aggregate		86.58%	69.52%	

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

Hospitalization Diagnosis or Procedure	Year	Percent of Improvement U.S. Average (2005-2007)	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 (2005-2007)
Resection/ Replacement Abdominal Aorta	2005	10.27%	78.48%	58.99%	1,344
	2006		80.46%	57.89%	
	2007		87.91%	70.15%	
	3-year aggregate		82.46%	62.41%	
Respiratory Failure	2005	6.30%	47.79%	28.71%	27,404
	2006		49.15%	30.32%	
	2007		51.27%	31.93%	
	3-year aggregate		49.43%	30.35%	
Sepsis	2005	12.82%	43.18%	24.61%	41,670
	2006		45.03%	25.87%	
	2007		44.06%	25.61%	
	3-year aggregate		44.16%	25.43%	
Stroke	2005	12.03%	51.23%	30.71%	21,977
	2006		52.93%	31.71%	
	2007		52.11%	31.20%	
	3-year aggregate		52.09%	31.24%	
Valve Replacement Surgery	2005	9.99%	73.50%	52.58%	3,720
	2006		68.24%	45.02%	
	2007		70.56%	48.74%	
	3-year aggregate		70.88%	48.81%	
Average		14.17%	69.91%*	49.83%*	Total = 237,400

*These averages were calculated by averaging the three-year aggregate improvement. This calculation gives equal weight to each diagnosis or procedure regardless of the number of patients in the group. Alternatively, the difference between star categories can be measured by combining all patients across the patient groups, and calculating observed-to-expected ratios for the different star categories. Calculated in this way, 5-star rated hospitals have, on average, 54.9% fewer deaths than 1-star hospitals, and 32.9% fewer deaths than the national average (risk-adjusted results). Using a similar method to calculate overall improvement from 2005 to 2007 yields a 13.1% reduction in risk-adjusted mortality.

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	0.89	1.11	0.92	0.98	0.99	1.01	1.04	1.03	1.15
Coronary Interventional Procedures (Angioplasty/Stent)	0.92	1.21	0.92	1.03	0.85	1.13	0.96	1.06	1.05
Critical Care	0.89	1.07	1.05	0.95	1.08	0.97	1.02	0.96	1.01
Gastrointestinal	0.90	1.13	1.04	0.94	1.02	0.97	1.01	1.02	1.02
Heart Attack	0.93	1.09	1.03	0.98	0.93	0.99	1.00	0.97	1.07
Heart Failure	0.88	1.23	1.01	0.92	1.02	1.02	0.95	1.06	1.05
Pulmonary	0.86	1.14	1.06	0.97	1.01	0.99	1.01	1.03	1.02
Stroke	0.88	1.18	1.01	0.95	1.11	0.95	1.03	1.03	0.98
Combined	0.89	1.12	1.04	0.96	1.03	0.98	1.01	1.01	1.03

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

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

Appendix G: Percentage of Best-Performing Hospitals for Combined and Individual Procedure/Diagnosis by Region

Procedure/ Diagnosis	East North Central	East South Central	Mid- Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	19.52%	14.46%	28.00%	12.50%	14.29%	12.93%	11.36%	10.53%	7.47%
Coronary Interventional Procedures (Angioplasty/Stent)	20.62%	9.62%	21.43%	10.08%	21.74%	8.94%	17.22%	12.20%	11.74%
Critical Care	24.05%	8.28%	11.92%	14.75%	7.19%	17.38%	15.88%	13.07%	13.04%
Gastrointestinal	24.10%	5.07%	15.21%	14.93%	17.05%	15.78%	16.73%	10.14%	11.68%
Heart Attack	21.23%	11.06%	13.05%	14.60%	20.51%	14.06%	16.44%	14.78%	8.83%
Heart Failure	24.89%	6.09%	17.18%	15.19%	14.20%	11.79%	18.98%	9.06%	12.05%
Pulmonary	25.25%	10.75%	13.92%	12.89%	14.44%	14.17%	17.91%	8.01%	14.08%
Stroke	23.68%	4.15%	12.33%	17.51%	7.28%	21.77%	16.83%	9.43%	11.23%
Combined	26.22%	7.50%	15.73%	14.20%	11.11%	16.90%	19.14%	6.89%	11.94%

Appendix H: Percentage of Improvement for Combined and Individual Procedure/Diagnosis by Region

Procedure/ Diagnosis	East North Central	East South Central	Mid- Atlantic	Mountain	New England	Pacific	South Atlantic	West North Central	West South Central
Cardiac Surgery	21.74%	7.82%	19.73%	29.02%	28.85%	19.53%	22.02%	13.07%	24.30%
Coronary Interventional Procedures (Angioplasty/Stent)	20.09%	17.18%	23.25%	18.05%	41.91%	7.98%	12.56%	16.72%	25.45%
Critical Care	15.50%	15.18%	13.55%	13.32%	15.72%	11.95%	13.73%	13.92%	14.38%
Gastrointestinal	23.18%	21.10%	24.37%	14.82%	27.60%	22.02%	20.68%	21.50%	20.43%
Heart Attack	24.78%	24.16%	20.55%	27.02%	25.35%	21.45%	24.56%	25.18%	26.16%
Heart Failure	28.71%	26.99%	24.91%	30.90%	26.38%	24.08%	26.61%	23.62%	25.80%
Pulmonary	32.68%	25.17%	30.83%	26.25%	35.28%	25.54%	28.61%	26.08%	30.53%
Stroke	22.27%	24.15%	22.60%	25.71%	19.98%	16.88%	20.62%	21.78%	19.11%
Combined	17.39%	15.15%	15.37%	14.82%	18.04%	12.50%	14.92%	14.42%	15.99%

Appendix I: State Quality Reports

Appendix I.1: Alabama (AL) Quality Report

- Alabama is one of the top five states nationwide showing the most improvement in heart failure and coronary interventional procedures.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.32%	5.26%	-21.68%	4.59%	25	16.00%	40.00%	44.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.84%	1.19%	35.29%	1.46%	29	6.90%	58.62%	34.48%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.26%	21.09%	5.27%	21.65%	88	2.27%	63.64%	34.09%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.56%	5.35%	3.86%	5.39%	90	.00%	70.00%	30.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	13.63%	10.71%	21.42%	12.06%	50	2.00%	58.00%	40.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.70%	4.71%	17.42%	5.19%	97	1.03%	65.98%	32.99%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.28%	4.69%	11.10%	4.96%	99	5.05%	66.67%	28.28%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.99%	12.03%	14.06%	12.78%	70	4.29%	67.14%	28.57%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.73%	7.84%	10.23%	8.22%	99	3.03%	57.58%	39.39%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.2: Alaska (AK) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.98%	4.28%	-43.41%	3.07%	2	50.00%	50.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.47%	1.46%	-211.4%	1.24%	2	50.00%	50.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	17.09%	21.60%	-26.33%	19.00%	8	.00%	87.50%	12.50%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.87%	3.62%	38.30%	4.55%	12	8.33%	75.00%	16.67%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.94%	7.59%	30.66%	10.52%	3	.00%	100.00%	.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.30%	3.76%	29.11%	4.43%	10	.00%	90.00%	10.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.62%	5.07%	-40.11%	4.00%	17	5.88%	82.35%	11.76%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	14.57%	13.39%	8.10%	13.16%	8	.00%	75.00%	25.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.28%	7.51%	-3.26%	7.25%	16	.00%	100.00%	.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.3: Arkansas (AR) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.19%	5.18%	.27%	5.22%	21	4.76%	66.67%	28.57%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.56%	1.07%	31.58%	1.30%	23	4.35%	73.91%	21.74%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.32%	20.03%	10.26%	20.70%	60	8.33%	68.33%	23.33%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.13%	4.93%	4.03%	5.22%	71	5.63%	71.83%	22.54%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	13.34%	11.66%	12.60%	11.93%	38	7.89%	60.53%	31.58%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.73%	5.06%	11.67%	5.74%	76	3.95%	56.58%	39.47%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.45%	4.38%	19.71%	4.98%	78	6.41%	62.82%	30.77%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.12%	13.02%	.70%	13.29%	48	.00%	66.67%	33.33%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.68%	7.73%	10.89%	8.22%	78	6.41%	52.56%	41.03%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 the treatment of heart failure, gastrointestinal care, pulmonary care, and stroke care for *two years in a row*.
- Arizona is one of the top five states nationwide showing most improvement in heart attack.

Category Benchmark	2005 Risk-Adjusted Mortality	2007 Risk-Adjusted Mortality	% Improvement 2005-2007	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.86%	2.93%	24.07%	3.62%	24	8.33%	87.50%	4.17%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.40%	.94%	33.06%	1.12%	39	12.82%	74.36%	12.82%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.35%	14.28%	22.18%	16.63%	54	22.22%	70.37%	7.41%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.79%	3.06%	19.12%	3.54%	54	27.78%	66.67%	5.56%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.71%	7.91%	26.16%	9.59%	42	21.43%	66.67%	11.90%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.07%	2.11%	31.27%	2.73%	59	30.51%	66.10%	3.39%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.23%	2.62%	18.81%	3.16%	70	30.00%	64.29%	5.71%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	7.62%	6.97%	8.56%	7.59%	43	32.56%	65.12%	2.33%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.16%	4.92%	20.07%	5.73%	68	33.82%	63.24%	2.94%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 heart failure.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.98%	3.59%	9.66%	3.79%	112	16.07%	77.68%	6.25%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	1.25%	13.33%	1.25%	127	7.87%	74.02%	18.11%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.60%	17.04%	8.38%	17.76%	300	20.33%	67.33%	12.33%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.50%	3.80%	15.62%	4.17%	303	15.84%	74.26%	9.90%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.64%	9.61%	9.73%	10.20%	227	13.66%	76.21%	10.13%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.29%	3.64%	15.05%	4.02%	309	13.59%	79.29%	7.12%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.09%	3.63%	11.37%	3.85%	327	16.21%	71.56%	12.23%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.92%	9.40%	5.27%	9.56%	256	28.13%	59.38%	12.50%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.90%	6.23%	9.76%	6.55%	330	21.82%	66.67%	11.52%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 stroke.
- Colorado is one of the top five states nationwide showing the most improvement in cardiac surgery.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.36%	2.13%	51.14%	3.52%	18	22.22%	61.11%	16.67%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.12%	.99%	11.67%	1.10%	29	6.90%	79.31%	13.79%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	15.49%	15.99%	-3.19%	15.91%	44	18.18%	79.55%	2.27%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.76%	3.89%	-3.36%	3.58%	54	20.37%	74.07%	5.56%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.67%	9.36%	3.20%	9.40%	30	13.33%	76.67%	10.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.50%	3.33%	4.81%	3.32%	56	23.21%	67.86%	8.93%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.62%	3.04%	16.02%	3.31%	63	14.29%	79.37%	6.35%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.95%	9.06%	8.90%	9.27%	38	31.58%	63.16%	5.26%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.06%	5.77%	4.69%	5.85%	65	21.54%	75.38%	3.08%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.7: Connecticut (CT) Quality Report

- Connecticut is one of the top five states nationwide showing most improvement in the treatment of pulmonary disease.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.22%	4.04%	4.30%	4.06%	10	10.00%	80.00%	10.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.24%	.81%	34.19%	.97%	11	18.18%	81.82%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.70%	17.71%	10.11%	18.78%	30	23.33%	60.00%	16.67%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.61%	3.81%	17.36%	4.22%	30	16.67%	73.33%	10.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.99%	8.76%	12.31%	9.38%	30	23.33%	70.00%	6.67%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.37%	3.49%	20.18%	3.83%	31	16.13%	70.97%	12.90%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.41%	3.01%	31.77%	3.70%	31	22.58%	61.29%	16.13%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.99%	9.70%	19.07%	11.02%	30	6.67%	80.00%	13.33%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.27%	6.07%	16.46%	6.66%	31	25.81%	64.52%	9.68%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.8: Delaware (DE) Quality Report

- Delaware is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of pulmonary disease and heart failure.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.21%	4.05%	-26.28%	3.97%	4	25.00%	75.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.80%	1.20%	-49.59%	1.25%	4	.00%	100.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.57%	16.15%	17.46%	17.12%	5	20.00%	80.00%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.59%	3.78%	17.56%	4.13%	5	20.00%	80.00%	.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	12.02%	9.56%	20.50%	11.34%	5	20.00%	20.00%	60.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.09%	3.31%	-7.09%	3.11%	5	40.00%	60.00%	.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.58%	2.91%	18.75%	3.20%	5	40.00%	60.00%	.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.70%	9.26%	20.79%	10.54%	5	.00%	80.00%	20.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.85%	5.87%	14.30%	6.29%	5	40.00%	60.00%	.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.39%	5.14%	4.58%	5.32%	2	.00%	.00%	100.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.83%	.79%	56.79%	1.16%	3	.00%	100.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	23.10%	21.40%	7.34%	21.18%	7	.00%	57.14%	42.86%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.50%	4.50%	.04%	4.53%	7	.00%	85.71%	14.29%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	13.44%	10.80%	19.67%	11.49%	6	.00%	83.33%	16.67%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.84%	3.30%	14.13%	3.57%	7	14.29%	71.43%	14.29%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.20%	3.27%	22.13%	3.90%	7	.00%	85.71%	14.29%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.76%	8.17%	16.29%	8.97%	7	28.57%	71.43%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.72%	6.67%	13.61%	7.07%	7	.00%	71.43%	28.57%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 the treatment of heart attack, gastrointestinal care, and stroke care.
- Florida is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart attack, heart failure, critical care, gastrointestinal care, pulmonary care, and stroke care for *two years in a row*.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.28%	3.65%	14.74%	4.12%	70	12.86%	72.86%	14.29%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.00%	.95%	5.38%	.96%	75	28.00%	62.67%	9.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.24%	16.58%	9.09%	17.46%	172	23.84%	69.19%	6.98%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.20%	3.51%	16.52%	3.77%	174	33.33%	59.20%	7.47%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.86%	8.77%	11.11%	9.53%	148	27.70%	64.19%	8.11%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.25%	2.89%	11.25%	3.10%	178	42.13%	52.81%	5.06%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.50%	2.99%	14.58%	3.21%	180	36.67%	60.00%	3.33%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.47%	8.17%	13.72%	8.80%	160	35.63%	61.25%	3.13%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.36%	5.67%	10.85%	6.03%	181	39.78%	56.91%	3.31%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.11: Georgia (GA) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.71%	4.32%	8.33%	4.47%	19	10.53%	52.63%	36.84%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.36%	1.06%	22.17%	1.16%	27	11.11%	62.96%	25.93%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	20.65%	18.28%	11.44%	19.40%	118	11.02%	69.49%	19.49%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.88%	4.33%	11.16%	4.55%	124	8.06%	78.23%	13.71%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	12.01%	10.27%	14.53%	11.18%	69	10.14%	65.22%	24.64%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.46%	3.76%	15.86%	4.13%	138	9.42%	76.81%	13.77%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.45%	3.92%	11.94%	4.29%	139	9.35%	70.50%	20.14%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.29%	10.88%	11.49%	11.80%	88	5.68%	72.73%	21.59%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.68%	6.75%	12.20%	7.24%	140	9.29%	72.14%	18.57%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.12: Hawaii (HI) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.47%	3.33%	39.18%	4.81%	4	.00%	50.00%	50.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.34%	2.13%	-59.59%	1.71%	6	.00%	50.00%	50.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	21.40%	21.03%	1.70%	20.72%	14	.00%	100.00%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	6.26%	4.25%	32.18%	5.35%	14	.00%	78.57%	21.43%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.55%	12.99%	-12.48%	12.13%	12	.00%	75.00%	25.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.04%	5.38%	-6.77%	5.07%	15	.00%	86.67%	13.33%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.28%	5.92%	-12.18%	5.86%	15	.00%	60.00%	40.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.68%	11.22%	11.54%	11.94%	14	.00%	71.43%	28.57%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.30%	8.09%	2.58%	8.18%	16	.00%	75.00%	25.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.13: Idaho (ID) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.30%	1.38%	78.08%	3.81%	5	20.00%	60.00%	20.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.21%	1.19%	.97%	1.17%	7	28.57%	42.86%	28.57%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	21.50%	20.25%	5.81%	20.88%	15	.00%	93.33%	6.67%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.35%	4.36%	18.45%	4.79%	30	6.67%	80.00%	13.33%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	12.54%	11.14%	11.18%	11.47%	9	22.22%	55.56%	22.22%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	6.35%	4.87%	23.30%	5.53%	29	6.90%	75.86%	17.24%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.44%	5.27%	3.05%	5.32%	35	.00%	77.14%	22.86%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	15.60%	10.71%	31.34%	13.54%	14	.00%	64.29%	35.71%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.81%	7.58%	13.99%	8.17%	35	.00%	88.57%	11.43%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.14: Illinois (IL) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.94%	3.57%	9.39%	3.68%	64	18.75%	75.00%	6.25%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.95%	.82%	14.07%	.92%	78	25.64%	69.23%	5.13%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.71%	16.19%	13.47%	17.27%	163	20.25%	66.87%	12.88%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.32%	3.76%	12.83%	3.97%	180	22.78%	60.00%	17.22%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.97%	8.79%	11.82%	9.39%	119	21.01%	71.43%	7.56%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.81%	3.20%	16.09%	3.52%	183	26.78%	59.02%	14.21%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.96%	3.27%	17.42%	3.58%	183	24.59%	65.57%	9.84%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.74%	8.83%	9.38%	9.25%	138	25.36%	65.22%	9.42%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.68%	5.80%	13.17%	6.19%	183	27.87%	62.30%	9.84%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 the treatment of heart attack.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.34%	3.39%	21.88%	3.81%	33	18.18%	75.76%	6.06%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.26%	1.06%	15.70%	1.10%	47	10.64%	80.85%	8.51%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.68%	16.37%	16.80%	17.72%	99	15.15%	77.78%	7.07%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.63%	3.53%	23.80%	4.13%	108	16.67%	73.15%	10.19%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.22%	9.37%	16.52%	10.39%	69	11.59%	78.26%	10.14%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.36%	3.48%	20.15%	4.00%	111	15.32%	72.97%	11.71%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.17%	3.39%	18.78%	3.76%	112	17.86%	69.64%	12.50%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	10.58%	8.74%	17.35%	9.63%	91	14.29%	75.82%	9.89%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.21%	5.93%	17.86%	6.54%	112	15.18%	71.43%	13.39%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.16: Iowa (IA) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.77%	4.24%	11.14%	4.80%	12	.00%	83.33%	16.67%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.09%	.94%	14.26%	1.08%	20	15.00%	75.00%	10.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.68%	14.80%	20.81%	16.52%	58	12.07%	75.86%	12.07%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.21%	4.02%	22.81%	4.63%	103	7.77%	77.67%	14.56%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.03%	8.43%	15.98%	9.23%	34	14.71%	76.47%	8.82%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.65%	4.04%	13.09%	4.38%	108	8.33%	76.85%	14.81%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.72%	3.63%	23.11%	4.22%	114	9.65%	73.68%	16.67%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.03%	9.86%	18.09%	11.04%	60	8.33%	78.33%	13.33%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.43%	6.03%	18.94%	6.75%	115	6.96%	79.13%	13.91%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.17: Kansas (KS) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.09%	5.56%	-9.33%	4.64%	16	.00%	75.00%	25.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.21%	1.23%	-1.53%	1.34%	20	10.00%	65.00%	25.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	20.86%	17.60%	15.63%	19.31%	45	4.44%	84.44%	11.11%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.03%	4.34%	13.84%	4.65%	82	3.66%	81.71%	14.63%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.82%	9.34%	13.67%	10.12%	27	11.11%	81.48%	7.41%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.86%	4.33%	10.94%	4.68%	99	5.05%	79.80%	15.15%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.70%	4.00%	14.95%	4.35%	122	5.74%	86.07%	8.20%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.55%	10.78%	6.65%	10.74%	47	8.51%	78.72%	12.77%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.83%	6.88%	12.18%	7.31%	124	3.23%	86.29%	10.48%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.18: Kentucky (KY) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.99%	3.70%	7.10%	3.91%	18	27.78%	55.56%	16.67%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.26%	1.11%	11.52%	1.23%	20	10.00%	70.00%	20.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	17.79%	16.06%	9.76%	16.65%	77	18.18%	75.32%	6.49%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.59%	4.06%	11.59%	4.42%	88	5.68%	75.00%	19.32%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.11%	9.55%	5.58%	10.00%	51	19.61%	66.67%	13.73%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.54%	4.06%	10.57%	4.29%	96	13.54%	59.38%	27.08%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.80%	3.76%	1.13%	3.76%	96	20.83%	62.50%	16.67%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.81%	12.15%	5.14%	12.31%	58	5.17%	63.79%	31.03%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.92%	6.35%	8.24%	6.61%	96	12.50%	70.83%	16.67%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.19: Louisiana (LA) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.86%	3.90%	19.64%	4.36%	31	9.68%	80.65%	9.68%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.28%	1.09%	14.41%	1.18%	44	15.91%	68.18%	15.91%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.21%	18.94%	1.38%	19.39%	89	8.99%	73.03%	17.98%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.93%	4.60%	6.78%	4.84%	91	4.40%	72.53%	23.08%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.33%	10.49%	7.38%	10.95%	52	5.77%	71.15%	23.08%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.47%	4.01%	10.30%	4.30%	104	8.65%	75.00%	16.35%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.13%	3.80%	7.94%	4.00%	108	8.33%	76.85%	14.81%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.95%	11.22%	6.11%	11.65%	64	3.13%	82.81%	14.06%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.35%	6.91%	5.96%	7.20%	114	6.14%	74.56%	19.30%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.20: Maine (ME) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.47%	4.39%	32.02%	5.05%	3	.00%	66.67%	33.33%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.01%	.36%	64.47%	.71%	4	50.00%	25.00%	25.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.82%	17.31%	8.02%	18.46%	31	12.90%	77.42%	9.68%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.64%	4.19%	25.73%	5.03%	35	8.57%	68.57%	22.86%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.57%	8.05%	23.83%	9.52%	27	14.81%	77.78%	7.41%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.88%	4.24%	13.18%	4.64%	35	2.86%	85.71%	11.43%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.66%	4.06%	12.96%	4.32%	36	2.78%	86.11%	11.11%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.15%	13.99%	-15.09%	12.97%	24	4.17%	70.83%	25.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.53%	6.56%	12.91%	7.11%	36	5.56%	77.78%	16.67%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.21: Maryland (MD) Quality Report

- Maryland is one of the top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart failure, critical care, and gastrointestinal care for *two years in a row*.
- Maryland achieved the highest percentage of best-performing hospitals this year for stroke care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.14%	4.19%	18.51%	4.44%	10	20.00%	40.00%	40.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.46%	1.21%	17.48%	1.31%	16	6.25%	75.00%	18.75%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	17.49%	15.01%	14.17%	16.03%	46	43.48%	56.52%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.23%	3.09%	26.97%	3.39%	45	48.89%	48.89%	2.22%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.05%	10.07%	-.15%	10.06%	43	18.60%	74.42%	6.98%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.08%	2.64%	14.23%	2.74%	45	66.67%	33.33%	.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.56%	2.53%	28.98%	2.99%	45	55.56%	42.22%	2.22%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	10.04%	8.85%	11.87%	9.41%	42	35.71%	54.76%	9.52%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.35%	5.33%	16.04%	5.72%	45	60.00%	37.78%	2.22%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 for *two years in a row* and has achieved the highest percentage of best-performing hospitals in gastrointestinal care.
- Massachusetts is one of the top five states showing the most improvement in cardiac surgery, coronary interventional procedures, and gastrointestinal care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.51%	2.32%	33.86%	3.06%	14	28.57%	71.43%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.15%	.63%	45.02%	.92%	20	25.00%	75.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.53%	19.19%	14.84%	20.47%	61	1.64%	83.61%	14.75%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.85%	3.57%	26.30%	4.11%	62	25.81%	64.52%	9.68%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.43%	9.05%	13.26%	9.80%	59	22.03%	67.80%	10.17%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.12%	3.41%	17.32%	3.82%	62	25.81%	64.52%	9.68%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.26%	3.27%	23.24%	3.82%	63	22.22%	65.08%	12.70%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.40%	11.26%	9.22%	11.76%	55	10.91%	63.64%	25.45%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.55%	6.30%	16.50%	6.90%	63	14.29%	74.60%	11.11%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 critical care.
- Michigan is one of the five states nationwide showing the most improvement in coronary interventional procedures and stroke care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.80%	3.17%	16.60%	3.66%	31	22.58%	74.19%	3.23%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.35%	.93%	31.37%	1.14%	36	13.89%	77.78%	8.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	16.71%	15.06%	9.88%	15.76%	110	29.09%	65.45%	5.45%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.12%	3.43%	16.75%	3.79%	120	25.00%	71.67%	3.33%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.45%	9.04%	13.49%	9.83%	86	24.42%	61.63%	13.95%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	10.45%	9.04%	13.49%	9.83%	86	24.42%	61.63%	13.95%
Heart Failure								
State	3.78%	3.12%	17.47%	3.43%	126	23.81%	69.84%	6.35%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.54%	2.80%	20.89%	3.23%	128	31.25%	66.41%	2.34%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.86%	7.96%	19.25%	9.05%	101	27.72%	66.34%	5.94%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.35%	5.40%	14.84%	5.88%	127	29.92%	68.50%	1.57%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 for *two years in a row*.
- Minnesota is also one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures this year.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.76%	3.18%	15.45%	3.60%	14	14.29%	85.71%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.27%	.76%	39.98%	1.08%	16	31.25%	50.00%	18.75%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	16.96%	15.39%	9.23%	15.83%	66	21.21%	77.27%	1.52%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.00%	3.10%	22.49%	3.52%	99	17.17%	76.77%	6.06%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.06%	8.42%	7.07%	8.76%	43	32.56%	65.12%	2.33%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.69%	3.58%	2.97%	3.68%	113	11.50%	78.76%	9.73%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.85%	3.32%	13.76%	3.51%	128	10.16%	83.59%	6.25%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	10.79%	9.74%	9.76%	9.96%	63	15.87%	71.43%	12.70%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.38%	5.66%	11.23%	5.98%	128	12.50%	86.72%	.78%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.25: Mississippi (MS) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.03%	4.84%	3.84%	5.45%	17	5.88%	58.82%	35.29%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.80%	1.56%	13.32%	1.60%	19	.00%	63.16%	36.84%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	26.08%	22.43%	14.01%	24.20%	67	.00%	58.21%	41.79%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	6.17%	4.91%	20.45%	5.61%	69	1.45%	65.22%	33.33%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	13.38%	11.99%	10.37%	13.10%	32	.00%	53.13%	46.88%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	6.79%	5.95%	12.44%	6.25%	87	1.15%	60.92%	37.93%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	6.41%	5.05%	21.31%	5.83%	91	1.10%	56.04%	42.86%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.55%	12.38%	8.59%	12.87%	53	1.89%	66.04%	32.08%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	9.89%	8.41%	14.90%	9.20%	91	1.10%	48.35%	50.55%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.26: Missouri (MO) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.81%	4.17%	13.43%	4.59%	34	5.88%	79.41%	14.71%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.38%	1.17%	15.50%	1.28%	41	7.32%	68.29%	24.39%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.15%	16.99%	6.37%	17.77%	88	15.91%	70.45%	13.64%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.89%	4.35%	10.96%	4.61%	100	11.00%	67.00%	22.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.70%	10.20%	12.78%	11.13%	62	6.45%	69.35%	24.19%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.62%	4.03%	12.66%	4.33%	109	13.76%	68.81%	17.43%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.37%	3.69%	15.44%	4.00%	110	12.73%	76.36%	10.91%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.41%	10.18%	10.80%	10.79%	77	7.79%	79.22%	12.99%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.29%	6.50%	10.88%	6.93%	111	10.81%	72.97%	16.22%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.27: Montana (MT) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.81%	3.28%	13.98%	4.39%	5	20.00%	60.00%	20.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.27%	.87%	31.50%	1.14%	9	.00%	77.78%	22.22%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.45%	16.37%	15.86%	18.05%	20	5.00%	80.00%	15.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.68%	4.11%	12.27%	4.47%	26	7.69%	76.92%	15.38%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.67%	10.17%	4.69%	10.18%	10	10.00%	70.00%	20.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.45%	4.28%	3.92%	4.51%	35	5.71%	82.86%	11.43%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.45%	5.20%	4.60%	5.29%	50	.00%	82.00%	18.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.81%	11.45%	17.09%	12.41%	18	.00%	72.22%	27.78%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.84%	7.02%	10.49%	7.48%	52	5.77%	80.77%	13.46%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.28: Nebraska (NE) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.45%	3.72%	-7.70%	3.66%	10	30.00%	60.00%	10.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.43%	1.36%	4.59%	1.27%	15	6.67%	80.00%	13.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	23.74%	20.49%	13.69%	21.85%	23	.00%	91.30%	8.70%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.09%	4.63%	9.16%	4.89%	50	6.00%	78.00%	16.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	12.51%	10.22%	18.32%	11.29%	17	5.88%	64.71%	29.41%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.35%	4.59%	14.13%	4.87%	55	7.27%	69.09%	23.64%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.70%	5.14%	-9.26%	5.02%	81	3.70%	77.78%	18.52%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.12%	9.79%	25.43%	11.75%	25	4.00%	84.00%	12.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.27%	7.58%	8.35%	7.97%	81	2.47%	85.19%	12.35%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.29: Nevada (NV) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.38%	5.30%	1.51%	5.16%	10	20.00%	40.00%	40.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.49%	1.34%	9.89%	1.36%	11	.00%	72.73%	27.27%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.72%	19.83%	-.56%	19.81%	22	.00%	86.36%	13.64%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.00%	4.89%	2.19%	4.83%	23	.00%	82.61%	17.39%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.07%	10.43%	5.75%	11.28%	16	.00%	87.50%	12.50%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.42%	3.25%	26.40%	4.19%	23	8.70%	86.96%	4.35%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.71%	3.14%	15.45%	3.61%	29	13.79%	82.76%	3.45%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.43%	9.45%	17.36%	10.08%	18	16.67%	72.22%	11.11%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.32%	6.86%	6.24%	7.14%	29	.00%	89.66%	10.34%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.78%	4.64%	31.53%	6.39%	4	.00%	50.00%	50.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.72%	1.06%	38.13%	1.30%	7	14.29%	57.14%	28.57%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	24.71%	19.24%	22.13%	21.66%	23	.00%	86.96%	13.04%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.50%	3.91%	28.84%	4.68%	26	11.54%	80.77%	7.69%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.91%	9.91%	.02%	9.70%	20	20.00%	75.00%	5.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.76%	4.98%	-4.78%	5.02%	25	4.00%	76.00%	20.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.34%	4.19%	21.45%	4.83%	26	7.69%	73.08%	19.23%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.17%	9.10%	18.47%	10.55%	23	4.35%	86.96%	8.70%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.29%	6.88%	17.03%	7.65%	26	3.85%	76.92%	19.23%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

- New Jersey is one of the top five states nationwide showing the most improvement in stoke care, gastrointestinal care, and pulmonary care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.97%	3.56%	10.30%	3.78%	17	23.53%	70.59%	5.88%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.39%	1.00%	27.96%	1.15%	31	19.35%	58.06%	22.58%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	20.81%	18.95%	8.94%	19.76%	68	5.88%	67.65%	26.47%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.07%	3.91%	22.99%	4.43%	68	14.71%	69.12%	16.18%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.43%	10.24%	10.42%	10.94%	65	7.69%	67.69%	24.62%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.34%	3.69%	15.00%	4.05%	69	18.84%	63.77%	17.39%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.57%	3.55%	22.39%	4.03%	69	15.94%	66.67%	17.39%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	10.87%	9.11%	16.24%	9.94%	67	20.90%	67.16%	11.94%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.57%	6.52%	13.85%	7.02%	69	10.14%	69.57%	20.29%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.74%	3.65%	23.06%	4.20%	7	.00%	100.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.90%	1.42%	-57.42%	1.19%	8	12.50%	75.00%	12.50%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	21.33%	17.88%	16.19%	18.80%	27	11.11%	81.48%	7.41%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.57%	5.48%	1.74%	5.01%	33	6.06%	78.79%	15.15%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.08%	9.64%	13.01%	10.40%	13	15.38%	69.23%	15.38%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.86%	4.29%	26.77%	4.89%	35	2.86%	85.71%	11.43%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.42%	4.15%	23.43%	4.71%	41	7.32%	75.61%	17.07%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	14.65%	11.31%	22.81%	12.73%	18	.00%	72.22%	27.78%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.55%	6.98%	18.35%	7.52%	41	4.88%	85.37%	9.76%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

- New York is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures for *two years in a row*.
- New York is one of the top five states nationwide showing the most improvement in gastrointestinal care *two years in a row*.
- New York is also one of the top five states nationwide showing improvement in cardiac surgery.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.21%	3.45%	18.08%	3.71%	37	24.32%	67.57%	8.11%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.77%	.72%	6.61%	.75%	43	44.19%	51.16%	4.65%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.38%	20.48%	8.51%	21.31%	173	5.78%	52.60%	41.62%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.61%	4.71%	16.08%	5.11%	176	5.11%	62.50%	32.39%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.81%	10.93%	7.43%	11.53%	163	4.91%	68.10%	26.99%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.38%	4.71%	12.45%	5.00%	182	3.30%	68.13%	28.57%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.30%	4.64%	12.50%	4.97%	185	3.78%	62.70%	33.51%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.26%	10.87%	11.27%	11.71%	166	3.01%	74.70%	22.29%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.38%	7.47%	10.77%	7.90%	184	3.26%	51.63%	45.11%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 the treatment of heart failure and pulmonary care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.21%	4.30%	17.44%	4.94%	21	9.52%	76.19%	14.29%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.26%	1.02%	18.45%	1.23%	23	4.35%	82.61%	13.04%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	20.82%	18.30%	12.10%	19.50%	101	17.82%	53.47%	28.71%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.19%	4.30%	17.21%	4.81%	103	7.77%	71.84%	20.39%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.87%	10.63%	10.47%	11.18%	76	11.84%	65.79%	22.37%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.90%	3.85%	21.38%	4.38%	104	5.77%	79.81%	14.42%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.17%	4.08%	21.11%	4.68%	108	8.33%	63.89%	27.78%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.67%	11.66%	7.96%	12.31%	88	7.95%	64.77%	27.27%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.05%	6.85%	14.86%	7.48%	108	11.11%	63.89%	25.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.97%	3.83%	3.42%	4.29%	6	16.67%	50.00%	33.33%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.51%	1.32%	12.14%	1.43%	6	.00%	66.67%	33.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	15.65%	15.77%	-.77%	15.57%	14	14.29%	85.71%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.73%	4.11%	13.13%	4.45%	23	17.39%	73.91%	8.70%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.05%	9.53%	5.24%	9.80%	11	18.18%	72.73%	9.09%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.27%	3.26%	.25%	3.43%	31	9.68%	87.10%	3.23%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.75%	3.20%	14.49%	3.49%	42	7.14%	90.48%	2.38%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.35%	9.78%	26.76%	12.28%	12	8.33%	75.00%	16.67%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.66%	5.99%	10.05%	6.40%	42	.00%	97.62%	2.38%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 pulmonary care for *two years in a row*.
- Ohio is one of the top five states nationwide with the highest percentage of best-performing hospitals in coronary interventional procedures, the treatment of heart attack, the treatment of heart failure, gastrointestinal care, critical care, pulmonary care, and stroke care for *two years in a row*.

Category Benchmark	2005 Risk-Adjusted Mortality	2007 Risk-Adjusted Mortality	% Improve-ment 2005-2007	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.68%	3.25%	11.78%	3.44%	55	20.00%	74.55%	5.45%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.10%	.92%	16.59%	1.01%	60	30.00%	60.00%	10.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	16.26%	14.35%	11.70%	15.08%	147	36.05%	59.18%	4.76%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.99%	3.34%	16.36%	3.57%	153	35.95%	60.78%	3.27%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.63%	8.46%	12.20%	9.16%	117	26.50%	66.67%	6.84%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.47%	2.89%	16.77%	3.17%	155	40.65%	53.55%	5.81%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.46%	2.65%	23.57%	3.07%	156	38.46%	54.49%	7.05%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.36%	8.54%	8.70%	8.93%	134	29.85%	64.93%	5.22%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.05%	5.19%	14.19%	5.57%	157	38.85%	57.96%	3.18%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 critical care.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.84%	5.45%	6.68%	5.55%	17	.00%	58.82%	41.18%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	1.09%	23.95%	1.26%	21	4.76%	66.67%	28.57%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	24.20%	19.37%	19.95%	21.34%	71	5.63%	69.01%	25.35%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.50%	4.99%	9.37%	5.19%	80	1.25%	76.25%	22.50%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	13.47%	11.47%	14.86%	12.68%	35	.00%	57.14%	42.86%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.84%	4.81%	.70%	4.84%	95	6.32%	71.58%	22.11%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.36%	4.70%	12.29%	5.03%	110	.91%	76.36%	22.73%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.32%	10.78%	12.54%	11.55%	55	.00%	85.45%	14.55%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.77%	7.54%	14.04%	8.11%	113	.88%	79.65%	19.47%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.38: Oregon (OR) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.63%	4.88%	13.21%	4.91%	11	.00%	72.73%	27.27%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.25%	1.24%	.29%	1.19%	15	6.67%	80.00%	13.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.68%	16.75%	14.86%	18.26%	42	9.52%	85.71%	4.76%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.83%	3.57%	26.23%	4.14%	55	14.55%	70.91%	14.55%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.27%	8.80%	14.35%	9.55%	33	24.24%	66.67%	9.09%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.70%	4.31%	8.34%	4.80%	54	5.56%	75.93%	18.52%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.79%	3.84%	19.85%	4.36%	56	7.14%	75.00%	17.86%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.65%	11.06%	5.09%	11.60%	42	2.38%	80.95%	16.67%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.57%	6.43%	15.15%	7.03%	56	5.36%	83.93%	10.71%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 critical care for *two years in a row*.
- Pennsylvania is one of the top five states nationwide with the highest percentage of best-performing hospitals in cardiac surgery for *two years in a row*.
- Pennsylvania is also one of top five states nationwide with the highest percentage of best-performing hospitals in the treatment of heart attack.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.73%	3.08%	17.42%	3.43%	61	37.70%	55.74%	6.56%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.19%	.94%	20.65%	1.03%	68	19.12%	72.06%	8.82%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.57%	17.16%	12.32%	18.18%	160	12.50%	73.13%	14.38%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.72%	3.98%	15.63%	4.28%	161	18.63%	64.60%	16.77%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.89%	9.12%	7.78%	9.61%	145	24.83%	63.45%	11.72%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.99%	3.36%	15.78%	3.72%	160	20.63%	73.75%	5.63%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.33%	3.58%	17.30%	3.91%	162	13.58%	76.54%	9.88%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.23%	9.97%	11.25%	10.47%	148	11.49%	77.70%	10.81%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.06%	6.14%	12.99%	6.57%	162	19.14%	69.14%	11.73%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.29%	3.82%	-66.95%	4.09%	3	.00%	100.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.12%	.78%	30.43%	.95%	3	.00%	100.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.72%	21.18%	6.76%	21.62%	10	.00%	80.00%	20.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.40%	4.43%	17.92%	4.84%	10	10.00%	70.00%	20.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.10%	8.38%	17.11%	9.94%	10	10.00%	80.00%	10.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.78%	4.27%	10.54%	4.35%	10	20.00%	50.00%	30.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.44%	3.68%	17.13%	4.28%	10	.00%	90.00%	10.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	12.98%	10.82%	16.61%	12.06%	10	10.00%	60.00%	30.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.86%	6.99%	11.10%	7.49%	10	.00%	70.00%	30.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.59%	3.53%	23.20%	3.90%	16	12.50%	75.00%	12.50%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.45%	1.23%	14.79%	1.29%	17	.00%	88.24%	11.76%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	22.14%	19.34%	12.66%	20.61%	55	7.27%	61.82%	30.91%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.73%	4.79%	16.30%	5.15%	57	7.02%	56.14%	36.84%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.76%	9.88%	15.98%	10.77%	40	5.00%	80.00%	15.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.94%	4.71%	20.72%	5.27%	57	3.51%	64.91%	31.58%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.53%	4.26%	23.10%	4.86%	58	8.62%	60.34%	31.03%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	14.13%	12.29%	13.00%	13.28%	47	2.13%	61.70%	36.17%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.69%	7.25%	16.52%	7.89%	58	6.90%	58.62%	34.48%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 for *two* years in a row.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	2.70%	2.84%	-5.31%	2.68%	3	66.67%	.00%	33.33%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	.95%	.66%	30.39%	.88%	5	20.00%	80.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	21.59%	18.93%	12.35%	19.83%	12	8.33%	83.33%	8.33%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.99%	3.30%	17.27%	3.94%	26	11.54%	73.08%	15.38%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	9.60%	8.43%	12.19%	8.85%	9	11.11%	77.78%	11.11%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.76%	4.16%	12.49%	4.53%	37	2.70%	75.68%	21.62%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.08%	4.58%	-12.36%	4.33%	52	1.92%	90.38%	7.69%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.94%	9.71%	18.68%	10.62%	13	7.69%	92.31%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.12%	6.47%	9.16%	6.86%	52	5.77%	90.38%	3.85%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 critical care for *two years in a row*.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.67%	4.16%	10.80%	4.56%	23	8.70%	52.17%	39.13%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.38%	1.27%	8.11%	1.34%	36	16.67%	55.56%	27.78%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	21.20%	17.78%	16.11%	19.14%	106	11.32%	66.98%	21.70%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.83%	3.72%	22.94%	4.38%	108	11.11%	70.37%	18.52%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.29%	10.85%	3.88%	10.91%	66	16.67%	66.67%	16.67%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	5.12%	4.02%	21.51%	4.66%	114	7.89%	71.05%	21.05%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.67%	4.05%	13.15%	4.29%	114	14.91%	64.91%	20.18%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.49%	10.54%	21.84%	11.86%	84	4.76%	66.67%	28.57%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.95%	6.69%	15.84%	7.27%	114	12.28%	62.28%	25.44%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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, the treatment of heart attack, the treatment of heart failure, critical care, gastrointestinal care, and pulmonary care for *two years in a row*.
- Texas is one of the top five states nationwide also showing the most improvement in coronary interventional procedures.
- Texas has the most number of procedures and diagnoses showing improvement this year.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.09%	3.97%	22.15%	4.54%	105	8.57%	72.38%	19.05%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.30%	.94%	27.72%	1.15%	125	12.80%	75.20%	12.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.79%	16.49%	12.27%	17.44%	263	17.49%	76.05%	6.46%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.57%	3.66%	20.01%	3.99%	289	18.34%	72.32%	9.34%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.51%	9.68%	15.96%	10.53%	192	11.46%	76.04%	12.50%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.21%	3.48%	17.16%	3.86%	314	16.88%	70.38%	12.74%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.02%	3.16%	21.39%	3.67%	343	21.87%	66.18%	11.95%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	9.70%	8.80%	9.26%	9.22%	207	19.32%	74.88%	5.80%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.03%	5.94%	15.47%	6.45%	348	18.68%	70.98%	10.34%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.45: Utah (UT) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.00%	4.17%	-4.44%	3.90%	9	.00%	100.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.25%	1.14%	8.42%	1.16%	14	14.29%	71.43%	14.29%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	16.95%	13.75%	18.89%	15.07%	22	36.36%	63.64%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.71%	3.58%	3.59%	3.70%	28	21.43%	71.43%	7.14%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.27%	9.25%	9.90%	9.86%	15	13.33%	80.00%	6.67%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	3.45%	3.13%	9.36%	3.54%	28	14.29%	78.57%	7.14%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	3.08%	3.33%	-8.23%	3.23%	36	19.44%	77.78%	2.78%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.68%	10.14%	13.25%	10.78%	19	5.26%	89.47%	5.26%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.21%	5.60%	9.71%	5.93%	36	22.22%	75.00%	2.78%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.46: Vermont (VT) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.66%	7.09%	-6.49%	6.44%	1	.00%	.00%	100.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.74%	.64%	63.25%	1.13%	1	.00%	100.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	25.83%	22.79%	11.78%	22.84%	12	.00%	83.33%	16.67%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.02%	4.53%	9.79%	4.98%	13	15.38%	76.92%	7.69%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	8.72%	9.31%	-6.78%	9.44%	10	30.00%	70.00%	.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	6.24%	6.51%	-4.33%	6.62%	13	.00%	30.77%	69.23%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	6.31%	4.86%	23.05%	5.57%	14	14.29%	50.00%	35.71%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	16.12%	14.22%	11.82%	14.00%	9	.00%	44.44%	55.56%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	9.22%	8.15%	11.61%	8.56%	14	.00%	71.43%	28.57%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	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 for *two years in a row*.

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.78%	4.15%	-9.85%	3.87%	19	15.79%	68.42%	15.79%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.44%	.96%	33.47%	1.13%	31	9.68%	83.87%	6.45%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	19.94%	17.96%	9.96%	18.59%	78	11.54%	66.67%	21.79%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.04%	4.10%	18.60%	4.38%	77	12.99%	66.23%	20.78%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.92%	9.50%	13.06%	10.15%	71	9.86%	77.46%	12.68%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.35%	3.89%	10.55%	4.21%	79	11.39%	74.68%	13.92%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.44%	3.69%	16.90%	4.07%	80	12.50%	73.75%	13.75%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.70%	9.32%	20.36%	10.47%	68	13.24%	67.65%	19.12%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.43%	6.45%	13.17%	6.85%	81	17.28%	67.90%	14.81%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.48: Washington (WA) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	5.27%	4.82%	8.56%	4.84%	18	.00%	61.11%	38.89%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.49%	1.35%	9.56%	1.37%	29	13.79%	58.62%	27.59%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.27%	16.46%	9.91%	17.13%	56	14.29%	80.36%	5.36%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	3.92%	3.81%	3.04%	3.95%	66	21.21%	69.70%	9.09%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.10%	10.58%	-4.74%	10.22%	45	13.33%	73.33%	13.33%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.35%	3.80%	12.79%	4.09%	70	12.86%	80.00%	7.14%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.23%	3.60%	14.94%	3.94%	79	15.19%	75.95%	8.86%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	11.48%	9.28%	19.16%	10.21%	52	15.38%	78.85%	5.77%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	6.97%	6.29%	9.89%	6.56%	79	11.39%	84.81%	3.80%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	4.15%	3.43%	17.46%	3.76%	6	.00%	100.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.38%	1.03%	25.25%	1.19%	9	11.11%	66.67%	22.22%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	20.37%	18.82%	7.60%	19.47%	39	2.56%	64.10%	33.33%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.61%	4.88%	12.98%	5.13%	44	9.09%	59.09%	31.82%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	11.74%	9.68%	17.53%	10.79%	32	3.13%	81.25%	15.63%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.90%	3.92%	19.92%	4.42%	50	8.00%	74.00%	18.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.73%	4.32%	8.60%	4.56%	51	5.88%	62.75%	31.37%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.82%	12.09%	12.54%	12.69%	33	.00%	72.73%	27.27%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.99%	7.07%	11.59%	7.48%	51	3.92%	66.67%	29.41%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.50: Wisconsin (WI) Quality Report

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	3.97%	3.43%	13.55%	3.67%	27	18.52%	74.07%	7.41%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.37%	.99%	27.75%	1.16%	36	13.89%	77.78%	8.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	18.15%	15.75%	13.25%	16.84%	88	14.77%	78.41%	6.82%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	4.41%	3.45%	21.87%	3.97%	107	15.89%	75.70%	8.41%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.30%	8.54%	17.10%	9.56%	66	18.18%	77.27%	4.55%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.68%	3.46%	26.11%	4.12%	116	11.21%	72.41%	16.38%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	4.46%	3.43%	23.10%	4.03%	118	9.32%	78.81%	11.86%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	10.95%	8.79%	19.69%	10.13%	85	16.47%	70.59%	12.94%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	7.09%	5.76%	18.76%	6.47%	119	13.45%	79.83%	6.72%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix I.51: Wyoming (WY) Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
State	6.81%	7.64%	-12.19%	7.27%	2	.00%	50.00%	50.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
State	1.58%	.93%	41.12%	1.97%	2	.00%	50.00%	50.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
State	16.84%	16.57%	1.65%	18.94%	13	.00%	100.00%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
State	5.90%	4.46%	24.34%	4.84%	20	10.00%	75.00%	15.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
State	10.76%	11.57%	-7.56%	13.08%	2	.00%	50.00%	50.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
State	4.26%	4.86%	-14.15%	4.72%	18	5.56%	83.33%	11.11%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
State	5.65%	5.24%	7.28%	5.35%	25	4.00%	76.00%	20.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
State	13.33%	12.48%	6.38%	12.48%	9	11.11%	66.67%	22.22%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
State	8.23%	7.54%	8.34%	8.10%	26	.00%	96.15%	3.85%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J: MSA Quality Reports

Appendix J.1: Atlanta Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.11%	4.22%	-2.49%	4.09%	7	14.29%	71.43%	14.29%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.49%	.97%	35.42%	1.13%	10	10.00%	60.00%	30.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	20.77%	17.93%	13.66%	19.12%	34	17.65%	64.71%	17.65%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	4.90%	4.44%	9.38%	4.50%	34	11.76%	79.41%	8.82%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.49%	10.32%	10.18%	10.74%	26	7.69%	65.38%	26.92%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.99%	3.05%	23.67%	3.60%	34	20.59%	73.53%	5.88%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.83%	3.49%	8.70%	3.75%	34	11.76%	85.29%	2.94%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	11.15%	10.30%	7.68%	10.83%	29	6.90%	82.76%	10.34%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.30%	6.44%	11.74%	6.83%	34	17.65%	73.53%	8.82%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.2: Boston Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	3.98%	2.54%	36.07%	3.40%	8	25.00%	75.00%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.24%	.73%	41.05%	1.05%	14	7.14%	92.86%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	23.59%	19.77%	16.18%	20.87%	29	.00%	82.76%	17.24%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	4.71%	3.41%	27.46%	4.06%	29	27.59%	58.62%	13.79%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.25%	9.54%	15.23%	10.66%	28	7.14%	78.57%	14.29%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.91%	3.34%	14.66%	3.88%	29	20.69%	68.97%	10.34%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	4.06%	3.21%	20.96%	3.68%	29	27.59%	62.07%	10.34%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	12.69%	12.50%	1.48%	12.20%	27	3.70%	66.67%	29.63%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.65%	6.46%	15.52%	7.04%	29	10.34%	82.76%	6.90%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.3: Chicago Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	3.63%	3.25%	10.54%	3.43%	49	26.53%	69.39%	4.08%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.07%	.86%	20.30%	.99%	57	21.05%	71.93%	7.02%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	17.33%	15.32%	11.58%	16.08%	76	38.16%	57.89%	3.95%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.57%	3.12%	12.61%	3.29%	77	50.65%	46.75%	2.60%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	9.68%	8.26%	14.64%	8.99%	69	28.99%	66.67%	4.35%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.15%	2.54%	19.19%	2.88%	77	61.04%	38.96%	.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.36%	2.63%	21.80%	2.96%	77	50.65%	48.05%	1.30%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	8.45%	7.69%	9.03%	8.03%	66	50.00%	50.00%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	5.96%	5.18%	13.19%	5.52%	77	59.74%	40.26%	.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

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

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	5.37%	4.29%	20.00%	5.00%	25	.00%	80.00%	20.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.58%	1.33%	15.92%	1.50%	32	6.25%	71.88%	21.88%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	19.94%	17.68%	11.32%	18.56%	47	10.64%	85.11%	4.26%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	4.51%	3.64%	19.28%	3.92%	47	21.28%	74.47%	4.26%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.97%	11.11%	7.21%	11.42%	41	7.32%	80.49%	12.20%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	4.50%	3.78%	15.96%	4.02%	48	20.83%	75.00%	4.17%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	4.01%	3.14%	21.68%	3.68%	48	20.83%	75.00%	4.17%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	9.41%	8.44%	10.30%	9.20%	45	17.78%	77.78%	4.44%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.21%	6.23%	13.66%	6.70%	49	16.33%	79.59%	4.08%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.5: Detroit Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.29%	3.31%	22.86%	3.83%	14	28.57%	71.43%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.17%	.78%	32.88%	.96%	16	25.00%	75.00%	.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	16.37%	14.09%	13.91%	15.03%	33	54.55%	42.42%	3.03%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.68%	3.00%	18.53%	3.49%	33	54.55%	45.45%	.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	9.93%	8.80%	11.42%	9.40%	32	40.63%	50.00%	9.38%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.56%	2.94%	17.27%	3.17%	33	51.52%	48.48%	.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.22%	2.56%	20.51%	2.92%	34	67.65%	32.35%	.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	8.50%	7.17%	15.62%	7.89%	33	54.55%	42.42%	3.03%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	5.95%	5.02%	15.60%	5.48%	34	70.59%	29.41%	.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.6: Houston Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.43%	3.86%	12.88%	4.17%	15	13.33%	66.67%	20.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.08%	.92%	14.79%	1.05%	21	14.29%	80.95%	4.76%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	15.58%	13.82%	11.30%	14.71%	35	42.86%	54.29%	2.86%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.97%	3.04%	23.50%	3.35%	36	36.11%	58.33%	5.56%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	10.03%	9.18%	8.55%	9.76%	34	14.71%	82.35%	2.94%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.54%	2.63%	25.81%	3.11%	37	35.14%	62.16%	2.70%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	2.65%	2.18%	17.49%	2.46%	37	75.68%	21.62%	2.70%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	8.56%	7.71%	9.91%	8.14%	33	33.33%	66.67%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	5.77%	4.97%	14.00%	5.37%	37	56.76%	40.54%	2.70%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.7: Los Angeles Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	3.83%	2.99%	22.00%	3.45%	43	16.28%	79.07%	4.65%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.34%	1.11%	17.55%	1.16%	50	8.00%	80.00%	12.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	16.89%	15.38%	8.95%	16.05%	100	38.00%	57.00%	5.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.99%	3.23%	19.00%	3.67%	97	25.77%	69.07%	5.15%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	9.89%	8.79%	11.12%	9.40%	78	21.79%	71.79%	6.41%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.64%	2.97%	18.31%	3.34%	96	22.92%	76.04%	1.04%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.50%	2.94%	15.89%	3.23%	101	29.70%	69.31%	.99%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	8.44%	7.58%	10.24%	7.95%	79	50.63%	45.57%	3.80%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	6.14%	5.43%	11.61%	5.78%	104	45.19%	52.88%	1.92%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.8: Miami Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.75%	3.24%	31.66%	4.21%	15	.00%	86.67%	13.33%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.01%	1.20%	-19.34%	1.07%	17	23.53%	64.71%	11.76%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	17.67%	16.34%	7.52%	17.17%	36	27.78%	66.67%	5.56%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	4.47%	3.44%	22.92%	3.86%	35	34.29%	62.86%	2.86%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	9.98%	8.30%	16.80%	9.38%	30	33.33%	63.33%	3.33%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.34%	2.76%	17.25%	3.10%	36	44.44%	52.78%	2.78%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.71%	2.62%	29.38%	3.13%	36	41.67%	58.33%	.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	8.57%	7.54%	12.04%	8.49%	33	42.42%	54.55%	3.03%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	6.35%	5.45%	14.06%	5.95%	36	44.44%	52.78%	2.78%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.9: New York Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.56%	3.95%	13.41%	4.13%	28	14.29%	75.00%	10.71%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.03%	.86%	16.84%	.93%	35	31.43%	51.43%	17.14%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	21.99%	20.04%	8.86%	20.87%	96	5.21%	52.08%	42.71%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	5.40%	4.54%	15.99%	5.00%	96	6.25%	62.50%	31.25%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	12.18%	11.04%	9.32%	11.66%	90	3.33%	66.67%	30.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	4.79%	4.34%	9.34%	4.53%	96	8.33%	69.79%	21.88%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	4.87%	4.22%	13.37%	4.56%	96	8.33%	63.54%	28.13%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	11.36%	9.85%	13.33%	10.69%	93	10.75%	73.12%	16.13%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	8.05%	7.19%	10.66%	7.60%	96	5.21%	54.17%	40.63%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.10: Philadelphia Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.56%	4.17%	8.46%	4.42%	26	15.38%	69.23%	15.38%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.20%	.98%	17.96%	1.09%	30	20.00%	70.00%	10.00%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	21.75%	20.29%	6.73%	20.89%	50	2.00%	70.00%	28.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	5.34%	4.13%	22.67%	4.59%	50	14.00%	66.00%	20.00%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.71%	9.46%	19.17%	10.81%	50	14.00%	70.00%	16.00%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	4.18%	3.19%	23.76%	3.73%	51	19.61%	78.43%	1.96%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	4.70%	3.70%	21.32%	4.05%	51	11.76%	74.51%	13.73%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	11.40%	9.86%	13.56%	10.58%	50	8.00%	78.00%	14.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.78%	6.62%	14.91%	7.14%	51	9.80%	74.51%	15.69%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.11: Phoenix Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	3.66%	2.82%	23.11%	3.60%	17	11.76%	82.35%	5.88%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.23%	.89%	27.57%	.98%	24	16.67%	70.83%	12.50%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	16.92%	13.91%	17.81%	15.90%	27	29.63%	70.37%	.00%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.75%	2.81%	25.13%	3.41%	26	34.62%	57.69%	7.69%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	10.33%	7.63%	26.12%	9.01%	26	26.92%	57.69%	15.38%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	2.56%	1.67%	34.92%	2.14%	27	51.85%	48.15%	.00%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	2.57%	2.42%	5.76%	2.75%	27	48.15%	51.85%	.00%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	7.27%	6.36%	12.62%	7.08%	24	37.50%	62.50%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	5.67%	4.62%	18.53%	5.32%	27	59.26%	40.74%	.00%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.12: Riverside, CA—Inland Empire Region MSA Quality Report

Category Benchmark	2005 Risk-Adjusted Mortality	2007 Risk-Adjusted Mortality	% Improvement 2005-2007	3-Year Risk-Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	3.54%	2.70%	23.79%	3.39%	7	28.57%	71.43%	.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.64%	1.32%	19.77%	1.37%	9	.00%	77.78%	22.22%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	18.60%	16.82%	9.58%	17.97%	27	14.81%	74.07%	11.11%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	5.78%	4.09%	29.26%	4.90%	27	7.41%	77.78%	14.81%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.76%	10.21%	13.22%	10.57%	22	18.18%	68.18%	13.64%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.94%	3.90%	.95%	3.93%	26	7.69%	88.46%	3.85%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	4.43%	3.19%	27.83%	3.96%	28	14.29%	82.14%	3.57%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	10.28%	8.69%	15.48%	9.63%	22	22.73%	72.73%	4.55%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.26%	6.11%	15.88%	6.73%	28	10.71%	82.14%	7.14%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.13: San Francisco Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.23%	3.45%	18.45%	3.97%	18	16.67%	72.22%	11.11%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.40%	1.47%	-4.79%	1.45%	22	4.55%	63.64%	31.82%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	18.82%	18.28%	2.86%	18.31%	46	8.70%	84.78%	6.52%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.78%	3.58%	5.17%	3.72%	46	19.57%	71.74%	8.70%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	9.75%	9.68%	.73%	9.83%	38	10.53%	81.58%	7.89%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	4.17%	3.98%	4.64%	4.04%	46	6.52%	91.30%	2.17%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.79%	3.61%	4.86%	3.66%	48	12.50%	79.17%	8.33%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	9.71%	9.43%	2.91%	9.52%	40	32.50%	50.00%	17.50%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	6.65%	6.48%	2.59%	6.53%	48	14.58%	77.08%	8.33%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.14: Seattle Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	4.98%	5.63%	-13.24%	5.04%	10	.00%	70.00%	30.00%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.51%	1.47%	3.01%	1.55%	18	5.56%	61.11%	33.33%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	16.60%	17.25%	-3.89%	16.61%	21	14.29%	80.95%	4.76%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	3.80%	3.29%	13.30%	3.70%	21	42.86%	52.38%	4.76%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	10.36%	11.41%	-10.11%	10.76%	19	15.79%	63.16%	21.05%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	4.06%	3.44%	15.25%	3.78%	21	19.05%	71.43%	9.52%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.20%	2.93%	8.40%	3.15%	21	33.33%	61.90%	4.76%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	11.06%	9.55%	13.64%	10.17%	20	30.00%	65.00%	5.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	6.43%	6.26%	2.64%	6.29%	21	23.81%	66.67%	9.52%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%

Appendix J.15: Washington D.C. Metropolitan Area MSA Quality Report

Category Benchmark	2005 Risk- Adjusted Mortality	2007 Risk- Adjusted Mortality	% Improve- ment 2005-2007	3-Year Risk- Adjusted Mortality	Number of Hospitals Studied	Percent of Hospital in		
						Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery								
Metro Area	5.31%	5.09%	4.14%	5.06%	7	.00%	42.86%	57.14%
National	4.36%	3.79%	13.15%	4.09%	1,106	15.00%	70.00%	15.00%
Top 15%	1.83%	1.79%	2.31%	2.32%	166	100.00%	.00%	.00%
Coronary Interventional Procedures								
Metro Area	1.79%	.98%	45.56%	1.28%	9	.00%	77.78%	22.22%
National	1.27%	1.01%	20.00%	1.14%	1,388	15.00%	70.00%	15.00%
Top15%	.37%	.34%	9.08%	.58%	208	100.00%	.00%	.00%
Critical Care								
Metro Area	20.71%	17.18%	17.06%	18.58%	26	15.38%	73.08%	11.54%
National	19.49%	17.36%	10.97%	18.34%	3,560	15.00%	70.00%	15.00%
Top 15%	13.50%	12.52%	7.27%	13.72%	534	100.00%	.00%	.00%
Gastrointestinal								
Metro Area	4.00%	3.55%	11.14%	3.75%	26	15.38%	80.77%	3.85%
National	4.71%	3.94%	16.39%	4.28%	3,972	15.00%	70.00%	15.00%
Top 15%	2.45%	2.25%	8.11%	2.89%	596	100.00%	.00%	.00%
Heart Attack								
Metro Area	11.40%	10.05%	11.90%	10.48%	23	13.04%	82.61%	4.35%
National	10.86%	9.63%	11.34%	10.32%	2,652	15.00%	70.00%	15.00%
Top15%	6.53%	6.10%	6.50%	7.39%	398	100.00%	.00%	.00%
Heart Failure								
Metro Area	3.67%	3.15%	14.25%	3.53%	26	19.23%	76.92%	3.85%
National	4.32%	3.67%	15.03%	4.03%	4,217	15.00%	70.00%	15.00%
Top 15%	2.19%	1.97%	10.36%	2.53%	633	100.00%	.00%	.00%
Pulmonary								
Metro Area	3.71%	3.11%	16.30%	3.50%	26	19.23%	76.92%	3.85%
National	4.33%	3.61%	16.49%	3.98%	4,497	15.00%	70.00%	15.00%
Top 15%	2.27%	1.93%	15.17%	2.45%	675	100.00%	.00%	.00%
Stroke								
Metro Area	10.44%	8.07%	22.73%	9.11%	26	23.08%	76.92%	.00%
National	11.15%	9.79%	12.15%	10.49%	3,104	15.00%	70.00%	15.00%
Top 15%	6.41%	5.98%	6.65%	7.27%	466	100.00%	.00%	.00%
Combined								
Metro Area	7.12%	5.95%	16.36%	6.48%	27	22.22%	70.37%	7.41%
National	7.25%	6.31%	12.99%	6.77%	4,524	15.00%	70.00%	15.00%
Top 15%	5.26%	4.79%	8.85%	5.23%	679	100.00%	.00%	.00%