



HEALTHGRADES[®]
GUIDING AMERICANS TO THEIR BEST HEALTH™

The Thirteenth Annual
HealthGrades Hospital Quality
in America Study

October 2010

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Since 1998, HealthGrades has studied and measured the quality of care at the nation's nearly 5,000 hospitals and published the results of its annual research on the Web to assist consumers in choosing a hospital. In this report, HealthGrades examines risk-adjusted mortality and complication rates among the nation's hospitals, assesses the differences between best-performing and worst-performing hospitals, and evaluates the performance of individual states across 14 service areas. In this year's study, we expanded our analysis to evaluate the impact of in-hospital performance on all cause mortality at 30 days and 180 days following hospitalization. Individual hospital quality results from this study are available at www.healthgrades.com.

Executive Summary

For the past thirteen years, HealthGrades has conducted a comprehensive evaluation of the quality of care in U.S. hospitals. Unlike other hospital quality studies, HealthGrades evaluates hospitals solely on clinical outcomes: risk-adjusted mortality and in-hospital complications. For the first part of *The Thirteenth Annual HealthGrades Hospital Quality in America Study*, HealthGrades analyzed approximately 40 million Medicare discharges from almost every U.S. hospital from 2007 through 2009.

Risk-adjusted mortality and complication rates were calculated and hospitals were assigned a 5-star (best), 3-star (as expected), or 1-star (poor) quality rating for 26 procedures and diagnoses from heart failure to hip replacement to pneumonia. Individual hospital quality results from this study are available at www.healthgrades.com.

Mortality Cohorts	Inhospital Complication Cohorts
<ul style="list-style-type: none"> • Bowel Obstruction • Chronic Obstructive Pulmonary Disease • Coronary Interventional Procedures • Diabetic Acidosis and Coma • Gastrointestinal Bleed • Gastrointestinal Surgeries and Procedures • Heart Attack • Heart Bypass Surgery • Heart Failure • Pancreatitis 	<ul style="list-style-type: none"> • Pneumonia • Pulmonary Embolism • Resection/Replacement Abdominal Aorta • Respiratory Failure • Sepsis • Stroke • Valve Replacement Surgery • Back and Neck Surgery (with Spinal Fusion) • Back and Neck Surgery (without Spinal Fusion) • Carotid Surgery • Cholecystectomy (Gallbladder Surgery) • Hip Fracture Repair • Peripheral Vascular Bypass • Prostatectomy • Total Hip Replacement • Total Knee Replacement

For the second part of this study, HealthGrades addresses the impact of the variation in quality between 5-star, 3-star and 1-star rated hospitals. For 17 diagnoses and procedures, the differences in quality are presented in terms of potential lives saved; and for nine procedures, the differences are summarized in terms of in-hospital complications that may have been avoided.

In addition, we expanded our analysis in this year's study beyond the inpatient admission to 30 days and 180 days post admission. Specifically, we evaluated the impact that in-hospital performance has on all cause mortality at 30 days and 180 days following hospitalization.

HealthGrades also evaluated the performance of individual states across 14 clinical service areas: cardiac surgery, heart attack treatment, coronary interventional procedures, heart failure treatment, critical care, cholecystectomy, gastrointestinal services, pulmonary care, stroke care, hip and knee replacement, hip fracture, spine surgery, prostatectomy, and vascular procedures. State performance was benchmarked against the best-performing hospitals and against the national average.

Summary of Findings

Key findings of this study include:

Hospital unadjusted mortality rates in the United States have improved, on average, 7.98% from 2007 through 2009 across 17 diagnoses and procedures.

The highest unadjusted mortality rates were among sepsis, respiratory failure, and gastrointestinal surgeries and procedures.

A typical patient would have a 72.47% lower risk of dying in a 5-star rated hospital compared to a 1-star rated hospital.

- 1 The nation's hospitals unadjusted mortality improved on average 7.98% from 2007 through 2009 across the 17 diagnoses and procedures studied (*Appendix C*).
 - All but two diagnoses and procedures saw reductions in the unadjusted mortality rates. Gastrointestinal surgeries and procedures and coronary interventional procedures were associated with an increase in unadjusted mortality of 8.76% and 9.26%, respectively (*Appendix C*).
 - The highest unadjusted mortality rates were among sepsis, respiratory failure, and gastrointestinal surgeries and procedures (20.59%, 19.45%, 10.29%, respectively) (*Appendix A*).
 - The most improvement in unadjusted mortality was seen in chronic obstructive pulmonary disease (18.73%), bowel obstruction (14.72%), heart attack (13.68%), and stroke (13.50%) (*Appendix C*).
- 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 (*Appendix B*).
 - Across all procedures and diagnoses studied, a typical patient would have a 72.47% lower risk of dying in a 5-star rated hospital compared to a 1-star rated hospital; and a 53.36% lower risk of dying by going to a 5-star rated hospital compared to the U.S. hospital average (*Appendix C*).
- 3 If all hospitals performed at the level of a 5-star rated hospital, 232,442 Medicare lives could potentially have been saved from 2007 through 2009 (*Appendix C*).
 - Approximately 55.91% (129,949) of the potentially preventable deaths were associated with just four diagnoses:

1) Sepsis (48,809)	3) Respiratory Failure (26,361)
2) Pneumonia (29,017)	4) Heart Failure (25,762)
- 4 Thirty days following admission to the hospital, an additional 32,677 Medicare patients could potentially have survived if they had gone to a 5-star rated hospital (*Appendix C*).
 - A typical patient had on average a 57.08% lower risk of dying 30 days following their hospitalization if they were treated at a facility that was rated 5-stars for their in-hospital performance compared to 1-star rated hospitals (*Appendix D*).

Overall, of hospitals that had 5-star ratings based on in-hospital outcomes, 63.59% also had a 5-star rating at 30 days post admission and 44.39% kept their 5-star rating at six months.

On average, one in nine patients developed a hospital-acquired complication, across the nine procedures evaluated for in-hospital complications, from 2007 to 2009.

States with the lowest overall risk-adjusted mortality were Arizona, Ohio, Maryland, Michigan and Utah.

- 5 In-hospital performance is highly correlated with patient survival at 30 days and 180 days post admission to the hospital (*Figure 1*).
 - On average, patients treated at hospitals with statistically lower risk-adjusted mortality rates are less likely to die of all causes up to six months following their hospitalization, and conversely patients treated at hospitals with higher risk-adjusted mortality have a higher likelihood of death from all causes within the six months following their hospitalization.
 - Hospitals that are 5-star rated based on in-hospital mortality are more likely to retain their 5-star ratings at 30 days and 180 days post admission. Overall, of hospitals that had 5-star ratings based on in-hospital outcomes, 63.59% also had a 5-star rating at 30 days post admission and 44.39% kept their 5-star rating at six months (*Table 7*).
- 6 On average, one in nine patients developed a hospital-acquired complication, across the nine procedures evaluated for in-hospital complications, from 2007 to 2009 (*Appendix E*).
 - On average a typical patient would have an 80.40% lower risk of developing one or more in-hospital complications by going to a 5-star rated hospital compared to a 1-star hospital and a 63.64% lower risk of developing one or more in-hospital complications by going to a 5-star hospital compared to the U.S. hospital average (*Appendix G*).
 - Closing the performance gap on just three cohorts could potentially prevent the greatest number of complications: hip fracture repair (42,312), total knee replacement (35,466), and cholecystectomy (28,502) (*Appendix G*).
- 7 Complications showed a large variation between the “best” and the “worst” hospitals for the nine procedures studied. Five-star rated hospitals had significantly lower unadjusted complication rates across all three years studied (*Appendix F*).
 - The highest unadjusted in-hospital complication rates were among cholecystectomy (17.97%), spinal fusion (17.15%), and hip fracture repair (16.09%) (*Appendix E*).
 - If all hospitals performed at the level of a 5-star rated hospital across the nine complication-based procedures studied, 185,875 Medicare in-hospital complications may have been avoided (*Appendix G*).
- 8 Variation in quality exists at the national and state levels.
 - The states with the lowest overall risk-adjusted mortality were Arizona, Ohio, Maryland, Michigan and Utah (*Appendix J*).
 - The states with the lowest overall rates of risk-adjusted in-hospital complications were Hawaii, Delaware, Idaho, Arkansas and Mississippi (*Appendix J*).

Introduction

On March 23rd, 2010, President Obama signed into law the Patient Protection and Affordable Care Act (PPACA). One of the key objectives of this law is to improve the quality of health care for all Americans. Despite having the most costly health care systems in the world, the U.S. ranked 15th out of 19 industrialized countries in deaths that could have been prevented with timely and effective care.¹ PPACA aims to improve quality by expanding coverage, increasing disease management and care coordination, and improving outcomes through the creation of new payment models, value-based purchasing initiatives, and the use of comparative effectiveness research.

Crucial components of the bill are transparency and the creation of standardized quality measures that are linked to payment. As early as 2011, the Centers for Medicare and Medicaid Services (CMS) must have a process in place to review and adopt quality and pay for performance measures.² Early evidence supports that public reporting and pay for performance are both effective in stimulating quality improvement and reducing mortality.^{3,4}

Publicly reported health care data also supports the needs of the increasingly sophisticated health care consumer. In a survey conducted by the Kaiser Family Foundation in 2008, 41% of adults indicated that they believed there are major differences in hospital quality in their immediate geography, and since 1996 the number of consumers that indicated they would choose a hospital based on a high quality rating over familiarity has increased by 40% (from 25% to 35% of respondents).⁵

HealthGrades own consumer research has also found that consumers are researching health care providers, and that objective quality information is highly valued. HealthGrades.com receives almost eight million unique visitors to its Web site each month. In a recent survey of 950 visitors about hospital quality, 94% ranked quality outcomes and ratings as very important compared to reputation (89%), volume (78%), and location (58%).

American households are now supporting 31% of the total health care expenditure in this country. This is less than the government (42%) but more than business (30%) and private entities (3%).⁶ Given that the American public is now the second largest payer of health care services, it is not surprising that they are now consuming complex quality information that at one time was reserved for health care providers and not the general public.

To meet the needs of this new generation of informed health care consumers and to provide hospitals objective comparative quality information to support quality improvement efforts, HealthGrades has been rating the nation's nearly 5,000 hospitals since 1998. In this thirteenth annual study, HealthGrades utilized Medicare data from 2007 to 2009 and assigned providers 5-star, 3-star or 1-star ratings based on their rates of risk-adjusted mortality and in-hospital complications across 26 diagnoses and procedures. These ratings can be found at www.healthgrades.com.

Using these ratings, we determined the impact that differences in hospital quality has on mortality and complications, specifically in regard to potential lives saved and in-hospital complications avoided. We also evaluated the performance of the 50 states (and the District of Columbia) for overall risk-adjusted mortality and in-hospital complications as well as performance across 14 clinical areas.

Finally, in this year's study, we expanded our analysis beyond the inpatient admission to 30 and 180 days following the admission. Specifically, we evaluated the impact that in-hospital performance has on all cause mortality at 30 days and 180 days from the day the patient was admitted to the hospital. We recognized that a key consideration in any treatment decision is the long-term benefit to the patient, as well as the fact that in many conditions, such as stroke and heart attack, timely recognition and treatment reduces long-term morbidity and mortality. Therefore, we questioned whether hospitals with the best in-hospital performance had better patient survival at 30 days and 180

days following hospitalization. Additionally, we investigated whether in-hospital or 30-day ratings provide consumers the best information with which to make a decision. The relative merit of each is presented.

Methods Part I: Hospital Quality Ratings Methods

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

Table 1: Mortality and Complication Cohort List

Mortality Cohorts	
1. Bowel Obstruction	10. Pancreatitis
2. Chronic Obstructive Pulmonary Disease (COPD)	11. Pneumonia
3. Coronary Interventional Procedures	12. Pulmonary Embolism
4. Diabetic Acidosis and Coma	13. Resection/Replacement Abdominal Aorta
5. Gastrointestinal Bleed	14. Respiratory Failure
6. Gastrointestinal Surgeries and Procedures	15. Sepsis
7. Heart Attack	16. Stroke
8. Heart Bypass Surgery	17. Valve Replacement Surgery
9. Heart Failure	

In-hospital Complication Cohorts	
1. Back and Neck Surgery (with Spinal Fusion)	6. Peripheral Vascular Bypass
2. Back and Neck Surgery (without Spinal Fusion)	7. Prostatectomy
3. Carotid Surgery	8. Total Hip Replacement
4. Cholecystectomy (Gallbladder Surgery)	9. Total Knee Replacement
5. Hip Fracture Repair	

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, as well as post-discharge mortality information.

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.

Defining In-hospital Complications Using Administrative Data

In October of 2007 (fiscal year 2008), the Centers for Medicare and Medicaid Services began requiring most hospitals to submit a present on admission (POA) indicator for every diagnosis submitted. This indicator is intended to distinguish hospital-acquired conditions from those present at the time the patient presented to the hospital.

HealthGrades has adopted a phased-in approach to using POA information. In 2008, the POA fill rate was inadequate for reliable modeling. However, in 2009, approximately 90% of patients had at least one diagnosis record with a POA indicator. Below is a summary of the POA indicators listed in the

2009 MedPAR file layout document and how they were used by HealthGrades in determining in-hospital complications in the current 2011 ratings.

Table 2: Present On Admission Indicators

POA Indicator (Interpretation)	CMS Description*	Use by HealthGrades
Y (Yes, Present)	Present at the time of inpatient admission	Utilized in the risk-adjustment process
N (No, Not Present)	Not present at the time of inpatient admission	Used to identify in-hospital complications
U, 1, Other (Unknown)	Documentation is insufficient to determine if condition was present on admission Unreported/not used—exempt from POA reporting	May require the co-occurrence of other codes to be a complication, see <i>Records with No POA Indicator</i> section below. If not considered a complication, it may be used in risk adjustment.
W (Clinically Undetermined)	Provider is unable to clinically determine whether condition was present on admission or not.	Not considered a complication nor used in risk adjustment

* MedPAR Limited Data Set – Hospital (National) File Layout. Also known as, Expanded Modified MedPAR File Layout. March 2010. Available from the Centers for Medicare and Medicaid Services at <http://www.cms.gov/LimitedDataSets/Downloads/FY09MedPARDec09Layout.pdf>.

Records with No POA Indicator—When utilizing administrative patient records, some conditions can be either pre-existing or hospital acquired. Only the hospital-acquired conditions should be considered as complications. To differentiate between these pre-existing conditions and hospital-acquired conditions when there is no POA indicator, we use the presence of a 900 post-operative complication code. For example, in the case where a patient record contains 427.31 Atrial Fibrillation, that code is considered a comorbid risk if it occurs by itself and a complication if there is a 997.1 Cardiac Complications, NEC code also present in the patient record.

We did not require the presence of a post-operative complication code for diagnoses that were clearly hospital-acquired (e.g., heart attack in an elective procedure such as total knee replacement).

Records with POA Indicators—When there is a POA indicator present, a diagnosis is only considered an in-hospital complication if the POA indicator flag is set to No. This means that the condition was not present at the time of admission and was acquired during the hospitalization. Records where the POA indicator is Unknown were treated as described for records that have no POA indicator.

Multivariate Logistic Regression-based Ratings

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

The in-hospital data for 26 diagnoses and procedures on the HealthGrades Web site represent three years of patient discharges from Medicare fiscal year 2007 through 2009. Each group of patients was defined by using the ICD9 primary diagnoses and procedures coded in the patient records (e.g., coronary bypass surgery, total hip replacement). See *Hospital Report Cards™ Mortality and Complication Outcomes 2011 Methodology* (www.healthgrades.com) for a list of the diagnosis and procedure codes that define each patient cohort. The outcome measure for some cohorts was mortality, whereas for other cohorts, the quality measure was major complications (*Table 1*).

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

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

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

Outcomes were binary, with documented major complications either present or not, and patients recorded as either alive or expired. See *Hospital Report Cards™ Mortality and Complication Outcomes 2011 Methodology* for a list of complications included in the quality measure “Major Complications.” In cohorts where the quality measure is major complications, mortality is considered a complication.

Risk-adjustment Methodology

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

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

Multivariate Logistic Regression Models

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

Comorbid diagnoses (e.g., hypertension, chronic renal failure, anemia, diabetes), demographic characteristics (e.g., age and gender), and specific procedures (e.g., percutaneous coronary intervention in coronary bypass surgery) were classified as potential risk factors. We used logistic regression to determine the most critical risk factors; all risk factors that remained in the final model had to be statistically significant ($p < 0.05$) in predicting the outcome (mortality, 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. A z-score was used to establish an approximate 90% confidence interval.

Assignment of Star Ratings

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

- ★ ★ ★ ★ ★ Actual performance was **better than predicted** and the difference was statistically significant.
- ★ ★ ★ Actual performance was **not significantly different** from what was predicted.
- ★ Actual performance was **worse than predicted** and the difference was statistically significant.

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

Limitations of the Data Models

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

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

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

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

Methods Part 2: Evaluating Inhospital Mortality and Complication Rates

The purpose of the second part of the study was to evaluate the inhospital mortality and complication rates from hospital to hospital and among states. In Part I, the actual (observed) and predicted (expected) mortality rates were calculated for each of the 26 procedures and diagnoses for each hospital in order to assign each hospital a star rating (5-star, 3-star and 1-star) by procedure and diagnosis.

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

Also in Part 2 is the evaluation of inhospital complication rates for nine complication-based procedures among Medicare recipients. The same steps were taken as above with the exception that the outcome studied was inhospital complications rather than mortality. The following are the major categories of post-operative complications considered in this analysis.

Table 3: Post-operative Complications Categories

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

For a specific listing of ICD-9-CM codes used to identify complications by procedure see *Hospital Report Cards™ Mortality and Complication Outcomes 2011 Methodology* at www.healthgrades.com.

Comparing Outcomes Nationally and at State Level

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

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

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

For state comparisons, HealthGrades combined individual procedures and diagnoses into the following 14 categories.

Table 4: 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
Cholecystectomy	Cholecystectomy
Gastrointestinal	Bowel Obstruction Gastrointestinal Bleed Gastrointestinal Surgeries and Procedures Pancreatitis
Pulmonary	Chronic Obstructive Pulmonary Disease Pneumonia
Stroke	Stroke
Hip and Knee Replacement	Total Knee Replacement Total Hip Replacement
Hip Fracture	Hip Fracture Repair
Spine Surgery	Back and Neck Surgery (without Spinal Fusion) Back and Neck Surgery (Spinal Fusion)
Prostatectomy	Prostatectomy
Vascular Procedures	Carotid Surgery Peripheral Vascular Bypass

Results Part 1: Hospital Quality Ratings

HealthGrades' ratings of nearly 5,000 hospitals using approximately 40 million Medicare discharges can be found at www.healthgrades.com. For all of the specific procedures and diagnoses rated, 10% to 15% of hospitals typically stand out as "best" performers (5-star rated), while another 10% to 15% stand out as "poor" performers (1-star rated). The remaining hospitals are "as expected" (3-star rated).

Results Part 2: HealthGrades Hospital Quality in America Study: Mortality

As discussed in *Methods Part 1*, the widespread adoption of POA indicators in the Medicare data in 2009 makes risk-adjusted comparisons from 2007 to 2009 inappropriate. For this reason, only unadjusted mortality is utilized for year over year comparisons in this annual study.

Since 2007, U.S. unadjusted mortality rates have improved overall, but gaps continue to exist between the "best" and the "worst" hospitals. Unadjusted mortality rates improved, on average 7.98% from 2007 through 2009, but the degree of improvement varied widely by procedure and diagnosis (range: -9.26% to 18.73%) (*Appendix C*).

- The most improvement of unadjusted mortality rates was seen in chronic obstructive pulmonary disease (18.73%), bowel obstruction (14.72%), heart attack (13.68%), and stroke (13.50%).
- Two procedures showed increases in unadjusted mortality rates. Gastrointestinal surgeries and procedures and coronary interventional procedures had increases of 8.76% and 9.26%, respectively. The rates for coronary interventional procedures were compared only for 2008 to 2009 due to changes in HealthGrades inclusion criteria in 2008. During this same time period, coronary interventional procedures was dropped from the list of elective procedures that qualify for an inpatient care setting by InterQual, the criteria used by CMS to justify inpatient admission. Thus, there has been a shift to outpatient coronary interventional procedures leaving the sickest patients to have their procedures in hospital.

Since 2007 improvements have also been noted at 30 days and 180 days following hospitalization. The national average 30-day mortality rate decreased 6.54% and the 180-day mortality rate decreased by 6.45% (*Table 5*).

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

Five-star rated hospitals had significantly and consistently lower unadjusted inhospital mortality rates across all three years studied, compared to other rated hospitals (*Appendix B*). Five-star rated hospitals also improved, on average 9.81% from 2007 through 2009, while the rate of improvement for 3-star and 1-star hospitals was 9.61% and 3.39%, respectively (*Table 5*).

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

- 72.47% lower chance of dying in a 5-star rated hospital as compared to a 1-star rated hospital, and a
- 53.36% lower chance of dying in a 5-star rated hospital as compared to the U.S. hospital average (*Appendix C*).

Table 5: Average Unadjusted Mortality Rate Improvements Overall by Hospital Star Rating Time Periods

Star Rating Time Period	Hospital Quality Rating (2007 – 2008)			
	U.S.	5-star	3-star	1-star
Inhospital	8.20%	9.81%	9.61%	3.39%
30 Days Post Admission	6.54%	7.63%	7.20%	3.41%
180 Days Post Admission	6.45%	6.79%	6.92%	4.44%

* Improvement was calculated using the following steps (data not shown): 1) Sum observed deaths and case counts by year for each star rating category; 2) Calculate a mortality rate which is the number of deaths divided by the case count for each year, for each category; 3) Calculate the Overall Average Improvement by (2007 rate minus 2009 rate) divided by 2007 rate.

While Improvements Made, the Quality Chasm Persists

If all hospitals performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 232,442 Medicare lives could potentially have been saved from 2007 through 2009.

These findings, consistent with previous *HealthGrades Hospital Quality in America* studies, underscore that while there have been improvements in the quality of care nationwide, a quality chasm still persists from hospital to hospital. The fact remains that if all hospitals had performed at the level of a 5-star rated hospital across the 17 procedures and diagnoses studied, 232,442 Medicare lives could have potentially been saved during 2007 through 2009 (*Appendix C*).

Five-star Rated Hospitals Save Medicare Lives

Of the total 232,442 Medicare potentially preventable deaths associated with the 17 procedures and conditions studied, 55.91% or 129,949 were associated with just four common hospital diagnoses. These conditions hold the most potential to save lives by closing the performance gap (*Appendix C*).

- 1) Sepsis (48,809)
- 2) Pneumonia (29,017)
- 3) Respiratory Failure (26,361)
- 4) Heart Failure (25,762)

Approximately 56% or 129,949 of the potentially preventable deaths were associated with just four diagnoses: sepsis, pneumonia, respiratory failure, and heart failure.

Five-star rated hospitals consistently performed significantly better than expected across these four high-risk inpatient diagnoses. Looking at the risk-adjusted mortality rates for these four conditions, there was a 65.97% mortality rate difference between 5-star and 1-star hospitals for pneumonia followed by heart failure (64.76%), respiratory failure (50.22%), and sepsis (43.29%) (*Appendix C*).

While the average actual mortality rate differs substantially, there was little difference in the average acuity level of patients (predicted mortality rate) between 1-star, 3-star, and 5-star hospitals. The exception to this finding was respiratory failure where 1-star hospitals had a slightly higher acuity level (21.32% compared to 18.38% for 5-star hospitals) (*Appendix B*).

Table 6: Unadjusted Mortality for High-risk Inpatient Diagnoses by Star Rating

Diagnoses	Inhospital Star Rating	Actual Mortality Rate	Predicted Mortality Rate
Sepsis	1	27.78%	21.04%
	3	20.28%	20.18%
	5	15.68%	21.02%
Pneumonia	1	7.50%	4.41%
	3	4.59%	4.67%
	5	3.18%	5.50%
Respiratory Failure	1	29.11%	21.32%
	3	19.87%	19.93%
	5	12.50%	18.38%
Heart Failure	1	5.60%	3.35%
	3	3.46%	3.52%
	5	2.34%	3.97%

Inhospital Performance is Highly Correlated with Long-term Survival Rates

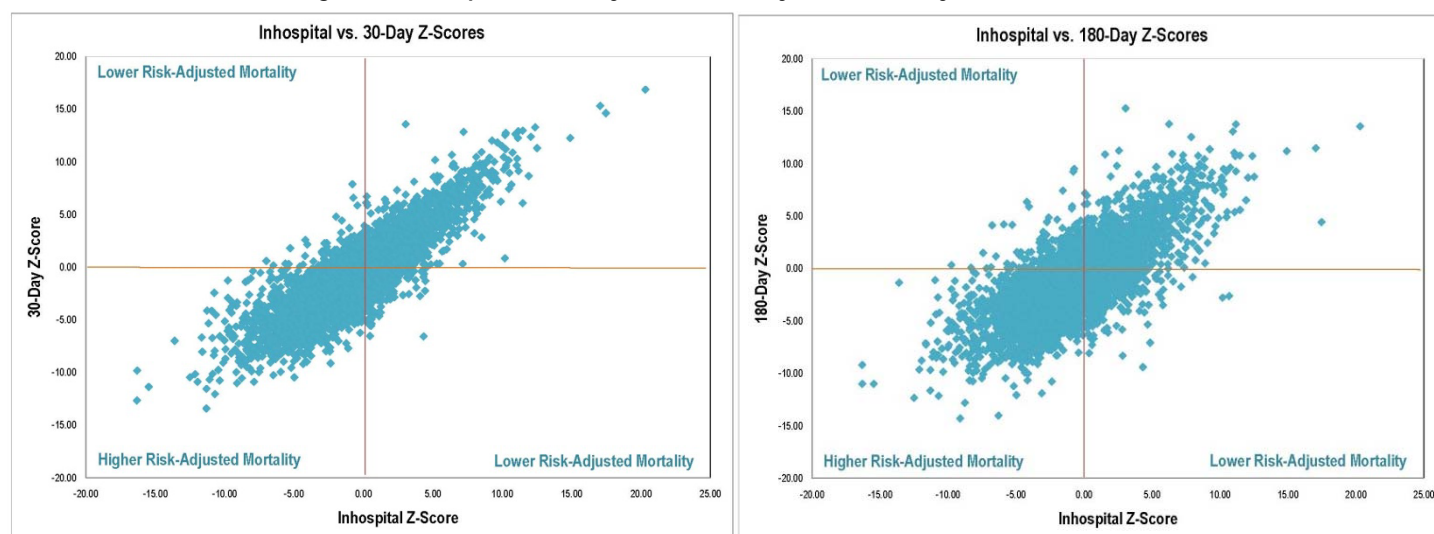
Since the release of its first ratings in 1998, HealthGrades has rated hospitals on inpatient mortality as well as 30 days and 180 days post admission. In 2008, the Centers for Medicare and Medicaid Services also began publishing 30-day mortality measures for heart attack, pneumonia, and heart failure. CMS has indicated that 30 days post admission is the time period when deaths are most likely to be related to the care patients received in the hospital.⁷

In this study, to ascertain the relationship between inpatient performance and all-cause mortality at 30 and 180 days following hospitalization, HealthGrades evaluated the correlation between inpatient risk-adjusted mortality and risk-adjusted mortality at 30 and 180 days post admission. HealthGrades also evaluated the relative merit of both inpatient and 30-day mortality ratings for health care consumers.

Inpatient performance is highly correlated with patient survival at 30 days and 180 days post admission to the hospital. On average, patients treated at hospitals with statistically lower risk-adjusted mortality rates are less likely to die of all causes up to six months following their hospitalization and, conversely, patients treated at hospitals with higher risk-adjusted mortality have a higher likelihood of death from all causes within the six months following their hospitalization (*Figure 1*). If from 2007 to 2009, all Medicare patients were treated at a hospital that was 5-star rated inpatient, an additional 32,677 mortalities may have been prevented 30 days following their hospitalization (*Appendix C*).

If from 2007 to 2009, all Medicare patients were treated at a hospital that was 5-star rated inpatient, an additional 32,677 mortalities may have been prevented 30 days following their hospitalization.

Figure 1: Inpatient Mortality versus 30 Days and 180 Days Post Admission



Inpatient versus 30 Days and 180 Days Mortality Ratings

Hospitals that are 5-star rated inpatient are highly likely to retain their 5-star ratings 30 days and 180 days post admission (*Table 7*).

- **At 30 days following admission**, across all cohorts, an average of 63.59% of hospitals that were 5-star rated inpatient retain their 5-star rating. The highest retention was in valve replacement surgery (83.53%), sepsis (76.99%), respiratory failure (73.17%), and pancreatitis (70.59%). The cohorts where hospitals were the least likely to retain their 30-day 5-star ratings are diabetic acidosis (38.10%) and pulmonary embolism (49.47%).

- **At 180 days following admission**, across all cohorts, an average of 44.39% of hospitals that were 5-star rated in-hospital retained their 5-star ratings. Hospitals with 5-star ratings in-hospital were most likely to retain their 5-star ratings at 180 days for sepsis (63.79%), respiratory failure (54.36%), and valve replacement surgery (54.12%). Five-star hospitals were the least likely to retain their 5-star 180-day rating in diabetic acidosis, pancreatitis and resection/replacement abdominal aorta (14.29%, 26.47% and 27.66%, respectively).

Table 7: Percentage of Hospitals that Retained 5-star Rating at 30 Days and 180 Days

Procedure/Diagnosis	Percent of 5-star Hospitals that Retained 5-star Rating	
	At 30 Days Post Admission	At 180 Days Post Admission
Bowel Obstruction	59.52%	38.10%
Chronic Obstructive Pulmonary Disease	59.14%*	51.25%
Coronary Bypass Surgery	67.09%	49.37%
Coronary Interventional Procedures	59.38%	50.00%
Diabetic Acidosis and Coma	38.10%	14.29%*
Gastrointestinal Bleed	52.97%	38.92%
Gastrointestinal Surgeries and Procedures	63.51%	47.87%
Heart Attack (Acute Myocardial Infarction)	64.95%	46.62%
Heart Failure	62.85%*	53.16%
Pancreatitis	70.59%	26.47%
Pneumonia	68.49%	53.73%
Pulmonary Embolism	49.47%	35.79%
Resection / Replacement Abdominal Aorta	70.21%	27.66%
Respiratory Failure	73.17%	54.36%
Sepsis	76.99%	63.79%
Stroke	61.13%	49.10%
Valve Replacement Surgery	83.53%	54.12%
Average	63.59%	44.39%

* HealthGrades does not produce publicly available hospital ratings for these cohorts for these time periods.

This study also analyzed the risk of mortality by three time periods: in-hospital, 30 days post admission, and 180 days post admission. Table 8 presents the variation between both the in-hospital rating (5-star vs. 1-star) and 30-day rating (5-star vs. 1-star), for all three time periods.

- If a typical patient selected a 5-star hospital instead of a 1-star hospital based on its in-hospital rating, the patient would have, on average, a 72.47% lower risk of dying during their hospitalization (*Table 8, Appendix C*).
- If a typical patient selected a 5-star hospital instead of a 1-star hospital based on its 30-day post admission rating, the patient would have, on average, a 66.07% lower risk of dying during their hospitalization. However, their likelihood of survival would be greater at 30 days and 180 days following hospitalization.

Table 8: A Typical Patient's Lower Risk of Mortality by Time Period

Time Period	Inhospital 5-star vs. 1-star	30 Days 5-star vs. 1-star
Inhospital	72.47%	66.07%
30 days post admission	57.08%	64.72%
180 days post admission	33.77%	40.50%

Using in-hospital risk-adjusted mortality, the top five overall best-performing states are: Arizona, Ohio, Maryland, Michigan and Utah.

Variations in Quality Present Among States

Using in-hospital risk-adjusted mortality, the top five overall best-performing states are: Arizona, Ohio, Maryland, Michigan and Utah. Three of these states, Arizona, Maryland and Ohio, also made the top five best-performing states for survival at 30 days post admission (*Table 9* and *Appendix J*).

Overall, the following states have the greatest percentage of hospitals recognized as best-performing hospitals in survival: Maryland (52.17%), Arizona (45.83%), Ohio (33.97%), Florida (32.20%), and California (25.31%) (*Table 9*).

When looking at the top five states for in-hospital and 30-day post admission mortality ratings, one state, Arizona, made the top five list for six of the eight clinical areas in both in-hospital and 30-day post admission mortality ratings. Three states, Delaware, Maryland and Minnesota, retained their top ratings for three clinical areas (*Table 10*). Specifically:

- Arizona made the top five list for both ratings in heart attack, heart failure, critical care, pulmonary care, gastrointestinal, and stroke.
- Delaware made the top five list for both ratings in heart failure, pulmonary, and gastrointestinal.
- Maryland made the top five list for both ratings in heart failure, pulmonary, and gastrointestinal.
- Minnesota made the top five list for both ratings in cardiac surgery, heart attack, and gastrointestinal.

Arizona, Ohio, Florida and Maryland had the greatest percentage of top hospitals in the most mortality-based clinical areas. Arizona had the greatest percentage of top hospitals in six of the eight mortality-based clinical areas; while Ohio, Florida and Maryland had the greatest percentage of top hospitals in five (*Table 11*). Specifically:

- Arizona had the greatest percentage of top hospitals in: heart attack, heart failure, critical care, pulmonary, gastrointestinal, and stroke.
- Ohio had the greatest percentage of top hospitals in: heart attack, heart failure, critical care, pulmonary, and gastrointestinal.
- Florida had the greatest percentage of top hospitals in: heart attack, heart failure, pulmonary, gastrointestinal, and stroke.
- Maryland had the greatest percentage of top hospitals in: heart failure, critical care, pulmonary, gastrointestinal, and stroke.

Table 9: Top Five States for Overall Mortality Performance

Overall Best-performing States for Survival		States with Greatest Percentage of Best-Performing Hospitals for Survival	
Inhospital	30 Days Post Admission	State	% of Top Hospitals
Arizona	Arizona	Maryland	52.17%
Ohio	Delaware	Arizona	45.83%
Maryland	Maryland	Ohio	33.97%
Michigan	Ohio	Florida	32.20%
Utah	Florida	California	25.31%

Table 10: Top Five States by Observed-to-Expected Mortality Performance

Top Five States Inhospital	Top Five States 30 Days Post Admission	Top Five States Inhospital	Top Five States 30 Days Post Admission
Cardiac Surgery		Heart Attack	
Idaho	Idaho	Arizona	Arizona
Minnesota	Massachusetts	South Dakota	South Dakota
Massachusetts	Montana	Illinois	Illinois
Delaware	Minnesota	Colorado	Minnesota
South Dakota	South Dakota	Minnesota	Connecticut
Coronary Interventional Procedures		Heart Failure	
New York	Vermont	Arizona	Arizona
Maine	New York	Maryland	Dist. of Columbia
Vermont	Maine	Florida	Maryland
Massachusetts	Massachusetts	Ohio	Delaware
Illinois	Delaware	Delaware	Florida
Critical Care		Pulmonary	
Utah	Utah	Arizona	Delaware
North Dakota	North Dakota	Maryland	Maryland
Arizona	Arizona	Delaware	Arizona
Ohio	Ohio	Ohio	Connecticut
Iowa	Iowa	Michigan	Florida
Gastrointestinal		Stroke	
Arizona	Delaware	Arizona	Arizona
Minnesota	Arizona	Michigan	Delaware
Wisconsin	Alaska	Illinois	Florida
Maryland	Minnesota	Florida	Michigan
Delaware	Maryland	Ohio	New Jersey

Table 11: Top Five States with Greatest Percentage of Best-performing Hospitals: Mortality

State	% of Top Hospitals	State	% of Top Hospitals
Cardiac Surgery		Heart Attack	
Massachusetts	71.43%	Arizona	31.82%
Idaho	60.00%	Florida	30.00%
Minnesota	35.71%	Connecticut	28.57%
New York	32.43%	Ohio	24.30%
Pennsylvania	30.00%	Michigan	22.50%
Coronary Interventional Procedures		Heart Failure	
North Dakota	50.00%	Maryland	64.44%
New York	47.92%	Arizona	50.85%
Montana	44.44%	Florida	39.66%
Massachusetts	36.36%	Ohio	29.87%
Michigan	35.71%	Pennsylvania	26.28%
Critical Care		Pulmonary	
Arizona	43.86%	Delaware	80.00%
Utah	42.86%	Maryland	57.78%
Maryland	34.78%	Arizona	47.22%
California	27.12%	Florida	30.51%
Ohio	25.35%	Ohio	30.13%
Gastrointestinal		Stroke	
Maryland	55.56%	Arizona	46.34%
Arizona	36.21%	Florida	35.48%
Ohio	24.67%	Maryland	32.56%
Florida	24.55%	Illinois	25.95%
California	23.83%	California	21.24%

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

Inhospital Complications are Common

On average, one in nine patients developed a hospital-acquired complication, across the nine procedures evaluated for in-hospital complications, from 2007 to 2009.

On average, across the nine procedures evaluated for in-hospital complications, from 2007 to 2009, one in nine patients developed a hospital-acquired complication (*Appendix E*).

The highest unadjusted in-hospital complication rates were associated with the following procedures: (*Appendix E*):

- Cholecystectomy (17.97%)
- Spinal Fusion (17.15%)
- Hip Fracture Repair (16.09%)
- Back and Neck Surgery (except Spinal fusion) (11.87%)
- Peripheral Vascular Bypass (11.64%)

Table 12: Most Common Complications by Procedure

ICD9	Description	%	ICD9	Description	%
Back & Neck (Spinal Fusion)			Peripheral Vascular Bypass		
998.2	ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE, NOT ELSEWHERE CLASSIFIED	2.42%	997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.87%
hd146*	ACUTE RENAL FAILURE	1.97%	hd146*	ACUTE RENAL FAILURE	1.59%
518.5	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA AND SURGERY	1.74%	998.59	OTHER POSTOPERATIVE INFECTION	1.36%
560.1	PARALYTIC ILEUS	1.71%	518.5	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA AND SURGERY	1.29%
hd158*	BACTERIAL PNEUMONIA	1.61%	998.11	HEMORRHAGE COMPLICATING A PROCEDURE	1.27%
Back & Neck Surgery (except Spinal Fusion)			Prostatectomy		
998.2	ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE, NOT ELSEWHERE CLASSIFIED	2.86%	998.11	HEMORRHAGE COMPLICATING A PROCEDURE	1.60%
788.20	RETENTION OF URINE, UNSPECIFIED	1.68%	560.1	PARALYTIC ILEUS	1.17%
997.5	URINARY COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.46%	997.4	DIGESTIVE SYSTEM COMPLICATION	1.02%
349.31	ACCIDENTAL PUNCTURE OR LACERATION OF DURA DURING A PROCEDURE	1.15%	997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	0.67%
hd146*	ACUTE RENAL FAILURE	1.05%	997.5	URINARY COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	0.65%
Carotid Surgery			Total Hip Replacement		
997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.57%	hd146*	ACUTE RENAL FAILURE	1.71%
427.89	OTHER SPECIFIED CARDIAC DYSRHYTHMIAS	1.10%	997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.00%
997.02	IATROGENIC CEREBROVASCULAR INFARCTION OR HEMORRHAGE	0.88%	788.20	RETENTION OF URINE, UNSPECIFIED	0.91%
518.5	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA AND SURGERY	0.78%	997.5	URINARY COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	0.81%
518.81	ACUTE RESPIRATORY FAILURE	0.77%	997.4	DIGESTIVE SYSTEM COMPLICATION	0.76%
Cholecystectomy			Total Knee Replacement		
997.4	DIGESTIVE SYSTEM COMPLICATION	3.72%	hd146*	ACUTE RENAL FAILURE	1.45%
518.5	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA AND SURGERY	2.64%	997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	0.94%
518.81	ACUTE RESPIRATORY FAILURE	2.18%	788.20	RETENTION OF URINE, UNSPECIFIED	0.69%
997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.47%	292.81	DRUG-INDUCED DELIRIUM	0.69%
hd146*	ACUTE RENAL FAILURE	1.41%	997.5	URINARY COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	0.64%
Hip Fracture Repair					
599.0	URINARY TRACT INFECTION, SITE NOT SPECIFIED	2.01%			
518.81	ACUTE RESPIRATORY FAILURE	1.80%			
hd146*	ACUTE RENAL FAILURE	1.61%			
997.1	CARDIAC COMPLICATIONS, NOT ELSEWHERE CLASSIFIED	1.59%			
hd158*	BACTERIAL PNEUMONIA	1.32%			

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

Increase in Inhospital Complications

With the nearly universal adoption of the present on admission indicators in the 2009 Medicare data, complications can now be more accurately determined because they are not present on admission. In other words, if a condition is present on admission it is a condition (comorbidity) not an inhospital complication.

The new reporting standards directly affected the number of patients that were identified as having a complication. The largest increase in unadjusted complications was seen in hip fracture repair, where the difference between the 2007 and 2009 rates was 11.62%, peripheral vascular bypass (7.47%), and cholecystectomy (7.06%) (*Appendix E*). Keeping the new reporting standard in mind, the increase that we observed across all cohorts from 2007 to 2009 does not necessarily imply that more patients experienced complications.

Five-star Rated Hospitals Had Significantly Lower Inhospital Complications

Five-star rated hospitals had significantly lower inhospital complications (*Appendix F*). Similar to the mortality analysis in this study, 5-star rated hospitals had much lower risk-adjusted complication rates compared to 1-star hospitals:

- Patients treated at 5-star hospitals are 80.40% less likely to experience inhospital complications than patients at 1-star hospitals, and 63.64% less likely compared to the U.S. hospital average (*Appendix G*).
- If all hospitals, from 2007 through 2009, had performed at the level of a 5-star rated hospital across the nine complication-based procedures studied, 185,875 Medicare patients could have potentially avoided a major inhospital complication (*Appendix G*).
- The procedures with the most potential to prevent complications by closing the performance gap were: hip fracture repair (42,312), total knee replacement (35,466), and cholecystectomy (28,502) (*Appendix G*).

Variations in Quality Exists Among States

The top five overall best-performing states for avoiding complications are: Hawaii, Delaware, Idaho, Arkansas and Mississippi. Three of these states, Delaware, Mississippi and Arkansas, also made the top five states with the greatest percentage of best-performing hospitals for avoiding complications (*Table 13*).

Overall, the following states have the greatest percentage of hospitals recognized as best-performing hospitals in avoiding complications: Delaware (40.00%), Mississippi (33.33%), Arkansas (31.58%), Texas (21.25%) and California (18.66%) (*Table 13*).

Table 13: Top Five States for Avoiding Complications

Overall Best-performing States for Avoiding Complications	States with Greatest Percentage of Best-performing Hospitals for Avoiding Complications	
	State	% of Top Hospitals
Hawaii	Delaware	40.00%
Delaware	Mississippi	33.33%
Idaho	Arkansas	31.58%
Arkansas	Texas	21.25%
Mississippi	California	18.66%

If all hospitals, from 2007 through 2009, performed at the level of a 5-star rated hospital across the nine complication-based procedures studied, 185,875 Medicare patients could have potentially avoided a major inhospital complication.

Hawaii made the top five states list for four of the six complication-based clinical area.

When looking at the top five states for avoiding complications, one state, Hawaii, made the top five states list for four of the six complication-based clinical areas. Four states, Delaware, Idaho, Mississippi and Oklahoma, made the top five states list for three complication-based clinical areas. (*Table 14*):

- Hawaii made the top five states list for avoiding complications in cholecystectomy, hip fracture repair, hip and knee replacement, and spine surgery.
- Delaware made the top five states list for avoiding complications in hip fracture repair, spine surgery, and hip and knee replacement.
- Idaho made the top five states list for avoiding complications in hip fracture repair, hip and knee replacement, and vascular.
- Mississippi made the top five states list for avoiding complications in cholecystectomy, prostatectomy, and vascular.
- Oklahoma made the top five states list for avoiding complications in cholecystectomy, hip fracture repair, and spine surgery.

Texas, California, Delaware and Oklahoma had the highest percentage of top hospitals in the most complication-based clinical areas (*Table 15*):

- Texas had the highest percentage of top hospitals in four clinical areas: cholecystectomy, hip fracture repair, spine surgery, and vascular.
- California had the highest percentage of top hospitals in three clinical areas: hip fracture repair, hip and knee replacement, and prostatectomy.
- Delaware had the highest percentage of top hospitals in three clinical areas: hip fracture repair, spine surgery, and hip and knee replacement.
- Oklahoma had the highest percentage of top hospitals in three clinical areas: cholecystectomy, hip fracture repair, and spine surgery.

Table 14: Top Five States by Observed-to-Expected Performance: Complications

Cholecystectomy	Hip Fracture Repair	Spine Surgery
Hawaii	Hawaii	Arkansas
Mississippi	Arkansas	Delaware
Dist. of Columbia	Delaware	Wyoming
Oklahoma	Idaho	Hawaii
New Mexico	Oklahoma	Oklahoma
Hip & Knee Replacement	Prostatectomy	Vascular
Delaware	Dist. of Columbia	Idaho
Hawaii	Vermont	New Mexico
Idaho	Mississippi	South Dakota
Oregon	New Hampshire	Mississippi
Utah	Michigan	Texas

Table 15: Top Five States with Greatest Percentage of Best-performing Hospitals: Complications

State	% of Top Hospitals	State	% of Top Hospitals	State	% of Top Hospitals
Cholecystectomy		Hip Fracture Repair		Spine Surgery	
Hawaii	36.36%	Delaware	40.00%	Delaware	66.67%
Mississippi	34.38%	Arkansas	38.71%	Arkansas	36.84%
Oklahoma	27.27%	Oklahoma	23.81%	Oklahoma	36.00%
Louisiana	23.81%	Texas	20.63%	Texas	25.71%
Texas	23.26%	California	20.31%	Florida	22.94%
Hip and Knee Replacement		Prostatectomy		Vascular	
Delaware	50.00%	Missouri	30.77%	South Dakota	50.00%
Utah	32.00%	Michigan	29.82%	Mississippi	35.00%
Wisconsin	24.39%	Tennessee	23.68%	New Mexico	33.33%
Michigan	21.78%	Louisiana	23.33%	Kansas	28.57%
California	20.92%	California	21.56%	Texas	26.98%

Interpretation of Results

Overall, this study shows that the state of hospital quality is improving. From 2007 to 2009, there was an improvement in overall unadjusted in-hospital mortality of almost 8%. Previous research has confirmed that quality in the acute care setting has improved and has substantially outpaced improvements in other domains of health care, including prevention and chronic disease care.⁸ However, we found that gains in acute care management seem to be translating into longer term gains in survival. In addition to in-hospital mortality improvements, we saw decreases in unadjusted mortality rates at 30 days and 180 days post admission (*Table 5, Appendix D*).

While the nation's hospitals are improving overall, the gap between the best and worst hospitals continues to be substantial. The best-performing hospitals have lower mortality rates despite having higher acuity patients. Furthermore, the quality of the inpatient care (as measured by in-hospital mortality rates) was directly correlated with both 30-day and 180-day mortality rates from all causes (*Figure 7*). This means that patients treated at 5-star hospitals are more likely to be alive six months following their hospitalization. Whether these results are because best-performing hospitals have made strides in the transition from hospital to community is unknown but clearly warrants further study as health care reform laws unfold and hospitals become accountable for results beyond the inpatient stay.

In weighing the relative merit for the consumer of hospital ratings at different time periods, it would initially appear that the in-hospital rating is the most advantageous for a consumer. However, at 30 days and 180 days, the advantage swings to the 30-day rating with hospitals that are 5-star rated at 30 days having better risk-adjusted outcomes both 30 days and 180 days after the hospitalization (*Table 8*). All things considered, the best option is for the consumer to utilize a hospital that is 5-star rated with regards to both in-hospital outcomes and 30 days following admission outcomes. Fortunately, approximately 64% of hospitals that are 5-star rated in-hospital retain their 5-star ratings at 30 days following admission (*Table 7*).

Present on Admission indicators in the administrative data had a major impact on the in-hospital complications findings this year. Undoubtedly this information has increased the sensitivity and specificity of administrative data in identifying hospital-acquired conditions. In this study, we saw an increase due to improved detection across every procedural cohort studied. Not surprisingly, the greatest increases were in cohorts where patients typically have multiple comorbidities, such as hip fracture repair and peripheral vascular bypass (*Appendix E*). Previously, for these patients, hospital-acquired conditions were not as easily detectable using administrative data. Having access to improved data that provides more information about the state of the patient will allow more quantification about the scope of hospital-acquired conditions. This will help to drive quality improvements and the ability to better care for these patients.

In this era of what can only be described as radical transformation for hospitals, hospital administrators and quality officials must be highly focused on mortalities and complications that are preventable either through improved risk assessment, care coordination, or adherence to evidence-based medicine. In our Thirteenth Annual Study, we identified 232,442 potentially preventable Medicare deaths and 185,875 potentially preventable in-hospital complications in just three years and in only 26 of the most common diagnoses and procedures (*Appendix C and G*).

As health care reform efforts get under way, having sicker patients will no longer be an excuse for poor quality care, and accountability will not end with the discharge of the patient. Now is the time for hospitals to understand their current performance and identify where they have opportunities to close the gap between their performance and the best-performing hospitals.

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Appendix A: Predicted and Actual Mortality by Year

Procedure or Diagnosis	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to-Expected Ratio*
Bowel Obstruction	2007	3.19%	3.29%	1.03
	2008	3.13%	3.02%	0.97
	2009	2.82%	2.80%	0.99
	2007-2009	3.04%	3.03%	1.00
Chronic Obstructive Pulmonary Disease	2007	1.76%	1.91%	1.09
	2008	1.91%	1.78%	0.93
	2009	1.56%	1.55%	0.99
	2007-2009	1.74%	1.73%	1.00
Coronary Bypass Surgery	2007	2.47%	2.63%	1.06
	2008	2.61%	2.45%	0.94
	2009	2.31%	2.31%	1.00
	2007-2009	2.46%	2.46%	1.00
Coronary Interventional Procedures (Angioplasty/Stent)**	2007	1.10%	1.17%	1.06
	2008	1.95%	1.89%	0.97
	2009	2.07%	2.06%	1.00
	2007-2009	1.71%	1.71%	1.00
Diabetic Acidosis and Coma	2007	1.54%	1.52%	0.99
	2008	1.62%	1.51%	0.93
	2009	1.38%	1.36%	0.98
	2007-2009	1.51%	1.46%	0.96
Gastrointestinal Bleed	2007	1.83%	1.97%	1.08
	2008	2.06%	1.93%	0.94
	2009	1.85%	1.84%	0.99
	2007-2009	1.91%	1.91%	1.00
Gastrointestinal Surgeries and Procedures	2007	10.01%	10.15%	1.01
	2008	10.06%	9.76%	0.97
	2009	11.09%	11.04%	1.00
	2007-2009	10.37%	10.29%	0.99
Heart Attack (Acute Myocardial Infarction)	2007	9.20%	9.46%	1.03
	2008	9.13%	8.86%	0.97
	2009	8.20%	8.17%	1.00
	2007-2009	8.83%	8.80%	1.00
Heart Failure	2007	3.76%	3.78%	1.00
	2008	3.60%	3.57%	0.99
	2009	3.43%	3.43%	1.00
	2007-2009	3.60%	3.59%	1.00

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Procedure or Diagnosis	Year	Predicted (Expected) Mortality	Actual (Observed) Mortality	U.S. Observed-to-Expected Ratio*
Pancreatitis	2007	2.55%	2.72%	1.07
	2008	2.90%	2.63%	0.91
	2009	2.46%	2.46%	1.00
	2007-2009	2.64%	2.60%	0.99
Pneumonia	2007	4.68%	4.78%	1.02
	2008	5.06%	4.91%	0.97
	2009	4.71%	4.76%	1.01
	2007-2009	4.82%	4.82%	1.00
Pulmonary Embolism	2007	4.24%	4.33%	1.02
	2008	4.69%	4.28%	0.91
	2009	4.33%	4.14%	0.96
	2007-2009	4.43%	4.24%	0.96
Resection / Replacement Abdominal Aorta	2007	3.79%	3.69%	0.97
	2008	3.81%	3.57%	0.94
	2009	3.86%	3.54%	0.92
	2007-2009	3.82%	3.60%	0.94
Respiratory Failure	2007	20.97%	21.31%	1.02
	2008	19.60%	18.71%	0.95
	2009	18.64%	18.46%	0.99
	2007-2009	19.74%	19.45%	0.99
Sepsis	2007	20.99%	21.86%	1.04
	2008	21.72%	20.85%	0.96
	2009	19.50%	19.41%	1.00
	2007-2009	20.69%	20.59%	1.00
Stroke	2007	6.87%	7.18%	1.05
	2008	7.07%	6.75%	0.95
	2009	6.24%	6.21%	1.00
	2007-2009	6.72%	6.70%	1.00
Valve Replacement Surgery	2007	6.23%	6.55%	1.05
	2008	6.64%	6.19%	0.93
	2009	5.86%	5.82%	0.99
	2007-2009	6.23%	6.16%	0.99

* Observed-to-expected ratios for 2009 are all approximately 1.00 due to an adjustment for the POA in 2009.

** Mortality for coronary interventional procedures was lower in 2007 due to fewer inpatient cases starting in 2008.

Appendix B: Predicted and Actual Mortality by Star Rating Category

Procedure or Diagnosis	Inhospital Star Rating	Patient Count	Actual (Observed) Number of Deaths	Predicted (Expected) Number of Deaths	Actual (Observed) Mortality Rate	Predicted (Expected) Mortality Rate
Bowel Obstruction	1	48,710	2,884	1,443	5.92%	2.96%
	3	379,097	10,821	11,425	2.85%	3.01%
	5	43,676	558	1,452	1.28%	3.32%
Chronic Obstructive Pulmonary Disease	1	155,184	5,160	2,493	3.33%	1.61%
	3	831,293	13,159	14,052	1.58%	1.69%
	5	145,094	1,285	3,137	0.89%	2.16%
Coronary Bypass Surgery	1	26,156	1,302	632	4.98%	2.42%
	3	204,255	4,737	4,995	2.32%	2.45%
	5	23,356	208	628	0.89%	2.69%
Coronary Interventional Procedures (Angioplasty/Stent)	1	109,619	3,173	1,847	2.89%	1.68%
	3	598,913	10,121	10,386	1.69%	1.73%
	5	143,357	1,239	2,318	0.86%	1.62%
Diabetic Acidosis and Coma	1	10,376	475	154	4.58%	1.49%
	3	135,265	1,693	2,036	1.25%	1.51%
	5	3,674	12	70	0.33%	1.90%
Gastrointestinal Bleed	1	84,898	3,147	1,576	3.71%	1.86%
	3	614,273	11,065	11,607	1.80%	1.89%
	5	82,842	722	1,787	0.87%	2.16%
Gastrointestinal Surgeries and Procedures	1	27,459	4,490	2,819	16.35%	10.27%
	3	170,085	17,051	17,423	10.02%	10.24%
	5	30,417	1,912	3,398	6.29%	11.17%
Heart Attack (Acute Myocardial Infarction)	1	105,006	12,354	8,734	11.77%	8.32%
	3	484,985	43,369	43,528	8.94%	8.98%
	5	134,255	8,018	11,682	5.97%	8.70%
Heart Failure	1	330,060	18,485	11,048	5.60%	3.35%
	3	998,951	34,540	35,182	3.46%	3.52%
	5	423,441	9,916	16,815	2.34%	3.97%
Pancreatitis	1	10,669	689	269	6.46%	2.52%
	3	109,939	2,515	2,875	2.29%	2.62%
	5	3,375	17	125	0.50%	3.72%
Pneumonia	1	278,657	20,900	12,287	7.50%	4.41%
	3	807,400	37,041	37,686	4.59%	4.67%
	5	344,948	10,977	18,965	3.18%	5.50%

Continued...

Procedure or Diagnosis	Inhospital Star Rating	Patient Count	Actual (Observed) Number of Deaths	Predicted (Expected) Number of Deaths	Actual (Observed) Mortality Rate	Predicted (Expected) Mortality Rate
Pulmonary Embolism	1	10,496	943	427	8.98%	4.07%
	3	122,630	5,007	5,382	4.08%	4.39%
	5	10,778	158	559	1.47%	5.18%
Resection / Replacement Abdominal Aorta	1	3,701	302	143	8.16%	3.87%
	3	50,441	1,737	1,871	3.44%	3.71%
	5	4,299	62	219	1.44%	5.10%
Respiratory Failure	1	83,240	24,231	17,743	29.11%	21.32%
	3	224,391	44,592	44,722	19.87%	19.93%
	5	129,191	16,143	23,748	12.50%	18.38%
Sepsis	1	239,184	66,447	50,330	27.78%	21.04%
	3	381,413	77,337	76,980	20.28%	20.18%
	5	325,732	51,085	68,477	15.68%	21.02%
Stroke	1	117,827	12,607	8,056	10.70%	6.84%
	3	399,690	25,780	26,295	6.45%	6.58%
	5	145,158	5,983	10,163	4.12%	7.00%
Valve Replacement Surgery	1	15,090	1,672	941	11.08%	6.23%
	3	89,391	5,346	5,511	5.98%	6.17%
	5	19,707	629	1,290	3.19%	6.54%

Appendix C: Mortality Performance Improvement and Relative Risk Reduction by Year

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average Unadjusted Mortality Rate (2007-2009)	Relative Risk Reduction Associated with 5-star Hospitals Compared to 1-star	Relative Risk Reduction Associated with 5-star Hospitals Compared to National Average	Reduction in Inhospital Deaths If All Hospitals Operated at Inhospital 5-star Level (2007-2009)	Reduction in Death at 30 Days Post Admission If All Hospitals Operated at Inhospital 5-star Level (2007-2009)
Bowel Obstruction	2007	14.72%	79.70%	60.35%	8,758	10,124
	2008		79.38%	59.89%		
	2009		83.19%	64.16%		
	2007-2009		80.77%	61.41%		
Chronic Obstructive Pulmonary Disease	2007	18.73%	78.30%	57.08%	11,541	18,055
	2008		79.40%	58.08%		
	2009		82.65%	61.32%		
	2007-2009		80.21%	58.87%		
Coronary Bypass Surgery	2007	12.15%	83.54%	66.04%	4,174	4,522
	2008		84.31%	68.32%		
	2009		83.87%	65.90%		
	2007-2009		83.93%	66.83%		
Coronary Interventional Procedures (Angioplasty/Stent)	2007	-9.26%	68.91%	46.59%	6,754	7,286
	2008		69.88%	47.59%		
	2009		67.72%	45.16%		
	2007-2009		68.89%	46.48%		
Diabetic Acidosis and Coma	2007	10.63%	94.90%	84.63%	1,791	2,272
	2008		91.50%	72.74%		
	2009		97.31%	90.95%		
	2007-2009		94.42%	82.18%		
Gastrointestinal Bleed	2007	6.70%	80.62%	61.57%	8,885	11,698
	2008		77.52%	56.70%		
	2009		81.13%	60.35%		
	2007-2009		79.77%	59.50%		
Gastrointestinal Surgeries and Procedures	2007	-8.76%	65.20%	45.49%	10,150	8,993
	2008		62.92%	41.46%		
	2009		65.98%	43.10%		
	2007-2009		64.67%	43.28%		

Continued...

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Appendix C: Mortality Performance Improvement and Relative Risk Reduction by Year

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average Unadjusted Mortality Rate (2007-2009)	Relative Risk Reduction Associated with 5-star Hospitals Compared to 1-star	Relative Risk Reduction Associated with 5-star Hospitals Compared to National Average	Reduction in Inhospital Deaths If All Hospitals Operated at Inhospital 5-star Level (2007-2009)	Reduction in Death at 30 Days Post Admission If All Hospitals Operated at Inhospital 5-star Level (2007-2009)
Heart Attack (Acute Myocardial Infarction)	2007	13.68%	50.27%	30.42%	19,853	19,756
	2008		51.59%	31.32%		
	2009		52.45%	31.59%		
	2007-2009		51.48%	31.15%		
Heart Failure	2007	9.25%	62.50%	39.17%	25,762	34,973
	2008		64.76%	41.72%		
	2009		66.99%	41.88%		
	2007-2009		64.76%	40.93%		
Pancreatitis	2007	9.38%	92.14%	81.48%	2,777	3,213
	2008		95.72%	89.27%		
	2009		95.57%	87.03%		
	2007-2009		94.71%	86.24%		
Pneumonia	2007	.48%	64.73%	40.51%	29,017	38,773
	2008		65.89%	42.25%		
	2009		67.34%	43.52%		
	2007-2009		65.97%	42.10%		
Pulmonary Embolism	2007	4.50%	87.14%	71.67%	4,306	4,619
	2008		86.13%	70.03%		
	2009		88.19%	69.98%		
	2007-2009		87.19%	70.51%		
Resection / Replacement Abdominal Aorta	2007	4.21%	87.94%	70.28%	1,469	1,422
	2008		85.09%	66.31%		
	2009		87.47%	74.26%		
	2007-2009		86.59%	69.95%		
Respiratory Failure	2007	13.34%	48.14%	29.24%	26,361	26,125
	2008		51.34%	31.94%		
	2009		51.24%	32.04%		
	2007-2009		50.22%	31.03%		
Sepsis	2007	11.23%	41.53%	24.19%	48,809	48,059
	2008		44.07%	25.17%		
	2009		44.46%	25.59%		
	2007-2009		43.49%	25.05%		

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 Appendix C: Mortality Performance Improvement and Relative Risk Reduction by Year

Procedure or Diagnosis	Year	Percent of Improvement U.S. Average Unadjusted Mortality Rate (2007-2009)	Relative Risk Reduction Associated with 5-star Hospitals Compared to 1-star	Relative Risk Reduction Associated with 5-star Hospitals Compared to National Average	Reduction in Inhospital Deaths If All Hospitals Operated at Inhospital 5-star Level (2007-2009)	Reduction in Death at 30 Days Post Admission If All Hospitals Operated at Inhospital 5-star Level (2007-2009)
Stroke	2007	13.50%	60.23%	38.70%	18,164	21,183
	2008		62.51%	41.11%		
	2009		64.31%	42.90%		
	2007-2009		62.38%	40.94%		
Valve Replacement Surgery	2007	11.10%	70.31%	46.99%	3,871	4,046
	2008		71.71%	49.62%		
	2009		75.10%	54.49%		
	2007-2009		72.56%	50.62%		
Average		7.98%	72.47%*	53.36%*		
Total					232,442	265,119

* These averages were calculated by averaging the three-year aggregate improvement. This calculation gives equal weight to each diagnosis or procedure regardless of the number of patients in the group. Alternatively, the difference between star categories can be measured by combining all patients across the patient groups, and calculating observed-to-expected ratios for the different star categories. Calculated in this way, 5-star rated hospitals have, on average, 55.42% fewer deaths than 1-star hospitals, and 33.54% fewer deaths than the national average (risk-adjusted results). Using a similar method to calculate overall improvement from 2007 to 2009 yields a 6.08% reduction in unadjusted mortality. Lastly, the Coronary Interventional Procedures improvement is based on 2008 - 2009 because the 2007 data set was not comparable.

Appendix D: Relative Merit of Inhospital versus 30-Day Post Admission Star Ratings

Procedure or Diagnosis	Risk Reduction Comparing Hospitals with 5-star vs. 1-star Inhospital Ratings			Risk Reduction Comparing Hospitals with 5-star vs. 1-star 30-Day Post Admission Ratings		
	Inhospital Mortality	30-Day Mortality	180-Day Mortality	Inhospital Mortality	30-Day Mortality	180-Day Mortality
Bowel Obstruction	80.77%	65.74%	36.70%	71.36%	72.26%	42.36%
Chronic Obstructive Pulmonary Disease	80.21%	53.20%	28.05%	68.53%	64.54%	36.18%
Coronary Bypass Surgery	83.93%	77.43%	57.55%	79.57%	79.14%	58.79%
Coronary Interventional Procedures	68.89%	54.90%	36.54%	62.24%	61.32%	43.68%
Diabetic Acidosis and Coma	94.42%	64.89%	24.38%	87.21%	87.59%	41.54%
Gastrointestinal Bleed	79.77%	51.83%	24.45%	66.05%	65.42%	33.64%
Gastrointestinal Surgeries and Procedures	64.67%	52.77%	36.71%	61.68%	59.73%	43.37%
Heart Attack	51.48%	38.72%	24.10%	45.40%	43.01%	27.61%
Heart Failure	64.76%	41.95%	20.37%	56.63%	51.39%	26.78%
Pancreatitis	94.71%	85.71%	44.57%	94.10%	92.99%	60.46%
Pneumonia	65.97%	49.29%	27.36%	61.19%	56.46%	33.67%
Pulmonary Embolism	87.19%	69.52%	40.12%	81.45%	79.15%	47.60%
Resection/ Replacement Abdominal Aortic	86.59%	78.50%	55.78%	82.47%	82.20%	59.22%
Respiratory Failure	50.22%	39.59%	22.75%	47.61%	43.15%	26.28%
Sepsis	43.49%	33.95%	20.47%	42.61%	37.63%	23.51%
Stroke	62.38%	44.01%	25.37%	53.47%	53.43%	32.54%
Valve Replacement	72.56%	68.37%	48.77%	72.37%	70.89%	51.32%
Average Across All Cohorts	72.47%	57.08%	33.77%	66.70%	64.72%	40.50%

Appendix E: Predicted and Actual Complications by Year

Procedure	Year	Predicted (Expected) Complications	Actual (Observed) Complications	U.S. Observed-to-Expected Ratio
Back & Neck Surgery (except Spinal Fusion)	2007	11.81%	11.55%	0.98
	2008	11.50%	11.56%	1.01
	2009	12.51%	12.49%	1.00
	2007-2009	11.94%	11.87%	0.99
Back & Neck Surgery (Spinal Fusion)	2007	16.76%	16.38%	0.98
	2008	16.80%	17.05%	1.02
	2009	17.83%	17.80%	1.00
	2007-2009	17.18%	17.15%	1.00
Carotid Surgery	2007	7.17%	6.85%	0.96
	2008	7.46%	7.60%	1.02
	2009	10.87%	10.77%	0.99
	2007-2009	8.54%	8.45%	0.99
Cholecystectomy	2007	15.29%	15.22%	1.00
	2008	15.96%	16.18%	1.01
	2009	22.15%	22.28%	1.01
	2007-2009	17.88%	17.97%	1.01
Hip Fracture Repair	2007	12.11%	11.60%	0.96
	2008	12.50%	13.01%	1.04
	2009	23.23%	23.22%	1.00
	2007-2009	16.08%	16.09%	1.00
Peripheral Vascular Bypass	2007	8.87%	9.08%	1.02
	2008	9.04%	9.09%	1.01
	2009	16.81%	16.55%	0.98
	2007-2009	11.64%	11.64%	1.00
Prostatectomy	2007	6.09%	6.08%	1.00
	2008	6.15%	6.05%	0.98
	2009	7.51%	7.40%	0.99
	2007-2009	6.59%	6.52%	0.99
Total Hip Replacement	2007	7.93%	7.41%	0.93
	2008	7.82%	8.10%	1.04
	2009	10.93%	10.75%	0.98
	2007-2009	8.99%	8.87%	0.99
Total Knee Replacement	2007	7.14%	6.98%	0.98
	2008	7.15%	7.26%	1.02
	2009	9.69%	9.64%	1.00
	2007-2009	8.05%	8.03%	1.00
Average		11.88%	11.84%	

More complications were detected in 2009 because of the present on admission indicator.

Appendix F: Observed-to-Expected Complication Ratios by Year

Procedure or Diagnosis	Year	1-star Observed-to-Expected Ratio (95% CI)	3-star Observed-to-Expected Ratio	5-star Observed-to-Expected Ratio (95% CI)
Back & Neck Surgery (except Spinal Fusion)	2007	1.90 (1.84-1.96)	0.94	.34 (.28-.40)
	2008	1.90 (1.84-1.96)	0.95	.34 (.28-.40)
	2009	1.83 (1.78-1.88)	0.94	.34 (.29-.39)
	2007-2009	1.87 (1.84-1.90)	0.95	.34 (.31-.37)
Back & Neck Surgery (Spinal Fusion)	2007	1.69 (1.64-1.73)	0.95	.43 (.38-.47)
	2008	1.63 (1.59-1.66)	0.96	.45 (.41-.50)
	2009	1.56 (1.53-1.60)	0.98	.43 (.40-.47)
	2007-2009	1.61 (1.59-1.63)	0.97	.44 (.41-.46)
Carotid Surgery	2007	2.24 (2.16-2.33)	0.89	.24 (.15-.33)
	2008	2.06 (1.99-2.12)	0.91	.22 (.13-.32)
	2009	1.93 (1.87-1.99)	0.93	.37 (.30-.43)
	2007-2009	2.04 (2.00-2.08)	0.91	.30 (.25-.34)
Cholecystectomy	2007	1.82 (1.77-1.87)	0.96	.35 (.30-.40)
	2008	1.77 (1.73-1.82)	0.98	.43 (.38-.47)
	2009	1.58 (1.54-1.61)	0.98	.45 (.41-.49)
	2007-2009	1.70 (1.67-1.72)	0.98	.42 (.39-.44)
Hip Fracture Repair	2007	1.81 (1.77-1.85)	0.93	.43 (.40-.47)
	2008	1.77 (1.74-1.80)	0.96	.46 (.42-.49)
	2009	1.48 (1.46-1.50)	0.99	.58 (.56-.60)
	2007-2009	1.63 (1.61-1.64)	0.97	.52 (.51-.54)
Peripheral Vascular Bypass	2007	2.60 (2.45-2.75)	0.86	.06 (.00-.33)
	2008	2.52 (2.35-2.68)	0.89	.13 (.00-.39)
	2009	2.02 (1.91-2.12)	0.94	.21 (.09-.34)
	2007-2009	2.30 (2.22-2.38)	0.91	.18 (.07-.28)
Prostatectomy	2007	2.50 (2.41-2.59)	0.87	.20 (.09-.31)
	2008	2.47 (2.38-2.56)	0.89	.25 (.16-.35)
	2009	2.26 (2.18-2.34)	0.92	.26 (.17-.35)
	2007-2009	2.40 (2.35-2.45)	0.89	.24 (.19-.30)
Total Hip Replacement	2007	2.28 (2.20-2.35)	0.89	.34 (.28-.40)
	2008	2.21 (2.16-2.27)	0.94	.34 (.28-.40)
	2009	1.93 (1.88-1.97)	0.93	.40 (.36-.44)
	2007-2009	2.08 (2.05-2.11)	0.92	.37 (.34-.40)
Total Knee Replacement	2007	2.00 (1.96-2.04)	0.94	.42 (.39-.46)
	2008	1.94 (1.91-1.97)	0.96	.43 (.40-.46)
	2009	1.77 (1.74-1.79)	0.95	.48 (.46-.50)
	2007-2009	1.87 (1.85-1.89)	0.95	.45 (.44-.47)

Appendix G: Risk-adjusted Complications and Relative Risk Reduction by Year

Procedure	Year	Relative Risk Reduction Associated with 5-star Hospitals Compared to 1-star	Relative Risk Reduction Associated with 5-star Hospitals Compared to National Average	Reduction in Complications If All Hospitals Operated at 5-star Level (2007-2009)
Back & Neck Surgery (except Spinal Fusion)	2007	81.94%	64.94%	
	2008	82.08%	66.13%	
	2009	81.45%	65.92%	
	2007-2009	81.79%	65.70%	14,581
Back & Neck Surgery (Spinal Fusion)	2007	74.70%	56.28%	
	2008	72.24%	55.52%	
	2009	72.41%	56.79%	
	2007-2009	72.97%	56.31%	19,910
Carotid Surgery	2007	89.26%	74.77%	
	2008	89.10%	77.97%	
	2009	81.03%	63.09%	
	2007-2009	85.41%	69.93%	13,581
Cholecystectomy	2007	80.66%	64.64%	
	2008	75.99%	57.94%	
	2009	71.28%	54.99%	
	2007-2009	75.44%	58.50%	28,502
Hip Fracture Repair	2007	76.02%	54.70%	
	2008	74.12%	55.95%	
	2009	60.62%	41.69%	
	2007-2009	67.88%	47.75%	42,312
Peripheral Vascular Bypass	2007	97.56%	93.80%	
	2008	94.97%	87.41%	
	2009	89.35%	78.18%	
	2007-2009	92.30%	82.30%	4,590
Prostatectomy	2007	91.81%	79.52%	
	2008	89.73%	74.21%	
	2009	88.46%	73.55%	
	2007-2009	89.83%	75.30%	9,786
Total Hip Replacement	2007	85.10%	63.70%	
	2008	84.52%	66.94%	
	2009	79.15%	59.11%	
	2007-2009	82.16%	62.33%	17,147

Continued...

Procedure	Year	Relative Risk Reduction Associated with 5-star Hospitals Compared to 1-star	Relative Risk Reduction Associated with 5-star Hospitals Compared to National Average	Reduction in Complications If All Hospitals Operated at 5-star Level (2007-2009)
Total Knee Replacement	2007	78.74%	56.54%	
	2008	77.88%	57.70%	
	2009	72.76%	51.70%	
	2007-2009	75.84%	54.67%	35,466
Average		80.40%*	63.64%*	
Total				185,875

* These averages were calculated by averaging the three-year aggregate improvement. This calculation gives equal weight to each 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, 80.40% fewer risk-adjusted complications than 1-star hospitals, and 63.64% fewer risk-adjusted complications than the national average.

Appendix H: State Overall Star Ratings for Mortality-based Procedures

State	Cardiac Surgery	Coronary Interventional Procedures	Critical Care	Gastro-intestinal	Heart Attack	Heart Failure	Pulmonary Care	Stroke Care	Overall Combined
AK	★★★	★★★	★	★★★	★★★	★★★	★	★	★
AL	★	★	★	★	★	★	★	★	★
AR	★	★★★	★	★	★	★	★	★	★
AZ	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CA	★★★★★	★	★★★★★	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★
CO	★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
CT	★★★	★★★	★★★★★	★★★	★★★★★	★★★	★★★★★	★★★	★★★★★
DC	★	★★★	★	★	★	★★★	★★★	★★★	★
DE	★★★★★	★★★	★★★	★★★★★	★★★	★★★★★	★★★★★	★★★	★★★★★
FL	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
GA	★★★	★	★	★★★	★	★★★	★	★	★
HI	★★★	★★★	★	★★★	★	★	★	★	★
IA	★	★★★	★★★★★	★★★	★★★	★	★★★	★★★★★	★★★★★
ID	★★★★★	★	★	★★★	★★★	★	★	★★★	★
IL	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
IN	★★★	★★★	★★★★★	★★★★★	★★★	★★★	★★★	★★★★★	★★★★★
KS	★	★★★	★★★	★★★	★★★	★	★★★	★★★	★
KY	★★★	★★★	★★★★★	★	★★★	★	★	★	★
LA	★	★	★	★	★	★	★	★	★
MA	★★★★★	★★★★★	★	★★★	★★★	★★★	★★★★★	★	★
MD	★★★	★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★
ME	★★★	★★★★★	★★★	★	★★★	★★★	★★★	★	★★★
MI	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
MN	★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★	★★★★★
MO	★	★	★★★★★	★	★	★	★★★	★★★	★★★
MS	★★★	★	★	★	★	★	★	★	★
MT	★★★	★★★	★★★	★★★	★★★	★	★	★★★	★
NC	★★★	★★★	★	★	★	★	★	★	★
ND	★★★	★★★	★★★★★	★★★	★★★	★★★	★★★★★	★★★	★★★★★
NE	★★★	★★★	★	★	★★★	★	★	★★★	★
NH	★★★	★★★	★	★★★	★★★	★	★★★	★★★	★
NJ	★★★★★	★★★	★	★★★	★	★★★	★★★	★★★	★
NM	★★★	★★★	★	★	★★★	★★★	★	★★★	★
NV	★	★★★	★	★	★★★	★★★	★★★	★★★	★
NY	★★★★★	★★★★★	★	★	★	★	★	★	★
OH	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
OK	★	★★★	★	★	★	★	★	★	★

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State	Cardiac Surgery	Coronary Interventional Procedures	Critical Care	Gastro-intestinal	Heart Attack	Heart Failure	Pulmonary Care	Stroke Care	Overall Combined
OR	★	★	★★★★★	★★★	★★★★★	★	★	★	★★★
PA	★★★★★	★★★★★	★	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
RI	★★★	★★★	★	★	★★★	★	★	★★★	★
SC	★★★	★★★	★	★	★	★	★	★	★
SD	★★★	★★★	★	★★★	★★★★★	★★★	★	★★★	★
TN	★★★	★	★	★	★	★	★★★	★	★
TX	★	★	★★★★★	★★★★★	★	★★★★★	★★★★★	★★★★★	★★★★★
UT	★★★	★★★	★★★★★	★★★★★	★★★	★★★	★★★★★	★★★	★★★★★
VA	★★★	★★★	★	★	★★★	★	★	★★★	★
VT	★	★★★	★	★★★	★★★	★	★	★	★
WA	★	★	★★★★★	★★★	★★★	★★★	★★★	★★★★★	★★★★★
WI	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
WV	★★★	★★★	★	★	★★★	★	★	★	★
WY	★	★★★	★★★	★★★	★★★	★	★	★★★	★

Appendix I: State Overall Star Ratings for Complication-based Procedures

State	Cholecystectomy	Hip & Knee Replacement	Hip Fracture Repair	Prostatectomy	Spine Surgery	Vascular	Overall Combined
AK	★★★	★★★	★★★	★	★	★★★	★
AL	★★★★★	★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★
AR	★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★
AZ	★	★	★	★★★	★	★★★	★
CA	★★★	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★
CO	★	★★★	★★★	★★★	★	★★★	★
CT	★★★	★★★	★	★★★	★★★	★★★	★★★
DC	★★★	★★★★★	★★★	★★★★★	★★★	★	★★★★★
DE	★★★	★★★★★	★★★★★	★★★	★★★★★	★★★	★★★★★
FL	★★★	★	★★★★★	★★★	★★★★★	★★★	★★★★★
GA	★★★	★★★★★	★★★★★	★★★	★★★	★★★★★	★★★★★
HI	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★	★★★★★
IA	★★★	★	★★★	★★★	★★★	★★★	★
ID	★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★
IL	★★★	★	★★★★★	★★★	★	★★★	★★★
IN	★★★	★★★★★	★★★★★	★★★	★★★★★	★★★	★★★★★
KS	★	★	★	★★★	★	★★★	★
KY	★★★	★	★★★	★	★	★	★
LA	★★★★★	★	★★★	★★★	★★★	★★★	★★★
MA	★	★	★	★★★	★	★	★
MD	★	★	★	★★★	★	★	★
ME	★★★	★★★	★	★★★	★★★	★	★
MI	★★★	★★★★★	★★★	★★★★★	★	★★★	★★★
MN	★	★	★	★	★	★	★
MO	★★★	★★★	★★★	★★★	★★★	★★★	★★★
MS	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★
MT	★★★	★★★★★	★★★	★★★	★★★★★	★★★★★	★★★★★
NC	★★★	★★★	★	★	★	★	★
ND	★★★	★★★★★	★★★	★★★	★★★★★	★★★	★★★★★
NE	★★★	★★★	★★★	★★★	★	★★★	★★★
NH	★★★	★	★	★★★	★★★	★	★
NJ	★	★	★★★★★	★★★	★★★	★★★	★
NM	★★★	★	★★★	★★★	★★★★★	★★★★★	★★★
NV	★	★	★★★	★	★★★★★	★★★	★
NY	★★★	★★★★★	★	★★★★★	★★★★★	★	★★★
OH	★	★	★★★	★	★	★★★	★
OK	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★	★★★★★

Continued...

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 Appendix I: State Overall Star Ratings for Complication-based Procedures

State	Cholecys- tectomy	Hip & Knee Replace- ment	Hip Fracture Repair	Prosta- tectomy	Spine Surgery	Vascular	Overall Combined
OR	★★★★	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★
PA	★	★	★★★★	★★★★	★	★	★
RI	★	★	★	★★★★	★★★★	★★★★	★
SC	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★
SD	★★★★	★★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★
TN	★★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
TX	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
UT	★	★★★★★	★★★★	★	★★★★	★★★★	★★★★★
VA	★★★★	★★★★	★★★★	★★★★	★	★★★★	★★★★
VT	★★★★	★★★★	★	★★★★	★★★★	★★★★	★
WA	★	★★★★★	★	★★★★	★★★★	★★★★	★★★★★
WI	★	★★★★★	★	★★★★	★	★	★
WV	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★★
WY	★★★★	★★★★	★★★★	★	★★★★★	★★★★	★★★★

Appendix J: State Quality Reports

Appendix J.1: Alabama Quality Report

Category Benchmark	Inhospital Risk- adjusted Mortality 2007-2009	30-Day Risk- adjusted Mortality 2007-2009	180-Day Risk- adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	5.12%	5.90%	9.88%	25	8.00%	48.00%	44.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.04%	2.90%	6.58%	31	9.68%	64.52%	25.81%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	20.96%	25.94%	43.21%	87	5.75%	65.52%	28.74%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.79%	7.18%	16.02%	87	3.45%	62.07%	34.48%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.76%	14.62%	24.31%	45	.00%	62.22%	37.78%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.77%	9.61%	26.86%	94	6.38%	72.34%	21.28%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.34%	7.84%	20.14%	98	7.14%	72.45%	20.41%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.45%	13.58%	25.91%	66	1.52%	69.70%	28.79%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.88%	11.52%	23.71%	98	3.06%	68.37%	28.57%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Alabama (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.64%	52	17.31%	76.92%	5.77%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.70%	48	10.42%	72.92%	16.67%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.23%	51	13.73%	78.43%	7.84%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.82%	35	5.71%	77.14%	17.14%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.93%	32	12.50%	81.25%	6.25%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	7.52%	29	20.69%	79.31%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.01%	60	13.33%	85.00%	1.67%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.2: Alaska Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.95%	4.44%	6.86%	2	.00%	100.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.25%	2.59%	4.82%	4	.00%	100.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.43%	23.90%	37.38%	8	12.50%	87.50%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.95%	4.96%	14.90%	11	18.18%	72.73%	9.09%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.22%	12.16%	20.32%	5	.00%	100.00%	.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.91%	9.72%	24.13%	11	.00%	90.91%	9.09%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.48%	8.56%	21.07%	16	6.25%	87.50%	6.25%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	10.89%	17.35%	24.75%	4	25.00%	25.00%	50.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.24%	11.06%	21.85%	16	6.25%	93.75%	.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Alaska (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	20.24%	4	.00%	100.00%	.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.32%	7	14.29%	85.71%	.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.56%	7	14.29%	71.43%	14.29%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	11.77%	4	.00%	50.00%	50.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	20.95%	5	.00%	40.00%	60.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	12.22%	2	.00%	50.00%	50.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.99%	8	.00%	75.00%	25.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.3: Arizona Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.06%	4.06%	7.83%	28	14.29%	85.71%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.46%	2.68%	5.65%	43	20.93%	65.12%	13.95%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	13.98%	19.28%	35.45%	57	43.86%	54.39%	1.75%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.63%	4.88%	12.74%	58	36.21%	60.34%	3.45%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	7.57%	11.56%	20.86%	44	31.82%	52.27%	15.91%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	2.15%	6.16%	22.09%	59	50.85%	49.15%	.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.33%	6.00%	17.75%	72	47.22%	51.39%	1.39%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	3.90%	8.26%	19.52%	41	46.34%	51.22%	2.44%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	4.79%	8.40%	19.75%	72	45.83%	52.78%	1.39%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Arizona (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.78%	45	2.22%	80.00%	17.78%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.22%	48	10.42%	70.83%	18.75%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.01%	46	2.17%	84.78%	13.04%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.45%	33	12.12%	63.64%	24.24%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	16.88%	25	12.00%	52.00%	36.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.87%	35	11.43%	71.43%	17.14%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.69%	55	7.27%	65.45%	27.27%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.4: Arkansas Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.81%	5.91%	10.09%	19	5.26%	63.16%	31.58%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.83%	3.03%	6.20%	21	4.76%	66.67%	28.57%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.43%	25.81%	43.63%	56	5.36%	60.71%	33.93%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.24%	7.19%	17.08%	66	1.52%	65.15%	33.33%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.46%	15.10%	25.75%	30	3.33%	46.67%	50.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	5.14%	11.16%	29.68%	71	1.41%	60.56%	38.03%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.24%	8.78%	22.88%	75	9.33%	56.00%	34.67%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.55%	14.83%	26.08%	45	6.67%	62.22%	31.11%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.58%	12.18%	25.27%	75	1.33%	57.33%	41.33%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Arkansas (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.11%	27	18.52%	62.96%	18.52%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.33%	33	15.15%	75.76%	9.09%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	13.84%	31	38.71%	51.61%	9.68%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.99%	21	14.29%	61.90%	23.81%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	9.06%	19	36.84%	63.16%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	7.99%	20	25.00%	75.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	9.96%	38	31.58%	60.53%	7.89%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.5: California Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.50%	4.05%	7.67%	111	13.51%	79.28%	7.21%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.96%	2.82%	6.05%	130	6.15%	76.92%	16.92%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.11%	21.92%	38.53%	295	27.12%	63.39%	9.49%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.37%	5.58%	13.94%	298	23.83%	64.77%	11.41%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.62%	12.53%	22.03%	234	18.38%	73.08%	8.55%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.44%	8.46%	25.40%	308	17.21%	74.35%	8.44%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.39%	7.47%	20.13%	314	19.43%	66.88%	13.69%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.45%	11.85%	22.43%	259	21.24%	64.48%	14.29%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.01%	9.94%	21.86%	320	25.31%	62.81%	11.88%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

California (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.68%	220	16.36%	73.18%	10.45%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.05%	239	20.92%	71.97%	7.11%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.91%	256	20.31%	71.09%	8.59%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.01%	167	21.56%	68.26%	10.18%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.73%	150	12.67%	71.33%	16.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.46%	152	13.82%	73.68%	12.50%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.78%	284	18.66%	72.54%	8.80%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.6: Colorado Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.45%	4.08%	7.48%	19	10.53%	78.95%	10.53%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.66%	2.51%	5.32%	29	13.79%	79.31%	6.90%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.23%	21.65%	37.70%	44	13.64%	84.09%	2.27%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.92%	5.36%	13.50%	52	23.08%	69.23%	7.69%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	7.83%	11.87%	20.98%	33	15.15%	75.76%	9.09%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.11%	8.16%	24.79%	55	14.55%	81.82%	3.64%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.82%	7.04%	19.89%	65	16.92%	73.85%	9.23%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.69%	10.71%	21.35%	37	24.32%	64.86%	10.81%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.61%	9.57%	21.23%	66	15.15%	83.33%	1.52%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Colorado (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.61%	35	5.71%	74.29%	20.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.49%	44	9.09%	77.27%	13.64%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.65%	40	10.00%	70.00%	20.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.21%	25	16.00%	68.00%	16.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.59%	34	2.94%	70.59%	26.47%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.48%	20	15.00%	60.00%	25.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.15%	47	10.64%	65.96%	23.40%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.7: Connecticut Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.81%	4.34%	8.11%	11	27.27%	54.55%	18.18%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.59%	2.26%	5.11%	14	21.43%	71.43%	7.14%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.44%	21.88%	38.21%	30	36.67%	43.33%	20.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.46%	5.39%	13.28%	30	26.67%	70.00%	3.33%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.25%	11.73%	21.25%	28	28.57%	64.29%	7.14%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.53%	8.10%	24.97%	31	29.03%	61.29%	9.68%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.01%	6.43%	18.62%	31	38.71%	54.84%	6.45%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.11%	11.62%	22.03%	29	27.59%	55.17%	17.24%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.00%	9.48%	21.08%	31	38.71%	45.16%	16.13%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Connecticut (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.07%	28	17.86%	71.43%	10.71%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.55%	29	10.34%	62.07%	27.59%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.08%	29	6.90%	68.97%	24.14%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.89%	23	13.04%	65.22%	21.74%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.50%	24	8.33%	83.33%	8.33%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.61%	23	4.35%	82.61%	13.04%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.87%	29	13.79%	68.97%	17.24%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.8: Delaware Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	2.87%	3.59%	7.30%	4	25.00%	75.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.50%	2.15%	5.09%	4	25.00%	75.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.17%	20.60%	37.29%	5	40.00%	60.00%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.91%	4.59%	13.13%	5	40.00%	60.00%	.00%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.02%	12.20%	21.36%	5	40.00%	60.00%	.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	2.98%	6.90%	23.52%	5	60.00%	40.00%	.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.48%	5.59%	18.13%	5	80.00%	20.00%	.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.99%	9.72%	20.63%	5	20.00%	80.00%	.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.65%	8.62%	20.45%	5	80.00%	20.00%	.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Delaware (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.61%	5	20.00%	60.00%	20.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.08%	4	50.00%	50.00%	.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.15%	5	40.00%	60.00%	.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.68%	5	.00%	80.00%	20.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	9.78%	3	66.67%	.00%	33.33%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.01%	4	25.00%	75.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	9.43%	5	40.00%	40.00%	20.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.9: District of Columbia Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	5.50%	5.99%	9.74%	2	.00%	50.00%	50.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.91%	2.53%	6.24%	2	.00%	100.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	20.03%	24.23%	44.22%	7	.00%	71.43%	28.57%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.00%	5.65%	13.52%	7	14.29%	71.43%	14.29%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.80%	13.12%	23.78%	5	.00%	80.00%	20.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.65%	6.48%	22.89%	7	42.86%	57.14%	.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.50%	6.77%	18.97%	7	28.57%	71.43%	.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.25%	11.05%	22.03%	7	28.57%	71.43%	.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.14%	9.90%	22.19%	7	.00%	100.00%	.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

District of Columbia (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	15.29%	4	25.00%	75.00%	.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.88%	5	20.00%	60.00%	20.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.66%	6	16.67%	66.67%	16.67%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	4.87%	6	33.33%	66.67%	.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.34%	5	40.00%	40.00%	20.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	13.14%	5	.00%	80.00%	20.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.69%	7	14.29%	71.43%	14.29%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.10: Florida Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.65%	4.50%	8.50%	72	11.11%	76.39%	12.50%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.57%	2.65%	5.85%	90	17.78%	68.89%	13.33%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.30%	21.67%	39.97%	167	19.76%	74.85%	5.39%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.23%	5.55%	14.30%	167	24.55%	64.67%	10.78%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.10%	11.78%	22.05%	150	30.00%	58.67%	11.33%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	2.79%	7.18%	24.35%	174	39.66%	57.47%	2.87%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.98%	6.45%	19.29%	177	30.51%	64.97%	4.52%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.57%	9.88%	21.70%	155	35.48%	62.58%	1.94%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.69%	9.26%	21.72%	177	32.20%	61.02%	6.78%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Florida (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.76%	153	14.38%	71.90%	13.73%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.63%	146	13.70%	67.12%	19.18%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.32%	154	16.88%	75.32%	7.79%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.49%	117	11.97%	73.50%	14.53%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.32%	109	22.94%	66.97%	10.09%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.31%	123	13.01%	71.54%	15.45%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.39%	158	18.99%	66.46%	14.56%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.11: Georgia Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.02%	4.68%	8.30%	18	16.67%	61.11%	22.22%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.01%	2.86%	6.07%	27	18.52%	48.15%	33.33%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	17.73%	23.28%	40.76%	117	10.26%	68.38%	21.37%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.66%	5.96%	14.98%	119	10.08%	74.79%	15.13%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.54%	12.97%	22.73%	68	8.82%	76.47%	14.71%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.55%	8.40%	26.24%	136	12.50%	75.00%	12.50%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.63%	7.64%	20.77%	140	12.86%	71.43%	15.71%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.47%	12.35%	24.91%	87	6.90%	72.41%	20.69%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.57%	10.38%	22.98%	141	9.93%	69.50%	20.57%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Georgia (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.03%	69	18.84%	65.22%	15.94%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.90%	77	12.99%	74.03%	12.99%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.88%	83	13.25%	73.49%	13.25%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.65%	45	17.78%	66.67%	15.56%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.98%	47	14.89%	72.34%	12.77%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.28%	41	19.51%	65.85%	14.63%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.23%	88	13.64%	75.00%	11.36%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.12: Hawaii Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.95%	5.04%	7.95%	5	.00%	60.00%	40.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.11%	2.97%	6.40%	6	.00%	83.33%	16.67%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.94%	23.96%	38.19%	14	7.14%	92.86%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.62%	5.32%	13.61%	15	20.00%	66.67%	13.33%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.34%	13.20%	22.73%	11	.00%	81.82%	18.18%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.64%	9.53%	26.84%	14	.00%	85.71%	14.29%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	5.27%	8.58%	21.20%	15	.00%	80.00%	20.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.98%	13.60%	22.98%	14	.00%	71.43%	28.57%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.66%	10.89%	22.28%	15	6.67%	73.33%	20.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Hawaii (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	12.99%	11	36.36%	63.64%	.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.26%	11	18.18%	81.82%	.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	12.67%	13	23.08%	76.92%	.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.74%	5	20.00%	80.00%	.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	10.83%	5	20.00%	80.00%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.10%	4	.00%	100.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	9.16%	15	26.67%	73.33%	.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.13: Idaho Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	1.98%	2.50%	5.10%	5	60.00%	20.00%	20.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.18%	3.40%	6.52%	7	.00%	85.71%	14.29%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.00%	24.44%	39.43%	14	7.14%	92.86%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.61%	6.59%	15.33%	24	4.17%	79.17%	16.67%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.41%	13.61%	23.55%	9	.00%	88.89%	11.11%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.61%	11.02%	29.21%	26	3.85%	76.92%	19.23%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.83%	9.43%	22.10%	35	.00%	71.43%	28.57%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.36%	15.84%	25.85%	13	7.69%	69.23%	23.08%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.09%	11.99%	23.83%	35	2.86%	82.86%	14.29%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Idaho (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.16%	11	18.18%	72.73%	9.09%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.35%	20	15.00%	80.00%	5.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.30%	15	13.33%	80.00%	6.67%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.39%	8	.00%	87.50%	12.50%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.07%	12	33.33%	58.33%	8.33%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	5.85%	6	16.67%	83.33%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	9.75%	21	14.29%	76.19%	9.52%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.14: Illinois Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.23%	3.99%	7.61%	63	22.22%	63.49%	14.29%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.44%	2.34%	5.63%	82	19.51%	71.95%	8.54%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	15.79%	21.84%	40.87%	154	13.64%	72.73%	13.64%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.19%	5.63%	14.36%	172	22.67%	60.47%	16.86%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	7.74%	11.59%	22.02%	112	18.75%	75.89%	5.36%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.10%	7.99%	25.05%	175	24.00%	60.00%	16.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.09%	7.08%	20.05%	179	22.91%	59.22%	17.88%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.52%	10.69%	21.90%	131	25.95%	66.41%	7.63%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.64%	9.62%	22.16%	179	25.70%	57.54%	16.76%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Illinois (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.56%	106	19.81%	61.32%	18.87%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.58%	113	12.39%	68.14%	19.47%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.44%	116	16.38%	72.41%	11.21%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.65%	84	14.29%	67.86%	17.86%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.76%	70	7.14%	75.71%	17.14%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.45%	84	10.71%	76.19%	13.10%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.71%	134	14.18%	70.15%	15.67%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.15: Indiana Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.50%	4.47%	8.64%	36	8.33%	83.33%	8.33%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.72%	2.70%	5.81%	50	8.00%	78.00%	14.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.22%	22.91%	40.77%	103	6.80%	83.50%	9.71%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.27%	5.70%	14.43%	111	15.32%	72.97%	11.71%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.86%	12.89%	23.02%	67	8.96%	76.12%	14.93%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.66%	9.11%	26.86%	114	13.16%	64.04%	22.81%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.36%	7.49%	20.45%	115	17.39%	68.70%	13.91%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.68%	11.46%	22.54%	86	10.47%	76.74%	12.79%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.01%	10.28%	22.70%	117	13.68%	67.52%	18.80%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Indiana (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.05%	59	11.86%	79.66%	8.47%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.20%	78	21.79%	74.36%	3.85%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.72%	83	19.28%	72.29%	8.43%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.55%	42	19.05%	61.90%	19.05%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.53%	41	17.07%	70.73%	12.20%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.25%	43	13.95%	69.77%	16.28%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.67%	93	15.05%	77.42%	7.53%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.16: Iowa Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.36%	4.98%	7.70%	12	16.67%	66.67%	16.67%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.79%	2.85%	5.81%	21	19.05%	71.43%	9.52%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	14.06%	20.27%	36.04%	53	16.98%	75.47%	7.55%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.38%	6.32%	14.66%	96	9.38%	81.25%	9.38%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.46%	12.40%	21.57%	26	19.23%	73.08%	7.69%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.91%	10.12%	27.44%	105	4.76%	78.10%	17.14%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.61%	8.52%	21.99%	114	5.26%	70.18%	24.56%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.07%	12.27%	22.60%	53	11.32%	73.58%	15.09%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.95%	10.73%	22.69%	116	6.90%	80.17%	12.93%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Iowa (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.29%	25	12.00%	76.00%	12.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.90%	42	9.52%	71.43%	19.05%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.51%	42	7.14%	73.81%	19.05%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.33%	19	10.53%	84.21%	5.26%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.21%	20	15.00%	65.00%	20.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.72%	21	19.05%	66.67%	14.29%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.13%	46	10.87%	69.57%	19.57%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.17: Kansas Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.63%	5.31%	8.11%	16	6.25%	75.00%	18.75%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.86%	2.85%	5.91%	21	9.52%	76.19%	14.29%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.36%	22.28%	38.93%	51	9.80%	78.43%	11.76%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.69%	6.30%	14.83%	71	7.04%	78.87%	14.08%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.78%	12.65%	22.40%	24	20.83%	62.50%	16.67%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.19%	10.05%	27.08%	93	5.38%	75.27%	19.35%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.60%	8.69%	22.11%	123	6.50%	75.61%	17.89%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.19%	11.74%	22.57%	45	6.67%	77.78%	15.56%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.42%	11.03%	23.16%	122	6.56%	80.33%	13.11%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Kansas (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	20.55%	28	7.14%	71.43%	21.43%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.94%	43	18.60%	65.12%	16.28%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.74%	33	3.03%	72.73%	24.24%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.79%	18	5.56%	77.78%	16.67%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	17.72%	17	11.76%	70.59%	17.65%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.35%	21	28.57%	61.90%	9.52%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.82%	51	9.80%	66.67%	23.53%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.18: Kentucky Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.99%	4.65%	8.50%	18	16.67%	61.11%	22.22%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.79%	2.72%	6.26%	23	8.70%	73.91%	17.39%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.30%	21.90%	39.26%	75	13.33%	73.33%	13.33%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.02%	6.32%	15.27%	81	7.41%	71.60%	20.99%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.19%	13.22%	23.05%	48	10.42%	72.92%	16.67%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.04%	8.83%	26.29%	93	12.90%	66.67%	20.43%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.61%	7.46%	20.67%	95	11.58%	65.26%	23.16%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.64%	13.76%	25.03%	58	3.45%	74.14%	22.41%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.48%	10.31%	22.77%	95	10.53%	67.37%	22.11%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Kentucky (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.62%	44	11.36%	72.73%	15.91%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.75%	40	12.50%	67.50%	20.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.60%	50	12.00%	70.00%	18.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.84%	30	3.33%	76.67%	20.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	17.06%	20	10.00%	65.00%	25.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.42%	27	14.81%	55.56%	29.63%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.39%	57	8.77%	73.68%	17.54%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.19: Louisiana Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.25%	5.17%	9.31%	31	6.45%	77.42%	16.13%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.03%	3.20%	6.74%	42	4.76%	64.29%	30.95%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.53%	24.50%	43.80%	82	8.54%	65.85%	25.61%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.86%	6.48%	16.16%	84	2.38%	77.38%	20.24%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.10%	14.25%	24.62%	49	6.12%	65.31%	28.57%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.95%	9.02%	27.63%	98	5.10%	81.63%	13.27%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.02%	8.14%	21.95%	105	2.86%	76.19%	20.95%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.13%	11.56%	24.56%	58	10.34%	75.86%	13.79%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.94%	10.98%	24.37%	109	5.50%	70.64%	23.85%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Louisiana (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.69%	42	23.81%	64.29%	11.90%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.25%	57	12.28%	71.93%	15.79%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.56%	46	19.57%	69.57%	10.87%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.22%	30	23.33%	63.33%	13.33%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.32%	32	9.38%	71.88%	18.75%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.91%	32	18.75%	65.63%	15.63%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.61%	66	13.64%	74.24%	12.12%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.20: Maine Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.11%	4.51%	7.13%	3	.00%	100.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.18%	1.79%	4.08%	4	50.00%	50.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.82%	23.00%	38.46%	31	12.90%	87.10%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.93%	6.27%	14.50%	34	17.65%	64.71%	17.65%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.21%	12.30%	21.28%	23	13.04%	78.26%	8.70%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.96%	9.96%	26.63%	35	8.57%	68.57%	22.86%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.61%	7.89%	20.60%	36	16.67%	72.22%	11.11%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.73%	15.13%	25.16%	23	.00%	65.22%	34.78%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.40%	10.70%	22.16%	36	11.11%	77.78%	11.11%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Maine (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.97%	15	6.67%	73.33%	20.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.96%	26	3.85%	88.46%	7.69%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	20.78%	23	4.35%	56.52%	39.13%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.78%	11	9.09%	63.64%	27.27%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.51%	5	.00%	100.00%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	12.93%	8	.00%	50.00%	50.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.99%	28	.00%	71.43%	28.57%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.21: Maryland Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.10%	4.53%	7.58%	10	20.00%	50.00%	30.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.85%	2.84%	6.22%	21	4.76%	71.43%	23.81%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	15.10%	21.28%	38.48%	46	34.78%	58.70%	6.52%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.91%	5.04%	12.69%	45	55.56%	40.00%	4.44%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.84%	12.99%	22.65%	42	7.14%	83.33%	9.52%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	2.38%	6.74%	22.86%	45	64.44%	33.33%	2.22%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.42%	5.80%	17.33%	45	57.78%	40.00%	2.22%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.86%	11.11%	21.47%	43	32.56%	60.47%	6.98%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.29%	9.04%	20.56%	46	52.17%	47.83%	.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Maryland (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.37%	42	19.05%	57.14%	23.81%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	10.71%	42	2.38%	59.52%	38.10%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	18.33%	41	9.76%	65.85%	24.39%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.50%	28	17.86%	64.29%	17.86%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	16.10%	34	5.88%	73.53%	20.59%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.17%	35	5.71%	71.43%	22.86%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	13.46%	45	4.44%	57.78%	37.78%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.22: Massachusetts Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	2.72%	3.08%	5.98%	14	71.43%	28.57%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.31%	1.86%	4.47%	22	36.36%	63.64%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.73%	24.95%	42.12%	61	4.92%	72.13%	22.95%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.40%	5.60%	14.12%	62	17.74%	74.19%	8.06%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.52%	12.16%	21.52%	56	21.43%	69.64%	8.93%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.62%	8.61%	25.32%	63	22.22%	66.67%	11.11%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.18%	6.87%	18.94%	63	25.40%	71.43%	3.17%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.20%	13.71%	23.59%	53	1.89%	79.25%	18.87%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.42%	10.25%	21.82%	63	11.11%	82.54%	6.35%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Massachusetts (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.76%	49	12.24%	63.27%	24.49%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	10.19%	57	7.02%	63.16%	29.82%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	19.51%	55	3.64%	58.18%	38.18%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.84%	42	19.05%	64.29%	16.67%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.87%	36	11.11%	72.22%	16.67%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.51%	37	2.70%	75.68%	21.62%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	13.49%	58	3.45%	56.90%	39.66%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.23: Michigan Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.42%	4.23%	8.30%	33	12.12%	84.85%	3.03%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.45%	2.28%	5.28%	42	35.71%	59.52%	4.76%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	14.54%	20.39%	38.36%	108	25.93%	71.30%	2.78%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.08%	5.41%	13.98%	117	24.79%	67.52%	7.69%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.18%	12.21%	22.54%	80	22.50%	67.50%	10.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.13%	8.19%	25.88%	123	15.45%	74.80%	9.76%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.81%	6.68%	19.49%	127	22.83%	70.87%	6.30%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.45%	10.36%	21.50%	96	22.92%	70.83%	6.25%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.37%	9.27%	21.69%	127	26.77%	69.29%	3.94%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Michigan (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.99%	72	15.28%	70.83%	13.89%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.82%	101	21.78%	65.35%	12.87%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.22%	94	18.09%	65.96%	15.96%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.33%	57	29.82%	59.65%	10.53%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.89%	49	8.16%	65.31%	26.53%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.14%	58	10.34%	74.14%	15.52%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.55%	103	20.39%	68.93%	10.68%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.24: Minnesota Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	2.61%	3.44%	6.04%	14	35.71%	57.14%	7.14%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.69%	2.52%	5.08%	15	13.33%	86.67%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	14.81%	20.40%	35.14%	57	22.81%	77.19%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.73%	5.02%	12.32%	85	20.00%	75.29%	4.71%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	7.91%	11.61%	20.39%	36	25.00%	72.22%	2.78%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.41%	8.38%	24.66%	106	14.15%	73.58%	12.26%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.07%	6.71%	18.24%	124	13.71%	81.45%	4.84%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.36%	12.33%	21.22%	51	17.65%	64.71%	17.65%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.52%	9.43%	20.19%	125	12.80%	85.60%	1.60%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Minnesota (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.57%	32	12.50%	65.63%	21.88%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.85%	67	10.45%	58.21%	31.34%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	18.68%	48	4.17%	58.33%	37.50%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.23%	29	6.90%	65.52%	27.59%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	19.35%	23	8.70%	56.52%	34.78%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	11.62%	19	10.53%	57.89%	31.58%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	13.94%	71	11.27%	49.30%	39.44%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.25: Mississippi Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.28%	5.43%	9.14%	18	.00%	83.33%	16.67%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.17%	3.21%	6.99%	18	.00%	61.11%	38.89%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	21.57%	27.52%	46.62%	59	.00%	57.63%	42.37%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.41%	6.81%	16.22%	66	3.03%	69.70%	27.27%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	10.86%	15.01%	25.39%	31	.00%	58.06%	41.94%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	5.95%	11.35%	29.83%	88	1.14%	55.68%	43.18%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	5.02%	9.24%	22.75%	90	1.11%	63.33%	35.56%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.00%	13.14%	24.62%	47	4.26%	65.96%	29.79%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	8.35%	12.45%	25.48%	90	.00%	54.44%	45.56%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Mississippi (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	14.26%	32	34.38%	65.63%	.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.52%	30	23.33%	60.00%	16.67%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.43%	31	19.35%	67.74%	12.90%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.23%	20	15.00%	80.00%	5.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.40%	17	11.76%	82.35%	5.88%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	6.60%	20	35.00%	65.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.15%	36	33.33%	58.33%	8.33%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.26: Missouri Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.19%	4.87%	9.12%	33	6.06%	78.79%	15.15%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.09%	3.00%	6.22%	41	4.88%	78.05%	17.07%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	16.07%	21.82%	38.35%	88	19.32%	67.05%	13.64%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.79%	6.27%	14.98%	100	7.00%	74.00%	19.00%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.30%	13.47%	23.57%	57	12.28%	50.88%	36.84%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.91%	9.07%	26.94%	111	9.01%	72.07%	18.92%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.48%	7.66%	20.68%	113	15.04%	69.91%	15.04%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.69%	12.12%	23.43%	73	12.33%	67.12%	20.55%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.29%	10.35%	22.66%	113	14.16%	69.03%	16.81%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Missouri (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.20%	53	20.75%	66.04%	13.21%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.14%	67	17.91%	71.64%	10.45%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.53%	65	13.85%	67.69%	18.46%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.02%	39	30.77%	56.41%	12.82%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.40%	35	8.57%	74.29%	17.14%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.75%	40	10.00%	70.00%	20.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.56%	74	14.86%	67.57%	17.57%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.27: Montana Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.12%	3.33%	6.43%	5	20.00%	80.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.57%	2.26%	4.66%	9	44.44%	44.44%	11.11%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	17.59%	23.06%	37.61%	18	5.56%	88.89%	5.56%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.13%	5.97%	14.04%	25	8.00%	84.00%	8.00%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.34%	12.94%	21.60%	9	22.22%	66.67%	11.11%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.29%	10.04%	27.43%	32	3.13%	87.50%	9.38%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.32%	8.94%	21.61%	49	.00%	83.67%	16.33%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.80%	13.43%	23.17%	16	6.25%	87.50%	6.25%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.73%	11.14%	22.60%	47	4.26%	87.23%	8.51%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Montana (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.69%	10	20.00%	40.00%	40.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.90%	22	18.18%	77.27%	4.55%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.17%	17	17.65%	64.71%	17.65%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.19%	9	22.22%	44.44%	33.33%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.99%	9	11.11%	88.89%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	7.43%	7	14.29%	85.71%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.55%	23	21.74%	69.57%	8.70%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.28: Nebraska Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.76%	4.64%	7.77%	10	10.00%	90.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.78%	2.73%	6.15%	15	6.67%	86.67%	6.67%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.06%	25.05%	42.53%	23	4.35%	69.57%	26.09%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.07%	6.88%	14.93%	48	6.25%	72.92%	20.83%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.60%	12.81%	21.93%	18	16.67%	72.22%	11.11%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.22%	10.02%	27.89%	56	7.14%	55.36%	37.50%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.22%	9.48%	23.38%	82	2.44%	76.83%	20.73%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.29%	12.40%	23.56%	24	4.17%	83.33%	12.50%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.12%	11.92%	24.31%	81	3.70%	76.54%	19.75%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Nebraska (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.62%	17	11.76%	58.82%	29.41%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.29%	28	10.71%	82.14%	7.14%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.70%	20	10.00%	75.00%	15.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.27%	14	14.29%	71.43%	14.29%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	16.29%	12	8.33%	66.67%	25.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.27%	13	7.69%	84.62%	7.69%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.86%	29	13.79%	75.86%	10.34%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.29: Nevada Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	5.33%	6.87%	12.06%	12	.00%	41.67%	58.33%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.72%	2.97%	6.77%	13	15.38%	61.54%	23.08%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.71%	24.90%	43.32%	24	.00%	83.33%	16.67%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.13%	7.01%	17.24%	27	3.70%	70.37%	25.93%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.34%	13.97%	24.68%	18	5.56%	77.78%	16.67%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.71%	9.19%	27.22%	26	3.85%	80.77%	15.38%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.50%	8.11%	21.36%	31	9.68%	77.42%	12.90%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.22%	12.38%	25.24%	17	5.88%	76.47%	17.65%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.83%	11.25%	24.52%	31	.00%	83.87%	16.13%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Nevada (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	21.15%	18	.00%	72.22%	27.78%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	10.09%	23	.00%	78.26%	21.74%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.76%	21	19.05%	71.43%	9.52%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	8.13%	11	.00%	72.73%	27.27%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.57%	14	7.14%	92.86%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.22%	13	7.69%	69.23%	23.08%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.59%	23	4.35%	82.61%	13.04%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.30: New Hampshire Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.34%	3.64%	5.91%	4	50.00%	50.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.48%	2.25%	4.66%	9	22.22%	77.78%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.73%	24.66%	40.01%	20	5.00%	90.00%	5.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.68%	6.57%	14.50%	26	7.69%	84.62%	7.69%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.61%	13.40%	22.90%	18	11.11%	83.33%	5.56%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.18%	11.11%	28.68%	25	.00%	68.00%	32.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.74%	8.99%	21.93%	26	7.69%	73.08%	19.23%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.79%	13.73%	24.15%	20	5.00%	65.00%	30.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.63%	11.57%	23.19%	26	7.69%	80.77%	11.54%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

New Hampshire (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.70%	12	8.33%	75.00%	16.67%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.65%	23	.00%	91.30%	8.70%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	21.32%	20	5.00%	55.00%	40.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.28%	6	16.67%	66.67%	16.67%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.47%	9	11.11%	66.67%	22.22%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	12.56%	11	.00%	63.64%	36.36%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	13.80%	24	.00%	75.00%	25.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.31: New Jersey Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.29%	3.76%	7.91%	18	22.22%	72.22%	5.56%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.73%	2.49%	5.61%	37	21.62%	45.95%	32.43%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.16%	23.48%	42.50%	71	5.63%	70.42%	23.94%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.58%	5.65%	14.28%	71	21.13%	69.01%	9.86%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.41%	12.76%	22.82%	68	11.76%	67.65%	20.59%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.52%	7.57%	24.89%	71	29.58%	64.79%	5.63%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.54%	7.08%	20.18%	72	11.11%	79.17%	9.72%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.41%	10.65%	21.58%	67	22.39%	71.64%	5.97%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.47%	9.86%	22.41%	72	15.28%	72.22%	12.50%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

New Jersey (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.53%	64	7.81%	68.75%	23.44%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.02%	60	10.00%	65.00%	25.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.53%	66	15.15%	68.18%	16.67%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.04%	53	9.43%	79.25%	11.32%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.03%	38	2.63%	89.47%	7.89%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.67%	55	9.09%	74.55%	16.36%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.92%	68	8.82%	75.00%	16.18%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.32: New Mexico Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.22%	3.73%	6.04%	7	28.57%	71.43%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.74%	2.85%	5.80%	9	33.33%	44.44%	22.22%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.16%	24.09%	40.89%	28	10.71%	78.57%	10.71%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.08%	6.61%	14.84%	33	6.06%	75.76%	18.18%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.29%	12.46%	22.38%	11	9.09%	72.73%	18.18%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.87%	9.23%	26.85%	35	2.86%	82.86%	14.29%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.86%	8.29%	20.71%	39	7.69%	84.62%	7.69%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.46%	12.41%	24.25%	16	.00%	81.25%	18.75%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.68%	10.92%	22.85%	39	10.26%	79.49%	10.26%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

New Mexico (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.52%	15	6.67%	80.00%	13.33%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.56%	22	9.09%	63.64%	27.27%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.34%	18	16.67%	72.22%	11.11%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.50%	10	.00%	100.00%	.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.30%	10	30.00%	70.00%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	6.35%	9	33.33%	66.67%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.79%	24	8.33%	75.00%	16.67%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.33: New York Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.32%	3.85%	7.22%	37	32.43%	62.16%	5.41%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.15%	1.79%	4.65%	48	47.92%	52.08%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.83%	24.27%	42.13%	168	6.55%	55.36%	38.10%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.20%	5.90%	14.04%	170	14.71%	64.12%	21.18%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.54%	12.45%	22.25%	151	14.57%	66.89%	18.54%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.53%	8.44%	25.19%	179	13.97%	69.83%	16.20%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.33%	7.72%	20.72%	182	9.34%	68.68%	21.98%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.24%	12.04%	22.75%	156	7.69%	73.08%	19.23%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.32%	10.42%	22.55%	182	9.89%	65.38%	24.73%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

New York (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.51%	126	17.46%	66.67%	15.87%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.33%	130	20.00%	73.08%	6.92%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.26%	151	15.23%	63.58%	21.19%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.61%	94	19.15%	71.28%	9.57%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.98%	85	16.47%	75.29%	8.24%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.82%	87	19.54%	58.62%	21.84%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.47%	159	16.98%	71.70%	11.32%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.34: North Carolina Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.86%	4.38%	7.57%	22	22.73%	68.18%	9.09%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.77%	2.60%	5.65%	26	15.38%	73.08%	11.54%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.08%	23.58%	40.09%	97	10.31%	65.98%	23.71%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.05%	6.21%	14.85%	102	7.84%	73.53%	18.63%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.40%	12.97%	22.73%	72	16.67%	65.28%	18.06%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.94%	8.70%	25.82%	102	9.80%	78.43%	11.76%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.72%	7.36%	19.51%	107	16.82%	71.96%	11.21%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.39%	13.57%	24.62%	90	6.67%	61.11%	32.22%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.80%	10.50%	22.36%	108	11.11%	70.37%	18.52%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

North Carolina (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.46%	81	11.11%	71.60%	17.28%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.37%	83	10.84%	69.88%	19.28%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.17%	86	15.12%	59.30%	25.58%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	8.16%	47	6.38%	61.70%	31.91%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.43%	40	12.50%	67.50%	20.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.86%	41	7.32%	73.17%	19.51%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.17%	91	12.09%	61.54%	26.37%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.35: North Dakota Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.56%	4.43%	8.17%	6	16.67%	83.33%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.46%	2.31%	5.08%	6	50.00%	50.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	13.42%	19.03%	34.89%	15	20.00%	80.00%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.56%	6.59%	14.74%	19	5.26%	78.95%	15.79%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.18%	12.28%	21.21%	8	25.00%	62.50%	12.50%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.35%	9.09%	25.34%	31	3.23%	90.32%	6.45%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.89%	7.59%	19.12%	42	9.52%	83.33%	7.14%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.72%	12.52%	22.17%	10	10.00%	90.00%	.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.49%	10.07%	21.20%	41	7.32%	90.24%	2.44%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

North Dakota (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.94%	6	16.67%	50.00%	33.33%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.55%	7	28.57%	71.43%	.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.41%	8	12.50%	87.50%	.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.72%	8	.00%	87.50%	12.50%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.11%	5	20.00%	60.00%	20.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.67%	6	16.67%	50.00%	33.33%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.94%	9	11.11%	77.78%	11.11%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.36: Ohio Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.14%	3.93%	8.21%	54	14.81%	79.63%	5.56%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.48%	2.44%	5.56%	62	22.58%	69.35%	8.06%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	14.00%	20.01%	38.28%	142	25.35%	67.61%	7.04%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.96%	5.42%	14.01%	150	24.67%	66.67%	8.67%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.04%	12.07%	22.22%	107	24.30%	66.36%	9.35%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	2.84%	7.80%	24.66%	154	29.87%	61.04%	9.09%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	2.65%	6.56%	19.54%	156	30.13%	58.33%	11.54%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.60%	10.97%	22.33%	123	21.95%	69.92%	8.13%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.15%	9.15%	21.53%	156	33.97%	58.33%	7.69%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Ohio (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.96%	106	8.49%	69.81%	21.70%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.09%	136	14.71%	63.97%	21.32%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.52%	126	16.67%	69.05%	14.29%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.12%	66	12.12%	74.24%	13.64%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	16.83%	64	6.25%	73.44%	20.31%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.57%	83	14.46%	60.24%	25.30%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.51%	143	12.59%	70.63%	16.78%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.37: Oklahoma Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	5.72%	6.81%	11.05%	18	.00%	33.33%	66.67%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.82%	2.92%	6.18%	23	4.35%	82.61%	13.04%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.86%	25.53%	44.41%	68	4.41%	77.94%	17.65%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.35%	7.20%	17.20%	76	1.32%	69.74%	28.95%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.91%	13.89%	24.29%	33	6.06%	54.55%	39.39%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.35%	9.87%	28.23%	96	7.29%	72.92%	19.79%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.42%	9.20%	23.26%	108	3.70%	70.37%	25.93%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.39%	12.89%	25.88%	50	2.00%	74.00%	24.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.32%	11.87%	25.22%	110	2.73%	76.36%	20.91%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Oklahoma (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	15.70%	33	27.27%	66.67%	6.06%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.72%	46	13.04%	71.74%	15.22%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.61%	42	23.81%	69.05%	7.14%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.86%	22	4.55%	77.27%	18.18%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	11.55%	25	36.00%	52.00%	12.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.19%	22	22.73%	72.73%	4.55%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.36%	56	21.43%	66.07%	12.50%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.38: Oregon Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.34%	5.01%	7.65%	14	7.14%	78.57%	14.29%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.20%	3.16%	5.70%	17	5.88%	88.24%	5.88%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	15.99%	22.04%	36.53%	42	16.67%	80.95%	2.38%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.46%	6.19%	14.30%	53	9.43%	73.58%	16.98%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.29%	12.33%	21.41%	32	15.63%	78.13%	6.25%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.12%	10.83%	28.60%	53	5.66%	69.81%	24.53%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.73%	7.97%	20.74%	57	7.02%	82.46%	10.53%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.30%	13.58%	24.03%	39	5.13%	76.92%	17.95%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.35%	10.83%	22.37%	57	10.53%	77.19%	12.28%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Oregon (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.32%	29	17.24%	75.86%	6.90%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.36%	42	23.81%	73.81%	2.38%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.44%	39	10.26%	71.79%	17.95%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.92%	22	9.09%	77.27%	13.64%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.86%	22	27.27%	68.18%	4.55%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.23%	21	19.05%	71.43%	9.52%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.53%	45	17.78%	75.56%	6.67%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.39: Pennsylvania Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.18%	3.82%	7.41%	60	30.00%	65.00%	5.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.61%	2.40%	5.41%	71	21.13%	67.61%	11.27%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	17.14%	23.36%	41.39%	152	9.21%	73.03%	17.76%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.52%	5.92%	14.80%	155	14.84%	65.81%	19.35%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.49%	12.69%	22.85%	136	13.24%	76.47%	10.29%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.35%	8.03%	25.31%	156	26.28%	62.82%	10.90%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.32%	7.12%	20.00%	156	21.79%	67.95%	10.26%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.27%	11.63%	22.65%	140	15.71%	73.57%	10.71%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.09%	10.01%	22.36%	158	16.46%	69.62%	13.92%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Pennsylvania (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.05%	120	13.33%	66.67%	20.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	9.16%	137	13.14%	62.77%	24.09%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.28%	136	17.65%	66.91%	15.44%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.85%	90	15.56%	66.67%	17.78%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.67%	78	11.54%	71.79%	16.67%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.89%	91	9.89%	73.63%	16.48%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.32%	148	16.22%	60.81%	22.97%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.40: Rhode Island Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.89%	4.11%	8.20%	3	.00%	100.00%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.04%	2.66%	5.62%	3	.00%	100.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	20.45%	26.20%	45.32%	10	.00%	60.00%	40.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.07%	6.49%	15.11%	10	10.00%	70.00%	20.00%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.50%	12.48%	22.92%	10	.00%	80.00%	20.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.12%	8.97%	26.57%	10	10.00%	70.00%	20.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.27%	8.19%	21.81%	10	.00%	80.00%	20.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.26%	12.19%	22.33%	10	10.00%	80.00%	10.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.31%	11.01%	23.55%	10	.00%	80.00%	20.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Rhode Island (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	20.55%	10	.00%	80.00%	20.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	10.18%	10	.00%	80.00%	20.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	21.58%	10	10.00%	20.00%	70.00%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.42%	8	12.50%	75.00%	12.50%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.72%	7	14.29%	57.14%	28.57%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.44%	6	.00%	100.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	13.94%	10	.00%	50.00%	50.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.41: South Carolina Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.66%	4.08%	7.78%	16	18.75%	75.00%	6.25%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.88%	2.76%	5.77%	17	5.88%	64.71%	29.41%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	19.28%	23.89%	40.57%	54	11.11%	62.96%	25.93%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.22%	6.13%	14.45%	56	5.36%	80.36%	14.29%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.65%	12.85%	22.39%	38	10.53%	78.95%	10.53%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.55%	8.97%	25.85%	57	10.53%	77.19%	12.28%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.15%	7.50%	19.89%	58	6.90%	75.86%	17.24%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.58%	13.01%	24.32%	47	8.51%	68.09%	23.40%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.26%	10.56%	22.43%	58	10.34%	72.41%	17.24%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

South Carolina (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.84%	40	10.00%	87.50%	2.50%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.55%	41	7.32%	80.49%	12.20%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.08%	42	11.90%	78.57%	9.52%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.16%	31	16.13%	54.84%	29.03%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.71%	25	16.00%	68.00%	16.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.10%	27	18.52%	70.37%	11.11%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.53%	48	8.33%	81.25%	10.42%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.42: South Dakota Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.05%	3.56%	6.57%	3	33.33%	66.67%	.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.75%	2.98%	5.38%	6	16.67%	50.00%	33.33%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.41%	24.01%	38.26%	13	.00%	100.00%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.44%	5.86%	12.96%	20	10.00%	85.00%	5.00%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	7.63%	11.56%	20.66%	9	11.11%	77.78%	11.11%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.09%	9.81%	26.83%	30	6.67%	80.00%	13.33%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.22%	9.80%	23.20%	50	2.00%	86.00%	12.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.81%	13.84%	22.86%	13	.00%	76.92%	23.08%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.63%	11.52%	22.81%	49	2.04%	89.80%	8.16%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

South Dakota (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.29%	7	14.29%	71.43%	14.29%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.05%	17	17.65%	70.59%	11.76%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.42%	11	.00%	90.91%	9.09%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.90%	8	12.50%	75.00%	12.50%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.18%	10	30.00%	60.00%	10.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	6.41%	4	50.00%	25.00%	25.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.62%	18	16.67%	83.33%	.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.43: Tennessee Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.95%	4.73%	8.00%	22	13.64%	63.64%	22.73%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.99%	2.96%	6.18%	34	8.82%	61.76%	29.41%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	17.66%	23.37%	40.47%	102	7.84%	69.61%	22.55%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.78%	6.27%	15.30%	99	8.08%	70.71%	21.21%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.64%	13.70%	23.49%	63	9.52%	76.19%	14.29%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.11%	9.31%	27.04%	110	6.36%	70.91%	22.73%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.57%	7.73%	20.69%	110	15.45%	64.55%	20.00%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	7.41%	13.26%	24.70%	77	9.09%	68.83%	22.08%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.65%	10.73%	23.08%	110	8.18%	66.36%	25.45%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Tennessee (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.08%	57	17.54%	71.93%	10.53%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.35%	58	18.97%	67.24%	13.79%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.04%	66	21.21%	63.64%	15.15%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	5.43%	38	23.68%	71.05%	5.26%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.13%	33	24.24%	63.64%	12.12%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.01%	39	15.38%	79.49%	5.13%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.77%	72	19.44%	73.61%	6.94%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.44: Texas Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.28%	5.26%	9.47%	107	4.67%	70.09%	25.23%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.87%	2.94%	6.43%	137	5.84%	80.29%	13.87%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	15.90%	21.89%	40.63%	258	15.89%	72.87%	11.24%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.24%	5.78%	15.08%	275	11.27%	75.64%	13.09%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.17%	13.35%	23.61%	181	9.39%	72.93%	17.68%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.32%	8.37%	26.29%	310	10.97%	78.71%	10.32%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.17%	7.22%	20.45%	343	14.29%	73.18%	12.54%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.95%	10.86%	23.04%	197	15.74%	77.16%	7.11%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.92%	9.97%	22.89%	344	14.24%	73.55%	12.21%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Texas (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.58%	172	23.26%	68.60%	8.14%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.95%	208	14.90%	74.04%	11.06%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	14.72%	189	20.63%	71.96%	7.41%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.08%	103	17.48%	72.82%	9.71%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	12.83%	140	25.71%	67.14%	7.14%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	7.28%	126	26.98%	68.25%	4.76%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	10.57%	240	21.25%	72.92%	5.83%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.45: Utah Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.79%	4.61%	8.79%	9	.00%	88.89%	11.11%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.72%	2.91%	6.68%	14	7.14%	78.57%	14.29%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	13.12%	18.71%	33.93%	21	42.86%	57.14%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.98%	6.03%	14.05%	27	22.22%	70.37%	7.41%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.81%	13.36%	23.23%	14	14.29%	71.43%	14.29%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.62%	9.26%	27.18%	25	4.00%	84.00%	12.00%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.05%	7.22%	19.41%	35	17.14%	74.29%	8.57%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.96%	13.12%	23.94%	17	5.88%	82.35%	11.76%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.43%	9.70%	21.53%	35	20.00%	80.00%	.00%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Utah (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.84%	19	.00%	78.95%	21.05%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.52%	25	32.00%	64.00%	4.00%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.06%	21	.00%	80.95%	19.05%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	7.75%	15	.00%	80.00%	20.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	13.79%	19	15.79%	73.68%	10.53%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.42%	7	28.57%	57.14%	14.29%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.02%	27	18.52%	74.07%	7.41%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.46: Vermont Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	6.91%	7.22%	10.39%	1	.00%	.00%	100.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.20%	1.60%	4.13%	1	100.00%	.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	22.10%	29.28%	45.41%	12	.00%	91.67%	8.33%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.04%	7.04%	15.89%	13	7.69%	76.92%	15.38%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.42%	14.76%	24.71%	10	.00%	60.00%	40.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	5.86%	14.08%	32.00%	13	.00%	46.15%	53.85%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.41%	10.14%	22.60%	14	.00%	71.43%	28.57%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	9.13%	16.78%	26.78%	9	.00%	77.78%	22.22%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	8.02%	13.63%	25.25%	14	.00%	57.14%	42.86%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Vermont (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	20.58%	4	.00%	75.00%	25.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.53%	13	15.38%	76.92%	7.69%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	19.97%	11	9.09%	72.73%	18.18%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	4.90%	3	.00%	100.00%	.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.83%	3	.00%	100.00%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	9.10%	2	.00%	100.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.77%	13	.00%	84.62%	15.38%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.47: Virginia Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.08%	4.49%	7.67%	20	20.00%	70.00%	10.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.87%	2.66%	5.61%	34	8.82%	76.47%	14.71%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	17.21%	22.78%	39.91%	76	18.42%	59.21%	22.37%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.67%	5.98%	14.59%	75	13.33%	73.33%	13.33%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.66%	12.52%	22.32%	70	14.29%	74.29%	11.43%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.80%	8.59%	26.06%	79	17.72%	72.15%	10.13%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.71%	7.53%	20.47%	79	13.92%	70.89%	15.19%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.49%	11.77%	22.69%	67	16.42%	70.15%	13.43%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.39%	10.18%	22.39%	79	17.72%	63.29%	18.99%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Virginia (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	17.78%	55	18.18%	67.27%	14.55%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.30%	58	12.07%	70.69%	17.24%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.62%	65	16.92%	76.92%	6.15%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.36%	33	15.15%	66.67%	18.18%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	15.88%	40	12.50%	62.50%	25.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.79%	36	16.67%	69.44%	13.89%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.67%	65	12.31%	69.23%	18.46%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.48: Washington Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.61%	5.46%	8.80%	17	5.88%	64.71%	29.41%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	2.18%	3.16%	6.23%	29	6.90%	68.97%	24.14%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	15.68%	21.84%	37.67%	59	18.64%	74.58%	6.78%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.36%	5.94%	14.34%	65	15.38%	72.31%	12.31%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.17%	13.43%	22.74%	42	7.14%	73.81%	19.05%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.62%	10.03%	27.65%	68	4.41%	72.06%	23.53%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.40%	7.83%	20.84%	81	6.17%	82.72%	11.11%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	6.09%	12.55%	23.63%	53	11.32%	77.36%	11.32%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	6.03%	10.51%	22.49%	79	13.92%	74.68%	11.39%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Washington (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	20.82%	45	2.22%	73.33%	24.44%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	6.91%	56	23.21%	73.21%	3.57%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	17.22%	53	3.77%	81.13%	15.09%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.65%	33	9.09%	75.76%	15.15%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.29%	35	20.00%	68.57%	11.43%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.78%	38	18.42%	68.42%	13.16%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.34%	59	15.25%	76.27%	8.47%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.49: West Virginia Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	4.14%	4.74%	8.42%	6	.00%	66.67%	33.33%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.87%	2.63%	5.75%	9	11.11%	55.56%	33.33%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.93%	24.51%	42.74%	39	7.69%	61.54%	30.77%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	4.38%	6.93%	16.56%	41	.00%	65.85%	34.15%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.29%	13.20%	23.88%	29	.00%	86.21%	13.79%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	4.33%	9.38%	27.83%	49	8.16%	69.39%	22.45%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.19%	8.46%	22.14%	51	7.84%	56.86%	35.29%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.29%	13.99%	25.77%	32	3.13%	59.38%	37.50%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.22%	11.26%	24.24%	51	5.88%	56.86%	37.25%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

West Virginia (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	16.96%	25	16.00%	80.00%	4.00%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.86%	26	11.54%	69.23%	19.23%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	15.27%	29	13.79%	79.31%	6.90%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.67%	20	10.00%	80.00%	10.00%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	14.84%	10	20.00%	50.00%	30.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	8.14%	17	23.53%	64.71%	11.76%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.05%	30	16.67%	73.33%	10.00%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.50: Wisconsin Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	3.60%	4.37%	7.87%	26	26.92%	53.85%	19.23%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.45%	2.39%	5.20%	36	27.78%	61.11%	11.11%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	14.78%	20.95%	37.65%	85	18.82%	77.65%	3.53%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	2.85%	5.48%	13.39%	103	22.33%	71.84%	5.83%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	8.00%	12.36%	21.64%	56	19.64%	69.64%	10.71%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	3.33%	8.84%	25.82%	115	12.17%	69.57%	18.26%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	3.25%	7.49%	19.50%	117	11.11%	77.78%	11.11%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	5.85%	12.13%	21.29%	73	17.81%	68.49%	13.70%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	5.55%	9.91%	21.35%	118	13.56%	82.20%	4.24%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Wisconsin (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	19.23%	54	11.11%	70.37%	18.52%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	7.92%	82	24.39%	63.41%	12.20%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	16.85%	74	6.76%	74.32%	18.92%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	6.50%	38	10.53%	84.21%	5.26%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	17.39%	34	8.82%	70.59%	20.59%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	10.23%	42	16.67%	64.29%	19.05%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	12.15%	87	10.34%	70.11%	19.54%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%

Appendix J.51: Wyoming Quality Report

Category Benchmark	Inhospital Risk-adjusted Mortality 2007-2009	30-Day Risk-adjusted Mortality 2007-2009	180-Day Risk-adjusted Mortality 2007-2009	Number of Hospitals Studied	Percent of Hospital in		
					Top 15%	Middle 70%	Bottom 15%
Cardiac Surgery							
State	7.26%	9.24%	13.94%	2	.00%	.00%	100.00%
National	3.73%	4.44%	8.13%	1,121	15.00%	70.00%	15.00%
Top 15%	2.24%	2.72%	5.78%	168	100.00%	.00%	.00%
Coronary Interventional Procedures							
State	1.75%	2.46%	6.39%	2	.00%	100.00%	.00%
National	1.71%	2.62%	5.75%	1,477	15.00%	70.00%	15.00%
Top15%	1.06%	1.74%	4.37%	222	100.00%	.00%	.00%
Critical Care							
State	18.43%	25.02%	41.44%	11	.00%	100.00%	.00%
National	16.91%	22.62%	38.44%	3,477	15.00%	70.00%	15.00%
Top 15%	12.64%	17.89%	34.62%	522	100.00%	.00%	.00%
Gastrointestinal							
State	3.61%	6.98%	16.29%	19	5.26%	84.21%	10.53%
National	3.51%	5.87%	14.50%	3,821	15.00%	70.00%	15.00%
Top 15%	2.44%	4.31%	12.13%	573	100.00%	.00%	.00%
Heart Attack							
State	9.74%	16.04%	25.88%	2	.00%	50.00%	50.00%
National	8.86%	12.75%	22.65%	2,523	15.00%	70.00%	15.00%
Top15%	6.48%	9.85%	19.31%	378	100.00%	.00%	.00%
Heart Failure							
State	5.27%	12.44%	30.77%	18	.00%	77.78%	22.22%
National	3.59%	8.50%	25.80%	4,140	15.00%	70.00%	15.00%
Top 15%	2.42%	6.33%	22.39%	621	100.00%	.00%	.00%
Pulmonary							
State	4.58%	9.22%	21.81%	24	4.17%	75.00%	20.83%
National	3.45%	7.40%	20.27%	4,458	15.00%	70.00%	15.00%
Top 15%	2.18%	5.22%	16.88%	669	100.00%	.00%	.00%
Stroke							
State	8.08%	14.23%	26.58%	6	.00%	100.00%	.00%
National	6.69%	11.91%	23.06%	2,948	15.00%	70.00%	15.00%
Top 15%	4.46%	8.28%	18.84%	442	100.00%	.00%	.00%
Combined							
State	7.49%	12.66%	24.83%	24	.00%	91.67%	8.33%
National	6.23%	10.11%	22.09%	4,475	15.00%	70.00%	15.00%
Top 15%	4.86%	8.22%	19.85%	671	100.00%	.00%	.00%

Wyoming (continued)

Category Benchmark	3-Year Risk-adjusted Complications	Number of Hospitals Studied	Percent of Hospital in		
			Top 15%	Middle 70%	Bottom 15%
Cholecystectomy					
State	18.78%	3	.00%	66.67%	33.33%
National	17.98%	2,391	15.00%	70.00%	15.00%
Top 15%	11.38%	359	100.00%	.00%	.00%
Hip & Knee Replacement					
State	8.86%	12	.00%	83.33%	16.67%
National	8.30%	2,839	15.00%	70.00%	15.00%
Top 15%	4.78%	426	100.00%	.00%	.00%
Hip Fracture					
State	18.30%	11	.00%	81.82%	18.18%
National	16.08%	2,795	15.00%	70.00%	15.00%
Top 15%	10.22%	419	100.00%	.00%	.00%
Prostatectomy					
State	13.23%	3	.00%	66.67%	33.33%
National	6.51%	1,728	15.00%	70.00%	15.00%
Top 15%	3.02%	259	100.00%	.00%	.00%
Spine Surgery					
State	10.02%	9	33.33%	66.67%	.00%
National	14.66%	1,645	15.00%	70.00%	15.00%
Top 15%	8.67%	247	100.00%	.00%	.00%
Vascular					
State	7.51%	2	.00%	100.00%	.00%
National	9.15%	1,714	15.00%	70.00%	15.00%
Top 15%	5.28%	257	100.00%	.00%	.00%
Combined					
State	11.57%	15	20.00%	73.33%	6.67%
National	11.60%	3,203	15.00%	70.00%	15.00%
Top 15%	8.24%	480	100.00%	.00%	.00%