American Hospital Quality Outcomes 2013:

Healthgrades Report to the Nation

Executive Summary

We are proud to announce the release of our American Hospital Quality Outcomes 2013*: Healthgrades Report to the Nation*, focusing on hospital performance for nearly 5,000 hospitals nationwide for 28 common procedures and conditions. This year, for the first time, we report findings from a trending analysis of results over five study periods spanning 2005 through 2011, in addition to findings from our most recent study period (2009-2011). This year's report includes supplemental reports for 50 states and the District of Columbia that shine a light on how quality varies among hospitals from state to state.

We are pleased to report that hospital quality, as measured by mortality and complication rates, has seen significant improvement over the periods studied, most notably in Chronic Obstructive Pulmonary Disease (COPD), in which there was a 34.1% improvement in the observed risk-adjusted mortality rate. However, not all of the conditions and procedures studied by Healthgrades performed as well. In fact, the worst trend was observed in GI Surgeries and Procedures, where there was actually a 3.5% increase in risk-adjusted mortality.

Hospital quality varies significantly across the United States with certain states performing exceptionally well and some performing poorly. On the one hand, we observed standouts like California and Delaware. These two states featured prominently in our results for 2013; with California having among the lowest mortality rates in Heart Attack and Sepsis, and Delaware having among the lowest complication rates for Total Knee Replacement and Hip Fracture Treatment. Unfortunately, the observed results in Alabama and Pennsylvania were not as strong, as they had among the poorest overall performance across the states; Alabama had remarkably high mortality rates in caring for Heart Attack and Pneumonia, while Pennsylvania had exceptionally high complication rates in procedures like Total Knee Replacement and Gallbladder Surgery.

Yet even in Alabama and Pennsylvania, there are still some hospitals that do provide statistically better performance than expected (5-Star) in certain conditions and procedures. For example, 3.2% of hospitals in Alabama performed at the 5-star level in at least one of the four mortality rate-based conditions or procedures featured in this report. And even though Pennsylvania performed poorly overall in the three complication rate-based conditions and procedures featured, there were still 37.2% that performed at the 5-star level in at least one of these three.

It is important to realize that hospital quality can vary significantly within local service areas. For instance, if you suffer a heart attack in the city of Chicago, depending which hospital the ambulance takes you to, you face as much as an 11-fold higher mortality rate in one hospital versus another on the other side of town.

Knowledge is power...

Taken together, these factors make it critical for consumers to compare how well hospitals and doctors are performing when treating patients. Consumers are urged to get informed and to take advantage of available resources at Healthgrades to help identify and compare hospital quality, patient safety, and patient experience measures. Start your search at ***www.healthgrades.com/find-a-hospital***.

American Hospital Quality Outcomes 2013: Healthgrades Report to the Nation

For nearly 15 years, Healthgrades has evaluated hospital quality based solely on objective clinical outcomes, helping consumers make informed choices about America's healthcare providers. More and more Americans seek objective information on hospital and doctor quality from Healthgrades.com than from any other resource. Over 200 million annual visitors have made Healthgrades the premiere destination for objective, comprehensive, consistent, and credible healthcare information.

In the 2001 landmark report, *Crossing the Quality Chasm*, the Institute of Medicine (IOM) identified significant gaps in patient care quality in the United States and laid out a comprehensive agenda to bridge those gaps. The IOM recommended increasing transparency and focusing on outcomes-based quality measures.[1] Even prior to the IOM's report, Healthgrades led the industry in reporting quality outcomes to consumers. This information is of paramount importance to consumers making an informed decision about where to obtain healthcare. Persistent large quality gaps among hospitals, even within the same geographical areas, mean a patient's choice in hospitals strongly influences their odds of experiencing complications and even their very survival.

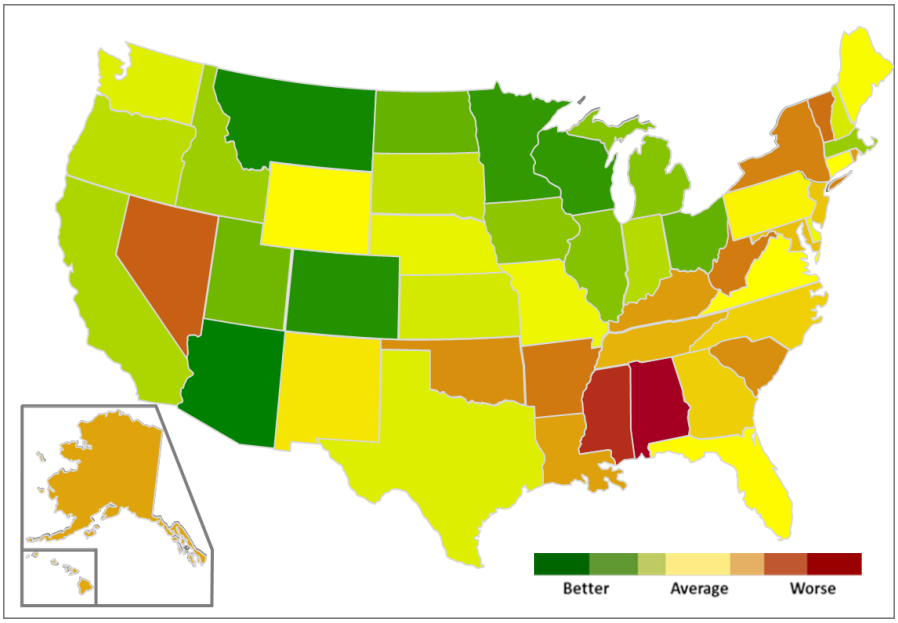
Hospital Quality Trends in American Hospitals

Healthgrades 2013 report on American hospital quality reveals a consistent trend:

- Quality is improving; however, quality disparities among hospitals persist, even within local service areas.
- Mortality and complication rates are changing unevenly—the rates for some procedures and conditions are improving, and some are declining.

Hospital Quality Varies Significantly Among States

Figure 1. Average Risk-Adjusted In-Hospital Mortality Rates by State (2009-2011)



WHAT AMERICANS DON'T KNOW MAY BE PUTTING THEIR HEALTH AT RISK

A recent Healthgrades survey of 7,700 consumers in 27 metropolitan areas across the country reveals a stark contrast between how prepared Americans think they are to choose doctors and hospitals and the facts about what they could be doing better that could impact the quality of their medical care. The survey showed startling discoveries about how little time is spent making decisions about where to obtain healthcare:

- **More than 90%** of Americans think that choosing a physician or hospital is at the top of the list of significant life decisions, but most of them spend more time in selecting a new car than they do in choosing a physician, specifically:
- **42%** spend 10 or more hours researching a car
- **34%** spend less than one hour researching a physician

CONSUMERS DON'T FEEL INFORMED ABOUT QUALITY

American consumers don't feel informed about how hospitals perform in caring for patients:

- **45%** are not aware that there is data available on the chance of dying at a hospital
- **42%** are not aware that there is data available on a hospital's complication rates
- **34%** know where to access information about a hospital's performance

But this kind of hospital quality information could mean the difference between a smooth surgery and complications, or even worse, life and death.

- **50%** of Americans have felt that they made the wrong choice when selecting a doctor or hospital
- **86%** would be more likely to choose (or not choose) a hospital if they could learn ahead of time their risk of dying for a given procedure or treatment

Consumers should do their homework *before* becoming a patient and take advantage of hospital and doctor performance information based on objective measures, such as complication rates and mortality at hospitals, as well as patient satisfaction information.[2]

Figure 1 illustrates how hospital quality varies across America, as measured by average risk-adjusted in-hospital mortality rates.

- Green identifies states where hospitals are performing better compared to hospitals in all other states. As a group, hospitals in green states have a lower average risk-adjusted in-hospital mortality rate (*see Table 1*).
- Red identifies states where hospitals are performing worse compared to hospitals in all other states. As a group, hospitals in red states have a higher average risk-adjusted in-hospital mortality rate.

Table 1. Top & Bottom States by Average Risk-Adjusted Mortality Rates (2009-2011)

Top Five States	***Bottom Five States***
• Arizona (4.16%)	• Alabama (7.0%)
• Montana (4.2%)	• Washington, D.C. (6.8%)
• Colorado (4.3%)	• Mississippi (6.7%)
• Wisconsin (4.38%)	• Nevada (6.4%)
• Minnesota (4.4%)	• Vermont (6.3%)

Hospital Quality Varies Significantly Within Local Service Areas

Even in states where hospitals are performing better compared to hospitals in all other states, differences in quality exist within local service areas.

The following three examples help demonstrate the variations that exist at the local level (2009-2011):

- Of the 18 hospitals located within Chicago, our 2013 study reveals that although these hospitals are just minutes away from each other, risk-adjusted in-hospital mortality rates for Heart Attack ranged from 2.1% on the low end to 23.9% on the high end, which is an *eleven-fold* difference in mortality rates. For comparison, the national average in-hospital mortality rate for heart attack is 7.5%.
- Out of four hospitals performing Coronary Artery Bypass Graft (CABG) surgeries in Atlanta, risk-adjusted in-hospital mortality rates ranged from 0.3% on the low end to 3.6% on the high end, which is a *twelve-fold* difference in mortality rates. The national average in-hospital mortality rate for CABG is 2.2%.
- Finally, across six hospitals in Seattle, risk-adjusted in-hospital mortality rates for Pneumonia treatment ranged from 2.01% on the low end to 8.04% on the high end, which is a *four-fold* difference in mortality rates. The national average in-hospital mortality rate for Pneumonia is 4.2%.

CONSUMERS DON'T REALIZE THE SIGNIFICANCE OF QUALITY MEASURES

Additional findings from the recent Healthgrades consumer survey showed that American consumers may be aware of hospital quality measures, such as mortality and complication rates, patient experience, and patient safety, but they don't equate them with hospital performance—how well they take care of patients:

- ***96%*** of consumers surveyed feel they have a right to objective measures about hospitals
- ***50-66%*** of consumers are aware they are available[2]

HEALTHGRADES BRIDGES THE QUALITY CHASM

The landmark 2001 Institute of Medicine (IOM) report, *Crossing the Quality Chasm*, identified significant gaps in the quality of patient care and laid out a comprehensive agenda to bridge them.

Among the report's six "aims for improvement" are building a healthcare system that is safe and designed to avoid injury. Recommended care design principles to facilitate these goals include designing transparency into healthcare delivery.

In an ensuing report, *Envisioning a National Healthcare Quality Report*[3], IOM recommendations included focusing on outcomes-based reporting measures that are valuable both for medical care and for patient themselves.

The IOM advised that national healthcare quality measures be selected, among other factors, based on:

- Overall importance,
- Impact on health, and
- Meaningfulness.

Since 1998, Healthgrades has provided consumers with critical information at the time they need it most: when selecting a physician or hospital to care for themselves or family members.

Healthgrades annual studies are unique in evaluating hospitals solely on clinical outcomes —risk-adjusted mortality and complication rates—in 28 common conditions and procedures. We focus on the single endpoint that matters most to patients: emerging alive and well from healthcare encounters.

Quality Differences Evident in Key Patient Cohorts

Risk-Adjusted Mortality Rate-Based Conditions and Procedures

To evaluate quality improvement trends for mortality rate-based conditions and procedures, in this report Healthgrades focuses on four key procedures and conditions (cohorts): Coronary Artery Bypass Graft (CABG), Heart Attack, Pneumonia, and Sepsis.

Together, these four key cohorts account for more than half of all deaths (54.2%) among all mortality rate-based conditions and procedures studied by Healthgrades. These four cohorts also account for 33% of the total number of patients in mortality rate-based cohorts included in the 2009-2011 analyses. In addition, these four conditions and procedures are in the top 10 primary diagnoses for all patient discharges nationwide.[4]

Of all mortality rate-based conditions and procedures studied by Healthgrades (*see Table 2*), Sepsis consistently shows the highest mortality rates over time, with an average mortality rate of 19.4% over the five study periods spanning 2005 through 2011. Sepsis, also referred to as Septicemia, is a potentially life-threatening condition that continues to be a major challenge for hospitals nationwide. Urgent treatment and seamless coordination of care is critical in order to control this condition before it causes major disability or death.

Risk-Adjusted Complication Rate-Based Procedures

To evaluate quality improvements for complication rates, Healthgrades examines three key cohorts: Hip Fracture Treatment, Total Knee Replacement, and Gallbladder Surgery. These three common procedures performed by hospitals may result in one or more hospital-acquired complications during the hospital stay. Together, these three procedures account for 66% of all in-hospital complications. These procedures also represent 59% of all patients in the complication rate-based conditions and procedures studied by Healthgrades (*see Table 2*).

2013 STUDY HIGHLIGHTS

From 2009 through 2011, patients treated in hospitals receiving 5-stars have, on average:

- ***75% lower risk of dying***
  than if they were treated in hospitals receiving 1-star (across 18 common procedures and diagnoses, such as Coronary Artery Bypass Graft (CABG), Stroke, and Pneumonia)*
- ***61% lower risk of experiencing a complication***
  during a hospital stay than if they were treated by hospitals receiving 1-star (across nine common procedures and diagnoses, such as Total Knee Replacement, Gallbladder Surgery, and Spine Surgery)*

From 2009-2011, if all hospitals performed similarly to hospitals receiving 5-stars:

- ***235,378 lives***
  could have been saved*
- ***183,534 complications***
  could have been avoided*

*Statistics are based on Healthgrades analysis of MedPAR data for years 2009 through 2011 and represent 3 year estimates for Medicare patients only.

Table 2. Healthgrades Mortality and Complication Rate-Based Procedures (2009-2011)

Mortality Rate-Based Conditions and Procedures by Specialty Area		
Abdominal Aortic Aneurysm Repair • Resection/Replacement Abdominal Aorta *Cardiac Surgery* • Coronary Artery Bypass Graft (CABG) • Valve Repair/ Replacement Surgery *Coronary Intervention* • Coronary Interventional Procedures (Angioplasty, Stent) *Stroke* • Stroke	*Critical Care* • Pulmonary Embolism • Diabetic Acidosis and Coma • Sepsis • Respiratory Failure *Gastrointestinal* • Bowel Obstruction • Gastrointestinal Bleed • Gastrointestinal Surgeries and Procedures • Pancreatitis	*Heart Attack* • Heart Attack *Heart Failure* • Heart Failure *Neurosurgery* • Neurosurgery *Pulmonary* • Pneumonia • Chronic Obstructive Pulmonary Disease
Complication Rate-Based Procedures by Specialty Area		
Joint Replacement • Total Hip Replacement • Total Knee Replacement	*Spine Surgery* • Back and Neck Surgery (Spinal Fusion) • Back and Neck Surgery (except Spinal Fusion)	*Other Vascular Procedures* • Peripheral Vascular Bypass • Carotid Surgery
Other Complication Rate-Based Conditions and Procedures		
• Hip Fracture Treatment • Maternity Care* • Bariatric Surgery*	• Prostatectomy • Appendectomy • Gynecologic Surgery*	• Gallbladder Surgery

*Will be next evaluated in the Spring of 2013

Improvement in Mortality Rates Seen Nationally

Over the last seven years, hospital quality has consistently improved for most conditions and procedures studied by Healthgrades. However, mortality and complication rates are changing unevenly - some are improving, while others are declining—with vast differences seen among common conditions and procedures.

- From 2005 through 2011, the nation's average in-hospital risk-adjusted mortality rate improved 22% across 16 of the common procedures and conditions studied by Healthgrades, such as COPD, Heart Failure, and Stroke.
- Changes in hospital performance during this timeframe varied widely by procedure and condition, ranging from a 3.5% increase in the risk-adjusted mortality rate for GI Surgeries and Procedures (performance decline) to a 34.1% improvement in risk-adjusted mortality rate for COPD.

Each of the four key mortality rate-based conditions and procedures featured in this report showed some of the greatest improvements over the last seven years (*see Figure 2*).

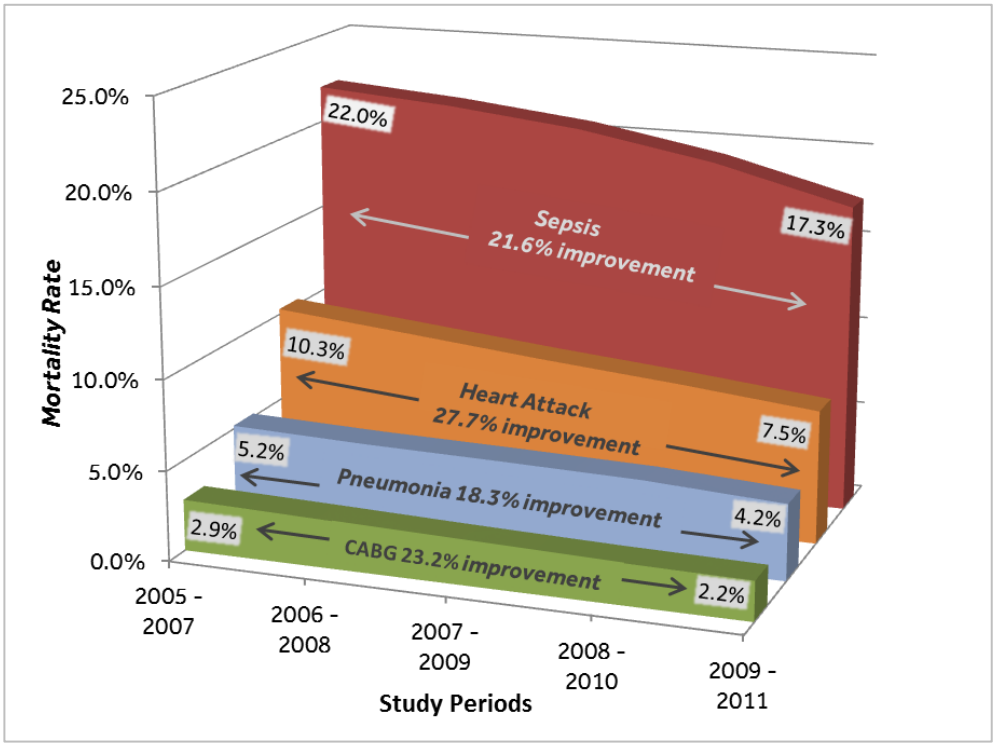
- Treatment of Heart Attack in U.S. hospitals showed the most improvement (27.7%), where mortality rates improved from 10.3% in the first study period (2005-2007) to 7.5% in the most recent study period (2009-2011).
- Coronary Artery Bypass Graft (CABG) surgery showed 23.2% improvement (2.9% to 2.2%).
- Sepsis showed 21.6% improvement (22.0% to 17.3%).
- Pneumonia showed 18.3% improvement (5.2% to 4.2%).

WHAT YOU CAN DO TO BECOME AN INFORMED HEALTHCARE CONSUMER

To stay informed and prepared as a consumer before you become a patient, you can:

- ***Access healthcare quality information*** and learn about how well doctors and hospitals treat other patients before choosing one that is right for you.
- ***Collect information about a specific hospital's performance*** on conditions and procedures that apply to you. This way, you will make informed decisions about your healthcare.
- ***Research specific hospitals and physicians*** to determine your risk of experiencing a complication or dying in the hospital.
- ***Learn about important quality measures*** like mortality and complication rates, patient experience, and patient safety, to understand how they are associated with hospital performance.
- ***Know how to stay as healthy and informed*** as possible and how to keep small health problems from becoming bigger ones.

Figure 2. Improvement in Risk-Adjusted In-Hospital Mortality Rates for Four Key Conditions and Procedures (2005-2011)



Improvement in State Mortality Rates Varies Widely

Individual reports for the 50 states and the District of Columbia have been developed as a supplement to this report. State reports contain additional data and information about hospital performance statewide. They may be found here: ***www.healthgrades.com/quality***.

As part of this study, we evaluated hospital quality improvement trends state to state. We measured improvement in average risk-adjusted in-hospital mortality rates and complication rates, from the first study period analyzed (2005-2007) to the most recent study period (2009-2011). The top five states that showed the most improvement and the bottom five states that showed the least improvement are listed below (*see Table 3*).

Table 3. Quality Improvement by State: Average Risk-Adjusted In-Hospital Mortality Rate

Quality Improvement by State – Top Five		
Most Improved	***Relative Improvement***	***Change in Rates****
Montana	37.4%	7.6% to 4.8%
New Hampshire	35.0%	9.3% to 6.0%
Idaho	36.5%	8.4% to 5.3%
Nebraska	32.6%	8.7% to 5.9%
Massachusetts	29.9%	7.8% to 5.5%

Quality Improvement by State – Bottom Five		
Most Improved	***Relative Improvement***	***Change in Rates****
Nevada	15.0%	8.4% to 7.1%
Pennsylvania	13.4%	7.3% to 6.1%
Florida	13.0%	7.1% to 6.0%
Kentucky	9.4%	7.3% to 6.6%
Maryland	6.3%	6.7% to 6.3%

*Change in Rates (2005-2007) to (2009-2011)

WHY DOES HOSPITAL QUALITY VARY?

Patient care quality can vary considerably from one hospital to the next. Potential reasons include:

- ***Teamwork***
  Clinical teams coordinate your care before, during and after your procedure or treatment. As with any team, there is high variability in coordination, cooperation and motivation. Your care may depend on how well your particular healthcare team works together.
- ***Information***
  Your care is dependent upon complete and accurate clinical information. Much of your care hinges on good information sharing (hand-offs) between providers and care settings, such as when you are moved from intensive care to a regular hospital room.
- ***Staffing***
  Nursing experience and staffing levels affect whether potential complications are prevented or recognized before they cause serious harm. The nurses may be in charge of too many patients.
- ***Systems***
  Hospitals leveraging electronic medical records and other technology, as well as systematized care processes like checklists and hand-offs, can deliver more reliable care results.

TWO KEY QUALITY OUTCOMES

While there are many objective measures of quality, this report focuses on the two major clinical outcomes that most affect patient health and risk of dying: mortality and complications.

- ***In-Hospital Mortality Rate***
  This score tells you about the percent (rate) of patients that died during a hospital stay. Lower numbers are better.
- ***In-Hospital Complication Rate***
  This score tells you about the percent (rate) of patients who experienced one or more complications during a hospital stay. Lower numbers are better.

HEALTHGRADES CLINICAL OUTCOME RATES ARE RISK ADJUSTED

Healthgrades methodology risk adjusts for patient demographic characteristics and clinical risk factors, taking into account how sick patients were before they were admitted to the hospital. Examples of risk factors are: patient age, gender, specific procedure performed, and co-morbid conditions, such as diabetes and high blood pressure.

Observed Cohort-Specific Mortality Rates

Just as mortality rate varied across conditions and procedures, mortality rates also varied among states. Distribution of state-specific risk-adjusted in-hospital mortality rates by cohort varied greatly (*see Appendix A).*

The table below displays states with lower risk-adjusted in-hospital mortality rates (performed better) and states with higher risk-adjusted in-hospital mortality rates (performed worse) in *all four* key cohorts compared to the national average (*see Table 4*).

- Four states performed better in all four cohorts: Arizona, California, Illinois, and Ohio.
- Seven states performed worse in all four cohorts: Alabama, Arkansas, Georgia, Nevada, Oklahoma, Washington, D.C., and West Virginia.

Table 4. Average Risk-Adjusted In-Hospital Mortality Rates by Cohort (2009-2011)

States That Performed Better Than Expected in All Four Key Cohorts				
State	***Coronary Artery Bypass Graft (CABG)***	***Heart Attack***	***Pneumonia***	***Sepsis***
All States	***2.2%***	***7.5%***	***4.2%***	***17.3%***
Arizona	1.8%	6.6%	2.9%	13.9%
California	1.8%	6.9%	3.9%	15.3%
Illinois	1.8%	6.4%	3.8%	15.4%
Ohio	1.6%	7.0%	3.4%	15.0%

States That Performed Worse Than Expected in All Four Key Cohorts				
State	***Coronary Artery Bypass Graft (CABG)***	***Heart Attack***	***Pneumonia***	***Sepsis***
All States	***2.2%***	***7.4%***	***4.2%***	***17.3%***
Alabama	3.3%	9.4%	5.9%	24.1
Arkansas	2.8%	8.5%	5.4%	20.0%
Georgia	2.7%	7.9%	4.6%	18.8%
Nevada	3.8%	8.9%	5.0%	19.5%
Oklahoma	3.1%	8.2%	5.1%	18.2%
Washington, D.C.	3.2%	9.5%	5.1%	21.9%
West Virginia	2.8%	8.3%	5.4%	20.2%

STATE-SPECIFIC REPORTS AVAILABLE

Individual state reports for 50 states and the District of Columbia have been developed as a supplement to this national report. They may be found here:

www.healthgrades.com/quality

Individual state reports contain additional data and information about hospital performance statewide, including the following:

- State performance levels for all conditions and procedures studied by Healthgrades
- Percentages of hospitals receiving 5-stars, 3-stars, and 1-star for performance in all conditions and procedures studied by Healthgrades
- Specific conditions and procedures in which hospitals statewide performed the best and the worst
- Comparisons of hospital performance category distributions to national performance, and risk-adjusted mortality and complication rates to national rates

2013 STUDY HIGHLIGHTS

Healthgrades also compared the best hospitals (those receiving 5-stars for a specific condition or procedure studied) as a group to all hospitals as a group.

From 2009-2011, patients treated in hospitals receiving 5-stars have, on average:

- ***58% lower risk of dying*** than if they were treated in all hospitals (across 18 common procedures and diagnoses, such as Coronary Artery Bypass Graft (CABG), Stroke, and Pneumonia).
- ***42% lower risk of experiencing a complication*** during a hospital stay than if they were treated in all hospitals (across nine common procedures and diagnoses, such as Total Knee Replacement, and Gallbladder Surgery).

HEALTHGRADES COHORTS

When Healthgrades analyzes data, one of the first steps is to create groupings of patient records by condition or procedure. These groupings are referred to as cohorts, which may be analyzed to show how quality uniquely varies within the cohort.

*Statistics are based on Healthgrades analysis of MedPAR data for years 2009 through 2011 and represent 3 year estimates for Medicare patients only. The word "other" omitted from statistics statement above for clarification purposes 10/26/12.

State Differences in Complication Rates

Just as mortality rates varied among the states, the distribution of state-specific risk-adjusted complication rates by cohort also varied greatly (*see Appendix B).*

The table below displays states that had lower risk-adjusted complication rates (performed better) and states that had higher risk-adjusted complication rates (performed worse) in *all three* key complication rate cohorts compared to the national average rate (*see Table 5*).

- Three states performed better in all three cohorts: California, Delaware, and Mississippi.
- Six states performed worse in all three cohorts: Arizona, Kentucky, Minnesota, Ohio, Pennsylvania, and Rhode Island.

Table 5. Average Risk-Adjusted In-Hospital Complication Rates by Cohort (2009-2011)

States That Performed Better Than Expected in All Three Key Cohorts			
	Total Knee Replacement	***Hip Fracture Treatment***	***Gallbladder Surgery***
All States	***10.1%***	***25.2%***	***26.8%***
California	8.1%	22.3%	25.2%
Delaware	8.6%	23.0%	23.9%
Mississippi	8.1%	22.3%	25.2%

States That Performed Worse Than Expected in All Three Key Cohorts			
	Total Knee Replacement	***Hip Fracture Treatment***	***Gallbladder Surgery***
All States	***10.1%***	***25.2%***	***26.8%***
Arizona	11.2%	26.9%	29.9%
Kentucky	11.2%	28.3%	29.4%
Minnesota	11.6%	26.7%	31.6%
Ohio	11.8%	26.5%	29.0%
Pennsylvania	10.8%	26.9%	28.0%
Rhode Island	11.6%	30.9%	30.0%

HOW DO COMPLICATIONS OCCUR?

A hospital-acquired complication is any condition that arises while you are in the hospital that is unlikely to be related to your condition when you were first admitted.

There are four general causes of complications:

- ***Medication Errors***
  The wrong medication, dose, delivery route (for example, by mouth or injection) or a reaction between medications can cause complications.
- ***Patient Care Errors***
  Delayed, missed, inappropriate or inattentive care can result in complications including blood clots, falls, and pressure sores.
- ***Procedure or Surgical Care Errors***
  Anesthesia problems, surgical errors like puncturing a blood vessel or operating on the wrong body part, or operating room mishaps can cause patient harm.
- ***Infections***
  Failure to follow good infection control practices like hand-washing and sterilizing equipment, skin, and the surgical field can result in bacterial infections.

COMPLICATIONS SEEN IN CONDITIONS AND PROCEDURES STUDIED BY HEALTHGRADES

- ***Total Knee Replacement***
  Acute Kidney Failure (1.7%), Urinary Tract Infection (1.2%), Cardiac Complications (0.80%), Atrial Fibrillation (0.77%)
- ***Hip Fracture Treatment***
  Urinary Tract Infection (5.2%), Acute Kidney Failure (4.5%), Pneumonia (2.7%), Acute Respiratory Failure (1.9%)
- ***Gallbladder Surgery***
  Paralytic Ileus (4.3%), Pulmonary Collapse (4.2%), Digestive System Complication (3.5%), Acute Kidney Failure (3.5%)

PROTECT YOURSELF FROM COMPLICATIONS

How do you protect yourself from hospital complications?
www.bettermedicine.com/article/protecting-yourself-from-hospital-complications

Comparing Top and Bottom Performers

Differences in Risk of Mortality

Clinical outcomes differ dramatically between hospitals in the top and bottom Healthgrades hospital performance categories.

Patients being treated at a hospital receiving 5-stars have a ***lower risk of dying*** during a hospital stay than if they were treated at a hospital receiving 1-star. Below we examine these differences in four key mortality-based cohorts during the 2009-2011 study period (*see Figure 3A*):

- Coronary Artery Bypass Graft (CABG): 87.0% lower risk (4.6% vs. 0.6%)
- Heart Attack: 53.8% lower risk (10.6% vs. 4.9%)
- Pneumonia: 69.8% lower risk (7.3% vs. 2.2%)
- Sepsis: 46.7% lower risk (23.2% vs. 12.4%)

Differences in Risk of Experiencing Complications

Patients being treated at a hospital receiving 5-stars have a ***lower risk of experiencing complications*** during a hospital stay than if they were treated at a hospital receiving 1-star. Below we examine these differences in three key complication rate-based cohorts during the 2009-2011 study period (*see Figure 3B*):

- Total Knee Replacement: 61.8% lower risk (15.5% vs. 5.9%)
- Hip Fracture Treatment: 46.0% lower risk (33.2% vs. 17.9%)
- Gallbladder Surgery: 50.3% lower risk (35.8% vs. 17.8%)

HOSPITAL PERFORMANCE CATEGORIES

Healthgrades groups hospital performance into three performance categories:

★★★★★

5-stars

Clinical outcomes are statistically ***better than expected***

★★★

3-stars

Clinical outcomes are statistically ***as expected***

★

1-star

Clinical outcomes are statistically ***worse than expected***

Figure 3A. Differences in Risk of Mortality: 5-stars vs. 1-star

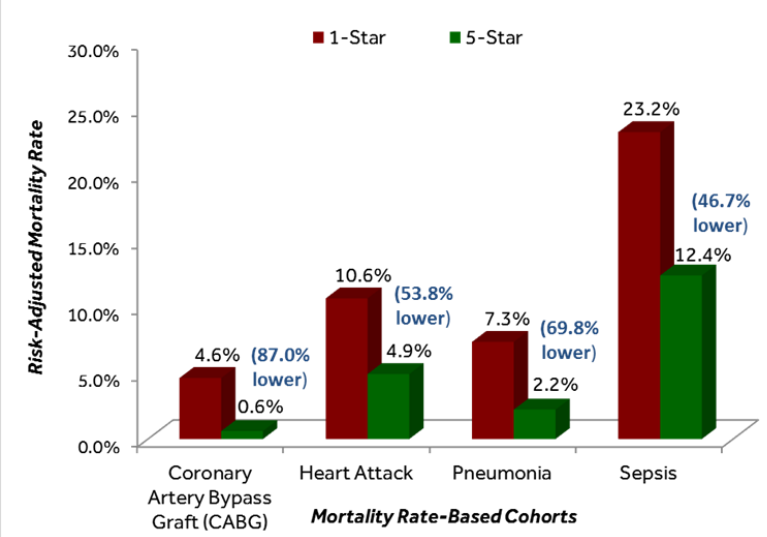
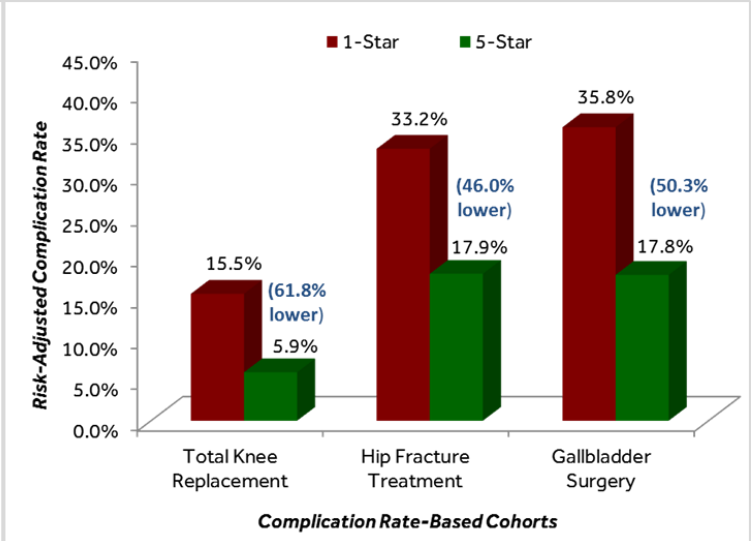


Figure 3B. Differences in Risk of Complications: 5-stars vs. 1-star



Summary

As the findings show, Healthgrades 2013 report on American Hospital Quality reveals encouraging overall trends along with significant variation observed between states, within local service areas, and between the different conditions and procedures studied.

Quality is improving, however, quality disparities among hospitals persist, even within local service areas. Mortality and complication rates are changing unevenly - some are improving, some are not. Differences are seen among conditions and procedures studied and among states.

Consumers are aware of hospital ratings, but don't equate them with hospital *performance*; specifically, important quality measures like mortality and complication rates. Despite the wide variability in hospital quality, a significant majority of consumers are unaware of the existence of objective measures of quality that can be used to help inform their decisions about doctors and hospitals.

Information on healthcare quality can help consumers make decisions about where to obtain healthcare. Persistent, large quality gaps among hospitals mean that patients' choice in hospitals strongly influences their odds of experiencing complications and even their very survival. This is evidence that today, selecting a hospital is at least as important as selecting a personal physician.

Since 1998, Healthgrades has led the industry in reporting quality outcomes to consumers. We have provided consumers with critical information at the time they need it most: when selecting a physician or hospital to care for themselves or family members. In addition, by reporting quality information to the public, Healthgrades is on the forefront of driving high-quality performance by doctors and hospitals.

To stay informed and prepared as a healthcare consumer - before you become a patient- we urge you to:

- Research and review healthcare quality information.
- Collect information about hospital performance on specific conditions and procedures.
- Learn about important quality measures and what they mean.
- Compare specific hospitals and physicians.
- Use quality information to make an informed decision.

LEARN MORE ABOUT QUALITY AT THE HEALTHGRADES QUALITY CENTER

The Healthgrades Quality Center provides you with information about:

- How well hospitals and doctors are performing when treating patients
- How quality is measured in healthcare, what the measurements mean, and why they matter
- How to use quality information to make a choice or decision that improves your health the most

www.healthgrades.com/quality

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www.bettermedicine.com

BIBLIOGRAPHY

1 Committee on Quality of Health Care in America, Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. National Academy Press, Washington, D.C. 2001.

2 Harris Interactive. Consumer Research: America's Readiness to Choose a Doctor or Hospital. Prepared by Harris Interactive for Healthgrades, October 2012.

3 Margarita P. Hurtado, Elaine K. Swift, and Janet M. Corrigan, Editors, Committee on the National Quality Report on Health Care Delivery, Board on Health Care Services, Institute of Medicine. Envisioning the National Health Care Quality Report. National Academy Press, Washington, D.C. 2001.

4 Centers for Disease Control and Prevention. National Hospital Discharge Survey: 2009 table, Number and rate of hospital discharges. www.cdc.gov/nchs/data/nhds/1general/2009gen1_agesexalos.pdf. Accessed 09/15/2012.

5 American Heart Association's Heart Disease and Stroke Statistics – 2011 Update.

About Healthgrades

Over 200 million annual visitors have made the Healthgrades family of web properties the premiere destination for objective, comprehensive, consistent, and credible consumer healthcare information. Since 1998, the company has provided consumers with critical information at the time they need it most: when selecting a physician or hospital to care for themselves or family members.

Based upon federal data, Healthgrades consumer information includes:

- Risk-adjusted hospital quality outcomes based upon analysis of the Centers for Medicare and Medicaid Services (CMS) MedPAR data.
- Hospital patient experience metrics based on Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data.
- Hospital patient safety performance outcomes for 13 indicators of patient safety developed by the Agency for Healthcare Research and Quality.
- Information on more than 900,000 physicians in all 50 states and the District of Columbia.

How Healthgrades Measures Hospital Performance

Every year, Healthgrades analyzes three years of Medicare Provider Analysis and Review (MedPAR) data to produce a detailed report on mortality and complication rates in America's hospitals. Healthgrades findings empower consumers to evaluate and compare hospital performance. Healthgrades analyzed approximately 40 million Medicare-patient records for nearly 4,500 short-term, acute care hospitals nationwide, assessing hospital performance relative to each of 28 common conditions and procedures.

The Healthgrades methodology uses multivariate logistic regression to adjust for patient demographic and clinical risk factors that influence patient outcomes in significant and systematic ways. Risk factors may include age, gender, specific procedure performed, and co-morbid conditions, such as high blood pressure and diabetes. Individual risk models are constructed and tailored for each of the 28 conditions or procedures relative to each specific outcome.

Model outcomes reflect clinical-based measures of patient disposition during and after care and include in-hospital complications, or in-hospital, 30-day and 180-day post-admission mortality. Detailed information on our methodology may be found at ***2013 Healthgrades Hospital Quality Methodology***.

Healthgrades groups hospital quality performance into three categories:

- ***5-Stars*** reflect hospital performance that is statistically better than expected in treating a condition or conducting a procedure, as measured by clinical outcome rates for risk-adjusted mortality and complications.
- ***3 Stars*** reflect hospital performance that is not statistically different than expected in treating a condition or conducting a procedure, as measured by clinical outcome rates for risk-adjusted mortality and complications.
- ***1-Star*** reflects hospital performance that is statistically worse than expected in treating a condition or conducting a procedure, as measured by clinical outcome rates for risk-adjusted mortality and complications.

Healthgrades awards hospitals quality achievements for cohort-specific performance, specialty area performance, and overall best performance in these categories. Detailed performance information, such as cohort-specific outcomes data and quality achievements for individual hospitals may be found at ***www.healthgrades.com/find-a-hospital***.

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Appendix A. States Performing Better or Worse Than Expected in Four Key Mortality Rate-Based Cohorts

Table A1. States Performing Better Than the National Average Rate in Four Key Mortality Rate-Based Cohorts (2009-2011)

	State	Risk-Adjusted Mortality Rate (95% CI)	State	Risk-Adjusted Mortality Rate (95% CI)	State	Risk-Adjusted Mortality Rate (95% CI)
CABG U.S. Average Rate = 2.2%	Arizona	1.8% (1.4% - 2.1%)	Massachusetts	1.2% (0.8% - 1.6%)	New York	1.6% (1.3% - 1.8%)
	California	1.8% (1.6% - 2.0%)	New Hampshire	1.1% (0.3% - 2.0%)	Ohio	1.6% (1.3% - 1.8%)
	Illinois	1.8% (1.6% - 2.1%)	New Jersey	1.5% (1.2% - 1.9%)		
Heart Attack U.S. Average Rate = 7.5%	Arizona	6.6% (6.2% - 7.0%)	Michigan	6.8% (6.5% - 7.0%)	Ohio	7.0% (6.8% - 7.3%)
	California	6.9% (6.7% - 7.1%)	Minnesota	6.6% (6.1% - 7.0%)	Pennsylvania	7.2% (7.0% - 7.4%)
	Colorado	5.6% (5.0% - 6.1%)	Montana	5.6% (4.5% - 6.7%)	South Dakota	6.1% (5.1% - 7.1%)
	Illinois	6.4% (6.2% - 6.7%)	New Hampshire	5.8% (5.0% - 6.6%)	Wisconsin	6.4% (6.1% - 6.8%)
	Arizona	6.6% (6.2% - 7.0%)				
Pneumonia U.S. Average Rate = 4.2%	Arizona	2.9% (2.7% - 3.2%)	Maine	3.7% (3.2% - 4.2%)	Ohio	3.4% (3.2% - 3.5%)
	California	3.9% (3.8% - 4.0%)	Maryland	3.4% (3.2% - 3.6%)	Oregon	3.7% (3.4% - 4.1%)
	Colorado	2.9% (2.6% - 3.3%)	Massachusetts	3.6% (3.3% - 3.8%)	Texas	4.0% (3.9% - 4.1%)
	Connecticut	3.6% (3.3% - 3.9%)	Michigan	3.4% (3.2% - 3.6%)	Virginia	4.0% (3.8% - 4.2%)
	Delaware	3.5% (2.9% - 4.0%)	Minnesota	3.6% (3.3% - 3.8%)	Washington	3.7% (3.5% - 4%)
	Florida	3.9% (3.7% - 4.0%)	North Dakota	3.6% (3.0% - 4.2%)	Wisconsin	3.6% (3.4% - 3.9%)
	Illinois	3.8% (3.7% - 4.0%)				
Sepsis U.S. Average Rate = 17.3%	Arizona	13.9% (13.4% - 14.4%)	Iowa	13.7% (12.9% - 14.4%)	North Dakota	11.8% (10.4% - 13.2%)
	California	15.3% (15.1% - 15.5%)	Kansas	16.0% (15.2% - 16.8%)	Ohio	15.0% (14.7% - 15.3%)
	Colorado	13.9% (13.2% - 14.6%)	Maine	15.5% (14.5% - 16.6%)	Oregon	13.1% (12.4% - 13.8%)
	Connecticut	15.4% (14.9% - 15.9%)	Michigan	14.5% (14.2% - 14.8%)	Texas	16.3% (16.1% - 16.6%)
	Idaho	14.0% (12.8% - 15.2%)	Minnesota	14.0% (13.4% - 14.6%)	Utah	12.5% (11.6% - 13.5%)
	Illinois	15.4% (15.2% - 15.7%)	Missouri	16.0% (15.5% - 16.4%)	Washington	14.9% (14.4% - 15.4%)
	Indiana	16.2% (15.8% - 16.7%)	Montana	15.4% (13.6% - 17.2%)	Wisconsin	13.6% (13.1% - 14.2%)

Table A2. States Performing Worse Than the National Average Rate in Four Key Mortality Rate-Based Cohorts (2009-2011)

	State	Risk-Adjusted Mortality Rate (95% CI)	State	Risk-Adjusted Mortality Rate (95% CI)	State	Risk-Adjusted Mortality Rate (95% CI)
CABG U.S. Average Rate = 2.2%	Alabama	3.3% (2.9% - 3.6%)	Hawaii	3.5% (2.6% - 4.4%)	Texas	2.6% (2.4% - 2.8%)
	Arkansas	2.8% (2.3% - 3.2%)	Maine	3.0% (2.2% - 3.9%)	Virginia	2.6% (2.2% - 3%)
	Washington, D.C.	3.2% (2.5% - 4%)	Nevada	3.8% (3.2% - 4.4%)	Washington	3.4% (2.9% - 3.9%)
	Georgia	2.7% (2.4% - 3.1%)	Oklahoma	3.1% (2.6% - 3.6%)	West Virginia	2.8% (2.3% - 3.3%)
Heart Attack U.S. Average Rate = 7.5%	Alabama	9.4% (9.0% - 9.8%)	Maryland	8.0% (7.6% - 8.4%)	Oklahoma	8.2% (7.7% - 8.7%)
	Arkansas	8.5% (8.0% - 9.0%)	Mississippi	9.2% (8.7% - 9.8%)	South Carolina	8.0% (7.5% - 8.4%)
	Washington, D.C.	9.5% (8.6% - 10.4%)	Nevada	8.9% (8.2% - 9.5%)	Tennessee	8.1% (7.8% - 8.4%)
	Georgia	7.9% (7.5% - 8.2%)	New Jersey	8.0% (7.7% - 8.3%)	Texas	7.8% (7.6% - 8%)
	Kentucky	8.3% (7.9% - 8.7%)	New York	7.7% (7.5% - 7.9%)	West Virginia	8.3% (7.8% - 8.9%)
	Louisiana	9.0% (8.5% - 9.4%)	North Carolina	7.9% (7.6% - 8.2%)		
Pneumonia U.S. Average Rate = 4.2%	Alabama	5.9% (5.7% - 6.2%)	Louisiana	5.5% (5.3% - 5.7%)	Pennsylvania	4.4% (4.3% - 4.5%)
	Arkansas	5.4% (5.1% - 5.6%)	Mississippi	7.0% (6.7% - 7.2%)	Rhode Island	4.9% (4.4% - 5.4%)
	Washington, D.C.	5.1% (4.4% - 5.9%)	Nevada	5.0% (4.6% - 5.5%)	South Carolina	5.0% (4.7% - 5.3%)
	Georgia	4.6% (4.4% - 4.8%)	New Mexico	4.8% (4.3% - 5.3%)	Tennessee	4.5% (4.3% - 4.6%)
	Hawaii	5.7% (5.1% - 6.3%)	New York	5.3% (5.1% - 5.4%)	West Virginia	5.4% (5.1% - 5.6%)
	Kentucky	4.9% (4.7% - 5.1%)	Oklahoma	5.1% (4.8% - 5.4%)		
Sepsis U.S. Average Rate = 17.3%	Alabama	24.1% (23.5% - 24.6%)	Maryland	20.7% (20.2% - 21.1%)	Oklahoma	18.2% (17.6% - 18.8%)
	Alaska	20.2% (17.6% - 22.7%)	Mississippi	23.2% (22.6% - 23.9%)	Pennsylvania	17.6% (17.3% - 17.8%)
	Arkansas	20.0% (19.3% - 20.7%)	Nevada	19.5% (18.8% - 20.1%)	Rhode Island	18.4% (17.4% - 19.3%)
	Washington, D.C.	21.9% (20.6% - 23.2%)	New Jersey	18.6% (18.3% - 19%)	South Carolina	20.9% (20.3% - 21.4%)
	Florida	17.8% (17.6% - 18%)	New Mexico	19.0% (18.0% - 20.0%)	Tennessee	19.0% (18.6% - 19.4%)
	Georgia	18.8% (18.4% - 19.2%)	New York	20.4% (20.2% - 20.6%)	Vermont	21.0% (19% - 23%)
	Kentucky	18.9% (18.4% - 19.4%)	North Carolina	17.8% (17.4% - 18.1%)	West Virginia	20.2% (19.5% - 21%)
	Louisiana	19.4% (18.9% - 19.9%)				

Appendix B - States Performing Better or Worse Than Expected in Three Key Complication Rate-Based Cohorts

Table B1: States Performing Better Than the National Average Rate in Three Key Complication Rate-Based Cohorts (2009-2011)

	State	Risk-Adjusted Complication Rate (95% CI)	State	Risk-Adjusted Complication Rate (95% CI)	State	Risk-Adjusted Complication Rate (95% CI)
Total Knee Replacement U.S. Average Rate = 10.1%	Arkansas	8.6% (8.0% - 9.2%)	Michigan	9.6% (9.3% - 9.9%)	Oregon	8.6% (8.0% - 9.2%)
	California	8.1% (7.9% - 8.4%)	Mississippi	9.4% (8.7% - 10.1%)	South Dakota	8.7% (7.8% - 9.5%)
	Delaware	8.6% (7.6% - 9.6%)	Montana	8.6% (7.6% - 9.5%)	Utah	7.3% (6.7% - 7.9%)
	Hawaii	8.4% (7.0% - 9.7%)	New York	9.7% (9.4% - 10.0%)	Washington	7.8% (7.3% - 8.2%)
	Idaho	8.6% (7.7% - 9.4%)	Oklahoma	8.7% (8.2% - 9.3%)	Wisconsin	9.6% (9.2% - 10.0%)
	Indiana	8.5% (8.1% - 8.9%)				
Hip Fracture Treatment U.S. Average Rate = 25.2%	Alabama	23.7% (23% - 24.5%)	Maryland	22.9% (22.0% - 23.8%)	North Dakota	23.4% (21.7% - 25.1%)
	Arkansas	21.5% (20.5% - 22.5%)	Mississippi	22.8% (21.8% - 23.8%)	Oklahoma	23.0% (22.1% - 23.9%)
	California	22.3% (21.9% - 22.7%)	Montana	22.4% (20.6% - 24.2%)	Texas	24.2% (23.9% - 24.6%)
	Delaware	23.0% (20.9% - 25.0%)	New Jersey	23.5% (22.9% - 24.1%)	Wyoming	21.9% (18.8% - 25.0%)
	Indiana	24% (23.3% - 24.7%)				
Gallbladder Surgery U.S. Average Rate = 26.8%	California	25.2% (24.7% - 25.8%)	Louisiana	24.9% (23.7% - 26.1%)	New York	25.5% (24.7% - 26.2%)
	Delaware	23.9% (21.1% - 26.7%)	Mississippi	22.6% (21.1% - 24.1%)	North Dakota	23.1% (20.3% - 25.8%)
	Hawaii	22.0% (19.3% - 24.7%)	Missouri	25.3% (24.2% - 26.3%)	West Virginia	23.7% (22% - 25.4%)

Table B2. States Performing Worse Than the National Average Rate in Three Key Complication Rate-Based Cohorts (2009-2011)

	State	Risk-Adjusted Complication Rate (95% CI)	State	Risk-Adjusted Complication Rate (95% CI)	State	Risk-Adjusted Complication Rate (95% CI)
Total Knee Replacement U.S. Average Rate = 10.1%	Alabama	11.0% (10.6% - 11.5%)	Kentucky	11.2% (10.7% - 11.7%)	Ohio	11.8% (11.5% - 12.1%)
	Arizona	11.2% (10.7% - 11.6%)	Maryland	11.8% (11.2% - 12.3%)	Pennsylvania	10.8% (10.6% - 11.1%)
	Florida	10.8% (10.6% - 11.1%)	Massachusetts	11.3% (10.9% - 11.7%)	Rhode Island	11.6% (10.4% - 12.8%)
	Illinois	10.8% (10.5% - 11.1%)	Minnesota	11.6% (11.2% - 12%)	Tennessee	10.7% (10.3% - 11.1%)
	Iowa	11.9% (11.4% - 12.3%)	Nevada	12% (11.2% - 12.8%)		
Hip Fracture Treatment U.S. Average Rate = 25.2%	Alaska	31.7% (28.1% - 35.4%)	Maine	30.5% (29.0% - 32.0%)	Ohio	26.5% (26.0% - 27.0%)
	Arizona	26.9% (26.1% - 27.7%)	Massachusetts	27.8% (27.1% - 28.5%)	Oregon	26.8% (25.8% - 27.7%)
	Connecticut	27.9% (27% - 28.8%)	Minnesota	26.7% (25.9% - 27.5%)	Pennsylvania	26.9% (26.4% - 27.4%)
	Iowa	26.8% (25.9% - 27.8%)	New Hampshire	30.3% (28.8% - 31.9%)	Rhode Island	30.9% (29.3% - 32.5%)
	Kansas	26.6% (25.5% - 27.6%)	New York	25.8% (25.4% - 26.3%)	Utah	27.1% (25.5% - 28.7%)
	Kentucky	28.3% (27.5% - 29.1%)	North Carolina	27.9% (27.4% - 28.5%)	Washington	27.7% (26.9% - 28.4%)
Gallbladder Surgery U.S. Average Rate = 26.8%	Arizona	29.9% (28.9% - 31%)	Nebraska	29.7% (27.7% - 31.7%)	Rhode Island	30.0% (27.3% - 32.8%)
	Colorado	28.9% (27.5% - 30.3%)	Nevada	31.1% (29.2% - 33%)	Utah	30.0% (28% - 32.1%)
	Kansas	30.2% (28.5% - 32%)	Ohio	29.0% (28.2% - 29.7%)	Washington	28.6% (27.3% - 29.9%)
	Kentucky	29.4% (28.3% - 30.6%)	Pennsylvania	28.0% (27.3% - 28.7%)	Wisconsin	28.1% (26.9% - 29.2%)
	Minnesota	31.6% (30.3% - 32.9%)				