



HEALTHGRADES

HealthGrades Second Annual America's 50 Best Hospitals Report February 2008

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Introduction

Variation in quality between providers is a well established fact in the U.S. healthcare system. Each year HealthGrades studies the impact of this variation at the hospital level and its impact on the Medicare population. This research consistently illustrates that there continues to be large gaps in the quality of care between healthcare providers and that these differences contribute to preventable morbidity and mortality.

In this second annual report, HealthGrades recognizes those hospitals that have demonstrated superior clinical quality for the most consecutive years. These hospitals have been designated by HealthGrades as America's 50 Best Hospitals (A50B). Hospitals that qualify for this designation are those U.S. hospitals that have been designated by HealthGrades as Distinguished Hospitals for Clinical Excellence™ the most consecutive times from 2003 to 2008.

The HealthGrades Distinguished Hospitals for Clinical Excellence award is given annually to those hospitals that rank among the top five percent nationally for the lowest overall risk-adjusted mortality and in-hospital complications across 27 diagnoses and procedures. Each year the Distinguished Hospitals for Clinical Excellence analysis is based on outcomes from a three year period. A50B hospitals are those hospitals that have been in the top five percent nationally and have been Distinguished Hospitals for Clinical Excellence award recipients for a minimum of five consecutive years.

To assess what it means to be a Distinguished Hospital for Clinical Excellence, HealthGrades recently released the *HealthGrades Sixth Annual Hospital Quality and Clinical Excellence Study* (released January 31, 2008). In this study, HealthGrades compared the clinical outcomes for Distinguished Hospitals for Clinical Excellence hospitals to all other U.S. hospitals for the years 2004, 2005, and 2006. Using 41 million Medicare patient records from 4,971 acute-care, non-federal, non-children's hospitals, HealthGrades evaluated how these 269 hospitals compare to all other U.S. hospitals in terms of clinical quality.

Summary of Findings

In the 2008 study, Distinguished Hospitals for Clinical Excellence outperformed all other hospitals across all 27 procedures and diagnoses studied. During 2004 - 2006, they had:

- On average, **27 percent overall lower in-hospital risk-adjusted mortality** associated with the 18 procedures and diagnoses where mortality was the outcome of study.
 - On average, **five percent overall lower in-hospital risk-adjusted complications** associated with the nine procedures where in-hospital major complications were the outcome of study.
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Among the Medicare beneficiaries admitted to U.S. hospitals during 2004 - 2006, **171,424 lives may have been saved** if all hospitals performed at the level of Distinguished Hospitals for Clinical Excellence.

For the same time period, **9,671 patients may have avoided an in-hospital major complication** if they had been treated at Distinguished Hospitals for Clinical Excellence.

HealthGrades America's 50 Best Hospitals are those hospitals that have consistently ranked among the top five percent in the nation for clinical quality. These elite organizations represent the best of the best and set the quality standard for American hospitals.

Three-Step Methodology Process

In order to evaluate overall hospital performance and to identify the 50 best-performing hospitals in clinical excellence across the U.S., HealthGrades uses a three-step methodology process:

- 1 Mortality and Complication Based Outcomes Methodology
- 2 Distinguished Hospital Award – Clinical Excellence™ Methodology
- 3 HealthGrades America's 50 Best Hospitals Methodology

The *HealthGrades Sixth Annual Hospital Quality and Clinical Excellence Study* concentrated on the 27 procedures and diagnoses for which HealthGrades has developed a predictive logistic regression model. The 27 procedures and diagnoses are as follows.

- Atrial Fibrillation
- Back and Neck Surgery (Spinal Fusion)
- Back and Neck Surgery (except Spinal Fusion)
- Bowel Obstruction
- Carotid Surgery
- Cholecystectomy
- Chronic Obstructive Pulmonary Disease (COPD)
- Coronary Bypass Surgery
- Coronary Interventional Procedures
- Diabetic Acidosis and Coma
- Gastrointestinal Bleed
- Gastrointestinal Surgeries and Procedures
- Heart Attack
- Heart Failure
- Hip Fracture Repair
- Pancreatitis
- Peripheral Vascular Bypass
- Pneumonia
- Prostatectomy
- Pulmonary Embolism
- Resection / Replacement of Abdominal Aorta
- Respiratory Failure
- Sepsis
- Stroke
- Total Hip Replacement
- Total Knee Replacement
- Valve Replacement Surgery

Mortality and Complication Based Outcomes 2008 Methodology Brief

To help consumers evaluate and compare hospital performance, HealthGrades analyzes patient outcome data for virtually every hospital in the country (all hospitals with the exception of government/military hospitals). HealthGrades purchases the initial data from the Centers for Medicare and Medicaid Services (CMS). The Medicare data (MedPAR file) from CMS contained the 41 million inpatient records for Medicare patients. The ratings for 27 procedures and diagnoses are based upon the HealthGrades methodology.

The purpose of risk adjustment is to obtain fair statistical comparisons between 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 needed to make accurate and valid comparisons of clinical outcomes at different hospitals. Developing ratings involves two steps.

- First, the **predicted** value for a specific outcome is calculated.
- Second, the predicted outcome is compared to the **actual outcome**.

HealthGrades determines if the difference between the predicted outcome and the actual outcome was statistically significant. This is important because in healthcare, patients differ from one another with respect to their health status, demographics, and type of procedure performed. Risk factors include gender, age, specific procedure performed, and current health conditions such as hypertension, diabetes, and congestive heart failure. The risk adjustment used by HealthGrades takes these factors into consideration to make fair and accurate comparisons of hospitals based upon the types of patients treated.

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

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

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

Visit www.HealthGrades.com to view hospital ratings and to read the complete methodology white paper *Hospital Report Card™ Mortality and Complication Based Outcomes 2008 Methodology White Paper*.

Distinguished Hospital Award – Clinical Excellence™ 2008 Methodology

For the Distinguished Hospital Award for Clinical Excellence™, hospitals were segregated into two groups: teaching and non-teaching.

Teaching hospitals are identified by the following method: A hospital is designated by HealthGrades as a teaching hospital if they indicated they were a teaching hospital in their Medicare Cost Report, or if their IME (Indirect Medical Education) payment was at least one percent of their overall reimbursement, as indicated in the most recent year of MedPAR data. If a hospital indicated they were a teaching hospital but did not receive IME payment, they were contacted to confirm teaching status.

To be considered for the Distinguished Hospital Award for Clinical Excellence (DHA-CE), a hospital had to have had inhospital mortality or complication ratings in at least 20 of the 27 HealthGrades ratings using MedPAR data.

After creating a list of hospitals that met the above criteria, HealthGrades took the following steps to determine the DHA-CE recipients.

- 1 Calculated the average star rating for each hospital by averaging all of their MedPAR-based ratings.
- 2 Calculated the average z-score for each hospital by averaging all their MedPAR-based z-scores.
- 3 Ranked hospitals in descending order by their average star rating within the two groups: teaching and non-teaching.
- 4 Broke ranking ties by average z-score.
- 5 Selected the top 20 percent of hospitals from each group.
- 6 Excluded hospitals whose average star was less than 3.36.
- 7 Designated the hospitals that remained on the list as the 2008 DHA-CE recipients.

HealthGrades America's 50 Best Hospitals 2008 Methodology

HealthGrades America's 50 Best Hospitals award recognizes hospitals for consistent excellence by identifying those hospitals that have received HealthGrades' Distinguished Hospital Award for Clinical Excellence™ (DHA-CE) designation for the most consecutive years.

- 1 Hospitals who were DHA-CE recipients for all of the six years that HealthGrades has awarded the DHA-CE were identified.
- 2 Hospitals who were DHA-CE recipients for all of the last five years that HealthGrades has awarded DHA-CE were identified.
 - The five-year recipients were sorted by z-score, using the average z-score from the most recent Distinguished Hospitals for Clinical Excellence analysis. This average z-score is a statistical measure of hospital quality outcomes.
 - The top hospitals from this list were then added to the list from step 1 to create a list of America's 50 Best Hospitals.

Interpretation of Results

The HealthGrades America's 50 Best Hospitals designation recognizes hospitals that have demonstrated superior and sustained clinical quality over an eight-year time period, based upon an analysis of tens of millions of Medicare patient records from 1999 through 2006 (the most current year available).

Recipients of the HealthGrades America's 50 Best Hospitals award were selected by identifying those hospitals that have received the HealthGrades Distinguished Hospital Award for Clinical Excellence™ (DHA-CE) the most consecutive times from 2008 and previous years. Hospitals that are recognized by HealthGrades' Distinguished Hospital Award for Clinical Excellence™ award rank among the top five percent nationally for quality.

As presented in *HealthGrades Sixth Annual Hospital Quality and Clinical Excellence Study*, Distinguished Hospitals for Clinical Excellence outperformed all other hospitals across all procedures and diagnoses studied. During 2004 - 2006, they had:

- On average, **27 percent overall lower in-hospital risk-adjusted mortality** associated with the 18 procedures and diagnoses studied where mortality was studied as the outcome (cardiac surgery, angioplasty/stent, heart attack, heart failure, atrial fibrillation, chronic obstructive pulmonary disease,

pneumonia, stroke, abdominal aortic aneurysm repair, bowel obstruction, gastrointestinal bleed, gastrointestinal procedures and surgery, pancreatitis, diabetic acidosis and coma, pulmonary embolism, respiratory failure, and sepsis). The top four areas associated with the greatest relative reduction in risk-adjusted in-hospital mortality associated with Distinguished Hospitals as compared to all other hospitals, were noted in:

Pneumonia	34.17% lower risk-adjusted mortality
Pulmonary Embolism	34.13% lower risk-adjusted mortality
Diabetic Acidosis and Coma	33.15% lower risk-adjusted mortality
Chronic Obstructive Pulmonary Disease	32.83% lower risk-adjusted mortality

- On average, **five percent overall lower in-hospital risk-adjusted complications** associated with the nine procedures studied where major in-hospital complications were the outcome studied (total knee replacement, total hip replacement, hip fracture repair, back and neck surgery, spinal fusion, carotid surgery, peripheral vascular bypass, prostatectomy, and cholecystectomy). The top three areas associated with the greatest relative reduction in risk-adjusted in-hospital complications associated with Distinguished Hospitals as compared to all other hospitals, were noted in:

Hip Fracture Repair	11.71% fewer risk-adjusted in-hospital major complications
Prostatectomy	11.52% fewer risk-adjusted in-hospital major complications
Total Hip Replacement	8.86% fewer risk-adjusted in-hospital major complications

This year's study found that if all Medicare patients, who were admitted to U.S. hospitals between 2004 and 2006 with any of the 27 conditions studied, were treated in hospitals that performed at the level of Distinguished Hospitals for Clinical Excellence, **171,424 lives may have been saved** and **9,671 patients may have avoided one or more in-hospital major complications**. Considering that this study evaluates just 27 diagnoses and procedures and looks at the Medicare population only, it is likely that this number is a gross under-estimation of the true numbers.

In conclusion, since 1999, America's 50 Best Hospitals have consistently out-performed all other hospitals in terms of risk-adjusted mortality and in-hospital major complications. In this arena of transparency and accountability, it is important to look to these hospitals as benchmarks for an improved U.S. healthcare delivery system. For a nation where healthcare spending constitutes 16 percent of the Gross Domestic Product², consumers should expect this level of quality from all hospitals and all hospitals should look to and learn from America's 50 Best Hospitals.

References

¹ Health Insurance Cost. 2008 National Coalition on Healthcare. Available at <http://www.nchc.org/facts/cost.shtml>. Accessed 1/25/2008.

Exhibit A: List of HealthGrades 2008 America's 50 Best Hospitals

HealthGrades 2008 America's 50 Best Hospital*	City	State
Akron General Medical Ctr.	Akron	OH
Alexian Brothers Medical Ctr.	Elk Grove Village	IL
Baptist Hospital East	Louisville	KY
Bay Medical Ctr.	Panama City	FL
Cedars-Sinai Medical Ctr.	Los Angeles	CA
Centura Health–Penrose St. Francis Health Svcs	Colorado Springs	CO
Christ Hospital	Cincinnati	OH
CJW Medical Ctr.–Chippenham Campus	Richmond	VA
Cleveland Clinic	Cleveland	OH
Community Hospital	Munster	IN
Deaconess Hospital	Cincinnati	OH
Delray Medical Ctr.	Delray Beach	FL
Easton Hospital	Easton	PA
Evanston Northwestern Healthcare	Evanston	IL
including Highland Park Hospital	Highland Park	IL
Fairview Hospital	Cleveland	OH
Genesys Regional Medical Ctr.	Grand Blanc	MI
Glendale Memorial Hospital and Health Ctr.	Glendale	CA
Good Samaritan Hospital	Los Angeles	CA
Hackensack University Medical Ctr.	Hackensack	NJ
Hamot Medical Ctr.	Erie	PA
Henrico Doctors' Hospital	Richmond	VA
including Henrico Doctors' Hospital–Parham	Richmond	VA
Hillcrest Hospital	Mayfield Heights	OH
Holmes Regional Medical Ctr.	Melbourne	FL
Holy Cross Hospital	Fort Lauderdale	FL
Inova Fairfax Hospital	Falls Church	VA
Jewish Hospital	Louisville	KY
including St. Mary & St. Elizabeth Hospital	Louisville	KY
Lancaster General Hospital	Lancaster	PA
Lawnwood Regional Medical Ctr. & Heart Inst	Fort Pierce	FL
Lehigh Valley Hospital	Allentown	PA
Main Line Hospitals–Lankenau	Wynnewood	PA
Mayo Clinic Hospital	Phoenix	AZ
Memorial Healthcare System	Chattanooga	TN
Mercy Hospital Scranton	Scranton	PA
Mission Hospitals	Asheville	NC
including St. Josephs Hospital	Asheville	NC
Munroe Regional Medical Ctr.	Ocala	FL
Munson Medical Ctr.	Traverse City	MI
Ocala Regional Medical Ctr.	Ocala	FL
Palm Beach Gardens Medical Ctr.	Palm Beach Garden	FL

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HealthGrades 2008 America's 50 Best Hospitals continued...

HealthGrades 2008 America's 50 Best Hospital*	City	State
Rio Grande Regional Hospital	Mcallen	TX
Rush North Shore Medical Ctr.	Skokie	IL
Saint Joseph's Hospital of Atlanta	Atlanta	GA
Sarasota Memorial Hospital	Sarasota	FL
Southwest General Health Ctr.	Middleburg Heights	OH
St. Elizabeth Medical Ctr.–South	Edgewood	KY
St. Johns Hospital Health Ctr.	Santa Monica	CA
St. Luke's Hospital	Chesterfield	MO
St. Luke's Hospital	Bethlehem	PA
including St. Luke's Hospital–Allentown Campus	Bethlehem	PA
St. Marys Hospital	Rochester	MN
Summa Health Systems Hospitals	Akron	OH
William Beaumont Hospital	Royal Oak	MI

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Some of the recipients of the America's 50 Best Hospital award have multiple locations that report under the same Medicare Provider ID. In these cases, results for all locations were used in the analysis and each of the facilities is designated as a recipient of the award.