

**Specialty Excellence Award™ and  
America's 100 Best Hospitals for Specialty Care™  
2012 - 2013 Methodology**

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## Introduction

To help consumers evaluate and compare hospital performance, Healthgrades analyzed patient outcome data for 28 conditions or procedures. For each condition and procedure, hospital performance was stratified into three categories:

- ★★★★★ **Better Than Expected** – Actual performance was better than predicted and the difference was statistically significant.
- ★★★ **As Expected** – Actual performance was not statistically significantly different from what was predicted.
- ★ **Worse Than Expected** – Actual performance was worse than predicted and the difference was statistically significant.

For a complete description of Healthgrades methodology, see *Healthgrades Hospital Report Cards™ Mortality and Complications Methodology*.

Developing the Healthgrades hospital performance categories involved four steps:

1. The hospital predicted value (predicted number of deaths or complications at each hospital) was calculated by summing the individual patient record predicted values determined from logistic regression models discussed above.
2. The hospital predicted value was compared with the actual or observed value (e.g., actual number of deaths or complications at each hospital).
3. 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. A z-score was used to establish an approximate 90% confidence interval.
4. Hospital performance star categories were determined based upon the outcome of the test for statistical significance.

## Specialty Excellence Award Determination

For each hospital, Healthgrades then assigned an overall ranking for each specialty area based on star category hospital performance for one or more condition or procedure (e.g., heart attack, coronary artery bypass graft (CABG)). When ties occurred, average z-scores were used to break the ties.

The top 10% of hospitals (unless otherwise noted) within each specialty area were selected as Healthgrades Specialty Excellence Award™ recipients. These hospitals had the lowest risk-adjusted mortality and complication rates. Healthgrades current Specialty Excellence Awards™ include:

- Bariatric Surgery Excellence Award™ 2012
- Cardiac Care Excellence Award™ 2013
- Cardiac Surgery Excellence Award™ 2013
- Coronary Intervention Excellence Award™ 2013
- Critical Care Excellence Award™ 2013
- Gastrointestinal Care Excellence Award™ 2013
- General Surgery Excellence Award™ 2013
- Gynecologic Surgery Excellence Awards™ 2012
- Joint Replacement Excellence Award™ 2013
- Maternity Care Excellence Award™ 2012
- Neurosciences Excellence Award™ 2013
- Neurosurgery Excellence Award™ 2013
- Orthopedic Surgery Excellence Award™ 2013
- Prostatectomy Excellence Award™ 2013
- Pulmonary Care Excellence Award™ 2013
- Spine Surgery Excellence Award™ 2013
- Stroke Care Excellence Award™ 2013
- Vascular Surgery Excellence Award™ 2013

## **America's 100 Best Hospitals for Specialty Care™**

From the lists of Specialty Excellence Award recipients, Healthgrades further identified the top 100 hospitals for each of 12 specialty areas based on the overall ranking by z-scores. The overall ranking for each specialty area is based on the mortality or complication hospital performance star levels for one or more medical conditions or procedures.

- Cardiac Care
- Cardiac Surgery
- Coronary Intervention
- Critical Care
- Gastrointestinal Care
- General Surgery
- Joint Replacement
- Orthopedic Surgery
- Prostatectomy
- Pulmonary Care
- Spine Surgery
- Stroke Care

### **Bariatric Surgery**

The Bariatric Surgery specialty award is based on:

- Bariatric surgery

To be ranked, a hospital must be categorized into one of three star categories and be located in one of the all-payer states that provide bariatric surgery data. We evaluate hospital performance in bariatric surgery based on complication rates.

### **Cardiac Care**

The Cardiac Care specialty award is based on:

- Coronary artery bypass graft (CABG) surgery
- Valve repair/replacement surgery
- Coronary interventional procedures (PTCA/angioplasty, stent, atherectomy)
- Heart attack
- Heart failure

To receive a ranking in this specialty area, a hospital had to provide both coronary artery bypass graft (CABG) and coronary interventional procedures as well be categorized into one of three star categories for both heart attack and heart failure, based on MedPAR data. We first determine the star category for each of these procedures/conditions by evenly weighting their individual mortality star categories (in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality; heart failure uses only in-hospital mortality and in-hospital + 6-month mortality). The Cardiac Care ranking is then determined by evenly weighting the cardiac surgical star category (a volume-weighted average of coronary artery bypass graft and valve repair/replacement surgery), the star category for heart attack and heart failure (using a volume-weighted average) and the star category for coronary interventional procedures.

## **Cardiac Surgery**

The Cardiac Surgery specialty award is based on:

- Coronary artery bypass graft (CABG) surgery
- Valve repair/replacement surgery

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories for at least one procedure based on MedPAR data. We first determine the star category for each of these procedures by evenly weighting the individual mortality star categories (in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality). The Cardiac Surgery ranking is determined by the volume-weighted average of coronary artery bypass graft surgery and valve repair/replacement surgery star categories.

## **Coronary Intervention**

The Coronary Intervention specialty award is based on one group of procedures: coronary interventional procedures (angioplasty/stent). The Coronary Intervention ranking is based on the average of in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality star categories based on MedPAR data.

## **Critical Care**

The Critical Care specialty award is based on:

- Diabetic acidosis and coma
- Sepsis
- Pulmonary embolism
- Respiratory failure

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories in at least three out of four of the conditions listed above, based on MedPAR data. We calculate the average star categories for sepsis, pulmonary embolism, and respiratory failure using in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality; and the average star level for diabetic acidosis and coma using in-hospital mortality and + 1-month mortality. The Critical Care ranking is based on an evenly weighted average of these star category values.

## **Gastrointestinal Care**

The Gastrointestinal Care specialty award is based on:

- Bowel obstruction
- Cholecystectomy (Gallbladder surgery)
- Gastrointestinal bleed
- Gastrointestinal surgeries and procedures
- Pancreatitis

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories in at least four out of five conditions and procedures based on MedPAR data. We first calculate the average star categories for gastrointestinal bleed, bowel obstruction, pancreatitis, and gastrointestinal surgeries and procedures (including gastrectomies, vagotomies, gastric repairs, small and large intestine resections, small and large intestine anastomoses) using in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality. The cholecystectomy (gallbladder surgery) star category is based on in-hospital complications. The Gastrointestinal Care ranking is based on an average of these averages along with the cholecystectomy star category.

## **General Surgery**

The General Surgery specialty award is based on:

- Bowel obstruction
- Cholecystectomy (Gallbladder surgery)
- Gastrointestinal surgeries and procedures

Hospitals are first categorized into one of three star categories for bowel obstruction and gastrointestinal surgeries and procedures (including gastrectomies, vagotomies, gastric repairs, small and large intestine resections, small and large intestine anastomoses) for in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality. The cholecystectomy (gallbladder surgery) star category is based on in-hospital complications. The General Surgery ranking is based on the average star category for bowel obstruction, cholecystectomy, and gastrointestinal surgeries and procedures.

## **Gynecologic Surgery**

The Gynecologic Surgery specialty award is based on:

- Gynecologic surgery

To be ranked, a hospital must be categorized into one of three star categories in gynecologic surgery and be located in one of the all-payer states that provide gynecologic surgery data. We evaluate gynecologic surgery based on complication rates. Procedures include fistula repair surgery, hysterectomy, surgery for fallen bladders or prolapsed, surgery for incontinence, surgery on ovaries and fallopian tubes, and surgery for vulvar cancer.

## **Joint Replacement**

The Joint Replacement specialty award is based on:

- Total knee replacement
- Hip replacement

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories for both total knee replacement and hip replacement. We evaluate both procedures based on in-hospital complications. The Joint Replacement ranking is based on a volume-weighted average of the star categories for these procedures.

## **Maternity Care**

The Maternity Care specialty award is based on the analysis of four factors:

- Maternal complication rate among women undergoing single live vaginal deliveries
- Maternal complication rate among women undergoing single live C-section deliveries
- Newborn volume adjusted for low birth weight
- Risk-adjusted neonatal mortality

For each factor, hospitals are ranked and a percentile score is calculated. Lower maternal complication rates correspond to lower percentile rankings. For newborn volume, hospitals are assigned a percentile rank based on their overall volume of single-live born neonates combined with the percentage of neonates falling into the 1,000 to 1,749 gram birth weight categories compared to the national average. Hospitals with higher volumes and higher percentages of these low birth weight infants receive lower percentile ranks. Finally, newborn mortality is ranked based on a combined z-score for the mortality rates of the eight birth weight categories. To be ranked, a hospital must be located in one of the all-payer states that provide maternity care data.

## **Neurosciences**

The Neurosciences specialty award is based on:

- Neurosurgery
- Stroke

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories for both of these conditions and procedures based on MedPAR data. We first calculate the average star categories for each condition or procedure using in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality. The Neurosciences ranking is based the evenly weighted average star category of both.

## **Neurosurgery**

The Neurosurgery specialty award is based on one group of procedures: neurosurgery. The neurosurgery ranking is based on the average of in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality star categories based on MedPAR data.

## **Orthopedic Surgery**

The Orthopedic Surgery specialty award is based on:

- Total knee replacement
- Hip replacement
- Hip fracture treatment
- Back and neck surgery (except spinal fusion)
- Back and neck surgery (spinal fusion)

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories for four of the five medical issues based on MedPAR data. Those four must include total knee replacement, hip replacement, hip fracture treatment, and one of the back and neck surgery groupings. These procedures are evaluated based on complication rates. A volume-weighted average star is calculated for the combination of the joint replacement procedures (both are required) and for the combination of the back and neck surgery procedures (only one is required). The Orthopedic Surgery ranking is based on the evenly weighted average of the of the joint replacement star category, the combined back and neck star category and the hip fracture star category.

## **Prostatectomy**

To receive a ranking in this service area, a hospital had to be categorized into the 5-star category in prostatectomy based on MedPAR data. Only hospitals that received 5-stars in prostatectomy are eligible for this award. The Prostatectomy specialty award is based on one medical procedure: prostatectomy. The Prostatectomy ranking is based on in-hospital complications.

## ***Pulmonary Care***

The Pulmonary Care specialty award is based on:

- Chronic obstructive pulmonary disease (COPD)
- Pneumonia

To receive a ranking in this specialty area, a hospital had to be categorized into one of three categories for hospital performance for both conditions based on MedPAR data. We first calculate the average stars for these medical issues by evenly weighting the individual mortality stars. For pneumonia, we calculate in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality. For COPD we calculate in-hospital mortality and in-hospital + 6-month mortality. The Pulmonary Care ranking is based on an evenly weighted average of these star categories.

## ***Spine Surgery***

The Spine Surgery specialty award is based on:

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

To receive a ranking in this specialty area, a hospital had to be categorized into one of three star categories for both procedures based on MedPAR data. The Spine Surgery ranking is a volume-weighted average of these star categories.

## ***Stroke Care***

The Stroke Care specialty award is based on one condition: stroke. To be categorized into one three star categories in this condition, a hospital had to have a transfer-out rate of less than 10 percent for the three years of data used. The Stroke Care ranking is based on the average of star categories for in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality.

## ***Vascular Surgery***

The Vascular Surgery specialty award is based on:

- Resection/replacement of abdominal aorta
- Carotid surgery
- Peripheral vascular bypass

To receive a ranking in this specialty area, a hospital's performance had to be categorized into one of three star categories for all three conditions or procedures based on MedPAR data. We first calculate the overall star value for resection/replacement of abdominal aorta by averaging the in-hospital mortality, in-hospital + 1-month mortality, and in-hospital + 6-month mortality star categories. The carotid surgery and peripheral vascular bypass star categories are based on in-hospital complication rates. The Vascular Surgery ranking is based on the average of the overall resection/replacement of abdominal aorta star category plus the carotid surgery and peripheral vascular bypass star categories.