



*turning knowledge into practice*

# **America's Best Hospitals**

## **2008 Methodology**

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## I. Introduction

For families faced with a serious or complex medical problem, the choice of hospital can be critical. Until 1990, patients and healthcare providers had few tools or resources beyond their doctor's recommendation to help focus their decision. That changed in 1990, when *U.S. News & World Report* initiated annual assessments of U.S. hospitals in the form of lists collectively titled "America's Best Hospitals." Each summer, *U.S. News* identifies and ranks hospitals of exceptional quality, this year drawing from a universe of 5,453 community hospitals.\* Hospitals are assigned a composite score and ranked at the specialty level, based on data from multiple sources. The rankings and their associated data appear in the print magazine and online at <http://health.usnews.com/sections/health/best-hospitals/index.html>.

The National Opinion Research Center (NORC) at the University of Chicago devised the underlying methodology for *U.S. News* in the early 1990s, then collected the data and compiled the rankings from 1993 to 2004. In 2005, RTI International<sup>†</sup> in Research Triangle Park, N.C., began producing the rankings. The methodology has been refined as research has indicated areas for improvement and change. Larger-scale adjustments are under constant consideration and will be adopted if they clearly enhance the usefulness, quality, and robustness of the rankings.

For 2008, hospitals are ranked in 16 specialties:

- Cancer
- Ear, Nose, and Throat
- Endocrinology
- Gastrointestinal Disorders
- Geriatric Care
- Gynecology
- Heart and Heart Surgery
- Kidney Disease
- Neurology and Neurosurgery
- Ophthalmology
- Orthopedics
- Psychiatry
- Rehabilitation
- Respiratory Disorders
- Rheumatology
- Urology

The rankings were developed and the specialties chosen explicitly to help consumers determine which hospitals provide the best care for the most serious and complicated medical conditions and procedures—not for those that are relatively commonplace. The roster of specialties has slightly expanded and contracted over the years. The AIDS specialty was dropped in 1998, for example, when it became clear that the majority of AIDS care had shifted to an outpatient setting. Pediatrics was removed from the "America's Best Hospitals" issue in July

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\* Military installations, federal institutions, and institutional hospital units (e.g., prison hospitals, college infirmaries) are excluded.

<sup>†</sup> RTI International is a trade name of Research Triangle Institute.

2007 and ranked separately in September 2007; pediatric specialty rankings were added in June 2008 in an issue titled “America’s Best Children’s Hospitals.”<sup>‡</sup> This report focuses on rankings for adult specialties only.

## A. Index of Hospital Quality

Twelve of the 16 specialty rankings employ hard data; the other four rankings are based on a physician survey only.

The data-driven rankings assign a score—the Index of Hospital Quality (IHQ)—to hospitals in the following specialties: Cancer; Ear, Nose, and Throat; Endocrinology; Gastrointestinal Disorders; Geriatric Care; Gynecology; Heart and Heart Surgery; Kidney Disease; Neurology and Neurosurgery; Orthopedics; Respiratory Disorders; and Urology.

The IHQ reflects the interrelationship, described in the Donabedian paradigm, between three fundamental dimensions of healthcare: (1) structure, (2) process, and (3) outcomes.<sup>1-5</sup> In a hospital, *structure* refers to resources directly related to patient care. Examples of structural measures factored into the Best Hospitals rankings include intensity of nurse staffing; availability of desirable technologies and patient services; and special status conferred by a recognized external organization, such as designation as a Nurse Magnet hospital by the American Nurse Credentialing Center (ANCC) or as a National Cancer Institute (NCI) cancer center.

Excellent healthcare also is shaped by the *process* of care delivery. This encompasses diagnosis, treatment, prevention, and patient education.

Structure and process are related to *outcomes*, the most obvious of which is whether patients live or die. Outcomes are typically measured by risk-adjusted mortality rates (i.e., the likelihood of mortality given the complexity of the case). Using robust and sensitive measures for each factor, the IHQ is able to identify the hospitals that provide the best care in each of the 12 specialties. Many of these measures come from secondary data sources. The American Hospital Association (AHA) Annual Survey Database, for example, provides information regarding various structural hospital characteristics.

The measures used in the structural, process, and outcomes components of the IHQ are revisited each year and enhanced, as warranted, to increase the quality of the rankings. In

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<sup>‡</sup> A description of the methodology for the America’s Best Children’s Hospitals rankings for 2008 is available online at [www.rti.org/besthospitals](http://www.rti.org/besthospitals).

addition, steps are taken to identify the best possible data sources for these measures. Throughout this report, we will refer to these 12 specialties as the *IHQ-driven specialties*.

Below is a brief description of each of the three components of the IHQ rankings. These will be discussed in more detail later in the report.

## **Structure**

This score is based on data related to the structural characteristics of each medical specialty within a given hospital. These elements represent volume (i.e., discharges), technology, and other features that characterize the hospital environment. The majority of these data elements are derived from the most recent AHA Annual Survey Database, which covers fiscal year (FY) 2006. Volume data are taken from the Medicare Provider Analysis and Review (MedPAR) database maintained by the Centers for Medicare & Medicaid Services (CMS). This database contains information on all Medicare beneficiaries who use hospital inpatient services.

## **Process**

The process score can be viewed as the reputational component of the IHQ, representing a hospital's reputation for an overall process that leads to high-quality care. Process also can be seen as a form of peer review. The score is based on cumulative responses from three surveys of board-certified physicians, conducted in 2006, 2007, and 2008, in which those surveyed were asked to nominate up to five "best hospitals" in their specific field of care, irrespective of expense or location, for patients with serious or difficult conditions. (For the physician questionnaires used in the 2008 rankings, see *Appendixes A* and *B*.) In 2006, 2007, and again in 2008, a sample of 200 board-certified physicians was selected in each specialty. In 2006 and 2007, the sample was selected from the American Medical Association Physician Master File, a database of more than 850,000 physicians.<sup>§</sup> In 2008, the sample was selected from the American Board of Medical Specialties (ABMS) database.

The physician sample was stratified by census region (West, Northeast, South, and Midwest) and by specialty to assure appropriate representation. The final aggregated sample includes both federal and nonfederal medical and osteopathic physicians residing in all 50 states and the District of Columbia.

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<sup>§</sup> The database does not include medical students, residents, retirees, or deceased physicians.

## Outcomes

The outcomes score measures mortality 30 days after admission for all IHQ-driven specialties. Like the volume indicator, the outcomes measure is based on MedPAR data. For each hospital and specialty, the Healthcare Division of Thomson Reuters computed an adjusted mortality rate based on predicted and actual mortality rates using the All Patient Refined Diagnosis Related Group (APR-DRG) method created by 3M Health Information Systems.<sup>6</sup> APR-DRGs adjust the value for expected deaths by severity of illness using the patient's principal and secondary diagnoses. The method is applied to the 3 most recent years (FY2004, FY2005, and FY2006) of Medicare reimbursement claims made by hospitals to CMS.

### B. Reputation-Only Rankings

The second ranking approach is used for the remaining four specialties—Ophthalmology, Psychiatry, Rehabilitation, and Rheumatology—and ranking scores reflect the results of the reputational survey alone. Many structural and outcomes measures are inapplicable to these specialties because procedures are performed largely on an outpatient basis and pose a very small risk of death. For this report, these specialties are referred to as reputation-only specialties; the associated rankings are referred to as reputation-only rankings.

### C. Report Outline

The remainder of this report is structured as follows:

*Section II* describes the IHQ components in detail. (For a more exhaustive review of the foundation, development, and use of the individual measures and the composite index, see “Best Hospitals: A Description of the Methodology for the Index of Hospital Quality.”<sup>7</sup>)

*Section III* describes the process used to develop the rankings for the four reputation-only specialties.

*Section IV* presents the Honor Roll, an additional classification that denotes excellence across a broad range of specialties.

*Section V* summarizes the 2008 methodology changes.

*Section VI* describes improvements under consideration.

## II. The Index of Hospital Quality

This section describes hospital eligibility criteria and the procedures used to derive the IHQ for the 12 IHQ-driven specialties. Hospitals ranked in 2008 as a result of new or merged corporate entities in the AHA database are treated as single units and are listed as such in this report.

### A. Eligibility

All 5,453<sup>\*\*</sup> community hospitals included in the FY2005 AHA universe are considered automatically for Best Hospitals ranking; they do not have to submit an application.

There are two stages of eligibility criteria for the IHQ-driven specialties; hospitals must satisfy the requirements of each stage to be eligible for ranking in a given specialty.

**Stage 1.** A hospital must meet at least one of the following criteria:

1. be a member of the Council of Teaching Hospitals (COTH),
2. be affiliated with a medical school (American Medical Association or American Osteopathic Association), or
3. offer at least 6 of 13 important advanced technologies (see *Advanced Technologies*, page 9).

Hospitals that did not respond to the 2006 AHA Annual Survey remained eligible in our database. For hospitals that did not respond in 2006 but responded in 2005 and 2004, we used survey data from 2005. Nonresponders lacking data from both the current survey and from one of the previous two surveys were ranked without any AHA data. A total of 1,913 hospitals passed through the first stage of the eligibility process.

**Stage 2.** To remain eligible, hospitals needed a specified number of discharges in a selection of specialty-specific DRGs submitted for CMS reimbursement in 2004, 2005, and 2006 combined. Through 2002, the threshold for determining eligibility included all discharges, regardless of the balance of medical to surgical discharges.<sup>††</sup> Since 2002, that proportion has been specified for Cancer; Ear, Nose, and Throat; Gastrointestinal Disorders; Gynecology;

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<sup>\*\*</sup> We excluded military installations, federal institutions, and institutional hospital units (e.g., prison hospitals, college infirmaries).

<sup>††</sup> The exception was Heart and Heart Surgery, where surgical discharges alone determined the threshold for eligibility. Beginning in 2002, both medical and surgical discharges determined eligibility.

Neurology and Neurosurgery; Orthopedics; and Urology. For these specialties, we calculated the median ratio of surgical to total discharges for hospitals meeting the total discharge threshold. In each specialty, the median ratio was multiplied by the total number of discharges to determine the minimum surgical discharges needed to be considered eligible.

Setting discharge minimums ensures that ranking-eligible hospitals have demonstrable experience in treating a set number of complex cases in a given specialty. Prior to the start of RTI’s involvement in the rankings in 2005, the minimum number of surgical discharges in Heart and Heart Surgery was set to 500. For all hospitals meeting the minimum number of surgical discharges, a ratio of total discharges to surgical discharges was calculated. The median of this ratio was then multiplied by 500 to determine the minimum number of all discharges. To maintain consistency with prior years’ rankings, this threshold was used again in 2008. Minimums for all specialties will be reviewed for future rankings and will be adjusted as needed. *Table 1* presents the discharge volume and the number of hospitals meeting the criteria for the IHQ-driven specialties. A total of 1,559 hospitals met the volume criteria in at least one specialty.

**Table 1. Minimum Discharges by Specialty**

Specialty	Minimum Total Discharges	Minimum Surgical Discharges	Hospitals Meeting Volume Eligibility
Cancer	331	95	811
Ear, Nose, and Throat	16	3	1,161
Endocrinology	364	0	925
Gastrointestinal Disorders	559	143	1,329
Geriatric Care	2,353	0	1,269
Gynecology	32	28	1,289
Heart and Heart Surgery <sup>a</sup>	965	500	636
Kidney Disease	98	0	1,378
Neurology and Neurosurgery	321	86	1,150
Orthopedics	294	278	1,374
Respiratory Disorders	712	0	1,397
Urology	64	38	1,319

<sup>a</sup> In addition to the discharge eligibility criteria, a hospital must offer cardiac intensive care, adult interventional cardiac catheterization, and adult cardiac surgery to be considered in this specialty.

Hospitals with insufficient volume were considered eligible if they received at least one nomination in the most recent three physician surveys (i.e., a non-zero reputational score) and had at least 10 total discharges.

*Table 2* shows the number of hospitals that did not pass the minimum discharge criteria but became eligible in that specialty because they had a non-zero reputational score and at least

10 discharges. Table 2 also shows the total number of hospitals eligible in each specialty that met either the minimum discharge criteria or the non-zero reputational score criteria.

**Table 2. Eligible Hospitals That Did Not Meet Minimum Discharge Criteria but Were Eligible under the Non-Zero Reputation Rule**

Specialty	Hospitals Meeting Non-Zero Reputation Eligibility	Total Eligible Hospitals
Cancer	15	826
Ear, Nose, and Throat	4	1,165
Endocrinology	11	936
Gastrointestinal Disorders	6	1,335
Geriatric Care	5	1,274
Gynecology	9	1,298
Heart and Heart Surgery	0	636
Kidney Disease	1	1,379
Neurology and Neurosurgery	2	1,152
Orthopedics	3	1,377
Respiratory Disorders	7	1,404
Urology	2	1,321

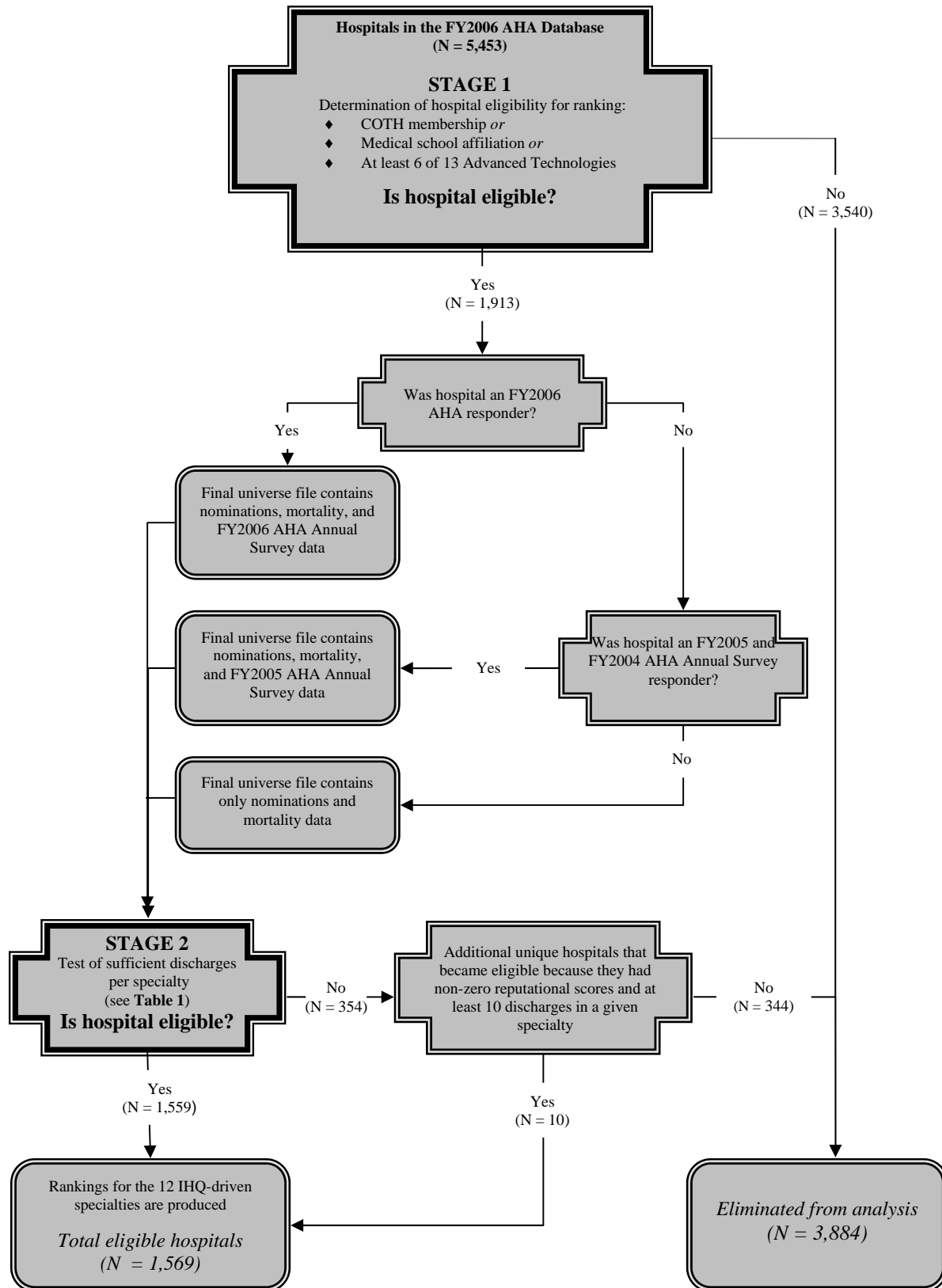
For the 2008 rankings, a total of 1,569 unique hospitals were deemed eligible for at least one of the IHQ-driven specialties under the full criteria. We then conducted separate analyses for each of the 12 IHQ-driven specialties. The top 50 hospitals in each IHQ specialty are published in the print edition of *U.S. News & World Report*. **Figure 1** illustrates the eligibility and analysis process for the IHQ-driven specialties, as described in the steps above.

## **B. Structure**

The structural dimension defines the tools, human and otherwise, available at hospitals for treating patients. Healthcare research overwhelmingly supports the use of a structural measure to assess quality of care. However, no prior research has identified a structural indicator that summarizes all others or that adequately represents the structural dimension construct on its own. Therefore, the structural component is represented by a composite variable consisting of different specialty-specific measures with different weights.

For the 2008 index, most structural elements were derived from the 2006 AHA Annual Survey Database. Additional components came from external organizations including NCI, ANCC, the Foundation for the Accreditation of Cellular Therapy (FACT), the National Institute on Aging (NIA), and the National Association of Epilepsy Centers (NAEC).

**Figure 1. Eligibility and Analysis Process for the IHQ-Driven Specialties**



## AHA Annual Survey

The AHA has surveyed hospitals annually since 1946. The survey is the most comprehensive and dependable database of information on institutional healthcare.<sup>8</sup> The average response rate for the most recent five surveys has been 85%. The database contains hospital-specific data items for more than 6,000 hospitals and healthcare systems, including more than 700 data fields that cover organizational structure, personnel, hospital facilities and services, and financial performance. (For specific mapping of variables to the AHA data elements, see *Appendix C*.) The following items taken from the AHA Annual Survey Database are used to develop the majority of the structural score for the IHQ.

### *Advanced technologies*

The elements in this structural index are reviewed and updated every year in each specialty to remain consistent with the key technologies and advanced care expected from a “best hospital.” Starting with the 1996 rankings, partial credit has been given to hospitals that provide a key technology or advanced service, even if it is only available off-site. Many hospitals provide access to advanced technologies through the hospital’s health system, a local community network, or a contractual arrangement or joint venture with another provider in the community. Starting with the 2008 rankings, we now award 1 point to all hospitals that provide each of the specified services on- or off-site either by the hospital directly, through provision by a subsidiary, or through other formal arrangements made by the hospital with other institutions. This change was made in recognition of significant changes in hospital-based care over the past few years. The result is that a greater number of partnerships between institutions have occurred in which advanced technologies and patient services are often shared or provided by a number of organizations. While we still value convenience to the patient, we also believe that efficient use of resources can result in high-quality care at top hospitals who may not all directly own and operate every available technology or patient service considered by the rankings.

There are a total of 14 advanced technologies listed, 13 of which are used to create the advanced technologies index for eligibility. A hospital must have available at least 6 technologies out the 13 possible from this index to be considered eligible for the rankings (see *Section II.A. Eligibility*). Infection isolation room is not included in the advanced technologies index because it represents a care environment rather than a specific technology used to enhance care.

For 2008, a number of changes were made to the advanced technologies. Image-guided radiation therapy was added for Gynecology because of its increased use in the treatment of

gynecological cancers. Multislice spiral computed tomography (CT) was added to Kidney Disease in recognition of its more common use in the diagnosis, treatment, and monitoring of kidney diseases and related cancers. In recognition of current practice standards within hospitals, credit for PET scanners within advanced technologies was dropped from the following specialties: Ear, Nose and Throat; Gastrointestinal Disorders; and Orthopedics.

Brief descriptions of the advanced technologies included in the 2008 index follow. The definitions are taken largely from the AHA Annual Survey and have been expanded as needed:

**Bone marrow transplant.** A two-part procedure in which blood or bone marrow (from the patient or another individual) is withdrawn, and immature bone marrow cells are harvested and stored; after the patient's bone marrow is destroyed by radiation to kill cancerous cells, the collected cells are pumped back into the patient to replace the destroyed marrow cells.

**Cardiac intensive care unit (ICU).** A part of the hospital in which support and treatment equipment are provided for patients who, because of congestive heart failure, open-heart surgery, or other serious cardiovascular conditions, require intense, comprehensive observation and care.

**Computer-assisted orthopedic surgery (CAOS).** A group of orthopedic devices that produce three-dimensional images of a patient to assist in surgical procedures.

**Diagnostic radioisotope services.** A procedure that uses radioactive isotopes (radiopharmaceuticals) as tracers to detect abnormal conditions or diseases.

**Full-field digital mammography (FFDM).** Combines the x-ray generators and tubes used in analog screen-film mammography with a detector plate that converts the x-rays into a digital signal to help diagnose breast cancer.

**Image-guided radiation therapy (IGRT).** A type of three-dimensional radiation therapy that targets delivery in order to decrease damage to normal tissues and that allows for varying intensities of treatment.

**Infection isolation room.** A single-occupancy room designed to minimize the possibility of infectious transmission, typically through the use of controlled ventilation, air pressure, and filtration.<sup>‡‡</sup>

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<sup>‡‡</sup> Infection isolation room is not included in the advanced technologies index.

**Kidney transplant.** Surgery implanting a kidney from a donor cadaver or living person to replace one that is diseased or nonfunctional.

**Multislice spiral computed tomography (CT).** A procedure that uses x-rays and data processing to produce multiple narrow slices that can be recombined into detailed, three-dimensional pictures of the internal anatomy.<sup>§§</sup>

**PET scanner.** A PET scanner is a nuclear medicine imaging technology that uses radioactive isotopes and computers to produce images showing the functional performance of the heart, brain, and other organs.

**Robotic surgery.** Use of computer-guided imaging and manipulative devices to perform surgery without the surgeon's direct intervention.

**Shaped beam radiation.** A noninvasive procedure that delivers a therapeutic dose of radiation to a defined area of a tumor to shrink or destroy cancerous cells.

**Single photon emission CT.** A nuclear medicine imaging technology that combines radioactive material with CT imaging to highlight blood flow to tissues and organs.

**Stereotactic radiosurgery.** A radiotherapy modality that delivers a high dosage of radiation to a discrete treatment area in as few as one treatment session. Variants includes Gamma knife and Cyberknife.

For eligible hospitals, specialty-specific mixes of advanced technologies are used in computing the *U.S. News* scores (see *Section II.E. Calculation of the Index*). *Table 3* presents the complete list of advanced technologies considered for each specialty in 2008.

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<sup>§§</sup> The indicator for multislice spiral CT includes both standard (less than 64 slices) and advanced (64 or more slices) versions of the technology. Hospitals can receive credit for either version.

**Table 3. Advanced Technologies by Specialty**

Technology	Key Technology Index	Cancer	Ear, Nose, and Throat	Endocrinology	Gastrointestinal Disorders	Geriatric Care	Gynecology	Heart and Heart Surgery	Kidney Disease	Neurology and Neurosurgery	Orthopedics	Respiratory Disorders	Urology
1. Bone marrow transplant	●	●											
2. Cardiac intensive care unit	●							●					
3. Computer-assisted orthopedic surgery	●										●		
4. Diagnostic radioisotope services	●			●	●				●	●		●	●
5. Full-field digital mammography	●	●					●						
6. Image-guided radiation therapy	●	●		●	●		◆		●	●		●	●
7. Infection isolation room <sup>a</sup>		●	●	●	●	●	●		●	●		●	●
8. Kidney transplant	●								●				
9. Multislice spiral CT	●							●	◆			●	
10. PET scanner	●	●		●		●	●	●	●	●		●	●
11. Robotic surgery	●							●		●			●
12. Shaped beam radiation	●	●											
13. Single photon emission CT	●							●		●			
14. Stereotactic radiosurgery	●	●	●	●	●		●		●	●		●	●
<b>Total Elements</b>	<b>13</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>6</b>	<b>6</b>

<sup>a</sup> Infection isolation room is not included in the advanced technologies index.

● Indicates a service is included in the index for that specialty.

◆ Indicates a new service for that specialty for 2008.

## *Volume*

The volume index reflects the sum of medical and surgical discharges in the appropriate specialty-specific DRG groupings submitted for CMS reimbursement in 2004, 2005, and 2006 combined. The list of DRGs used in each specialty is available in *Appendix D*. The index is incorporated into the structural score for all IHQ-driven specialties. To reduce the effect of extreme values or outliers for some of the structural measures (and the mortality outcomes measure), in prior years, a cap was calculated for each variable in several specialties. Starting in 2006, RTI introduced an inverse logit transformation procedure to reduce the effect of outliers on volume statistics (see *Trimming*, page 18). Beginning in 2007, weights also were applied to the volume measure to account for over- or underrepresentation of volumes, as measured in the MedPAR data file compared with all patients seen in U.S. hospitals (see *Refinements to the Mortality Methodology*, page 22).

## *Nurse staffing*

The nurse staffing index is a ratio reflecting the effort devoted to both inpatients and outpatients. The numerator is the number of on-staff registered nurses (RNs), expressed in full-time equivalents (FTEs) (e.g., two half-time nurses equal one FTE). Only nurses that have RN degrees from approved nursing schools and have current state registration are considered. The patient measure in the denominator is the adjusted average daily census of patients; the measure estimates the total amount of care devoted to both inpatients and outpatients by reflecting the number of days of inpatient care plus the estimated volume of outpatient services. This index gives more weight to inpatient care, while still recognizing that the vast majority of hospital visits are for outpatient care. The components of this index are available from AHA.

As with volume, nurse staffing has been transformed using an inverse logit transformation to eliminate the influence of wide variation. Standardization is performed after transformation to ensure that the data are distributed normally, with a mean of zero. This step is necessary to prepare the data for factor analysis, restoring balance so that trimmed and untrimmed measures have the same influence on the final score.

## *Trauma center*

In a *U.S. News & World Report* survey of board-certified physicians, the presence of an emergency room and a hospital's status as a Level 1 or Level 2 trauma care provider were ranked high on a list of hospital quality indicators. Physicians in nine specialties ranked trauma center status as one of the top five indicators of quality. Their recommendations and the resultant high

factor loadings supported inclusion of these data in Ear, Nose, and Throat; Gastrointestinal Disorders; Heart and Heart Surgery; Kidney Disease; Neurology and Neurosurgery; Orthopedics; Respiratory Disorders; and Urology. For 2008, trauma center status was dropped in Gynecology. This change was made to be consistent with the focus of this specialty on complex surgical and medical procedures in gynecological care; the resources of a trauma center, while useful in responding to emergencies, are not relevant to the treatment of these types of conditions.

The trauma center indicator is dichotomous and is derived from two variables in the AHA Annual Survey Database: (1) presence of a state-certified trauma center in the hospital (as opposed to trauma services provided only as part of a health system, network, or joint venture) and (2) level of the trauma center. To receive credit as a trauma center, hospitals must provide Level 1 or Level 2 trauma services. AHA defines Level 1 trauma service as “a regional resource trauma center, which is capable of providing total care for every aspect of injury and plays a leadership role in trauma research and education.”<sup>8</sup> Level 2 is “a community trauma center, which is capable of providing trauma care to all but the most severely injured patients who require highly specialized care.”<sup>8</sup> One point was awarded for either Level 1 or Level 2 trauma certification.

### *Patient services*

Created in 2004, the patient services (previously patient/community services) index is updated each year to reflect the most current services. The index encompasses items representing a major convenience for patients, such as translators; an advanced degree or sophistication of care; an essential service in a comprehensive high-quality hospital, such as cardiac rehabilitation; or a service that reflects forward thinking and sensitivity to community needs, such as genetic testing or counseling. All of the items in patient services are taken from the AHA Annual Survey.

For 2008, several changes were made to the patient services measure. The Alzheimer’s center variable was added to Neurology and Neurosurgery because this certification is based heavily on the capabilities of this service within hospitals. The arthritis treatment center variable was added to Orthopedics in recognition that the care of patients with many arthritis conditions is provided by multidisciplinary teams, including the orthopedic service in many hospitals. Rehabilitation care was added to the Cancer specialty; this is consistent with the typical arrangements in most hospitals where patients following surgery, chemotherapy, or other treatments may require some form of rehabilitation care.

Brief descriptions of patient services included in the 2008 index follow. The definitions are from the AHA Annual Survey.

**Alzheimer's center.** A facility that offers care to persons with Alzheimer's disease and their families through an integrated program of clinical services, research, and education. As is the case with all items taken from the AHA Annual Survey, hospitals decide for themselves whether they offer this service, based on the AHA's description. This index differs from designation of a hospital by NIA as an Alzheimer's Center. Such designation represents a higher order of service and is treated as a separate structural measure in Geriatric Care and Neurology and Neurosurgery (see page 18 for details.)

**Arthritis treatment center.** A specifically equipped and staffed center for the diagnosis and treatment of arthritis and other joint disorders.

**Cardiac rehabilitation.** A medically supervised program to help heart patients recover quickly and improve their overall physical and mental functioning in order to reduce risk of another cardiac event or to keep current heart conditions from worsening.

**Fertility clinic.** A specialized program set in an infertility center that provides counseling and education, as well as advanced reproductive techniques.

**Genetic testing/counseling.** A service equipped with adequate laboratory facilities and directed by a qualified physician to advise parents and prospective parents on potential problems in cases of genetic defects.

**Hospice.** A program that provides care (including pain relief) and supportive services for the terminally ill and their families.

**Pain management program.** A program that provides specialized care, medications, or therapies for the management of acute or chronic pain.

**Palliative care.** A program that provides care by specially trained physicians and other clinicians for relief of acute or chronic pain or to control symptoms of illness.

**Patient-controlled analgesia.** A system that allows the patient to control intravenously administered pain medicine.

**Psychiatry–Geriatric service.** A psychiatric service that specializes in the diagnosis and treatment of geriatric medical patients.

**Rehabilitation care.** A care unit that provides restorative services for the disabled and all support services necessary to help patients attain their maximum functional capacity.

**Translators.** A service provided by the hospital to assist non-English–speaking patients.

Six to nine services were included in each specialty. As in the past, these patient services must be provided onsite for hospitals to receive credit (1 point); partial credit for offsite delivery was not awarded for most items. For hospice and palliative care, hospitals receive full credit (1 point) if the service is provided either onsite or locally but not in the hospital. *Table 4* presents the complete list of patient services by specialty.

## External Organizations

Additional structural measures are based on data provided by sources and organizations other than AHA and CMS.

### *National Cancer Institute cancer center*

The NCI cancer center indicator was added in 2002. The NCI, one of the institutes of the National Institutes of Health (NIH), is the principal federal agency for conducting and sponsoring cancer research and training and promoting research and standards of care by various means, including certification as an NCI-designated Cancer Center. NCI-designated Cancer Centers are committed to advancing cancer research and ultimately reducing the incidence of cancer and increasing the likelihood of positive health outcomes.<sup>10</sup>

NCI-designated centers have three classifications: (1) cancer center, the lowest level, denotes a facility that conducts a high volume of advanced laboratory research with federal funding; (2) clinical cancer center, the middle level, also conducts clinical (“bench to bedside”) research; and (3) comprehensive cancer center, the highest level, adds prevention research, community outreach, and service activities.<sup>10</sup>

Hospitals designated as NCI clinical cancer centers and comprehensive cancer centers as of February 1, 2008, were awarded 1 point. NCI updates the list throughout the year. The current listing is at [www3.cancer.gov/cancercenters/centerslist.html](http://www3.cancer.gov/cancercenters/centerslist.html).

**Table 4. Patient Services by Specialty**

Service	Cancer	Ear, Nose, and Throat	Endocrinology	Gastrointestinal Disorders	Geriatric Care	Gynecology	Heart and Heart Surgery	Kidney Disease	Neurology and Neurosurgery	Orthopedics	Respiratory Disorders	Urology
1. Alzheimer's center					●				◆			
2. Arthritis treatment center					●					◆		
3. Cardiac rehabilitation							●					
4. Fertility clinic						●						●
5. Genetic testing/counseling	●	●	●	●		●		●	●		●	●
6. Hospice	●	●	●	●	●	●	●	●	●	●	●	●
7. Pain management program	●	●	●	●	●	●	●	●	●	●	●	●
8. Palliative care	●	●	●	●	●	●	●	●	●	●	●	●
9. Patient-controlled analgesia	●	●	●	●	●	●	●	●	●	●	●	●
10. Psychiatry–Geriatric service					●							
11. Rehabilitation care	◆	●	●	●	●	●		●	●	●	●	●
12. Translators	●	●	●	●	●	●	●	●	●	●	●	●
<b>Total Elements</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>8</b>

● Indicates a service is included in the index for that specialty.

◆ Indicates a new service for that specialty for 2008.

### *Nurse Magnet hospital*

The Nurse Magnet hospital index, added to all specialties in 2004, is a formal designation by ANCC, an arm of the American Nursing Association (ANA), for hospitals that meet certain quality indicators on specific standards of nursing excellence. The list of Nurse Magnet hospitals is updated throughout the year as hospitals apply for designation and redesignation status.

Hospitals accorded Nurse Magnet hospital status by ANCC as of February 1, 2008, received 1 point. The current list of Nurse Magnet hospitals is at

<http://www.nursecredentialing.org/magnet/searchmagnet.cfm>.

### *Epilepsy center*

This index was added to Neurology and Neurosurgery in 2004. One point is awarded to hospitals designated as Level 4 epilepsy centers by the NAEC as of February 1, 2008. A Level 4 epilepsy center serves as a regional or national referral facility. These centers provide more complex forms of intensive neurodiagnostic monitoring, as well as more extensive medical, neuropsychological, and psychosocial treatment. Level 4 centers also offer a complete evaluation for epilepsy; surgery, including intracranial electrodes; and a broad range of surgical procedures for epilepsy.<sup>11</sup> The list of hospitals is updated throughout the year. The current list is at <http://www.naecepilepsy.org/find.htm>.

### *NIA Alzheimer's center*

NIA Alzheimer's center certification was added to Geriatric Care in 2007 and to Neurology and Neurosurgery in 2008. These centers are evaluated and awarded this designation by the National Institute on Aging, an arm of the National Institutes of Health to translate research advances into improved diagnosis and care of Alzheimer's disease and to conduct research on prevention and cures. Recognition means that a hospital provides a high level of care for Alzheimer's patients. Hospitals designated as an NIA Alzheimer's center as of February 1, 2008, received 1 point. Hospitals listed as affiliated centers did not receive credit. The current list of NIA Alzheimer's Centers is available at [www.nia.nih.gov/Alzheimers/ResearchInformation/ResearchCenters/](http://www.nia.nih.gov/Alzheimers/ResearchInformation/ResearchCenters/).

### *FACT credit*

FACT accreditation was added to Cancer this year. This designation indicates that as of February 1, 2008, a hospital met standards set by FACT for transplantation of cells for treatment of cancer. Half a point was given if accreditation was only for autologous transplants, in which a patient's own cells are removed and then returned following radiation therapy. A full point was given if accreditation was for allogeneic transplants, in which cells are donated by another person (allowing for a greater number and more kinds of cell transplants) or for both autologous and allogeneic transplantation. The current list of FACT-accredited hospitals is available at [www.factwebsite.org/](http://www.factwebsite.org/).

### **Trimming**

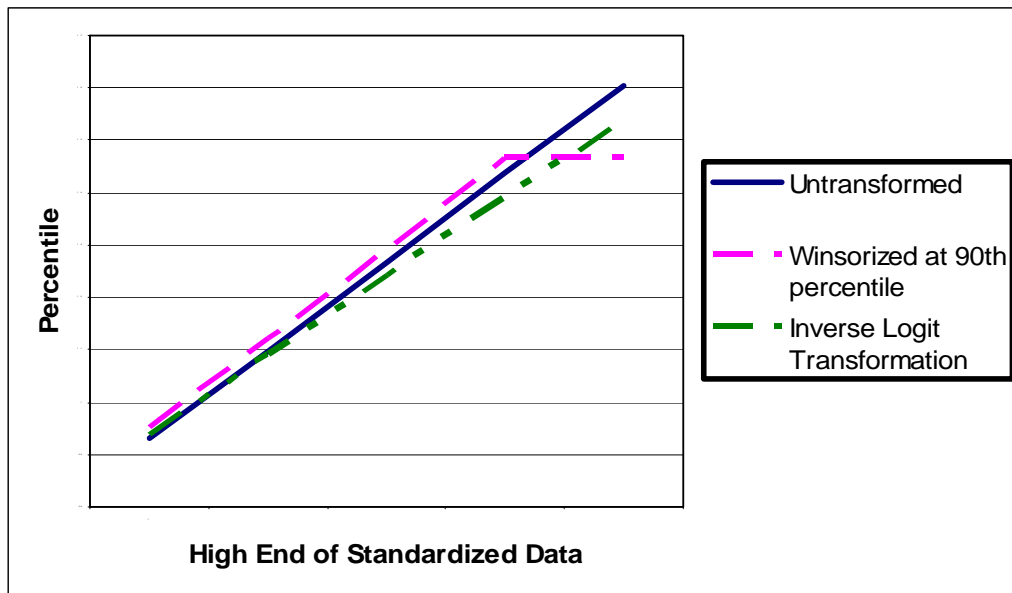
Prior to 2006, distributions for the volume and nurse staffing indexes were transformed using Winsorization, a statistical procedure that takes extreme values—those above a defined

threshold—and moves them toward the center of the distribution. For the Cancer specialty, for example, volume values over the 95th percentile were recoded to match the 95th percentile value. This “trimming,” as the process was called in previous reports, reduced the effect of extreme outliers. A disadvantage, however, is that all extreme values were treated as if they were the same—that is, all were equal to the value at their reassigned level. Whatever variation existed at the extreme was lost. Winsorization also required that different percentile cut points be set for different variables and specialties in a way that was not standard across specialties.

The new trimming process, introduced in 2006, uses an inverse logit transformation of the distribution for the analysis variables. The function  $\exp(x) / \{1 + [\exp(x)]\}$  is used to transform the variables before standardization. This technique is sensitive to the number of outliers and produces a transformed distribution that more closely resembles the true distribution, while reducing the effect of extreme outliers.

*Figure 2* shows the effect of Winsorization at the 90th percentile versus the inverse logit transformation at the high end of a standardized distribution.

**Figure 2. Effect of Winsorization at the 90th Percentile vs. Inverse Logit Transformation**



## Weighting

To combine the structural variables from the AHA Annual Survey Database and other external databases, the elements were weighted to create a composite measure. Using factor

analysis, we reduced the number of variables to force a one-factor solution for each specialty. Factor analysis is a statistical technique used to identify underlying similarities among the structural variables. More simply, variables that are strongly associated with one another receive lower factor loadings than those that have a unique distribution. The factor loadings, or weights, are applied to reduce the effect of multiple variables that, because of their strong association, may measure the same concept. The relative weight assigned to each element varies by and within a specialty from one year to the next. For each specialty, the factor weights have been converted into percentages to represent what percentage of the structural score each component is worth. **Table 5** provides the percentages of the structural score assigned to each element for 2008.

**Table 5. Percentage (%) of Structural Score by Specialty**

Variable	Cancer	Ear, Nose, and Throat	Endocrinology	Gastrointestinal Disorders	Geriatric Care	Gynecology	Heart and Heart Surgery	Kidney Disease	Neurology and Neurosurgery	Orthopedics	Respiratory Disorders	Urology
Advanced technologies	15.7	18.2	25.0	19.2	15.6	23.2	19.3	20.1	14.8	12.9	20.7	20.4
Volume	15.3	18.3	14.2	15.5		20.9	15.3	17.2	13.0	19.9	13.0	16.9
Nurse staffing	12.0	12.2	18.0	11.7	19.6	13.4	13.9	11.6	8.6	13.4	11.8	11.3
Trauma center		16.6		16.7			15.0	15.9	11.6	17.8	16.9	15.6
Patient services	12.5	20.5	25.7	21.6	25.2	24.2	18.9	21.2	15.3	18.9	23.0	21.3
NCI cancer center	16.1											
Nurse Magnet hospital	11.6	14.2	17.2	15.2	21.2	18.3	17.7	14.1	11.2	17.1	14.5	14.3
Epilepsy center									13.9			
NIA Alzheimer's center					18.3				11.4			
FACT credit	16.5											

## C. Outcomes

Mortality as an outcomes measure is hampered by limitations in risk-adjustment methods, but considerable evidence shows a positive correlation between better-than-average risk-adjusted mortality and overall quality of care.<sup>12-21</sup> Based on these findings, we use specialty-specific adjusted mortality rate as the outcomes measure for the IHQ.

Mortality data are reported using *the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)*. The ICD-9-CM is the official system used by the National Center for Health Statistics and the Centers for Medicare and Medicaid Services to assign codes to diagnoses and procedures associated with hospital utilization in the United States.<sup>22</sup> Diagnosis-Related Groups (DRGs) classify the more than 10,000 ICD-9-CM diagnosis codes into more meaningful patient groups based on clinical and cost similarity. The 3M Health Information Systems All Patient Refined Diagnosis Related Groups (APR-DRGs) refine the DRG concept by taking into account severity of illness, risk of mortality, and resources used.<sup>6, 23-</sup><sup>24</sup> Conditions and diagnoses are classified further based on substantial comorbidities or complications.

Predicted mortality rates were provided by the Healthcare Division of Thomson Reuters using APR-DRGs as risk adjustors. The method was applied to the pooled 2004, 2005, and 2006 Medicare Provider Analysis and Review (MedPAR) data set, the latest available for analysis. MedPAR data, derived from reimbursement claims submitted by hospitals to CMS, are used for analysis of utilization, cost, and impact of inpatient payment system changes (these data are organized in an easier-to-use format than claims files). The MedPAR file contains information on all Medicare patients' diagnoses, procedures, DRGs, lengths of stay in the hospital, and discharge statuses. A DRG is assigned to each patient discharge based on the patient's diagnosis, surgery, age, sex, and discharge destination.<sup>25</sup>

### 2008 DRG Groupings

DRG groupings define the cases to be included in the specialty's mortality measures, as well as volume measures used in the structural component. The DRG groupings used in the rankings are reviewed and adjusted annually for every specialty (see *Appendix D* for the DRGs used for 2008). The most recent DRG groupings are applied to each year of data included in the analysis.

For the purposes of the Best Hospitals rankings, only DRGs that represent challenging and critical procedures are included. (For example, tonsillectomies are too common to be

included in the DRG groupings for Ear, Nose, and Throat.) The process used to identify DRGs is outlined below.<sup>\*\*\*</sup>

1. Exclude DRGs for very-low-intensity cases.
2. Exclude DRGs related to complications of hospital-provided care.
3. Exclude DRGs not generally appropriate for a Medicare or elderly population.
4. Reevaluate excluded and included DRGs based on their embedded diagnoses.
5. Further refine the excluded and included categorizations based on the within-DRG variation in diagnostic complexity.
6. Reevaluate DRGs that are not assigned to a specific specialty to determine whether they would be better categorized more specifically.
7. Perform a final evaluation for clinical consistency.
8. Use ICD-9-CM diagnosis and procedure codes to provide further specificity, when needed.
9. Divide DRGs that could apply to more than one specialty by principal diagnosis or procedures present and distributed to the specialty where they are most likely to occur in hospital care.
10. Include a severity measure to further refine the list of DRGs by taking into account severity of illness, as measured by comorbidities and interaction with the principal diagnosis.

An annual review of the DRG process and groupings ensures that changes in advancement of medicine are reflected. Based on the review process, various DRGs and ICD-9-CM diagnoses or procedure codes were added or deleted in each category for 2008. *Appendix E* identifies the changes for each specialty.

### **Refinements to the Mortality Methodology**

A number of changes have been introduced over the years to address specific issues in mortality calculation. These changes have addressed either specialty-specific issues (such as the creation of a geriatric care population) or more general issues that can affect mortality outcomes (such as exclusion of transfers, switching from inpatient to 30-day mortality). A brief description

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<sup>\*\*\*</sup> For a more detailed review of these procedures, see the 2005 methodology report at [www.rti.org/besthospitals](http://www.rti.org/besthospitals).

of these special considerations and any updates that have been introduced in the 2008 rankings are described briefly below.

**1. Definition of the Geriatric Care population.** Rankings in Geriatric Care were reintroduced in 2007, with a new approach for identifying the target population and accounting for their mortality rates. Rather than using a small subset of DRGs typical of geriatric patients, we elected to focus on how well hospitals treat older patients across a wider range of DRGs. All of the DRGs used for other IHQ-driven specialties were included, but only patients 75 years of age or older were included in the Geriatric Care specialty. This allowed for more accurate reflection of the quality of inpatient hospital care received by older patients. The basic mortality analyses of the data for this group followed the same procedures.

**2. Exclusion of transfers.** Starting with the 2007 rankings, all patients transferred into the hospital were excluded from all mortality calculations. This was done to help avoid mortality rates that are possibly inflated by transferring severely ill patients (relative to their DRG and severity level) to tertiary care hospitals. Research has shown that because of their location, some tertiary care hospitals are more vulnerable than others to “dumping.”<sup>26</sup> This change means that patients legitimately transferred for appropriate care are lost, but we considered it more important to ensure that each hospital’s mortality numbers were not affected by hospitals that transferred patients whose acuity suddenly exceeded the hospital’s ability to care for them.

**3. Move from inpatient to 30-day mortality.** Prior to 2007, the rankings consistently defined mortality as inpatient deaths (i.e., those occurring from admission to discharge). As the duration of a hospital stay has decreased, inpatient mortality generally has decreased as well. Mortality over longer periods, however, has not declined markedly.<sup>27</sup> The consequences of a hospital’s quality of care can have spillover effects on the patient’s health and functional status for many weeks following discharge. The Agency for Healthcare Research and Quality (AHRQ) states in its *Refinements of the HCUP Quality Indicators Technical Summary* (2001) that, “without 30-day mortality data (ascertained from death certificates), hospitals that have short lengths of stay may appear to have better patient outcomes than other hospitals with equivalent 30-day mortality.”<sup>28</sup>

Thirty-day mortality may reflect factors unrelated to care provided in the hospital (e.g., quality of aftercare, lack of patient compliance with treatment regimen). But inpatient mortality omits factors that tend to manifest their full effect after patients have been discharged from the hospital. Inpatient mortality also does not account for hospital-to-hospital differences in length of stay for comparable patients and conditions.

To address these concerns, the 2007 rankings introduced 30-day mortality for all specialties, except Cancer. This was done out of concern that 30-day mortality may penalize hospitals that see cancer patients at the end of life—thus, artificially inflating their mortality numbers. However, after further review of available data and research, we have concluded that 30-day mortality should be the consistent standard for mortality. Starting with the 2008 rankings, 30-day mortality is used for all IHQ-driven specialties, including Cancer.

**4. Adjustments to MedPAR data to improve representativeness.** DRGs have always been represented in each specialty in accordance with their incidence among Medicare beneficiaries, because all of the available mortality and volume data reflect those patients. The distribution of conditions and procedures among Medicare patients, however, differs somewhat from the distribution among all patients treated at U.S. hospitals. For example, DRG selection focuses on cases that are complex and severe, such as cancer-related diagnoses or procedures. As a result, cancer-related cases accounted for many DRGs in a variety of specialties in previous years. However, cancer-related cases are more common among older patients. This has resulted in rankings with a tendency to favor hospitals that treat large numbers of Medicare patients.

Starting with the 2007 rankings, weights were applied to the MedPAR data based on the relative over- or underrepresentation of the DRGs among all patients in order to address this discrepancy. Given the absence of a comprehensive national database of all-payer claims data, we used data from the AHRQ Healthcare Cost and Utilization Project (HCUP) to produce adjustment factors (i.e., weights) for each DRG. The HCUP data set comes from a variety of sources and is the largest collection of all-payer hospital care data in the United States.<sup>29</sup> For the 2008 rankings, weights were calculated based on the 2005 HCUP data set and applied to each DRG/severity-of-illness pair; the weighted observed-versus-expected mortality rate was then calculated for each hospital. Weights were applied to all specialties except Geriatric Care, which is adequately represented using Medicare data for those age 75 years and older. The weights for each DRG/severity-of-illness pair are shown in *Appendix D*.

## **Mortality Scoring**

As in previous years, risk-adjusted mortality ratios (i.e., the mortality index in the rankings tables) were computed by dividing the actual mortality rate by the expected rate after adjusting for case complexity. The expected mortality was an estimate of the hospital's mortality rate if its death rate for patients in each APR-DRG and severity level was equal to the national average. Mortality ratios greater than 1 suggest that more patients died than expected; mortality ratios less than 1 suggest that fewer died than expected.

Only the most recent year's mortality ratio is listed in the rankings tables. However, for calculating the IHQ, we transformed mortality ratios into mortality scores using 3 years of data. Mortality scores were computed by subtracting each specialty-specific mortality ratio from 1. A mortality ratio of 0.25 produced a mortality score of 0.75, a ratio of 0.05 produced a score of 0.95, and so on. This reverse scoring maintained the magnitude of the differences between scores. To lessen the effect of year-to-year fluctuations, we averaged mortality scores for 3 years. As with volume and nurse staffing in the structural component, we transformed scores at the extreme ends to eliminate the influence of wide variation.

### **Recoding Mortality Values for Hospitals with Low Volume**

A procedure was established in 2006 to address instances in which a low-volume hospital with relatively few discharges during the last 3 available years of data had an inordinately low or high mortality score because of the dearth of applicable cases associated with that hospital. For instance, a hospital treating only 75 Medicare patients in the last 3 years in a particular specialty might have an observed-versus-expected mortality ratio of zero or close to zero. With so few cases to examine, we were not confident that the mortality numbers for this hospital reflected a real measure of outcomes rather than an extreme value based on too few cases.

To correct for this, mortality at or below the 25th percentile was recoded to the 25th percentile. Mortality between the 25th and 75th percentiles was recoded to the 50th percentile. Mortality at or above the 75th percentile was recoded to the 75th percentile.<sup>†††</sup> This recoding helped reduce the effect of mortality outliers associated with low volume. The effect of recoding or collapsing mortality scores for hospitals with low volume is shown in *Figure 3*.

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<sup>†††</sup> For specialties where the 75th percentile on volume was below 150, we substituted 150 for the threshold for applying this rule, because analysis of the distributions suggested that this was an appropriate absolute minimum for the reliability of mortality data.

**Figure 3. Effect of Recoding Mortality for Low-Volume Hospitals**



#### **D. Process**

The process dimension of the Donabedian paradigm reflects physicians’ decisions made in the hospital setting, such as choices about use of medication, diagnostic tests, admission to a hospital, course of treatment, and length of stay. It is extremely difficult to obtain national measurements of process; therefore, we used a proxy measure. We contend that when a physician who is qualified to judge identifies a hospital as among the “best,” in essence the physician is endorsing the process choices made at that hospital. Thus, we used the nomination of hospitals by board-certified specialists as a measure of process.

To collect these nominations, a survey of board-certified physicians across the country is conducted each year. For the 2008 rankings, we pooled nominations for the three most recent surveys (2006, 2007, and 2008) to arrive at the process measure. We treated the IHQ-driven and reputation-only specialties identically for the reputation component. Therefore, this section presents the methodology and results for both.

## Sample for the 2008 Survey

The 2008<sup>†††</sup> survey sample consisted of 3,200 board-certified physicians selected from the American Board of Medical Specialties (ABMS) database. From within the ABMS database, we selected a target population of 346,480 board-certified physicians who met defined eligibility requirements (see below). Stratifying by census region and by specialty within region, we selected a probability (i.e., random) sample of 200 physicians (50 from each region) from each of the 16 specialty areas, for a total of 3,200 physicians. The final sample included federal and nonfederal medical and osteopathic physicians practicing in all 50 states and the District of Columbia.

### *Eligibility requirements*

To define a probability sample of physicians who properly represent the 16 specialty groupings, we linked each of the 16 specialties to one or more relevant specialties from the ABMS. Next, we identified a number of subspecialties within each medical specialty in the rankings. Physicians who designated a primary specialty in one of the 16 specialties (or affiliated subspecialties) were eligible for the survey. **Table 6** displays the association among the specialty listed in “America’s Best Hospitals,” the ABMS subspecialties, and the corresponding member board.

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<sup>†††</sup> For information on the 2006 and 2005 samples, please see the respective methodology reports at [www.rti.org/besthospitals](http://www.rti.org/besthospitals).

**Table 6. Physician Sample Mapping**

America's Best Hospitals Specialty	American Board of	ABMS Subspecialties
Cancer	Internal Medicine	Hematology
		Oncology
	Obstetrics & Gynecology	Gynecologic Oncology
	Radiology	Radiation Oncology
Ear, Nose, and Throat	Otolaryngology	Otolaryngology
Endocrinology	Internal Medicine	Endocrinology, Diabetes, and Metabolism
Gastrointestinal Disorders	Internal Medicine	Gastroenterology
Geriatric Care	Internal Medicine	Geriatrics
Gynecology	Obstetrics & Gynecology	Obstetrics & Gynecology (excluding Gynecologic Oncology )
Heart and Heart Surgery	Internal Medicine	Cardiovascular Diseases
	Surgery	Thoracic Surgery
Kidney Disease	Internal Medicine	Nephrology
Neurology and Neurosurgery	Psychiatry & Neurology	Neurology
		Neurological Surgery
Ophthalmology	Ophthalmology	Ophthalmology
Orthopedics	Orthopedic Surgery	Orthopedic Surgery
Psychiatry	Psychiatry & Neurology	Psychiatry
Rehabilitation	Physical Medicine & Rehabilitation	Physical Medicine & Rehabilitation
Respiratory Disorders	Internal Medicine	Pulmonary Diseases
Rheumatology	Internal Medicine	Rheumatology
Urology	Urology	Urological Surgery

*Stratification*

To compensate for wide variation in the number of eligible physicians across the targeted specialties and the four census regions in the country, we used different probabilities of selection for each grouping. Therefore, 50 physicians were selected from each of the 16 specialties in each of the four census regions ([www.census.gov/geo/www/us\\_regdiv.pdf](http://www.census.gov/geo/www/us_regdiv.pdf)). Equal-size groups permitted easier comparison of differences among regions and specialties.

## Survey Procedure

### *Materials*

For 2006, 2007, and 2008, sampled physicians in each specialty were mailed a one-page, single-sided questionnaire containing a single hospital nomination element. Respondents were asked to select as many as five hospitals in their specialty that provide the best care to patients with serious conditions, regardless of location or expense (see *Appendixes A and B*). The 2007 and 2008 surveys included an additional line asking physicians not to nominate hospitals where they currently practice (see *Appendix B*). Along with the questionnaire, physicians were sent a cover letter, a business reply envelope, and a \$2 bill (a token incentive used since the first set of rankings in 1990). For 2007 and 2008, physicians were given the option of mailing, faxing, or submitting their completed surveys via the web.

### *Mailings*

The physician survey mailings were conducted in stages during several weeks in the fall of 2007. The initial mailing was sent via U.S. Postal Service (USPS) First Class metered mail. Three weeks after the initial survey mailing, a replacement survey and new cover letter were sent to the sampled physicians. Physicians with an available fax number also received a faxed cover letter and survey. Physicians with a valid available e-mail address received an e-mail with the option to complete the survey online. Two weeks following the reminders, we sent a USPS Priority mailing to nonresponders, along with another copy of the questionnaire, a new cover letter, and a business reply envelope. Two weeks after the second survey was sent, a third survey mailing was sent overnight via Federal Express to the remaining nonresponders; the packet included the questionnaire, a cover letter, and a business reply envelope. A final mailing was sent via USPS First Class mail approximately 4 weeks later. This mailing included the questionnaire and a personalized letter with a handwritten note and signature. (See *Table 7* for a simplified schedule of the physician survey mailing.)

**Table 7. Physician Survey Mailing Schedule**

<b>Materials Mailed</b>	<b>Sent via</b>	<b>Sent to</b>	<b>Date</b>
1st copy of physician survey	USPS, First Class mail	Full physician sample	September 17, 2007
2nd copy of physician survey	USPS, First Class mail	Sample members who did not respond	October 2, 2007
3rd copy of physician survey	USPS, Priority mail	Sample members who did not respond	October 17, 2007
4th copy of physician survey	Federal Express, overnight	Sample members who did not respond	October 29, 2007
5th copy of physician survey	USPS, First Class mail	Sample members who did not respond	November 12, 2007

### *Response rates*

**Table 8** shows the response rate by specialty for the 3 years of survey data used in the 2008 rankings. The average response rate for the 3 years of data collection was 44.4%, using American Association for Public Opinion Research (AAPOR) Standard Response Rate 6,<sup>§§§</sup> which treats undeliverables as ineligible cases. **Table 9** shows the response rate for 2008 by region and specialty.

### **Survey Response Weighting**

The physician survey was stratified by specialty and census region (West, Northeast, South, and Midwest). Weights were constructed and applied to each physician's survey response to make nominations representative at the national level. Weights were based on the probability of selection within each unique specialty-region combination, with an adjustment to account for nonresponders.

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<sup>§§§</sup> Standard definitions are located on the web at [www.aapor.org/uploads/Standard\\_Definitions\\_04\\_08\\_Final.pdf](http://www.aapor.org/uploads/Standard_Definitions_04_08_Final.pdf).

**Table 8. Yearly Response Rate by Specialty (2006–2008)**

Specialty	2006		2007		2008		3-Year Total	
	n	%	n	%	n	%	n	%
Cancer	103	53.9	96	50.0	73	38.6	272	47.5
Ear, Nose, and Throat	111	57.8	101	51.5	83	45.9	295	51.7
Endocrinology	106	54.6	93	49.7	61	33.0	260	45.8
Gastrointestinal Disorders	79	39.5	89	45.6	76	39.8	244	41.6
Geriatric Care <sup>a</sup>	90	47.6	106	54.4	56	29.0	252	43.7
Gynecology	75	39.9	70	37.2	67	38.6	212	38.6
Heart and Heart Surgery	74	38.5	82	43.4	78	40.4	234	40.8
Kidney Disease	75	39.9	72	37.5	60	31.4	207	36.3
Neurology and Neurosurgery	92	48.4	91	48.9	77	43.3	260	46.9
Ophthalmology	106	55.5	110	56.1	92	47.2	308	52.9
Orthopedics	87	45.8	67	34.4	52	27.5	206	35.9
Psychiatry	83	45.1	73	38.6	48	27.7	204	37.1
Rehabilitation	109	56.8	91	49.5	96	49.2	296	51.8
Respiratory Disorders	87	47.8	82	42.9	67	35.4	236	42.0
Rheumatology	97	51.9	90	47.6	78	41.1	265	46.9
Urology	107	55.2	97	50.8	95	48.7	299	51.6
<b>Overall Response Rate<sup>b</sup></b>	<b>1,481</b>	<b>48.6</b>	<b>1,410</b>	<b>46.2</b>	<b>1,159</b>	<b>38.5</b>	<b>4,050</b>	<b>44.4</b>

<sup>a</sup> Although Geriatric Care was not ranked in 2006, the physician survey was still conducted.

<sup>b</sup> The overall response rate for each year was calculated using AAPOR Standard Response Rate 6.

**Table 9. Response Rates by Region and Specialty, 2006–2008**

Specialty	West		Northeast		South		Midwest	
	n	%	n	%	n	%	n	%
Cancer	68	46.6	63	44.0	72	49.3	69	47.5
Ear, Nose, and Throat	63	44.4	80	55.3	70	49.4	82	56.1
Endocrinology	56	39.1	65	47.1	62	43.7	77	52.0
Gastrointestinal Disorders	67	46.2	55	37.2	55	37.4	67	46.0
Geriatric Care	56	38.1	63	43.0	54	37.3	79	53.3
Gynecology	50	34.3	50	34.9	50	34.7	62	43.7
Heart and Heart Surgery	61	41.4	69	47.3	46	31.1	58	41.4
Kidney Disease	36	25.0	61	41.8	56	38.3	54	37.2
Neurology and Neurosurgery	67	46.5	67	47.9	62	44.9	64	44.9
Ophthalmology	66	45.1	82	55.5	87	58.3	73	50.7
Orthopedics	48	32.2	59	40.2	43	29.8	56	38.5
Psychiatry	43	31.4	59	41.3	57	39.7	45	31.9
Rehabilitation	71	47.6	72	50.2	76	53.1	77	54.3
Respiratory Disorders	59	40.6	66	45.8	55	38.4	56	38.6
Rheumatology	54	38.5	77	54.2	65	44.2	69	47.2
Urology	78	53.7	82	55.4	62	43.0	77	52.0
<b>Overall Response Rate<sup>a</sup></b>	<b>943</b>	<b>40.8</b>	<b>1,070</b>	<b>46.2</b>	<b>972</b>	<b>41.4</b>	<b>1,065</b>	<b>45.9</b>

<sup>a</sup> The overall response rate includes in the numerator all physicians who returned a questionnaire with at least one item completed; it subtracts ineligible cases from the denominator.

## E. Calculation of the Index

In calculating the rankings for the IHQ-driven specialties, structure, process, and outcomes each received one-third of the weight. Although each of the three measures represents a specific aspect of quality, a single score provides a result that is easy to use and understand and portrays overall quality more accurately than would any of the three elements individually.

The formula for calculating the specialty-specific IHQ for a hospital is in Equation (1). Please note that this formula is meant for illustrative purposes only. The formula cannot be used directly to calculate a score for an individual hospital; the standardized data values are adjusted based on the distribution of measures across all eligible hospitals. The IHQ score can be thought of as a simple weighted sum of structural, process, and outcomes measures. The weights for the structural measures are factor loadings, and the weights for the process and outcomes measures are equal to the sum of all structural measure factors.

$$IHQ_i = \{(S_{1i} \times F_{1i}) + (S_{2i} \times F_{2i}) + \dots + (S_{ni} \times F_{ni})\} + [(P_i \times \sum_{11}^{ni} F)] + [(M_i \times \sum_{11}^{ni} F)], \quad (1)$$

where

- $IHQ_i$  = index for hospital quality for specialty  $i$ ,
- $S_{ni}$  = standardized value for structural indicator  $n$  (STRUCTURE), for specialty  $i$ ,
- $F_{ni}$  = factor loadings for structural indicator  $n$  for specialty  $i$ ,
- $P_i$  = standardized nomination score (PROCESS) for specialty  $i$ , and
- $M_i$  = standardized mortality score (OUTCOMES) for specialty  $i$ .

The general formula for deriving the IHQ scores has remained unchanged since its creation in 1993. For presentation purposes, we transformed the raw IHQ scores to a 100-point scale, where the top hospital in each specialty received a score of 100. The transformation is shown in Equation (2):

$$(Raw\ IHQ\ score_i - minimum_i) / range_i. \quad (2)$$

Means and standard deviations (SDs) of the IHQ for the 12 IHQ-driven specialties are listed in **Table 10**. These data illustrate that the spread of IHQ scores produces a very small number of hospitals that are 2 and 3 SDs above the mean. Horizontal lines in each of the 12 specialty lists in **Appendix F** indicate the cut off points of 2 and 3 SDs above the mean.

**Table 10. Means and Standard Deviations for the IHQ-Driven Specialties**

Specialty	Mean	SD	2 SDs Above the Mean	3 SDs Above the Mean
Cancer	13.94	7.95	29.85	37.80
Ear, Nose, and Throat	11.06	7.53	26.12	33.65
Endocrinology	14.22	6.59	27.40	33.99
Gastrointestinal Disorders	11.85	5.56	22.97	28.53
Geriatric Care	12.15	6.90	25.96	32.86
Gynecology	15.06	7.78	30.62	38.40
Heart and Heart Surgery	16.83	7.83	32.48	40.31
Kidney Disease	16.27	8.91	34.08	42.99
Neurology and Neurosurgery	12.19	7.68	27.55	35.23
Orthopedics	10.79	6.47	23.72	30.19
Respiratory Disorders	14.84	6.91	28.66	35.57
Urology	10.25	6.60	23.44	30.04

### III. Reputation-Only Specialties

The data available for the reputation-only specialties are more limited than for the IHQ-driven specialties. Mortality is irrelevant in Ophthalmology, Psychiatry, and Rehabilitation, which rarely involve life-threatening procedures. For Rheumatology, inpatient volume is extremely low, making it difficult to collect reliable mortality measures. Reliable structural measures also are not currently available for these specialties. We therefore used only the process component to develop these rankings. This section describes the eligibility and procedures used to develop the rankings for the four reputation-only specialties.

#### A. Eligibility

Hospitals ranked solely by reputation do not have to meet the same eligibility standards required for the IHQ-driven specialties. A hospital becomes eligible when it receives one or more physician nominations (i.e., a non-zero reputational score). Only hospitals representing 3% or more of the total nominations in a specialty are published.

## B. Process

The IHQ-driven specialties and the reputation-only specialties share the same process component (see *Section II.B. Structure* for more information).

## C. Calculation of the Rankings

As mentioned above, scores for the reputation-only specialties of Ophthalmology, Psychiatry, Rehabilitation, and Rheumatology must be calculated differently from scores for the IHQ-driven specialties because of the unavailability of structural and outcomes measures. Thus, we rank hospitals in these specialties solely by reputation (see *Appendix G*). Although the four reputation-only specialties are ranked without IHQ scores, SDs of the reputational scores remain useful in identifying truly superior hospitals (in terms of statistically relevant nomination scores). *Table 11* presents the means and SDs of the reputation-only scores.

**Table 11. Means and Standard Deviations for the Reputation-Only Specialties**

Specialty	Mean	SD	2 SDs Above the Mean	3 SDs Above the Mean
Ophthalmology	4.38	12.20	28.78	40.98
Psychiatry	2.22	4.74	11.69	16.43
Rehabilitation	2.36	7.09	16.54	23.63
Rheumatology	3.62	8.98	21.59	30.57

## IV. The Honor Roll

This year, 170 different hospitals were ranked in at least one specialty. An additional measure, the Honor Roll, indicates excellence across a broad range of specialties. To be listed in the Honor Roll, a hospital must rank at least two standard deviations above the mean in at least 6 of the 16 specialties. For 2008, 19 hospitals are listed on the Honor Roll. A hospital's ranking on the Honor Roll is based on points assigned by specialty, as follows:

- A hospital that ranks three or more standard deviations above the mean receives 2 points.
- A hospital that ranks between two and three standard deviations above the mean receives 1 point.

Using standard deviations above the mean as the criterion for inclusion in the Honor Roll sets a threshold for overall excellence. The Honor Roll also indicates the relative distances between the best hospitals, which cannot be determined solely from the rankings. *Appendix H* lists this year's 19 Honor Roll hospitals.

## V. Summary of Changes for 2005–2008

RTI began working with *U.S. News* on the Best Hospitals rankings in 2005. To maintain consistency in the ranking process, RTI replicated the preexisting methodology in the 2005 rankings and implemented only minor improvements in 2006.

Changes for 2007 were more substantial, but still in keeping with the goal of maintaining consistency and continuity. Many of the changes were discussed at length at a meeting convened by *U.S. News* in the fall of 2006 to solicit the views of a Best Hospitals advisory panel, which included representatives from a number of top hospitals with expertise in areas such as clinical care, healthcare data analyses, and quality research; in addition, representatives from a number of key trade/industry organizations also participated in the discussions. The significant methodological changes introduced in the 2007 rankings are listed below; for a more detailed discussion of these changes, we recommend reviewing the 2007 project methodology report, which is available online at [www.rti.org/besthospitals](http://www.rti.org/besthospitals).

**Added external organizations.** Hospitals in the Cancer specialty now receive points for accreditation by FACT as a Cellular Therapy Facility. Hospitals in Geriatric Care now receive points if they are recognized by NIA for having an Alzheimer's Center.

**Updated DRG groupings.** DRG groupings were updated for all specialties, consistent with typical year-to-year changes.

**Excluded transfers.** Patients transferred in to a hospital or out to another hospital are excluded from mortality and volume calculations to reduce the likelihood of either benefiting or suffering from "dumping" of patients.

**Included 30-day mortality rates.** Thirty-days-from-admission mortality rates were introduced in all IHQ-driven specialties (except Cancer) instead of death-at-discharge mortality rates.

**Weighted mortality.** Weights were applied to the MedPAR data based on the relative over- or underrepresentation of the cases' DRGs among all patients, as identified in the HCUP data.

**Moved neonatologists.** Neonatologists were removed from the Gynecology sample and included in the Pediatrics sample instead.

For 2008, we implemented a number of minor refinements to the methodology. A brief listing of these changes is provided below.

**Updated advanced technologies.** The elements in this index were updated for a few specialties to remain consistent with the advanced technologies expected from a best hospital (*Section II.B*).

**Updated patient services.** The elements in these services were updated for a few specialties to remain consistent with the patient services expected from a best hospital (*Section II.B*).

**Dropped trauma center certification.** Trauma center certification was dropped from the Gynecology specialty (*Section II.B*).

**Added Alzheimer's disease center.** This element was added to the Neurology and Neurosurgery specialty (*Section II.B*).

**Added 30-day mortality rates for Cancer.** Thirty-days-from-admission mortality rates were introduced in all IHQ-driven specialties except Cancer in 2007. For 2008, 30-day mortality was used in Cancer as well (*Section II.C*).

**Updated DRG groupings.** DRG groupings were updated for all specialties, consistent with typical year-to-year changes (*Appendix E*).

## VI. Future Improvements

The “America’s Best Hospitals” methodology is examined and refined each year to best measure hospital quality. In future years, RTI will closely examine current measures and new data sources in the changing context of hospital organization across the nation. Our goal is to continually improve and enhance the quality of the rankings, with help from the Best Hospitals advisory panel. Below we present several methodological improvements that we are considering for future rankings.

**Review sample design for physician survey.** We will continue to explore sample design options that will yield better estimates of change in physician nominations across time.

**Reevaluate process component.** We will continue to evaluate the way in which additional measures of process could be used to enhance the physician survey proxy measure. For example, programs such as the Hospital Consumer Assessment of Health Care Providers and Systems (HCHAPS) now evaluate patients’ feedback on

the quality of care they receive. These programs may offer useful data, and we will continue to track and evaluate them for possible inclusion in the future.

**Incorporate structural data for reputation-only specialties.** We are examining resources and measures that would provide structural data for the current reputation-only specialties in order to further strengthen and improve the rankings for these specialties.

**Review external data sources.** We will investigate additional and new sources of data that offer quality measures for all hospitals. Data sources under consideration include quality indicators from AHRQ and the Joint Commission on Accreditation of Healthcare Organizations.

**Reevaluate the outcomes component.** We will continue to evaluate additional outcomes measures, such as a medical complications measure.

## Contact Information

We welcome suggestions and questions. Readers and users are encouraged to contact the Best Hospitals research team at the address listed below. This and previous methodology reports, since 2005, can be viewed or downloaded online in their entirety from the RTI International website at [www.rti.org/BestHospitals](http://www.rti.org/BestHospitals). Specific questions or comments about the contents of this report can be sent via e-mail to [BestHospitals@rti.org](mailto:BestHospitals@rti.org).

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## **Appendix A**

### **2006 Sample Physician Questionnaire**

# America's Best Hospitals

THIS SURVEY OF PHYSICIANS' JUDGMENTS PROVIDES THE BASIS FOR THE REPUTATION COMPONENT OF THE ANNUAL RANKING OF HOSPITALS FOR U.S. NEWS & WORLD REPORT.



Research Triangle Institute

Please list in the spaces below, the five hospitals (and/or affiliated medical schools) in the United States that you believe provide the best care for patients with the most serious or difficult medical problems associated with cancer, regardless of location or expense (we've provided space for the hospitals and/or affiliated medical schools in hopes that will make it easier to provide your answer):

	Hospitals and/or affiliated medical schools that provide the best care	City	State
a.	<input type="text"/>	<input type="text"/>	<input type="text"/>
b.	<input type="text"/>	<input type="text"/>	<input type="text"/>
c.	<input type="text"/>	<input type="text"/>	<input type="text"/>
d.	<input type="text"/>	<input type="text"/>	<input type="text"/>
e.	<input type="text"/>	<input type="text"/>	<input type="text"/>

Conducted by the Research Triangle Institute  
3040 Cornwallis Road, P.O. Box 12194, Research Triangle Park, NC 27709-2194

**Thank you again for your participation.**

*Research Triangle Institute  
3040 Cornwallis Road, P.O. Box 12194  
Research Triangle Park, NC 27709-2194*

## **Appendix B**

### **2007–2008 Sample Physician Questionnaire**

# America's Best Hospitals

THIS SURVEY OF PHYSICIANS' JUDGMENTS PROVIDES THE  
BASIS FOR THE REPUTATIONAL COMPONENT OF THE ANNUAL  
RANKINGS OF HOSPITALS FOR *U.S. NEWS & WORLD REPORT*.



Research Triangle Institute

List the five U.S. hospitals (and/or affiliated medical schools) that in your opinion provide the best care for patients with the most serious or difficult medical problems associated with <<SPECIALTY>>, without considering location or expense. (Please do not list any hospital where you currently practice.)

	Hospital and/or affiliated medical school	City	State
a.	<input type="text"/>	<input type="text"/>	<input type="text"/>
b.	<input type="text"/>	<input type="text"/>	<input type="text"/>
c.	<input type="text"/>	<input type="text"/>	<input type="text"/>
d.	<input type="text"/>	<input type="text"/>	<input type="text"/>
e.	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Thank you for your participation.**

***RTI International  
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## **Appendix C**

### **Structural Variable Map**

The following variables, used to construct structural elements of the 2008 IHQ, were taken from the 2006 Annual Survey of Hospitals Database published by the American Hospital Association. Hospitals did not receive more than 1 point for any one service.

**Key Advanced Technologies (Total of 13 points possible)**

1 point awarded if...
OTBONHOS=1, OTBONSYS, OTBONNET, or OTBONVEN=1
CICHOS=1, CICSYS, CICNET, or CICVEN=1
CAOSHOS=1, CAOSSYS, CAOSNET, or CAOSVEN=1
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
FFDMHOS=1, FFDMSYS, FFDMNET, or FFDMVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
KDNYHOS=1, KYDNYSYS, KDNYNET, or KDNYVEN=1
MSCTHOS MSCTSYS, MSCTNET, MSCTVEN, MSCTGHOS, MSCTGSYS, MSCTGNET, or MSCTGVEN=1
PETHOS, PETSYS, PETNET, PETVEN=1
ROBOHOS=1, ROBOSYS, ROBONET, or ROBOVEN=1
BEAMHOS=1, BEAHMSYS, BEAMNET, or BEAMVEN=1
SPECTHOS=1, SPECTSYS, SPECTNET, SPECTVEN=1
SRADHOS=1, SRADSYS, SRADNET, SRADVEN=1

**Cancer Advanced Technologies (Total of 7 points possible)**

1 point awarded if...
OTBONHOS=1, OTBONSYS, OTBONNET, OTBONVEN=1
FFDMHOS=1, FFDMSYS, FFDMNET, or FFDMVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
BEAMHOS=1, BEAHMSYS, BEAMNET, or BEAMVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Ear, Nose, and Throat Advanced Technologies (Total of 3 points possible)**

<b>1 point awarded if...</b>
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Endocrinology Advanced Technologies (Total of 5 points possible)**

<b>1 point awarded if...</b>
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Gastrointestinal Disorders Advanced Technologies (Total of 4 points possible)**

<b>1 point awarded if...</b>
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Geriatric Care Advanced Technologies (Total of 2 points possible)**

<b>1 point awarded if...</b>
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1

**Gynecology Advanced Technologies (Total of 5 points possible)**

<b>1 point awarded if...</b>
FFDMHOS=1, FFDMSYS, FFDMNET, or FFDMVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Heart and Heart Surgery Advanced Technologies (Total of 4 points possible)**

1 point awarded if...
CICHOS=1, CICSYS, CICNET, or CICVEN=1
MSCTHOS MSCTSYS, MSCTNET, MSCTVEN, MSCTGHOS, MSCTGSYS, MSCTGNET, or MSCTGVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
ROBOHOS=1, ROBOSYS, ROBONET, or ROBOVEN=1
SPECTHOS=1, SPECTSYS, SPECTNET, SPECTVEN=1

**Kidney Disease Advanced Technologies (Total of 7 points possible)**

1 point awarded if...
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
KDNYHOS=1, KYDNYSYS, KDNYNET, or KDNYVEN=1
MSCTHOS MSCTSYS, MSCTNET, MSCTVEN, MSCTGHOS, MSCTGSYS, MSCTGNET, or MSCTGVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Neurology and Neurosurgery Advanced Technologies (Total of 7 points possible)**

1 point awarded if...
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
ROBOHOS=1, ROBOSYS, ROBONET, or ROBOVEN=1
SPECTHOS=1, SPECTSYS, SPECTNET, or SPECTVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

**Orthopedics Advanced Technologies (Total of 1 point possible)**

1 point awarded if...
CAOSHOS=1, CAOSSYS, CAOSNET, or CAOSVEN=1

### Respiratory Disorders Advanced Technologies (Total of 6 points possible)

1 point awarded if...
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
MSCTHOS MSCTSYS, MSCTNET, MSCTVEN, MSCTGHOS, MSCTGSYS, MSCTGNET, or MSCTGVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
SRADHOS=1, SRADSYS, SRADNET, or SRADVEN=1

### Urology Advanced Technologies (Total of 6 points possible)

1 point awarded if...
DRADFHOS=1, DRADFSYS, DRADFNET, or DRADFVEN=1
IGRTHOS=1, IGRTSYS, IGRTNET, or IGRTVEN=1
AIRBHOS=1, AIRBSYS, AIRBNET, or AIRBVEN=1
PETHOS, PETSYS, PETNET, or PETVEN=1
ROBOHOS=1, ROBOSYS, ROBONET, or ROBOVEN=1
SRADHOS=1, SRADSYS, SRADNET, SRADVEN=1

### Nursing Staffing Index

Index equals:
Full-time Equivalent Registered Nurses (FTEN where available, FTERN otherwise) divided by Adjusted Average Daily Census (ADJADC)

### Trauma Center Index

"Yes" if...
TRAUML90=1 or 2 and TRAUMHOS=1

**Cancer Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Ear, Nose, and Throat Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Endocrinology Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Gastrointestinal Disorders Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Geriatric Care Patient Services (Total of 9 points possible)**

1 point awarded if...
ALZHOS=1
ARTHCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
PSYHOS=1
REHABHOS=1
LINGHOS=1

**Gynecology Patient Services (Total of 8 points possible)**

1 point awarded if...
FRTCHOS=1
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Heart and Heart Surgery Patient Services (Total of 6 points possible)**

1 point awarded if...
CHABHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
LINGHOS=1

**Kidney Disease Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Neurology and Neurosurgery Patient Services (Total of 8 points possible)**

1 point awarded if...
ALZHOS=1
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Orthopedics Patient Services (Total of 7 points possible)**

1 point awarded if...
ARTHCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Respiratory Disorders Patient Services (Total of 7 points possible)**

1 point awarded if...
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Urology Patient Services (Total of 8 points possible)**

1 point awarded if...
FRTCHOS=1
GNTCHOS=1
HOSPCHOS, SYS, NET, or VEN=1
PAINHOS=1
PALHOS, SYS, NET, or VEN=1
PCAHOS=1
REHABHOS=1
LINGHOS=1

**Appendix D**  
**2008 Diagnosis Related Group (DRG)**  
**Groupings, by Specialty**

## Cancer<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
10	NERVOUS SYSTEM NEOPLASMS W CC	Include all	3	1.1295
11	NERVOUS SYSTEM NEOPLASMS W/O CC	Include all	3	1.5192
64	EAR, NOSE, MOUTH & THROAT MALIGNANCY	Include all	2	1.2682
82	RESPIRATORY NEOPLASMS	Include all	2	0.9051
172	DIGESTIVE MALIGNANCY W CC	Include all	2	0.9399
173	DIGESTIVE MALIGNANCY W/O CC	Include all	2	1.1336
199	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	Include all	2	1.0185
203	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	Include all	2	0.9689
239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	Include diag: 7339, 73390-9	2	0.7796
257	TOTAL MASTECTOMY FOR MALIGNANCY W CC	Include all	2	0.9555
258	TOTAL MASTECTOMY FOR MALIGNANCY W/O CC	Include all	2	1.8649
259	SUBTOTAL MASTECTOMY FOR MALIGNANCY W CC	Include all	2	0.9457
260	SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC	Include all	2	0.9092
272	MAJOR SKIN DISORDERS W CC	Include diag: 172, 1720-9	2	1.6904
273	MAJOR SKIN DISORDERS W/O CC	Include diag: 172, 1720-9	2	2.5045
274	MALIGNANT BREAST DISORDERS W CC	Include all	2	1.2574
275	MALIGNANT BREAST DISORDERS W/O CC	Include all	2	1.2957
303	KIDNEY, URETER & MAJOR BLADDER PROCEDURES FOR NEOPLASM	Include all	3	0.8863
318	KIDNEY & URINARY TRACT NEOPLASMS W CC	Include all	3	0.8359
319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	Include all	3	2.5045
338	TESTES PROCEDURES, FOR MALIGNANCY	Include all	2	0.9529
344	OTHER MALE REPRODUCTIVE SYSTEM OR PROCEDURES FOR MALIGNANCY	Include all	2	0.9618
346	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W CC	Include all	2	0.7678
347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W/O CC	Include all	2	1.0264
354	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC	Include all	2	1.1285
355	UTERINE, ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	Include all	2	2.0229
357	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY	Include all	2	1.4006
363	D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	Include all	2	1.2585
366	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC	Include all	2	1.1470
367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	Include all	2	1.8520
401	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER OR PROC W CC	Include all	2	0.9540
402	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER OR PROC W/O CC	Include all	2	1.3975
403	LYMPHOMA & NON-ACUTE LEUKEMIA W CC	Include all	2	0.8534
404	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	Include all	2	1.1928
406	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ OR PROC W CC	Include all	2	1.2293
407	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ OR PROC W/O CC	Include all	2	1.7654
408	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER OR PROC	Include all	2	1.1812
410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	Include all	3	1.7438
413	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC	Include all	3	0.9848
414	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC	Include all	3	2.1533
473	ACUTE LEUKEMIA W/O MAJOR OR PROCEDURE AGE >17	Include all	2	1.1111
481	BONE MARROW TRANSPLANT	Include all	1	2.5045
492	CHEMOTHERAPY W ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	Include all	2	2.5045

DRG	DRG_Title	ICD-9-CM	Severity	Weight
539	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W CC	Include all	2	1.1111
540	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W/O CC	Include all	2	1.6523
543	CRANIOTOMY W/IMPLANT OF CHEMO AGENT OR ACUTE COMPLEX CNS PDX	Include proc: 0010	2	1.5846
546	SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY	Include diag: 1702, 1985	2	1.0000

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

### Ears, Nose, and Throat<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
49	MAJOR HEAD & NECK PROCEDURES	Include all	2	1.0886
51	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY	Include all	3	1.0000
57	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	Include all	3	1.5227
63	OTHER EAR, NOSE, MOUTH & THROAT OR PROCEDURES	Include all	3	2.1330
64	EAR, NOSE, MOUTH & THROAT MALIGNANCY	Include all	2	1.0935
67	EPIGLOTTITIS	Include all	3	1.2904
68	OTITIS MEDIA & URI AGE >17 W CC	Include all	3	0.7095
71	LARYNGOTRACHEITIS	Include all	3	2.2791
72	NASAL TRAUMA & DEFORMITY	Include all	3	0.6959
73	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES AGE >17	Include all	3	0.6636
482	TRACHEOSTOMY FOR FACE, MOUTH & NECK DIAGNOSES	Include all	2	1.2178

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

### Endocrinology<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
286	ADRENAL & PITUITARY PROCEDURES	Include all	2	2.1211
287	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS	Include all	2	1.1393
288	OR PROCEDURES FOR OBESITY	Include all	2	2.6718
289	PARATHYROID PROCEDURES	Exclude proc: 0613	2	1.0686
290	THYROID PROCEDURES	Exclude proc: 0610-3; 0619	2	1.8574
292	OTHER ENDOCRINE, NUTRIT & METAB OR PROC W CC	Include all	2	0.9686
293	OTHER ENDOCRINE, NUTRIT & METAB OR PROC W/O CC	Include all	2	1.9892
294	DIABETES AGE >35	Include all	3	0.9779
296	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W CC	Include all	3	0.7518
300	ENDOCRINE DISORDERS W CC	Include all	3	0.8948

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## Gastrointestinal Disorders<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
146	RECTAL RESECTION W CC	Include all	1	1.0650
147	RECTAL RESECTION W/O CC	Include all	2	1.7350
148	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC	Include all	2	1.0394
149	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC	Include all	2	1.8859
150	PERITONEAL ADHESIOLYSIS W CC	Include all	2	1.0993
151	PERITONEAL ADHESIOLYSIS W/O CC	Include all	2	2.2067
152	MINOR SMALL & LARGE BOWEL PROCEDURES W CC	Include all	2	1.1946
153	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC	Exclude proc: 4511, 4515, 4521, 4821	3	2.2067
154	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W CC	Include all	2	1.0700
155	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W/O CC	Include all	3	1.8021
170	OTHER DIGESTIVE SYSTEM OR PROCEDURES W CC	Include all	2	0.9974
171	OTHER DIGESTIVE SYSTEM OR PROCEDURES W/O CC	Include all	3	1.5956
172	DIGESTIVE MALIGNANCY W CC	Include all	2	0.9837
173	DIGESTIVE MALIGNANCY W/O CC	Include all	2	1.1864
174	G.I. HEMORRHAGE W CC	Include all	2	0.7791
175	G.I. HEMORRHAGE W/O CC	Include all	2	0.9801
176	COMPLICATED PEPTIC ULCER	Include all	2	0.9123
177	UNCOMPLICATED PEPTIC ULCER W CC	Include all	3	0.8353
179	INFLAMMATORY BOWEL DISEASE	Include all	2	2.0651
180	G.I. OBSTRUCTION W CC	Include all	3	0.7515
182	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE >17 W CC	Include all	3	0.8230
188	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 W CC	Include all	2	0.9000
191	PANCREAS, LIVER & SHUNT PROCEDURES W CC	Include all	1	1.4209
192	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	Include all	2	2.0670
193	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC	Include all	2	1.0419
194	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E W/O CC	Include all	3	1.0000
195	CHOLECYSTECTOMY W C.D.E. W CC	Include all	2	0.9656
196	CHOLECYSTECTOMY W C.D.E. W/O CC	Include all	2	1.8505
197	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC	Include all	2	1.0067
199	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	Include all	2	1.0658
200	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	Include all	2	1.3757
201	OTHER HEPATOBIILIARY OR PANCREAS OR PROCEDURES	Exclude proc: 4011	3	1.1271
202	CIRRHOSIS & ALCOHOLIC HEPATITIS	Include all	2	1.7774
203	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	Include all	2	1.0139
204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	Include all	2	1.4602
205	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC	Exclude diag: 7948	2	1.4327
207	DISORDERS OF THE BILIARY TRACT W CC	Include all	3	0.8234
493	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC	Include all	3	1.0082

<sup>a</sup> The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## Gynecology<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	Include all	1	0.8497
354	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC	Include all	2	0.5640
355	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	Include all	2	1.0110
357	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY	Include all	2	0.7000
358	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC	Include all	2	1.5732
359	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC	Include all	3	1.5881
360	VAGINA, CERVIX & VULVA PROCEDURES	Exclude proc: 7021-7024, 7029	3	0.5323
363	D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	Include all	2	0.6290
365	OTHER FEMALE REPRODUCTIVE SYSTEM OR PROCEDURES	Include all	2	1.2067
366	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC	Include all	2	0.5732
367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	Include all	2	0.9256
368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	Include all	3	0.4543
369	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS	Include all	3	0.6716

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## Heart and Heart Surgery<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
75	MAJOR CHEST PROCEDURES	Incl. Procs: 3712, 3724, 3731, 3791, 3805, 3815, 3835, 3845, 3855, 3865, 3885, 3954, 3173, 3175, 3179, 3209, 321, 3221-2, 3228-9, 323-6, 329- 31, 3321, 3325, 3328, 3334, 3339, 3341-3, 3348-9, 3392, 3398-9, 3402, 3427, 3451, 3459, 346, 3473-4, 3481-5, 3489, 3493	2	1.8472
103	HEART TRANSPLANT	Include all	1	1.8756
104	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH	Include all	2	1.0914
105	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH	Include all	2	1.2979
106	CORONARY BYPASS W PTCA	Include all	2	1.4943
107	CORONARY BYPASS W CARDIAC CATH	Include all	2	1.3168
108	OTHER CARDIOTHORACIC PROCEDURES	Include all	2	1.8756
109	CORONARY BYPASS W/O PTCA OR CARDIAC CATH	Include all	2	1.3156
110	MAJOR CARDIOVASCULAR PROCEDURES W CC	Include all	2	1.1717
111	MAJOR CARDIOVASCULAR PROCEDURES W/O CC	Include all	2	1.4629
115	PRM CARD PACEM IMPL W AMI,HRT FAIL OR SHK,OR AICD LEAD OR GN	Include all	2	0.8747
116	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT	Include all	3	0.8186
117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	Include all	2	0.9535

DRG	DRG_Title	ICD-9-CM	Severity	Weight
121	CIRCULATORY DISORDERS W AMI & MAJOR COMP, DISCHARGED ALIVE	Include all	2	0.8773
122	CIRCULATORY DISORDERS W AMI W/O MAJOR COMP, DISCHARGED ALIVE	Include all	2	1.2151
123	CIRCULATORY DISORDERS W AMI, EXPIRED	Include all	2	0.8362
124	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH & COMPLEX DIAG	Include all	2	1.1778
126	ACUTE & SUBACUTE ENDOCARDITIS	Include all	2	1.3241
127	HEART FAILURE & SHOCK	Include all	2	0.8875
135	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 W CC	Include all	2	0.9635
138	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC	Include all	2	0.9384
144	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC	Include all	2	1.2074
145	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC	Include all	3	1.8756
478	OTHER VASCULAR PROCEDURES W/ CC	Include all	2	0.9584
515	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH	Include all	1	1.0466
516	PERCUTANEOUS CARDIOVASCULAR PROC W AMI	Include all	2	1.2569
517	PERC CARDIO PROC W NON-DRUG ELUTING STENT W/O AMI	Include all	3	1.0078
518	PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI	Include all	3	1.1048
525	HEART ASSIST SYSTEM IMPLANT	Include all	1	1.5572
526	PERCUT. CV PROC W/DRUG ELUTING STENT W/AMI	Include all	3	1.0920
527	PERCUT. CV PROC W/DRUG ELUTING STENT W/O AMI	Include all	3	1.0396
535	CARDIAC DEFIBRILLATOR IMPLANT W CATH W AMI, HEART FAILURE, OR SHOCK	Include all	1	1.0759
536	CARDIAC DEFIBRILLATOR IMPLANT W CATH W/O AMI, HEART FAILURE, OR SHOCK	Include all	3	1.1401
547	CORONARY BYPASS W CARDIAC CATH W MCV	Include all	2	1.2990
548	CORONARY BYPASS W CARDIAC CATH W/O MCV	Include all	3	1.2150
549	CORONARY BYPASS W/O PTCA OR CARDIAC CATH W MCV	Include all	2	1.2116
550	CORONARY BYPASS W/O PTCA OR CARDIAC CATH W/O MCV	Include all	3	1.1968
551	PRM CARD PACEM IMPL W MCV OR AICD LEAD OR GNRTR W MCV	Include all	2	0.8415
552	PRM CARD PACEM IMPL W/O MCV	Include all	3	0.8488
553	OTHER VASCULAR PROCEDURES W CC W MCV	Include all	2	0.9063
554	OTHER VASCULAR PROCEDURES W CC W/O MCV	Include all	3	0.9522
555	PERCUTANEOUS CARDIOVASC PROC W MCV	Include all	2	1.1732
556	PERC CARDIO PROC W NON-DRUG ELUTING STENT W/O MCV	Include all	3	0.9573
557	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W MCV	Include all	2	1.1780
558	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W/O MCV	Include all	3	0.9987

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

### Kidney Disease<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
302	KIDNEY TRANSPLANT	Include all	1	1.1903
303	KIDNEY, URETER & MAJOR BLADDER PROCEDURES FOR NEOPLASM	Incl. Proc: 3924, 5501-4, 5511-2, 5521-4, 5529, 5531, 5539, 5551-4, 5561, 5569, 557, 5581-7, 5589, 5591, 5597-9	2	1.2373
304	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL W CC	See DRG 303	2	1.3649
305	KIDNEY, URETER & MAJOR BLADDER PROC FOR NON-NEOPL W/O CC	See DRG 303	3	2.1861
315	OTHER KIDNEY & URINARY TRACT OR PROCEDURES	Excl. Proc: 0681, 0689, 3328, 3402, 3972, 640, 6495-7, 7740-9	3	1.0471
316	RENAL FAILURE	Include all	2	0.9486
318	KIDNEY & URINARY TRACT NEOPLASMS W CC	Incl. Diag: 189, 1890-4, 1898-9, 198, 1980-8, 19881-2, 19889, 223, 2230-3, 2238, 22381, 22389, 2239	2	1.1510
319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	See DRG #318	3	1.0000
320	KIDNEY & URINARY TRACT INFECTIONS AGE >17 W CC	Include diag: 0160, 01600-6, 0162, 01620-6, 0786, 0954	2	1.0000
325	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 W CC	Include All	3	0.8379
331	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W CC	Include diag: 2504, 25040-3, 27410-1, 27419, 40300-1, 40310-1, 40390-1, 4401, 4421, 44323, 44581, 4473, 4533, 580, 5800, 5804, 58081, 58089, 5809, 581, 5810-3, 58181, 58189, 5819, 582, 5820-2, 5824, 58281, 58289, 5829, 583, 5830-2, 5834, 5836, 58381, 58389, 5839, 587-8, 5880-1, 5888, 58881, 58889, 5889, 589, 5890-1, 5899, 5930-2, 5936, 866, 8660, 86600-3, 8661, 86610-3, v420, v594	3	1.1237
332	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W/O CC	See DRG 331	3	2.1861
512	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT	Include All	1	1.1878

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## Neurology and Neurosurgery<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
1	CRANIOTOMY AGE >17 W CC	Include all	1	1.3431
2	CRANIOTOMY AGE >17 W/O CC	Include all	1	2.1594
4	SPINAL PROCEDURES	Include all	2	1.0000
5	EXTRACRANIAL VASCULAR PROCEDURES	Include all	2	1.0000
7	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W CC	Include all	2	1.0598
8	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC	Include all	2	1.9558
9	SPINAL DISORDERS & INJURIES	Include all	2	1.4560
10	NERVOUS SYSTEM NEOPLASMS W CC	Include all	2	1.2176
11	NERVOUS SYSTEM NEOPLASMS W/O CC	Include all	2	1.4250
12	DEGENERATIVE NERVOUS SYSTEM DISORDERS	Include all	2	0.6887
13	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	Include all	2	1.3913
14	INTRACRANIAL HEMORRHAGE & STROKE W INFARCT	Include all	2	0.8116
15	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT	Include all	2	0.7511
16	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC	Include all	2	0.7835
18	CRANIAL & PERIPHERAL NERVE DISORDERS W CC	Include all	2	1.0041
19	CRANIAL & PERIPHERAL NERVE DISORDERS W/O CC	Include all	2	1.3443
20	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS	Include all	2	2.0083
21	VIRAL MENINGITIS	Include all	2	3.3607
22	HYPERTENSIVE ENCEPHALOPATHY	Include all	2	0.9150
23	NONTRAUMATIC STUPOR & COMA	Include all	2	0.8685
24	SEIZURE & HEADACHE AGE >17 W CC	Include all	2	1.1590
27	TRAUMATIC STUPOR & COMA, COMA >1 HR	Include all	1	2.0728
28	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W CC	Include all	1	1.0018
29	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W/O CC	Include all	1	1.5934
34	OTHER DISORDERS OF NERVOUS SYSTEM W CC	Include all	3	0.9709
35	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	Include all	3	1.5194
484	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA	Include all	1	3.3607
496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION	Include all	2	2.7839
497	SPINAL FUSION EXCEPT CERVICAL W CC	Include all	2	1.2973
498	SPINAL FUSION EXCEPT CERVICAL W/O CC	Include all	2	1.9027
499	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W CC	Include all	3	0.8615
500	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC	Include all	3	1.0621
519	CERVICAL SPINAL FUSION W CC	Include all	2	1.4208
520	CERVICAL SPINAL FUSION W/O CC	Include all	2	2.3065
524	TRANSIENT ISCHEMIA	Include all	3	0.6885
528	INTRACRANIAL VASC PROC W PDX HEMORRHAGE	Include all	1	2.8072
529	VENTRICULAR SHUNT PROC W CC	Include all	2	1.1102
530	VENTRICULAR SHUNT PROC W/O CC	Include all	2	0.8993
531	SPINAL PROCEDURES W CC	Include all	2	1.8647
532	SPINAL PROCEDURES W/O CC	Include all	2	3.3607
533	EXTRACRANIAL VASCULAR PROC W CC	Include all	2	0.7373
543	CRANIOTOMY W/IMPLANT OF CHEMO AGENT OR ACUTE COMPLEX CNS PDX	Include all	1	1.4689
546	SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY	Include all	2	2.1287
559	ACUTE ISCHEMIC STROKE W THROMBOLYTIC AGENT	Include all	2	0.8934

<sup>a</sup> The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## Orthopedics<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
4	SPINAL PROCEDURES	Incl. Proc: 7781, 7791, 8050-1, 8059, 8100-9, 8130-9, 8161	3	1.0000
209	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY	Include all	2	0.9441
210	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W CC	Include all	2	0.7523
211	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W/O CC	Include all	3	1.6568
218	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 W CC	Include all	2	1.3025
219	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE >17 W/O CC	Include all	3	3.3922
223	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC W CC	Include all	2	1.2069
225	FOOT PROCEDURES	Include all	3	1.4064
226	SOFT TISSUE PROCEDURES W CC	Include all	3	1.3458
228	MAJOR THUMB OR JOINT PROC, OR OTH HAND OR WRIST PROC W CC	Include all	3	1.3951
230	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	Include all	3	1.0659
233	OTHER MUSCULOSKELET SYS & CONN TISS OR PROC W CC	Include proc: 7601, 7631, 7639 7641-6, 765, 7661- 70, 7672, 7674 7676-7, 7679 7691-2, 7694, 7699- 7701, 7709, 7720-1, 7729-31, 7739, 7780-1, 7789-91, 7799-801, 7809-11, 7813, 7819-20, 7830, 7839-41, 7849-51, 7859, 7870-1, 7879, 7890- 91, 7899, 7910, 7919-20, 7929-30, 7939-40, 7959-60, 7969, 7980, 7989- 90, 810, 8019-20, 8040, 8049, 8090, 8118, 8120, 8129, 8159, 8165-6, 8196-7, 8199, 8429 8440, 8492-3, 8499	3	0.8130
234	OTHER MUSCULOSKELET SYS & CONN TISS OR PROC W/O CC	Include all	3	0.8880
235	FRACTURES OF FEMUR	Include all	2	1.2844
236	FRACTURES OF HIP & PELVIS	Include all	2	0.7677
238	OSTEOMYELITIS	Include all	3	0.9987
239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	Include diag: 7339, 73390-6, 73399	3	0.7593
471	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY	Include all	2	1.1364
485	LIMB REATTACHMENT, HIP AND FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA	Include all	1	2.3545
491	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY	Include all	1	0.9369
496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION	Include all	2	2.9877

DRG	DRG_Title	ICD-9-CM	Severity	Weight
497	SPINAL FUSION EXCEPT CERVICAL W CC	Include all	2	1.3922
498	SPINAL FUSION EXCEPT CERVICAL W/O CC	Include all	2	2.0420
499	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W CC	Include all	2	1.0409
500	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC	Include all	2	1.5483
501	KNEE PROCEDURES W PDX OF INFECTION W CC	Include all	2	1.0874
502	KNEE PROCEDURES W PDX OF INFECTION W/O CC	Include all	2	2.0803
519	CERVICAL SPINAL FUSION W CC	Include all	2	1.5248
520	CERVICAL SPINAL FUSION W/O CC	Include all	2	2.4754
531	SPINAL PROCEDURES W CC	Include proc: 7781, 7791, 8050-1, 8059, 8100-9, 8130-9, 8161	3	2.5563
532	SPINAL PROCEDURES W/O CC	See DRG 531	3	3.3922
537	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC	Include all	2	1.2978
538	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC	Include all	3	2.9794
544	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY	Include all	2	0.9745
545	REVISION OF HIP OR KNEE REPLACEMENT	Include all	3	0.8939
546	SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY	Include all	2	2.2846

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

### Respiratory Disorders<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
75	MAJOR CHEST PROCEDURES	Include proc: 3712, 3724, 3731, 3791, 3805, 3815, 3835, 3845, 3855, 3865, 3885, 3954, 3173, 3175, 3179, 3209, 321, 3221-2, 3228-9, 323-6, 329-331, 3321, 3325, 3328, 3334, 3339, 3341-3, 3348- 9, 3392, 3398-9, 3402, 3427, 3451, 3459, 346, 3473-4, 3481-5, 3489, 3493	2	1.4364
76	OTHER RESP SYSTEM OR PROCEDURES W CC	Include all	2	1.1191
77	OTHER RESP SYSTEM OR PROCEDURES W/O CC	Include all	3	2.6634
78	PULMONARY EMBOLISM	Include all	1	1.3629
79	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W CC	Exclude diag: V712, 7955	2	0.8475
80	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W/O CC	Exclude diag: V712, 7955	2	1.0966
82	RESPIRATORY NEOPLASMS	Exclude diag: 2120-9, 2133	2	1.1165
83	MAJOR CHEST TRAUMA W CC	Include all	1	1.3928
84	MAJOR CHEST TRAUMA W/O CC	Include all	1	2.1472
85	PLEURAL EFFUSION W CC	Include all	3	1.0239
87	PULMONARY EDEMA & RESPIRATORY FAILURE	Include all	2	0.9389

DRG	DRG_Title	ICD-9-CM	Severity	Weight
88	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	Include all	3	0.8812
89	SIMPLE PNEUMONIA & PLEURISY AGE >17 W CC	Include all	3	0.8480
92	INTERSTITIAL LUNG DISEASE W CC	Include all	3	0.9839
93	INTERSTITIAL LUNG DISEASE W/O CC	Include all	3	2.6634
94	PNEUMOTHORAX W CC	Exclude diag: 5121	2	1.7789
96	BRONCHITIS & ASTHMA AGE >17 W CC	Include all	3	1.0845
475	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT	Include all	2	1.1068
483	TRAC W MECH VENT 96+HRS OR PDX EXCEPT FACE,MOUTH & NECK DX	Include all	1	1.3865
495	LUNG TRANSPLANT	Include all	1	2.3202
541	ECMO OR TRACH W MV 96+HRS OR PDX EXC FACE,MOUTH, & NECK DX W/MAJ OR	Include all	1	1.4386
542	ECMO OR TRACH W MV 96+HRS OR PDX EXC FACE, MOUTH, & NECK DX W/O MJ OR	Include all	1	1.1877

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

### Urology<sup>a</sup>

DRG	DRG_Title	ICD-9-CM	Severity	Weight
303	KIDNEY,URETER & MAJOR BLADDER PROCEDURES FOR NEOPLASM	Exclude proc: 3924, 3926, 3955, 5501-4, 5511-2, 5524, 5529, 5531, 5539, 554, 5551-4, 5561, 5569, 557, 5581-9, 5591, 5597-9	2	1.0897
304	KIDNEY,URETER & MAJOR BLADDER PROC FOR NON-NEOPL W CC	Exclude proc: 3924, 3926, 3955, 5501-4, 5511-2, 5521-5524, 5529, 5531, 5539, 554, 5551-4, 5561, 5569, 557, 5581-9, 5591, 5597-9	2	1.9605
305	KIDNEY,URETER & MAJOR BLADDER PROC FOR NON-NEOPL W/O CC	See DRG 303	3	2.3534
306	PROSTATECTOMY W CC	Include all	3	0.7713
308	MINOR BLADDER PROCEDURES W CC	Include all	3	1.0144
309	MINOR BLADDER PROCEDURES W/O CC	Include all	3	2.3534
310	TRANSURETHRAL PROCEDURES W CC	Include all	3	0.9525
312	URETHRAL PROCEDURES, AGE >17 W CC	Include all	3	0.9635
315	OTHER KIDNEY & URINARY TRACT OR PROCEDURES	Include Proc: 6495-7	3	0.8197
318	KIDNEY & URINARY TRACT NEOPLASMS W CC	Exclude Diag: 189, 1890-4, 1898-9, 198, 1980-8, 19881-2, 19889, 223, 2230-3, 2238, 22381, 22389, 2239	2	0.9326
319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	See DRG 318	3	0.6496
323	URINARY STONES W CC, &/OR ESW LITHOTRIPSY	Include all	3	1.2524
328	URETHRAL STRICTURE AGE >17 W CC	Include all	3	0.9469

DRG	DRG_Title	ICD-9-CM	Severity	Weight
331	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W CC	Exclude diag: 2504, 25041-3, 27410-1, 27419, 40300-1, 40310-1, 40390-1, 4401, 4421, 44323, 44581, 4473, 4533, 580, 5800, 5804, 58081, 58089, 5809, 581, 5810-3, 58181, 58189, 5819, 582, 5820-2, 5824, 58281, 58289, 5829, 583, 5830-2, 5834, 5836, 58381, 58389, 5839, 587-8, 5880-1, 5888-9, 589, 5890, 5890-1, 5899, 5930-2, 5936, 866, 8660, 86600-3, 8661, 86610-3, v420, v594	3	0.9083
332	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W/O CC	See DRG 331	3	1.2859
334	MAJOR MALE PELVIC PROCEDURES W CC	Include all	2	1.5404
335	MAJOR MALE PELVIC PROCEDURES W/O CC	Include all	2	2.0850
336	TRANSURETHRAL PROSTATECTOMY W CC	Include all	2	0.7845
338	TESTES PROCEDURES, FOR MALIGNANCY	Include all	2	1.1325
339	TESTES PROCEDURES, NON-MALIGNANCY AGE >17	Include all	3	1.1398
341	PENIS PROCEDURES	Include all	3	1.2123
344	OTHER MALE REPRODUCTIVE SYSTEM OR PROCEDURES FOR MALIGNANCY	Include all	2	1.1431
345	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	Include all	3	1.0158
346	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W CC	Include all	2	0.9126
347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W/O CC	Include all	2	1.2199
350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	Include all	3	1.0792
352	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES	Include all	3	1.2715
476	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	Include all	3	0.7481

<sup>a</sup>The Geriatric Care specialty includes the full set of DRGs used for all specialties.

## **Appendix E**

### **2008 Changes to DRG Groupings for Mortality**

All of the changes to the DRGs for the 2008 rankings—except DRG 543, in bold below—are due to CMS’ restructuring of several DRGs. In cases where new DRGs have been created from older categories, both DRG groupings were used in the 2008 rankings: the older DRGs for previous years’ data, the newer DRGs for the most recent data year. The older DRG groupings are listed in the 2006 and 2007 methodology reports, available at [www.rti.org/besthospitals](http://www.rti.org/besthospitals). Any changes to individual specialties also are reflected in the Geriatric Care rankings, which draw on mortality data from other specialties.

Specialty	DRGs Added or Revised	DRGs Removed
Cancer	<b>543: CRANIOTOMY W/IMPLANT OF CHEMO AGENT OR ACUTE COMPLEX CNS PDX</b> 546: SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY	400: LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE
Ear, Nose, and Throat	No changes.	No changes.
Endocrinology	No changes.	No changes.
Gastrointestinal Disorders	No changes.	No changes.
Gynecology	No changes.	No changes.
Heart and Heart Surgery	107: CORONARY BYPASS W CARDIAC CATH 109: CORONARY BYPASS W/O PTCA OR CARDIAC CATH 115: PRM CARD PACEM IMPL W AMI,HRT FAIL OR SHK,OR AICD LEAD OR GN 116: OTHER PERMANENT CARDIAC PACEMAKER IMPLANT 478: OTHER VASCULAR PROCEDURES W CC 516: PERCUTANEOUS CARDIOVASCULAR PROC W AMI 517: PERC CARDIO PROC W NON-DRUG ELUTING STENT W/O AMI 526: PERCUT. CV PROC W/DRUG ELUTING STENT W/AMI 527: PERCUT. CV PROC W/DRUG ELUTING STENT W/O AMI 547: CORONARY BYPASS W CARDIAC CATH W MCV 548: CORONARY BYPASS W CARDIAC CATH W/O MCV 549: CORONARY BYPASS W/O PTCA OR CARDIAC CATH W MCV 550: CORONARY BYPASS W/O PTCA OR CARDIAC CATH W/O MCV 551: PRM CARD PACEM IMPL W MCV OR AICD LEAD OR GNRTR W MCV 552: PRM CARD PACEM IMPL W/O MCV 553: OTHER VASCULAR PROCEDURES W CC W MCV 554: OTHER VASCULAR PROCEDURES W CC W/O MCV 555: PERCUTANEOUS CARDIOVASC PROC W MCV 556: PERCUTANEOUS CARDIOVASC PROC W/O MCV 557: PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W MCV 558: PERCUTNEOUS CARDIOVASULAR PROC W DRUG	514: CARDIAC DEFIBRILLATOR IMPLANT W CARDIAC CATH

Specialty	DRGs Added or Revised	DRGs Removed
	<i>ELUTING STENT W/O MCV</i>	
Kidney Disease	No changes.	No changes.
Neurology and Neurosurgery	<i>014: INTRACRANIAL HEMORRHAGE &amp; STROKE W INFARCT</i> <i>015: NONSPECIFIC CVA &amp; PRECEREBRAL OCCLUSION W/O INFARCT</i> <i>496: COMBINED ANTERIOR/POSTERIOR SPINAL FUSION</i> <i>497: SPINAL FUSION EXCEPT CERVICAL W CC</i> <i>498: SPINAL FUSION EXCEPT CERVICAL W/O CC</i> <i>524: TRANSIENT ISCHEMIA</i> <i>546: SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY</i> <i>559: ACUTE ISCHEMIC STROKE W THROMBOLYTIC AGENT</i>	
Orthopedics	<i>209: MAJOR JOINT &amp; LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY</i> <i>496: COMBINED ANTERIOR/POSTERIOR SPINAL FUSION</i> <i>497: SPINAL FUSION EXCEPT CERVICAL W CC</i> <i>498: SPINAL FUSION EXCEPT CERVICAL W/O CC</i> <i>544: MAJOR JOINT &amp; LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY</i> <i>545: REVISION OF HIP OR KNEE REPLACEMENT</i> <i>546: SPINAL FUSION EXCEPT CERVICAL W CURVATURE OF SPINE OR MALIGNANCY</i>	<i>231: LOCAL EXCIS &amp; REMOV OF INT FIX DEV EXCEPT HIP &amp; FEMUR</i>
Respiratory Disorders	<i>No changes.</i>	No changes.
Urology	No changes.	No changes.

**Appendix F**

**2008 Index of Hospital Quality (IHQ)**

**Scores, by Specialty**

### Final IHQ-Driven Rankings 2008—Cancer

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index		Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	NCI cancer center	FACT credit	Advanced technologies (of 7)	Patient services (of 7)	
1	University of Texas M.D. Anderson Cancer Center, Houston	100.0	64.1	0.52		6,201	1.9	Yes	Yes	1.0	7	6	
2	Memorial Sloan-Kettering Cancer Center, New York	93.3	59.8	0.64		6,934	1.7	No	Yes	1.0	7	6	
3	Johns Hopkins Hospital, Baltimore	66.6	33.4	0.65		2,150	2.2	Yes	Yes	1.0	7	7	
4	Mayo Clinic, Rochester, Minn.	60.8	27.0	0.60		4,951	2.8	Yes	Yes	1.0	7	7	
5	Dana-Farber Cancer Institute, Boston	49.4	28.6	1.06		202	0.9	Yes	Yes	1.0	7	6	
6	University of Washington Medical Center, Seattle	47.7	16.4	0.57		1,119	2.1	Yes	Yes	1.0	6	7	
7	Massachusetts General Hospital, Boston	43.5	13.3	0.76		2,507	2.0	Yes	Yes	1.0	7	6	
8	University of California, San Francisco Medical Center	40.7	13.0	0.77		1,523	2.1	No	Yes	1.0	6	5	
9	Stanford Hospital and Clinics, Stanford, Calif.	39.1	11.5	0.81		1,197	1.8	Yes	Yes	1.0	7	5	
10	Ronald Reagan UCLA Medical Center, Los Angeles	38.7	7.2	0.57		1,501	2.5	Yes	Yes	1.0	7	6	
11	Duke University Medical Center, Durham, N.C.	38.4	8.1	0.72		2,667	1.9	Yes	Yes	1.0	7	6	
12	Hospital of the University of Pennsylvania, Philadelphia	37.8	6.7	0.65		1,919	1.9	Yes	Yes	1.0	7	7	(+3 SD)
13	Cleveland Clinic	37.4	6.8	0.69		3,193	1.7	Yes	Yes	1.0	7	6	
14	Vanderbilt University Medical Center, Nashville	36.8	5.8	0.60		1,520	2.1	Yes	Yes	1.0	7	6	
15	Fox Chase Cancer Center, Philadelphia	35.6	8.6	0.80		1,057	1.6	Yes	Yes	1.0	6	6	
16	H. Lee Moffitt Cancer Center and Research Institute, Tampa	35.4	5.5	0.55		2,106	1.5	No	Yes	1.0	7	6	
17	University of Michigan Hosps. and Health Centers, Ann Arbor	33.9	4.3	0.72		2,321	2.6	No	Yes	1.0	7	7	
18	University of Chicago Medical Center	33.6	4.4	0.78		1,780	2.5	Yes	Yes	1.0	7	6	
19	Ohio State University James Cancer Hospital, Columbus	32.6	3.3	0.78		3,145	2.0	Yes	Yes	1.0	6	7	
20	University of Alabama Hospital at Birmingham	32.3	3.0	0.75		1,805	2.3	Yes	Yes	1.0	6	6	
21	Barnes-Jewish Hospital/Washington University, St. Louis	32.2	3.9	0.84		3,816	1.9	Yes	Yes	1.0	7	7	
22	City of Hope, Duarte, Calif.	32.2	5.6	0.79		1,079	2.1	No	Yes	1.0	6	6	
23	University of Iowa Hospitals and Clinics, Iowa City	31.5	1.2	0.60		1,326	1.6	Yes	Yes	1.0	7	7	
24	UPMC-University of Pittsburgh Medical Center	31.1	4.3	0.86		2,804	2.0	No	Yes	1.0	7	7	
25	Brigham and Women's Hospital, Boston	30.8	2.3	0.75		2,017	2.3	No	Yes	1.0	7	6	
26	Wake Forest Univ. Baptist Med. Center, Winston-Salem, N.C.	30.5	0.9	0.70		1,867	1.6	Yes	Yes	1.0	7	6	
27	University of Minnesota Medical Center, Fairview	30.2	0.0	0.62		1,257	1.9	Yes	Yes	1.0	7	7	
28	Thomas Jefferson University Hospital, Philadelphia	30.2	0.9	0.62		1,448	1.8	No	Yes	1.0	7	7	
29	Yale-New Haven Hospital, New Haven, Conn.	30.1	0.7	0.63		1,626	2.7	No	Yes	1.0	6	6	(+2 SD)
30	University of Wisconsin Hospital and Clinics, Madison	29.3	2.1	0.77		1,301	1.9	No	Yes	1.0	7	6	
31	Northwestern Memorial Hospital, Chicago	29.2	3.6	0.91		2,320	1.6	Yes	Yes	1.0	7	6	
32	Oregon Health and Science University, Portland	29.1	0.9	0.62		872	1.9	No	Yes	1.0	7	6	
33	Methodist Hospital, Houston	28.7	1.0	0.61		2,145	1.6	Yes	No	1.0	7	5	
34	Clarian Health, Indianapolis	28.7	1.4	0.87		2,427	2.2	Yes	Yes	1.0	7	6	
35	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	28.7	2.5	0.74		4,195	1.8	No	Yes	0	7	7	
36	University of Virginia Medical Center, Charlottesville	28.6	0.9	0.72		1,493	2.1	Yes	Yes	0	7	7	
37	NYU Medical Center, New York	28.2	1.3	0.75		1,707	1.8	Yes	Yes	0	7	6	
38	University of North Carolina Hospitals, Chapel Hill	27.6	1.1	0.79		1,310	1.8	No	Yes	1.0	6	7	
39	Nebraska Medical Center, Omaha	27.5	1.6	0.83		984	1.8	Yes	Yes	1.0	6	5	
40	University of Utah Health Care, Salt Lake City	27.1	0.5	0.77		1,059	2.0	No	Yes	1.0	7	6	
41	Mount Sinai Medical Center, New York	26.6	0.4	0.81		2,740	1.9	Yes	No	1.0	7	7	
42	University Hospitals Case Medical Center, Cleveland	26.5	1.6	0.90		1,211	1.4	Yes	Yes	1.0	7	7	
43	University of California, San Diego Medical Center	26.5	0.0	0.74		717	1.9	No	Yes	1.0	7	6	
44	Dartmouth-Hitchcock Medical Center, Lebanon, N.H.	26.4	0.2	0.80		913	2.2	Yes	Yes	.5	7	6	
45	USC Norris Cancer Hospital, Los Angeles	26.4	0.9	0.60		894	0.9	No	Yes	.5	7	4	
46	Shands at the University of Florida, Gainesville	26.2	2.2	0.83		1,522	1.5	Yes	No	1.0	7	5	
47	Emory University Hospital, Atlanta	26.2	2.3	0.81		1,416	1.9	No	No	1.0	7	6	
48	University of Maryland Medical Center, Baltimore	26.1	0.3	0.59		868	2.1	No	No	1.0	6	6	
49	Cedars-Sinai Medical Center, Los Angeles	25.9	0.5	0.85		2,317	2.1	Yes	No	1.0	7	7	
50	Beth Israel Deaconess Medical Center, Boston	25.9	0.2	0.81		1,550	1.5	No	Yes	1.0	7	5	

### Final IHQ-Driven Rankings 2008—Ear, Nose, and Throat

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 2)	Patient services (of 7)	Trauma center	
1	Johns Hopkins Hospital, Baltimore	100.0	41.3	0.66	287	2.2	Yes	2	7	Yes	
2	University of Iowa Hospitals and Clinics, Iowa City	70.1	23.6	0.26	239	1.6	Yes	2	7	Yes	
3	UPMC-University of Pittsburgh Medical Center	65.3	26.9	0.94	380	2.0	No	2	7	Yes	
4	University of Texas M.D. Anderson Cancer Center, Houston	62.1	21.9	0.60	393	1.9	Yes	2	6	No	
5	Massachusetts Eye and Ear Infirmary, Boston	61.3	22.3	0.44	209	1.6	No	1	3	Yes	
6	Barnes-Jewish Hospital/Washington University, St. Louis	56.3	16.8	0.46	325	1.9	Yes	2	7	Yes	
7	Hospital of the University of Pennsylvania, Philadelphia	55.8	17.0	0.53	375	1.9	Yes	2	7	Yes	
8	Mayo Clinic, Rochester, Minn.	52.1	13.3	0.24	516	2.8	Yes	2	7	Yes	
9	Ronald Reagan UCLA Medical Center, Los Angeles	51.5	13.1	0.15	281	2.5	Yes	2	6	Yes	
10	University of Michigan Hosps. and Health Centers, Ann Arbor	48.9	13.6	0.49	388	2.6	No	2	7	Yes	
11	Cleveland Clinic	45.6	16.9	0.94	287	1.7	Yes	2	6	No	
12	Stanford Hospital and Clinics, Stanford, Calif.	44.4	11.6	0.50	174	1.8	Yes	2	5	Yes	
13	University of Washington Medical Center, Seattle	39.1	9.7	0.60	189	2.1	Yes	2	7	No	
14	Vanderbilt University Medical Center, Nashville	36.5	10.4	0.88	239	2.1	Yes	2	6	Yes	
15	Memorial Sloan-Kettering Cancer Center, New York	36.3	7.7	0.35	382	1.7	No	2	6	No	
16	University of California, San Francisco Medical Center	36.2	9.8	0.63	190	2.1	No	2	5	No	(+3 SD)
17	Mount Sinai Medical Center, New York	30.2	5.6	0.69	302	1.9	Yes	2	7	No	
18	University of Miami, Jackson Memorial Hospital	29.5	3.2	0.34	298	1.6	No	2	7	Yes	
19	Emory University Hospital, Atlanta	28.4	3.5	0.35	270	1.9	No	2	6	No	
20	Duke University Medical Center, Durham, N.C.	27.6	4.8	0.76	181	1.9	Yes	2	6	Yes	
21	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	27.5	4.7	0.69	346	1.8	No	2	7	Yes	
22	University of Chicago Medical Center	27.3	1.7	0.44	181	2.5	Yes	2	6	Yes	
23	University of Virginia Medical Center, Charlottesville	26.6	5.1	0.87	189	2.1	Yes	2	7	Yes	
24	University of Minnesota Medical Center, Fairview	26.5	1.2	0.44	183	1.9	Yes	2	7	Yes	
25	Shands at the University of Florida, Gainesville	26.4	1.8	0.45	258	1.5	Yes	2	5	Yes	
26	Methodist Hospital, Houston	26.2	5.9	0.62	133	1.6	Yes	2	5	No	(+2 SD)
27	Clarian Health, Indianapolis	25.4	1.7	0.62	415	2.2	Yes	2	6	Yes	
28	Yale-New Haven Hospital, New Haven, Conn.	25.1	0.7	0.38	409	2.7	No	2	6	Yes	
29	University of Alabama Hospital at Birmingham	25.0	0.0	0.41	422	2.3	Yes	2	6	Yes	
30	Ohio State University Hospital, Columbus	24.7	2.2	0.72	470	2.0	Yes	2	7	Yes	
31	Massachusetts General Hospital, Boston	24.3	0.0	0.44	250	2.0	Yes	2	6	Yes	
32	St. Luke's Hospital and Health Network, Bethlehem, Pa.	24.0	0.0	0.19	175	1.7	No	2	7	Yes	
33	University of Wisconsin Hospital and Clinics, Madison	23.9	1.6	0.54	183	1.9	No	2	6	Yes	
34	University of Maryland Medical Center, Baltimore	23.8	0.8	0.47	255	2.1	No	2	6	Yes	
35	Brigham and Women's Hospital, Boston	23.2	0.4	0.46	216	2.3	No	2	6	Yes	
36	Riverside Methodist Hospital-Ohio Health, Columbus	22.6	0.3	0.26	117	1.8	Yes	2	7	Yes	
37	Tampa General Hospital	22.4	0.0	0.23	109	2.2	Yes	2	7	Yes	
38	St. John's Mercy Medical Center, St. Louis	22.2	0.0	0.11	203	1.3	No	1	6	Yes	
39	Dartmouth-Hitchcock Medical Center, Lebanon, N.H.	22.1	0.2	0.45	94	2.2	Yes	2	6	Yes	
40	St. Joseph's Hospital, Marshfield, Wis.	22.0	0.0	0.36	118	2.1	Yes	2	6	Yes	
41	Hospital of St. Raphael, New Haven, Conn.	21.7	0.0	0.44	200	1.5	No	2	6	Yes	
42	University of North Carolina Hospitals, Chapel Hill	21.7	4.4	0.96	236	1.8	No	2	7	Yes	
43	Spectrum Health, Grand Rapids, Mich.	21.5	0.0	0.47	219	1.8	No	2	5	Yes	
44	University of Kentucky Chandler Hospital, Lexington	21.4	0.0	0.49	163	1.8	Yes	2	3	Yes	
45	Loma Linda University Medical Center, Loma Linda, Calif.	21.4	0.2	0.34	140	2.5	No	2	6	Yes	
46	Christiana Care Health System, Wilmington, Del.	21.2	0.0	0.56	259	1.7	No	2	7	Yes	
47	University of California, San Diego Medical Center	21.1	1.0	0.32	73	1.9	No	2	6	Yes	
48	Beth Israel Deaconess Medical Center, Boston	21.1	0.0	0.44	186	1.5	No	2	5	Yes	
49	Mayo Clinic Hospital, Phoenix	20.6	0.4	0.57	223	2.7	No	2	6	No	
50	University Medical Center, Tucson, Ariz.	20.5	0.0	0.40	43	2.1	Yes	2	6	Yes	

### Final IHQ-Driven Rankings 2008—Endocrinology

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 5)	Patient services (of 7)	
1	Mayo Clinic, Rochester, Minn.	100.0	78.4	0.52	2,017	2.8	Yes	5	7	
2	Massachusetts General Hospital, Boston	84.1	64.8	0.65	1,510	2.0	Yes	5	6	
3	Johns Hopkins Hospital, Baltimore	65.5	42.7	0.54	939	2.2	Yes	5	7	
4	University of California, San Francisco Medical Center	46.8	24.9	0.48	823	2.1	No	5	5	
5	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	41.3	18.3	0.52	2,273	1.8	No	5	7	
6	Cleveland Clinic	37.6	16.5	0.71	1,473	1.7	Yes	5	6	
7	University of Virginia Medical Center, Charlottesville	36.2	14.1	0.69	1,055	2.1	Yes	5	7	
8	Brigham and Women's Hospital, Boston	35.9	11.7	0.46	1,006	2.3	No	5	6	
9	Hospital of the University of Pennsylvania, Philadelphia	35.5	10.6	0.54	845	1.9	Yes	5	7	(+3 SD)
10	Barnes-Jewish Hospital/Washington University, St. Louis	33.9	12.7	0.74	1,779	1.9	Yes	5	7	
11	University of Chicago Medical Center	32.1	7.9	0.60	861	2.5	Yes	5	6	
12	Ronald Reagan UCLA Medical Center, Los Angeles	32.0	11.0	0.23	546	2.5	Yes	5	6	
13	Joslin Clinic and Beth Israel Deaconess Medical Center, Boston	30.2	8.0	0.56	1,277	1.5	No	5	5	
14	Yale-New Haven Hospital, New Haven, Conn.	30.0	5.0	0.42	1,495	2.7	No	4	6	
15	Vanderbilt University Medical Center, Nashville	29.7	4.7	0.57	1,010	2.1	Yes	5	6	
16	University of Michigan Hosps. and Health Centers, Ann Arbor	28.2	2.2	0.42	1,095	2.6	No	5	7	(+2 SD)
17	Oregon Health and Science University, Portland	26.9	3.0	0.42	601	1.9	No	5	6	
18	Northwestern Memorial Hospital, Chicago	26.7	4.0	0.66	1,136	1.6	Yes	5	6	
19	Cedars-Sinai Medical Center, Los Angeles	26.4	1.7	0.64	1,353	2.1	Yes	5	7	
20	University of Colorado Hospital, Denver	26.0	5.6	0.42	419	1.7	Yes	5	6	
21	Duke University Medical Center, Durham, N.C.	25.8	4.7	0.73	955	1.9	Yes	5	6	
22	University Hospitals Case Medical Center, Cleveland	25.6	1.2	0.59	1,067	1.4	Yes	5	7	
23	University of Minnesota Medical Center, Fairview	25.4	2.0	0.64	696	1.9	Yes	5	7	
24	University of Washington Medical Center, Seattle	25.2	11.9	0.99	433	2.1	Yes	4	7	
25	Beaumont Hospital, Royal Oak, Mich.	25.2	0.0	0.60	1,592	1.6	Yes	5	7	
26	Abbott Northwestern Hospital, Minneapolis	24.9	0.0	0.47	854	1.9	No	5	7	
27	John Muir Medical Center, Walnut Creek, Calif.	24.8	0.0	0.58	651	2.1	Yes	5	7	
28	Washington Hospital Center, Washington, D.C.	24.4	3.8	0.69	1,599	1.5	No	5	6	
29	Christ Hospital, Cincinnati	24.3	0.0	0.47	958	1.9	No	4	7	
30	UPMC-University of Pittsburgh Medical Center	24.3	4.5	0.76	1,779	2.0	No	5	7	
31	University Hospital, Cincinnati	24.3	0.9	0.41	791	1.6	No	4	6	
32	Baylor University Medical Center, Dallas	24.0	0.0	0.66	1,184	1.8	Yes	5	7	
33	Froedtert Hospital, Milwaukee	23.8	0.0	0.66	1,023	1.9	Yes	5	7	
34	Shands at the University of Florida, Gainesville	23.8	3.1	0.71	1,010	1.5	Yes	5	5	
35	Wake Forest Univ. Baptist Med. Center, Winston-Salem, N.C.	23.7	1.7	0.69	1,078	1.6	Yes	5	6	
36	St. Luke's Episcopal Hospital, Houston	23.7	0.4	0.59	949	1.9	Yes	3	6	
37	Christiana Care Health System, Wilmington, Del.	23.5	0.0	0.61	1,868	1.7	No	5	7	
38	Kettering Medical Center, Kettering, Ohio	23.3	0.0	0.56	752	1.2	Yes	5	6	
39	Tampa General Hospital	23.2	1.0	0.70	597	2.2	Yes	5	7	
40	NYU Medical Center, New York	23.1	1.7	0.70	703	1.8	Yes	5	6	
41	Hennepin County Medical Center, Minneapolis	23.0	0.0	0.43	796	1.9	No	2	7	
42	Ohio State University Hospital, Columbus	22.8	1.2	0.71	884	2.0	Yes	4	7	
43	Baystate Medical Center, Springfield, Mass.	22.8	0.0	0.62	1,056	1.4	Yes	4	6	
44	Clarian Health, Indianapolis	22.7	0.9	0.74	1,449	2.2	Yes	5	6	
45	Aurora St. Luke's Medical Center, Milwaukee	22.7	0.7	0.72	1,551	1.4	Yes	5	7	
46	Florida Hospital, Orlando	22.6	0.0	0.58	3,372	1.4	No	5	5	
47	Thomas Jefferson University Hospital, Philadelphia	22.6	0.5	0.64	829	1.8	No	5	7	
48	Johns Hopkins Bayview Medical Center, Baltimore	22.4	0.0	0.51	784	0.8	No	5	7	
49	Lutheran Hospital of Indiana, Fort Wayne	22.4	0.0	0.62	731	1.5	Yes	5	5	
50	Our Lady of Mercy Medical Center, New York	22.1	0.0	0.44	703	1.0	No	5	5	

### Final IHQ-Driven Rankings 2008—Gastrointestinal Disorders

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 4)	Patient services (of 7)	Trauma center	
1	Mayo Clinic, Rochester, Minn.	100.0	57.0	0.70	9,037	2.8	Yes	4	7	Yes	
2	Cleveland Clinic	65.1	34.3	0.85	5,469	1.7	Yes	4	6	No	
3	Johns Hopkins Hospital, Baltimore	62.6	29.1	0.63	3,623	2.2	Yes	4	7	Yes	
4	Massachusetts General Hospital, Boston	51.5	22.1	0.79	5,287	2.0	Yes	4	6	Yes	
5	Ronald Reagan UCLA Medical Center, Los Angeles	42.8	15.6	0.76	2,473	2.5	Yes	4	6	Yes	
6	University of Chicago Medical Center	40.1	14.4	0.83	2,919	2.5	Yes	4	6	Yes	
7	Mount Sinai Medical Center, New York	35.9	15.7	1.00	6,589	1.9	Yes	4	7	No	
8	Cedars-Sinai Medical Center, Los Angeles	33.0	7.6	0.78	5,652	2.1	Yes	4	7	Yes	
9	University of Michigan Hosps. and Health Centers, Ann Arbor	32.6	9.0	0.82	4,370	2.6	No	4	7	Yes	
10	Hospital of the University of Pennsylvania, Philadelphia	32.6	10.2	0.90	2,631	1.9	Yes	4	7	Yes	
11	University of California, San Francisco Medical Center	31.7	11.6	0.89	2,507	2.1	No	4	5	No	
12	Brigham and Women's Hospital, Boston	31.1	7.4	0.74	3,494	2.3	No	4	6	Yes	
13	Clarian Health, Indianapolis	30.2	6.2	0.81	5,823	2.2	Yes	4	6	Yes	(+3 SD)
14	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	28.5	8.5	0.92	7,672	1.8	No	4	7	Yes	
15	Duke University Medical Center, Durham, N.C.	27.0	7.0	0.94	4,172	1.9	Yes	4	6	Yes	
16	Beth Israel Deaconess Medical Center, Boston	24.4	3.3	0.78	4,436	1.5	No	4	5	Yes	
17	Methodist Hospital, Houston	24.3	2.7	0.76	4,145	1.6	Yes	4	5	No	
18	UPMC-University of Pittsburgh Medical Center	24.1	7.2	1.00	6,266	2.0	No	4	7	Yes	
19	Medical University of South Carolina, Charleston	23.8	8.1	0.99	2,288	2.0	No	4	5	Yes	
20	University of Washington Medical Center, Seattle	23.4	4.3	0.83	1,564	2.1	Yes	3	7	No	
21	Barnes-Jewish Hospital/Washington University, St. Louis	23.3	6.9	1.05	6,597	1.9	Yes	4	7	Yes	(+2 SD)
22	John Muir Medical Center, Walnut Creek, Calif.	22.8	0.0	0.70	2,445	2.1	Yes	4	7	Yes	
23	Yale-New Haven Hospital, New Haven, Conn.	22.8	1.4	0.75	3,901	2.7	No	3	6	Yes	
24	Beaumont Hospital, Royal Oak, Mich.	22.7	0.0	0.77	7,631	1.6	Yes	4	7	Yes	
25	Lehigh Valley Hospital, Allentown, Pa.	22.6	0.0	0.79	4,656	2.1	Yes	4	7	Yes	
26	University of Virginia Medical Center, Charlottesville	21.9	0.6	0.84	3,128	2.1	Yes	4	7	Yes	
27	Thomas Jefferson University Hospital, Philadelphia	21.8	2.1	0.86	3,040	1.8	No	4	7	Yes	
28	Banner Good Samaritan Medical Center, Phoenix	21.8	0.6	0.75	2,310	1.5	Yes	4	5	Yes	
29	Rush University Medical Center, Chicago	21.7	0.6	0.81	2,953	1.9	Yes	3	7	Yes	
30	Aurora St. Luke's Medical Center, Milwaukee	21.7	0.3	0.83	5,822	1.4	Yes	4	7	Yes	
31	Abbott Northwestern Hospital, Minneapolis	21.6	0.0	0.73	3,612	1.9	No	4	7	Yes	
32	LDS Hospital, Salt Lake City	21.5	0.0	0.79	2,141	2.0	Yes	4	7	Yes	
33	University of Minnesota Medical Center, Fairview	21.2	0.3	0.82	2,357	1.9	Yes	4	7	Yes	
34	St. Luke's Episcopal Hospital, Houston	21.2	1.2	0.80	3,996	1.9	Yes	2	6	No	
35	University of North Carolina Hospitals, Chapel Hill	21.1	4.2	0.96	3,041	1.8	No	4	7	Yes	
36	Mayo Clinic Hospital, Phoenix	21.0	1.7	0.83	3,314	2.7	No	4	6	No	
37	St. Luke's Hospital and Health Network, Bethlehem, Pa.	21.0	0.0	0.77	3,651	1.7	No	4	7	Yes	
38	Virginia Mason Medical Center, Seattle	20.9	3.1	0.81	2,294	1.1	No	4	4	No	
39	Inova Fairfax Hospital, Falls Church, Va.	20.9	0.0	0.84	4,185	1.5	Yes	4	7	Yes	
40	Christiana Care Health System, Wilmington, Del.	20.8	0.0	0.80	7,362	1.7	No	4	7	Yes	
41	University of Iowa Hospitals and Clinics, Iowa City	20.8	1.3	0.81	1,683	1.6	Yes	4	7	Yes	
42	Penrose-St. Francis Health Services, Colorado Springs, Colo.	20.7	0.4	0.77	3,002	1.2	No	4	7	Yes	
43	Kettering Medical Center, Kettering, Ohio	20.6	0.0	0.72	2,804	1.2	Yes	4	6	No	
44	Sinai-Grace Hospital, Detroit	20.3	0.0	0.68	2,438	1.1	No	4	6	Yes	
45	California Pacific Medical Center, San Francisco	20.3	2.0	0.78	2,777	1.6	No	1	7	No	
46	Mayo Clinic, Jacksonville, Fla.	20.3	2.5	0.83	3,363	2.5	No	3	3	No	
47	Edward Hospital, Naperville, Ill.	20.2	0.0	0.82	2,853	2.1	Yes	4	4	Yes	
48	St. Francis Hospital, Roslyn, N.Y.	19.9	0.0	0.82	2,423	1.6	Yes	4	5	Yes	
49	Genesys Regional Medical Center, Grand Blanc, Mich.	19.8	0.0	0.78	3,304	1.8	No	3	6	Yes	
50	Franklin Square Hospital Center, Baltimore	19.8	0.0	0.72	3,776	1.3	No	4	6	No	

### Final IHQ-Driven Rankings 2008—Geriatric Care

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	NIA Alzheimer's center	Advanced technologies (of 2)	Patient services (of 9)	
1	Ronald Reagan UCLA Medical Center, Los Angeles	100.0	56.2	0.68	8,808	2.5	Yes	Yes	2	6	
2	Johns Hopkins Hospital, Baltimore	90.6	45.2	0.62	10,366	2.2	Yes	Yes	2	9	
3	Mount Sinai Medical Center, New York	77.1	39.4	0.94	27,676	1.9	Yes	Yes	2	9	
4	Massachusetts General Hospital, Boston	58.0	21.4	0.69	23,224	2.0	Yes	Yes	2	7	
5	Duke University Medical Center, Durham, N.C.	54.4	22.7	0.89	12,170	1.9	Yes	Yes	2	7	
6	Yale-New Haven Hospital, New Haven, Conn.	49.5	19.7	0.73	17,282	2.7	No	No	2	6	
7	Mayo Clinic, Rochester, Minn.	46.4	11.6	0.67	34,787	2.8	Yes	Yes	2	9	
8	UPMC-University of Pittsburgh Medical Center	43.2	13.9	0.87	26,572	2.0	No	Yes	2	9	
9	Beth Israel Deaconess Medical Center, Boston	37.5	11.4	0.77	19,248	1.5	No	No	2	8	
10	University of Michigan Hosps. and Health Centers, Ann Arbor	37.0	8.7	0.82	12,319	2.6	No	Yes	2	9	
11	Emory University Hospital, Atlanta	36.5	10.3	0.88	12,728	1.9	No	Yes	2	8	
12	University of California, San Francisco Medical Center	34.9	10.3	0.83	7,610	2.1	No	Yes	2	6	
13	University of Washington Medical Center, Seattle	34.6	8.4	0.76	4,142	2.1	Yes	Yes	2	8	
14	Cleveland Clinic	34.6	6.5	0.62	20,055	1.7	Yes	No	2	8	
15	University of Alabama Hospital at Birmingham	33.4	10.2	0.89	8,787	2.3	Yes	Yes	1	8	
16	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	33.1	4.8	0.75	39,230	1.8	No	Yes	2	9	(+3 SD)
17	Northwestern Memorial Hospital, Chicago	32.3	3.9	0.77	14,450	1.6	Yes	Yes	2	8	
18	Barnes-Jewish Hospital/Washington University, St. Louis	31.8	2.8	0.78	19,840	1.9	Yes	Yes	2	9	
19	NYU Medical Center, New York	31.5	1.9	0.63	18,354	1.8	Yes	Yes	2	8	
20	Hospital of the University of Pennsylvania, Philadelphia	31.2	5.6	0.72	8,618	1.9	Yes	Yes	2	8	
21	Rush University Medical Center, Chicago	30.2	1.2	0.63	10,361	1.9	Yes	Yes	2	9	
22	Brigham and Women's Hospital, Boston	29.1	1.8	0.70	13,300	2.3	No	Yes	2	8	
23	Johns Hopkins Bayview Medical Center, Baltimore	28.5	8.1	0.80	9,469	0.8	No	No	2	9	
24	St. Louis University Hospital	28.4	11.0	0.96	4,707	1.4	No	No	2	8	
25	Clarian Health, Indianapolis	28.2	1.6	0.84	18,372	2.2	Yes	Yes	2	7	
26	Shands at the University of Florida, Gainesville	28.0	5.4	0.84	13,616	1.5	Yes	No	2	6	
27	Washington Hospital Center, Washington, D.C.	27.8	4.6	0.72	16,714	1.5	No	No	2	6	
28	Cedars-Sinai Medical Center, Los Angeles	27.2	1.3	0.70	26,728	2.1	Yes	No	2	7	
29	University of Chicago Medical Center	26.6	4.4	0.68	8,084	2.5	Yes	No	2	8	(+2 SD)
30	Mount Sinai Medical Center, Miami Beach, Fla.	25.7	1.2	0.69	18,950	1.2	No	Yes	1	6	
31	Boston Medical Center	25.7	7.6	0.88	7,539	1.0	No	Yes	1	7	
32	Hackensack University Medical Center, N.J.	25.2	1.3	0.85	26,152	1.9	Yes	No	2	9	
33	Stanford Hospital and Clinics, Stanford, Calif.	25.1	6.9	1.00	9,472	1.8	Yes	No	2	6	
34	Aurora St. Luke's Medical Center, Milwaukee	24.9	0.7	0.80	34,948	1.4	Yes	No	2	9	
35	Thomas Jefferson University Hospital, Philadelphia	24.8	1.2	0.73	15,460	1.8	No	No	2	9	
36	Beaumont Hospital, Royal Oak, Mich.	24.8	0.0	0.73	45,319	1.6	Yes	No	2	7	
37	Methodist Hospital, Houston	24.6	0.3	0.67	18,164	1.6	Yes	No	2	6	
38	Lehigh Valley Hospital, Allentown, Pa.	24.3	0.0	0.82	24,088	2.1	Yes	No	2	9	
39	Loyola University Hospital, Maywood, Ill.	24.1	1.0	0.77	12,465	2.4	No	No	2	9	
40	University of California, Irvine Medical Center, Orange	24.1	0.7	0.82	3,307	2.1	Yes	Yes	2	8	
41	St. Francis Hospital, Roslyn, N.Y.	23.8	0.0	0.65	17,828	1.6	Yes	No	2	5	
42	St. Luke's Episcopal Hospital, Houston	23.6	0.0	0.71	16,185	1.9	Yes	No	2	5	
43	Sarasota Memorial Health Care System, Fla.	23.4	1.2	0.95	25,091	1.4	Yes	Yes	2	8	
44	University Hospitals Case Medical Center, Cleveland	23.3	1.2	0.85	13,870	1.4	Yes	No	2	9	
45	University of Miami, Jackson Memorial Hospital	23.1	4.2	1.01	7,061	1.6	No	Yes	2	8	
46	St. Joseph's Hospital, Marshfield, Wis.	23.1	0.3	0.84	11,576	2.1	Yes	No	2	9	
47	Mayo Clinic Hospital, Phoenix	23.1	0.6	0.85	12,561	2.7	No	Yes	1	6	
48	Abbott Northwestern Hospital, Minneapolis	23.0	0.0	0.75	19,642	1.9	No	No	2	8	
49	John Muir Medical Center, Walnut Creek, Calif.	22.9	0.0	0.78	13,388	2.1	Yes	No	2	6	
50	University Medical Center, Tucson, Ariz.	22.8	0.0	0.75	4,647	2.1	Yes	Yes	2	7	

### Final IHQ-Driven Rankings 2008—Gynecology

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 5)	Patient services (of 8)	
1	Brigham and Women's Hospital, Boston	100.0	28.2	0.39	722	2.3	No	5	7.0	
2	Johns Hopkins Hospital, Baltimore	77.9	21.8	0.80	316	2.2	Yes	5	8.0	
3	Mayo Clinic, Rochester, Minn.	71.1	16.7	0.53	1,231	2.8	Yes	5	8.0	
4	Duke University Medical Center, Durham, N.C.	67.5	14.5	0.26	603	1.9	Yes	5	7.0	
5	University of California, San Francisco Medical Center	62.7	14.9	0.35	251	2.1	No	4	6.0	
6	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	59.2	12.6	0.33	555	1.8	No	5	8.0	
7	Magee-Womens Hospital of UPMC, Pittsburgh	58.1	12.4	0.30	478	1.3	No	5	7.0	
8	Cleveland Clinic	55.6	9.9	0.21	707	1.7	Yes	5	7.0	
9	Vanderbilt University Medical Center, Nashville	53.9	9.1	0.16	451	2.1	Yes	5	7.0	
10	Ronald Reagan UCLA Medical Center, Los Angeles	47.6	7.0	0.19	266	2.5	Yes	5	7.0	
11	University of Washington Medical Center, Seattle	46.9	7.0	0.21	340	2.1	Yes	4	7.0	
12	Stanford Hospital and Clinics, Stanford, Calif.	45.1	7.1	0.35	255	1.8	Yes	5	6.0	
13	Yale-New Haven Hospital, New Haven, Conn.	45.1	7.4	0.40	657	2.7	No	4	7.0	
14	Parkland Memorial Hospital, Dallas	44.6	13.1	1.01	174	1.4	No	2	7.0	
15	Hospital of the University of Pennsylvania, Philadelphia	43.3	6.0	0.39	315	1.9	Yes	5	8.0	
16	University of Texas M.D. Anderson Cancer Center, Houston	41.0	5.0	0.38	460	1.9	Yes	5	7.0	
17	Massachusetts General Hospital, Boston	40.1	7.4	0.81	439	2.0	Yes	5	7.0	
18	Northwestern Memorial Hospital, Chicago	39.3	7.8	0.86	363	1.6	Yes	5	7.0	(+3 SD)
19	University of Alabama Hospital at Birmingham	38.1	6.8	0.84	806	2.3	Yes	4	7.0	
20	Mount Sinai Medical Center, New York	37.9	3.9	0.43	464	1.9	Yes	5	8.0	
21	University of Utah Health Care, Salt Lake City	37.2	5.3	0.50	304	2.0	No	5	7.0	
22	University of Michigan Hosps. and Health Centers, Ann Arbor	37.1	4.7	0.50	411	2.6	No	5	8.0	
23	Memorial Sloan-Kettering Cancer Center, New York	36.9	4.1	0.30	664	1.7	No	5	6.0	
24	University of Colorado Hospital, Denver	35.5	3.9	0.45	208	1.7	Yes	5	7.0	
25	Beth Israel Deaconess Medical Center, Boston	35.4	4.3	0.32	272	1.5	No	5	6.0	
26	Ohio State University Hospital, Columbus	35.3	6.0	0.87	557	2.0	Yes	4	8.0	
27	Tampa General Hospital	34.6	3.5	0.56	300	2.2	Yes	5	8.0	
28	Banner Good Samaritan Medical Center, Phoenix	33.4	2.6	0.22	229	1.5	Yes	4	6.0	
29	Shands at the University of Florida, Gainesville	33.0	3.8	0.59	339	1.5	Yes	5	6.0	
30	University of California, Irvine Medical Center, Orange	32.9	2.5	0.26	176	2.1	Yes	3	7.0	
31	University of Iowa Hospitals and Clinics, Iowa City	32.1	1.8	0.42	422	1.6	Yes	5	8.0	
32	Cedars-Sinai Medical Center, Los Angeles	31.9	5.5	1.03	525	2.1	Yes	5	8.0	
33	University of North Carolina Hospitals, Chapel Hill	31.4	5.8	0.89	403	1.8	No	4	8.0	
34	University of Chicago Medical Center	31.1	3.2	0.69	315	2.5	Yes	5	7.0	
35	Baylor University Medical Center, Dallas	31.0	3.1	0.71	736	1.8	Yes	5	7.0	
36	Inova Fairfax Hospital, Falls Church, Va.	30.9	1.1	0.40	652	1.5	Yes	5	8.0	
37	University of California, San Diego Medical Center	30.8	3.5	0.14	138	1.9	No	5	7.0	(+2 SD)
38	Dartmouth-Hitchcock Medical Center, Lebanon, N.H.	30.4	0.5	0.18	274	2.2	Yes	5	7.0	
39	University of Minnesota Medical Center, Fairview	30.3	0.0	0.18	451	1.9	Yes	5	8.0	
40	Barnes-Jewish Hospital/Washington University, St. Louis	30.2	2.6	0.72	742	1.9	Yes	5	8.0	
41	Maine Medical Center, Portland	29.9	0.5	0.29	654	1.9	Yes	4	7.0	
42	University of Kentucky Chandler Hospital, Lexington	29.7	3.2	0.62	566	1.8	Yes	3	4.0	
43	University of Virginia Medical Center, Charlottesville	29.4	0.8	0.48	520	2.1	Yes	5	8.0	
44	St. Luke's Hospital, Kansas City, Mo.	28.4	0.8	0.33	277	1.9	Yes	4	6.0	
45	USC University Hospital, Los Angeles	27.9	3.5	0.00	20	1.9	No	5	3.0	
46	Mayo Clinic Hospital, Phoenix	27.8	0.4	0.19	557	2.7	No	3	6.0	
47	Abbott Northwestern Hospital, Minneapolis	27.7	0.3	0.33	484	1.9	No	5	8.0	
48	University of Texas Southwestern Medical Center, Dallas	27.7	2.9	0.66	297	1.6	No	5	7.0	
49	Hackensack University Medical Center, N.J.	27.5	0.9	0.60	446	1.9	Yes	5	8.0	
50	Woman's Hospital of Texas, Houston	27.5	1.9	0.00	295	2.6	No	1	1.0	

### Final IHQ-Driven Rankings 2008—Heart and Heart Surgery

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 5)	Patient services (of 6)	Trauma center	
1	Cleveland Clinic	100.0	65.0	0.52	15,056	1.7	Yes	5	6	No	
2	Mayo Clinic, Rochester, Minn.	81.0	48.0	0.74	15,178	2.8	Yes	5	6	Yes	
3	Johns Hopkins Hospital, Baltimore	52.5	21.8	0.59	4,749	2.2	Yes	5	6	Yes	
4	Massachusetts General Hospital, Boston	49.5	20.8	0.73	9,115	2.0	Yes	4	6	Yes	
5	Brigham and Women's Hospital, Boston	48.7	20.3	0.65	6,136	2.3	No	5	6	Yes	
6	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	47.7	19.3	0.64	16,223	1.8	No	5	6	Yes	
7	Texas Heart Institute at St. Luke's Episcopal Hospital, Houston	46.2	18.5	0.72	11,104	1.9	Yes	5	5	No	(+3 SD)
8	Duke University Medical Center, Durham, N.C.	39.6	12.6	0.80	7,405	1.9	Yes	5	6	Yes	
9	Barnes-Jewish Hospital/Washington University, St. Louis	35.5	6.6	0.69	10,673	1.9	Yes	5	6	Yes	
10	Ronald Reagan UCLA Medical Center, Los Angeles	34.6	6.2	0.58	3,491	2.5	Yes	5	5	Yes	
11	Stanford Hospital and Clinics, Stanford, Calif.	34.3	13.9	1.00	3,406	1.8	Yes	5	5	Yes	
12	Hospital of the University of Pennsylvania, Philadelphia	33.9	7.0	0.73	4,579	1.9	Yes	5	6	Yes	
13	Emory University Hospital, Atlanta	33.9	13.1	0.89	6,455	1.9	No	4	6	No	
14	Beaumont Hospital, Royal Oak, Mich.	33.5	5.6	0.74	18,842	1.6	Yes	5	6	Yes	(+2 SD)
15	Cedars-Sinai Medical Center, Los Angeles	31.4	3.7	0.74	8,511	2.1	Yes	5	6	Yes	
16	NYU Medical Center, New York	31.0	5.0	0.75	6,011	1.8	Yes	5	5	Yes	
17	Washington Hospital Center, Washington, D.C.	30.0	2.7	0.61	13,161	1.5	No	5	6	Yes	
18	University of Michigan Hosps. and Health Centers, Ann Arbor	29.9	4.3	0.76	6,411	2.6	No	5	6	Yes	
19	Northwestern Memorial Hospital, Chicago	29.1	3.1	0.75	5,308	1.6	Yes	5	6	Yes	
20	University of Chicago Medical Center	28.4	0.3	0.63	3,828	2.5	Yes	5	6	Yes	
21	Inova Fairfax Hospital, Falls Church, Va.	28.2	2.4	0.80	8,971	1.5	Yes	5	6	Yes	
22	St. Francis Hospital, Roslyn, N.Y.	28.1	0.0	0.68	14,061	1.6	Yes	5	6	Yes	
23	Vanderbilt University Medical Center, Nashville	27.8	3.6	0.84	3,227	2.1	Yes	5	6	Yes	
24	Shands at the University of Florida, Gainesville	27.5	2.4	0.81	7,777	1.5	Yes	5	6	Yes	
25	Lenox Hill Hospital, New York	27.5	4.0	0.61	6,563	1.7	No	5	3	No	
26	Christ Hospital, Cincinnati	27.3	1.8	0.63	6,739	1.9	No	5	6	No	
27	Yale-New Haven Hospital, New Haven, Conn.	26.9	1.5	0.71	6,646	2.7	No	5	5	Yes	
28	Methodist Hospital, Houston	26.9	2.2	0.75	8,499	1.6	Yes	5	5	No	
29	University of Minnesota Medical Center, Fairview	26.8	0.7	0.70	2,311	1.9	Yes	5	6	Yes	
30	Scripps Memorial Hospital La Jolla, Calif.	26.8	1.6	0.73	3,118	2.0	Yes	4	6	Yes	
31	Loyola University Hospital, Maywood, Ill.	26.8	0.0	0.62	5,477	2.4	No	5	6	Yes	
32	Beth Israel Deaconess Medical Center, Boston	26.7	2.6	0.72	7,256	1.5	No	4	6	Yes	
33	Hackensack University Medical Center, N.J.	26.7	0.7	0.82	10,414	1.9	Yes	5	6	Yes	
34	Banner Good Samaritan Medical Center, Phoenix	26.6	0.3	0.66	5,143	1.5	Yes	5	5	Yes	
35	University of Kansas Hospital, Kansas City	26.6	0.0	0.61	2,484	1.9	Yes	5	5	Yes	
36	UPMC-University of Pittsburgh Medical Center	26.5	4.1	0.92	11,286	2.0	No	5	6	Yes	
37	St. Luke's Hospital, Kansas City, Mo.	26.3	0.9	0.74	4,695	1.9	Yes	5	5	Yes	
38	Sentara Norfolk Gen. Hosp.-Sent. Heart Hosp., Norfolk, Va.	26.3	0.0	0.63	7,502	1.6	No	5	6	Yes	
39	University of California, San Francisco Medical Center	26.1	6.7	0.86	2,644	2.1	No	5	4	No	
40	Clarian Health, Indianapolis	26.0	0.4	0.83	8,033	2.2	Yes	5	6	Yes	
41	Mount Sinai Medical Center, New York	26.0	1.9	0.85	10,735	1.9	Yes	5	6	No	
42	Tampa General Hospital	25.9	0.8	0.76	4,105	2.2	Yes	4	6	Yes	
43	University Medical Center, Tucson, Ariz.	25.7	0.1	0.70	2,983	2.1	Yes	4	6	Yes	
44	Lehigh Valley Hospital, Allentown, Pa.	25.6	0.0	0.83	8,527	2.1	Yes	5	6	Yes	
45	Rush University Medical Center, Chicago	25.5	0.0	0.65	3,807	1.9	Yes	4	5	Yes	
46	University of Alabama Hospital at Birmingham	25.5	3.1	0.89	5,454	2.3	Yes	4	5	Yes	
47	Riverside Methodist Hospital-Ohio Health, Columbus	25.5	0.7	0.88	13,935	1.8	Yes	5	6	Yes	
48	Jewish Hospital, Louisville, Ky.	25.3	0.7	0.65	8,202	1.1	No	4	6	Yes	
49	University of Maryland Medical Center, Baltimore	25.3	1.6	0.77	3,114	2.1	No	5	6	Yes	
50	Robert Wood Johnson University Hosp., New Brunswick, N.J.	25.3	0.0	0.77	7,976	1.1	Yes	5	6	Yes	

### Final IHQ-Driven Rankings 2008—Kidney Disease

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 7)	Patient services (of 7)	Trauma center	
1	Brigham and Women's Hospital, Boston	100.0	32.0	0.63	1,122	2.3	No	7	6	Yes	
2	Mayo Clinic, Rochester, Minn.	95.0	27.8	0.58	2,634	2.8	Yes	7	7	Yes	
3	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	93.1	28.7	0.63	3,125	1.8	No	7	7	Yes	
4	Cleveland Clinic	92.2	28.5	0.68	2,293	1.7	Yes	7	6	No	
5	Massachusetts General Hospital, Boston	84.4	24.6	0.73	1,595	2.0	Yes	7	6	Yes	
6	Johns Hopkins Hospital, Baltimore	83.5	22.3	0.44	1,688	2.2	Yes	7	7	Yes	
7	Ronald Reagan UCLA Medical Center, Los Angeles	75.7	19.4	0.54	1,173	2.5	Yes	7	6	Yes	
8	Barnes-Jewish Hospital/Washington University, St. Louis	70.0	17.6	0.72	2,859	1.9	Yes	7	7	Yes	
9	Vanderbilt University Medical Center, Nashville	62.7	13.3	0.44	1,067	2.1	Yes	7	6	Yes	
10	Hospital of the University of Pennsylvania, Philadelphia	58.4	11.6	0.54	954	1.9	Yes	7	7	Yes	
11	University of California, San Francisco Medical Center	57.0	12.9	0.58	1,267	2.1	No	7	5	No	
12	Duke University Medical Center, Durham, N.C.	53.5	10.4	0.70	1,443	1.9	Yes	7	6	Yes	
13	UPMC-University of Pittsburgh Medical Center	52.2	11.0	0.78	1,904	2.0	No	7	7	Yes	
14	University of Alabama Hospital at Birmingham	50.2	8.0	0.59	1,897	2.3	Yes	6	6	Yes	
15	University of Colorado Hospital, Denver	45.9	7.2	0.64	563	1.7	Yes	7	6	Yes	
16	University of Washington Medical Center, Seattle	44.9	7.4	0.66	602	2.1	Yes	6	7	No	
17	University of Minnesota Medical Center, Fairview	43.9	4.5	0.30	832	1.9	Yes	7	7	Yes	(+3 SD)
18	University of Michigan Hosps. and Health Centers, Ann Arbor	42.8	5.6	0.69	1,853	2.6	No	7	7	Yes	
19	Stanford Hospital and Clinics, Stanford, Calif.	42.6	8.1	0.85	596	1.8	Yes	7	5	Yes	
20	Emory University Hospital, Atlanta	41.2	6.1	0.67	1,267	1.9	No	7	6	No	
21	Yale-New Haven Hospital, New Haven, Conn.	40.3	5.1	0.70	1,554	2.7	No	6	6	Yes	
22	University of Chicago Medical Center	39.7	2.9	0.54	1,142	2.5	Yes	7	6	Yes	
23	Rush University Medical Center, Chicago	38.4	2.3	0.47	1,089	1.9	Yes	6	7	Yes	
24	Ohio State University Hospital, Columbus	37.4	2.3	0.63	1,683	2.0	Yes	6	7	Yes	
25	University of North Carolina Hospitals, Chapel Hill	36.9	4.4	0.76	1,166	1.8	No	6	7	Yes	
26	University of Maryland Medical Center, Baltimore	36.6	2.2	0.46	1,133	2.1	No	7	6	Yes	
27	Cedars-Sinai Medical Center, Los Angeles	35.7	0.6	0.51	1,611	2.1	Yes	7	7	Yes	
28	University of Wisconsin Hospital and Clinics, Madison	35.4	1.3	0.37	1,677	1.9	No	7	6	Yes	
29	Beth Israel Deaconess Medical Center, Boston	35.3	3.3	0.70	1,506	1.5	No	7	5	Yes	
30	Baylor University Medical Center, Dallas	35.2	1.3	0.65	1,500	1.8	Yes	7	7	Yes	
31	Methodist Hospital, Houston	34.7	1.8	0.52	1,234	1.6	Yes	7	5	No	
32	University of Iowa Hospitals and Clinics, Iowa City	34.7	2.2	0.68	636	1.6	Yes	7	7	Yes	
33	Clarian Health, Indianapolis	34.4	0.6	0.60	2,304	2.2	Yes	7	6	Yes	(+2 SD)
34	Tampa General Hospital	34.0	0.0	0.47	978	2.2	Yes	7	7	Yes	
35	University of California, San Diego Medical Center	33.8	2.4	0.63	636	1.9	No	7	6	Yes	
36	University of Texas Southwestern Medical Center, Dallas	33.8	4.0	0.75	766	1.6	No	7	6	No	
37	Banner Good Samaritan Medical Center, Phoenix	33.4	0.6	0.36	767	1.5	Yes	7	5	Yes	
38	Wake Forest Univ. Baptist Med. Center, Winston-Salem, N.C.	33.2	1.3	0.72	1,872	1.6	Yes	7	6	Yes	
39	Shands at the University of Florida, Gainesville	33.1	1.3	0.67	1,431	1.5	Yes	7	5	Yes	
40	Tufts Medical Center, Boston	33.0	3.7	0.72	520	1.7	No	5	5	Yes	
41	NYU Medical Center, New York	32.7	1.1	0.66	765	1.8	Yes	7	6	Yes	
42	Sentara Norfolk General Hospital, Norfolk, Va.	32.5	0.6	0.47	1,186	1.6	No	7	6	Yes	
43	University Medical Center, Tucson, Ariz.	32.1	0.0	0.50	568	2.1	Yes	7	6	Yes	
44	Medical University of South Carolina, Charleston	32.1	1.5	0.65	977	2.0	No	7	5	Yes	
45	LDS Hospital, Salt Lake City	32.0	0.0	0.57	627	2.0	Yes	7	7	Yes	
46	Northwestern Memorial Hospital, Chicago	32.0	1.5	0.78	1,533	1.6	Yes	7	6	Yes	
47	Hennepin County Medical Center, Minneapolis	31.9	1.0	0.42	642	1.9	No	4	7	Yes	
48	St. Luke's Episcopal Hospital, Houston	31.9	0.6	0.55	1,412	1.9	Yes	5	6	No	
49	University Hospital, Cincinnati	31.7	0.8	0.50	909	1.6	No	6	6	Yes	
50	Virginia Commonwealth University Health System, Richmond	31.7	0.6	0.65	696	2.2	Yes	6	6	Yes	

**Final IHQ-Driven Rankings 2008—Neurology and Neurosurgery**

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index		Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Epilepsy center	NIA Alzheimer's center	Advanced technologies (of 7)	Patient services (of 8)	
1	Mayo Clinic, Rochester, Minn.	100.0	44.1	0.87		6,058	2.8	Yes	Yes	Yes	7	8	
2	Johns Hopkins Hospital, Baltimore	97.4	40.0	0.64		3,725	2.2	Yes	Yes	Yes	7	8	
3	Massachusetts General Hospital, Boston	79.7	34.2	0.94		4,261	2.0	Yes	Yes	Yes	6	6	
4	University of California, San Francisco Medical Center	75.4	34.6	0.94		2,756	2.1	No	No	Yes	7	6	
5	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	75.2	29.0	0.80		6,443	1.8	No	Yes	Yes	7	8	
6	Cleveland Clinic	74.3	29.0	0.70		4,868	1.7	Yes	Yes	No	7	7	
7	Ronald Reagan UCLA Medical Center, Los Angeles	48.4	18.0	1.06		2,234	2.5	Yes	Yes	Yes	7	6	
8	Barnes-Jewish Hospital/Washington University, St. Louis	47.2	12.4	0.89		4,970	1.9	Yes	Yes	Yes	7	8	
9	St. Joseph's Hospital and Medical Center, Phoenix	43.1	19.9	1.35		4,321	1.9	No	Yes	Yes	6	7	
10	NYU Medical Center, New York	36.4	2.4	0.52		3,936	1.8	Yes	Yes	Yes	7	7	
11	Northwestern Memorial Hospital, Chicago	35.3	3.4	0.74		2,950	1.6	Yes	Yes	Yes	7	7	(+3 SD)
12	Methodist Hospital, Houston	35.1	4.7	0.59		5,207	1.6	Yes	Yes	No	7	5	
13	Emory University Hospital, Atlanta	34.1	5.9	0.87		3,978	1.9	No	Yes	Yes	6	7	
14	UPMC-University of Pittsburgh Medical Center	33.4	7.8	1.02		6,450	2.0	No	Yes	Yes	7	8	
15	Rush University Medical Center, Chicago	33.3	0.8	0.49		3,002	1.9	Yes	Yes	Yes	5	8	
16	Mount Sinai Medical Center, New York	32.0	2.7	0.71		3,228	1.9	Yes	No	Yes	7	8	
17	Cedars-Sinai Medical Center, Los Angeles	31.7	1.7	0.66		4,527	2.1	Yes	Yes	No	7	7	
18	University of Texas Southwestern Medical Center, Dallas	31.5	2.8	0.74		2,397	1.6	No	Yes	Yes	7	7	
19	University of Chicago Medical Center	31.0	1.9	0.67		1,958	2.5	Yes	Yes	No	7	7	
20	Duke University Medical Center, Durham, N.C.	30.2	4.2	0.97		3,667	1.9	Yes	Yes	Yes	7	7	
21	Brigham and Women's Hospital, Boston	29.8	7.0	1.05		2,884	2.3	No	Yes	Yes	7	7	
22	University of Washington Medical Center, Seattle	28.2	2.7	0.79		1,155	2.1	Yes	Yes	Yes	6	7	(+2 SD)
23	Hospital of the University of Pennsylvania, Philadelphia	27.5	10.0	1.39		2,340	1.9	Yes	Yes	Yes	7	7	
24	Clarian Health, Indianapolis	27.4	1.4	0.92		4,606	2.2	Yes	Yes	Yes	7	6	
25	University of Iowa Hospitals and Clinics, Iowa City	27.1	1.6	0.83		2,159	1.6	Yes	Yes	No	7	8	
26	Henry Ford Hospital, Detroit	27.1	1.7	0.81		4,138	1.6	No	Yes	No	7	7	
27	Harper University Hospital, Detroit	26.8	1.0	0.51		2,127	1.1	No	Yes	No	7	6	
28	Stanford Hospital and Clinics, Stanford, Calif.	26.5	6.7	1.05		2,421	1.8	Yes	Yes	No	7	5	
29	St. Luke's Episcopal Hospital, Houston	26.4	0.0	0.63		3,018	1.9	Yes	Yes	No	5	6	
30	University of Minnesota Medical Center, Fairview	25.2	1.0	0.78		1,860	1.9	Yes	No	No	7	8	
31	University of Michigan Hosps. and Health Centers, Ann Arbor	24.6	4.4	1.09		2,887	2.6	No	Yes	Yes	7	8	
32	Yale-New Haven Hospital, New Haven, Conn.	24.0	2.2	0.92		2,796	2.7	No	Yes	No	6	6	
33	University of Virginia Medical Center, Charlottesville	23.8	6.7	1.20		4,467	2.1	Yes	Yes	No	7	8	
34	Christ Hospital, Cincinnati	23.6	0.0	0.54		2,308	1.9	No	No	No	6	7	
35	Abbott Northwestern Hospital, Minneapolis	23.5	0.0	0.86		4,996	1.9	No	Yes	No	7	7	
36	Beaumont Hospital, Royal Oak, Mich.	23.2	0.3	0.85		7,143	1.6	Yes	No	No	7	7	
37	Sutter Medical Center, Sacramento	22.8	0.0	0.78		1,908	2.6	No	Yes	No	6	6	
38	Ingalls Memorial Hospital, Harvey, Ill.	22.8	0.0	0.59		2,350	0.7	No	No	No	5	7	
39	University of Miami, Jackson Memorial Hospital	22.8	4.3	1.04		2,445	1.6	No	No	Yes	7	7	
40	Sinai-Grace Hospital, Detroit	22.5	0.0	0.68		2,133	1.1	No	No	No	7	6	
41	Nebraska Medical Center, Omaha	22.4	0.0	0.87		2,101	1.8	Yes	Yes	No	7	5	
42	St. John Hospital and Medical Center, Detroit	22.4	0.0	0.72		3,903	1.3	No	No	No	6	5	
43	Mount Sinai Medical Center, Miami Beach, Fla.	22.2	0.0	0.75		2,113	1.2	No	No	Yes	5	5	
44	Shands at the University of Florida, Gainesville	22.2	6.9	1.21		3,845	1.5	Yes	Yes	No	7	5	
45	Methodist Hospital, Gary, Ind.	22.1	0.0	0.64		2,313	0.9	No	No	No	5	6	
46	Willis-Knighton Medical Center, Shreveport, La.	22.1	0.0	0.71		3,745	1.3	No	No	No	6	7	
47	Sinai Hospital of Baltimore	21.6	0.0	0.71		2,523	1.5	No	No	No	4	6	
48	Jewish Hospital, Louisville, Ky.	21.6	0.0	0.69		2,691	1.1	No	No	No	5	5	
49	USC University Hospital, Los Angeles	21.6	1.8	0.33		1,011	1.9	No	No	Yes	7	3	
50	Hackensack University Medical Center, N.J.	21.6	0.4	0.96		3,378	1.9	Yes	Yes	No	7	8	

### Final IHQ-Driven Rankings 2008—Orthopedics

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index		Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 1)	Patient services (of 7)	Trauma center	
1	Hospital for Special Surgery, New York	100.0	44.0	0.14		11,706	2.3	Yes	1	6	Yes	
2	Mayo Clinic, Rochester, Minn.	97.1	42.4	0.47		10,028	2.8	Yes	1	7	Yes	
3	Cleveland Clinic	64.4	24.9	0.53		4,723	1.7	Yes	1	6	No	
4	Massachusetts General Hospital, Boston	63.6	24.7	0.66		4,410	2.0	Yes	0	6	Yes	
5	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	41.4	12.3	0.66		3,915	1.8	No	1	7	Yes	
6	Johns Hopkins Hospital, Baltimore	38.8	11.7	0.72		1,596	2.2	Yes	0	7	Yes	
7	Duke University Medical Center, Durham, N.C.	38.1	10.6	0.78		3,224	1.9	Yes	1	5	Yes	
8	NYU Hospital for Joint Diseases, New York	37.6	8.3	0.56		4,939	1.8	Yes	1	6	Yes	
9	UPMC-University of Pittsburgh Medical Center	36.4	9.7	0.77		4,955	2.0	No	1	7	Yes	
10	Rush University Medical Center, Chicago	35.5	6.2	0.39		4,519	1.9	Yes	1	7	Yes	
11	Barnes-Jewish Hospital/Washington University, St. Louis	35.1	8.0	0.75		3,422	1.9	Yes	1	7	Yes	
12	University of Iowa Hospitals and Clinics, Iowa City	34.7	7.9	0.69		2,225	1.6	Yes	1	7	Yes	
13	University of Washington Medical Center, Seattle	32.0	8.6	0.59		1,450	2.1	Yes	0	7	No	
14	Brigham and Women's Hospital, Boston	31.3	5.5	0.49		2,923	2.3	No	1	6	Yes	
15	Thomas Jefferson University Hospital, Philadelphia	31.2	5.2	0.52		4,184	1.8	No	1	7	Yes	
16	Ronald Reagan UCLA Medical Center, Los Angeles	30.5	7.5	0.58		854	2.5	Yes	0	5	Yes	(+3 SD)
17	University Hospitals Case Medical Center, Cleveland	26.5	3.1	0.70		2,649	1.4	Yes	1	7	Yes	
18	Clarian Health, Indianapolis	26.0	1.9	0.67		3,935	2.2	Yes	1	6	Yes	
19	University of California, San Francisco Medical Center	26.0	3.9	0.52		2,005	2.1	No	1	5	No	
20	Stanford Hospital and Clinics, Stanford, Calif.	25.4	1.6	0.57		3,239	1.8	Yes	1	5	Yes	
21	Northwestern Memorial Hospital, Chicago	25.1	2.6	0.75		2,997	1.6	Yes	1	6	Yes	
22	Holy Cross Hospital, Fort Lauderdale, Fla.	25.0	1.8	0.61		2,975	1.3	Yes	1	6	Yes	
23	New England Baptist Hospital, Boston	24.7	2.4	0.21		6,473	1.3	No	1	4	No	
24	Cedars-Sinai Medical Center, Los Angeles	24.6	0.4	0.55		4,682	2.1	Yes	1	6	Yes	
25	Tampa General Hospital	24.3	0.0	0.45		3,500	2.2	Yes	1	6	Yes	
26	Beaumont Hospital, Royal Oak, Mich.	24.2	1.3	0.64		8,398	1.6	Yes	0	6	Yes	
27	Harborview Medical Center, Seattle	23.9	8.2	1.16		1,165	2.2	No	1	6	Yes	(+2 SD)
28	Union Memorial Hospital, Baltimore	23.6	1.1	0.49		2,409	1.7	No	1	7	Yes	
29	Hospital of the University of Pennsylvania, Philadelphia	23.5	4.7	1.02		715	1.9	Yes	1	7	Yes	
30	University of Michigan Hosps. and Health Centers, Ann Arbor	23.2	2.1	0.73		2,021	2.6	No	1	7	Yes	
31	John Muir Medical Center, Walnut Creek, Calif.	23.1	0.0	0.58		3,046	2.1	Yes	1	6	Yes	
32	Lenox Hill Hospital, New York	22.8	2.3	0.53		3,164	1.7	No	1	3	No	
33	Baylor University Medical Center, Dallas	22.7	0.8	0.77		5,582	1.8	Yes	1	6	Yes	
34	Methodist Hospital, Houston	22.6	0.0	0.43		5,899	1.6	Yes	1	5	No	
35	St. Cloud Hospital, St. Cloud, Minn.	22.3	0.0	0.67		4,086	1.7	Yes	1	6	Yes	
36	Shands at the University of Florida, Gainesville	22.2	1.2	0.76		3,451	1.5	Yes	1	5	Yes	
37	Abbott Northwestern Hospital, Minneapolis	22.2	0.0	0.60		5,586	1.9	No	1	7	Yes	
38	Mount Sinai Medical Center, New York	22.2	3.8	0.95		2,340	1.9	Yes	1	7	No	
39	Grant Medical Center-OhioHealth, Columbus, Ohio	21.9	0.0	0.62		3,031	1.6	Yes	1	5	Yes	
40	University of California, Davis Medical Center, Sacramento	21.9	4.7	0.81		1,257	2.9	No	0	7	Yes	
41	Hackensack University Medical Center, N.J.	21.8	0.0	0.67		3,788	1.9	Yes	0	7	Yes	
42	Pinnacle Health System, Harrisburg, Pa.	21.8	0.0	0.58		4,982	1.4	Yes	1	6	No	
43	Pennsylvania Hospital, Philadelphia	21.7	0.2	0.28		3,597	1.5	No	1	7	No	
44	LDS Hospital, Salt Lake City	21.7	0.0	0.63		3,064	2.0	Yes	0	6	Yes	
45	Summa Health System, Akron, Ohio	21.3	0.0	0.64		4,414	1.6	No	1	7	Yes	
46	Ohio State University Hospital, Columbus	21.2	1.1	0.64		783	2.0	Yes	1	7	Yes	
47	Central DuPage Hospital, Winfield, Ill.	21.2	0.0	0.39		2,932	1.3	No	1	5	Yes	
48	St. Elizabeth Regional Medical Center, Lincoln, Neb.	20.8	0.4	0.61		3,980	1.6	Yes	0	5	No	
49	Miami Valley Hospital, Dayton, Ohio	20.5	0.0	0.74		3,073	1.6	Yes	1	5	Yes	
50	St. Joseph Hospital, Orange, Calif.	20.5	0.0	0.60		2,242	1.8	Yes	1	5	No	

### Final IHQ-Driven Rankings 2008—Respiratory Disorders

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index		Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 6)	Patient services (of 7)	Trauma center	
1	National Jewish Health, Denver	100.0	49.0	0.48		15	0.9	No	3	1	No	
2	Mayo Clinic, Rochester, Minn.	90.1	34.8	0.79		6,109	2.8	Yes	6	7	Yes	
3	Johns Hopkins Hospital, Baltimore	71.4	26.9	0.88		2,236	2.2	Yes	6	7	Yes	
4	Massachusetts General Hospital, Boston	63.8	20.3	0.78		4,781	2.0	Yes	6	6	Yes	
5	Cleveland Clinic	60.7	19.7	0.78		3,595	1.7	Yes	6	6	No	
6	University of California, San Diego Medical Center	49.2	15.9	0.75		1,283	1.9	No	6	6	Yes	
7	Hospital of the University of Pennsylvania, Philadelphia	48.9	14.3	0.78		1,943	1.9	Yes	6	7	Yes	
8	University of California, San Francisco Medical Center	48.6	18.5	0.98		1,797	2.1	No	6	5	No	
9	Duke University Medical Center, Durham, N.C.	47.4	15.1	0.98		3,967	1.9	Yes	6	6	Yes	
10	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	45.0	10.5	0.77		7,394	1.8	No	6	7	Yes	
11	University of Colorado Hospital, Denver	44.5	12.3	0.83		1,540	1.7	Yes	6	6	Yes	
12	Barnes-Jewish Hospital/Washington University, St. Louis	43.0	12.3	0.99		5,301	1.9	Yes	6	7	Yes	
13	UPMC-University of Pittsburgh Medical Center	42.4	10.6	0.90		5,780	2.0	No	6	7	Yes	
14	Brigham and Women's Hospital, Boston	42.1	8.9	0.76		3,476	2.3	No	6	6	Yes	
15	University of Michigan Hosps. and Health Centers, Ann Arbor	40.2	8.7	0.86		3,569	2.6	No	6	7	Yes	
16	University of Washington Medical Center, Seattle	39.5	12.3	0.93		1,168	2.1	Yes	5	7	No	
17	Ronald Reagan UCLA Medical Center, Los Angeles	39.5	9.0	0.71		1,968	2.5	Yes	6	6	Yes	
18	Vanderbilt University Medical Center, Nashville	38.8	6.5	0.78		2,626	2.1	Yes	6	6	Yes	(+3 SD)
19	Yale-New Haven Hospital, New Haven, Conn.	33.9	4.4	0.77		4,050	2.7	No	5	6	Yes	
20	Wake Forest Univ. Baptist Med. Center, Winston-Salem, N.C.	30.0	2.1	0.83		3,440	1.6	Yes	6	6	Yes	
21	Cedars-Sinai Medical Center, Los Angeles	29.7	1.8	0.87		5,300	2.1	Yes	6	7	Yes	(+2 SD)
22	NYU Medical Center, New York	28.4	1.0	0.81		2,572	1.8	Yes	6	6	Yes	
23	Shands at the University of Florida, Gainesville	28.3	1.2	0.82		3,899	1.5	Yes	6	5	Yes	
24	University of Alabama Hospital at Birmingham	28.3	3.1	0.93		2,820	2.3	Yes	5	6	Yes	
25	Boston Medical Center	27.9	2.4	0.71		2,384	1.0	No	4	5	Yes	
26	Thomas Jefferson University Hospital, Philadelphia	27.5	0.8	0.78		2,683	1.8	No	6	7	Yes	
27	Ohio State University Hospital, Columbus	27.3	1.0	0.86		3,210	2.0	Yes	5	7	Yes	
28	Beaumont Hospital, Royal Oak, Mich.	27.2	0.0	0.84		7,581	1.6	Yes	6	7	Yes	
29	Clarian Health, Indianapolis	27.1	0.0	0.84		5,625	2.2	Yes	6	6	Yes	
30	Henry Ford Hospital, Detroit	27.0	1.0	0.82		4,528	1.6	No	6	6	Yes	
31	John Muir Medical Center, Walnut Creek, Calif.	25.9	0.0	0.86		2,512	2.1	Yes	6	7	Yes	
32	University of Chicago Medical Center	25.8	3.2	0.93		2,152	2.5	Yes	6	6	Yes	
33	Penrose-St. Francis Health Services, Colorado Springs, Colo.	25.8	0.0	0.71		2,974	1.2	No	5	7	Yes	
34	University Medical Center, Tucson, Ariz.	25.8	1.4	0.76		1,402	2.1	Yes	6	6	Yes	
35	Baylor University Medical Center, Dallas	25.7	0.0	0.89		4,437	1.8	Yes	6	7	Yes	
36	Harbor Hospital, Baltimore	25.7	0.0	0.71		2,386	1.8	No	5	6	Yes	
37	University of Virginia Medical Center, Charlottesville	25.7	0.0	0.88		3,185	2.1	Yes	6	7	Yes	
38	Christ Hospital, Cincinnati	25.6	0.0	0.63		2,834	1.9	No	5	7	No	
39	Beth Israel Deaconess Medical Center, Boston	25.6	1.1	0.84		3,727	1.5	No	6	5	Yes	
40	Robert Wood Johnson University Hospital, New Brunswick, N.J.	25.6	0.8	0.86		2,959	1.1	Yes	6	5	Yes	
41	Temple University Hospital, Philadelphia	25.6	2.3	0.82		2,141	1.6	No	5	7	Yes	
42	Mount Sinai Medical Center, New York	25.6	3.0	0.98		5,675	1.9	Yes	6	7	No	
43	St. Luke's Episcopal Hospital, Houston	25.4	0.0	0.76		3,291	1.9	Yes	4	6	No	
44	St. Elizabeth Medical Center, Edgewood, Ky.	25.4	0.0	0.87		4,159	1.5	Yes	6	6	Yes	
45	University of Minnesota Medical Center, Fairview	25.2	0.8	0.76		1,816	1.9	Yes	6	7	Yes	
46	Washington Hospital Center, Washington, D.C.	25.1	0.0	0.80		3,310	1.5	No	6	6	Yes	
47	Willis-Knighton Medical Center, Shreveport, La.	25.1	0.0	0.75		4,318	1.3	No	6	7	No	
48	Jewish Hospital, Louisville, Ky.	25.0	0.0	0.73		4,292	1.1	No	5	5	Yes	
49	Froedtert Hospital, Milwaukee	24.9	0.0	0.89		2,613	1.9	Yes	6	7	Yes	
50	Aurora St. Luke's Medical Center, Milwaukee	24.8	0.4	0.92		6,232	1.4	Yes	6	7	Yes	

### Final IHQ-Driven Rankings 2008—Urology

Rank	Hospital	U.S. News Score	Reputation (%)	Mortality index	Discharges (3 years)	Nurse staffing	Nurse Magnet hospital	Advanced technologies (of 6)	Patient services (of 8)	Trauma center	
1	Johns Hopkins Hospital, Baltimore	100.0	61.7	0.52	1,175	2.2	Yes	6	8.0	Yes	
2	Cleveland Clinic	93.8	59.1	0.62	1,292	1.7	Yes	6	7.0	No	
3	Mayo Clinic, Rochester, Minn.	58.1	27.1	0.39	2,645	2.8	Yes	6	8.0	Yes	
4	Ronald Reagan UCLA Medical Center, Los Angeles	53.5	25.4	0.61	846	2.5	Yes	6	7.0	Yes	
5	Memorial Sloan-Kettering Cancer Center, New York	46.9	22.6	0.58	1,287	1.7	No	6	6.0	No	
6	Duke University Medical Center, Durham, N.C.	44.5	21.5	0.87	972	1.9	Yes	6	7.0	Yes	
7	University of California, San Francisco Medical Center	44.2	19.5	0.44	806	2.1	No	6	6.0	No	
8	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	44.2	18.1	0.43	2,408	1.8	No	6	8.0	Yes	
9	University of Texas M.D. Anderson Cancer Center, Houston	40.9	15.5	0.44	802	1.9	Yes	6	7.0	No	
10	Vanderbilt University Medical Center, Nashville	36.2	10.2	0.40	983	2.1	Yes	6	7.0	Yes	
11	Methodist Hospital, Houston	33.3	10.5	0.55	920	1.6	Yes	6	6.0	No	
12	Massachusetts General Hospital, Boston	32.2	9.9	0.71	1,042	2.0	Yes	5	7.0	Yes	
13	Hospital of the University of Pennsylvania, Philadelphia	31.0	5.9	0.36	818	1.9	Yes	6	8.0	Yes	
14	University of Michigan Hosps. and Health Centers, Ann Arbor	31.0	7.4	0.52	1,390	2.6	No	6	8.0	Yes	
15	Barnes-Jewish Hospital/Washington University, St. Louis	30.4	6.6	0.59	1,155	1.9	Yes	6	8.0	Yes	(+3 SD)
16	Clarian Health, Indianapolis	29.6	6.6	0.65	1,467	2.2	Yes	6	7.0	Yes	
17	Brigham and Women's Hospital, Boston	27.3	4.4	0.41	790	2.3	No	6	7.0	Yes	
18	University of California, Irvine Medical Center, Orange	26.5	3.3	0.27	398	2.1	Yes	5	7.0	Yes	
19	Stanford Hospital and Clinics, Stanford, Calif.	26.3	4.5	0.55	487	1.8	Yes	6	6.0	Yes	
20	Northwestern Memorial Hospital, Chicago	25.4	2.4	0.48	1,061	1.6	Yes	6	7.0	Yes	
21	NYU Medical Center, New York	25.2	2.0	0.43	739	1.8	Yes	6	7.0	Yes	(+2 SD)
22	Lahey Clinic, Burlington, Mass.	23.4	4.8	0.74	817	1.3	No	6	7.0	Yes	
23	City of Hope, Duarte, Calif.	23.3	2.2	0.31	787	2.1	No	6	6.0	No	
24	Rush University Medical Center, Chicago	23.3	0.5	0.27	561	1.9	Yes	4	8.0	Yes	
25	University of Texas Southwestern Medical Center, Dallas	23.1	5.2	0.70	533	1.6	No	6	7.0	No	
26	Shands at the University of Florida, Gainesville	23.0	0.6	0.45	976	1.5	Yes	6	6.0	Yes	
27	Tampa General Hospital	22.8	0.0	0.38	555	2.2	Yes	5	8.0	Yes	
28	University Hospitals Case Medical Center, Cleveland	22.8	1.6	0.59	537	1.4	Yes	6	8.0	Yes	
29	LDS Hospital, Salt Lake City	22.8	0.0	0.38	449	2.0	Yes	6	8.0	Yes	
30	University of Minnesota Medical Center, Fairview	22.5	0.7	0.59	683	1.9	Yes	6	8.0	Yes	
31	UPMC-University of Pittsburgh Medical Center	22.4	4.3	0.85	1,071	2.0	No	6	8.0	Yes	
32	University of Maryland Medical Center, Baltimore	22.4	0.0	0.13	618	2.1	No	6	7.0	Yes	
33	University of Wisconsin Hospital and Clinics, Madison	22.4	0.7	0.42	878	1.9	No	6	7.0	Yes	
34	University of Washington Medical Center, Seattle	22.2	0.9	0.39	538	2.1	Yes	5	7.0	No	
35	Beaumont Hospital, Royal Oak, Mich.	22.2	0.8	0.66	1,478	1.6	Yes	6	8.0	Yes	
36	University of Alabama Hospital at Birmingham	22.2	0.6	0.60	903	2.3	Yes	5	7.0	Yes	
37	Henry Ford Hospital, Detroit	22.0	1.1	0.52	1,224	1.6	No	6	7.0	Yes	
38	University of California, San Diego Medical Center	21.8	1.2	0.39	328	1.9	No	6	7.0	Yes	
39	Memorial Hermann-Texas Medical Center, Houston	21.2	0.0	0.19	467	1.9	No	5	7.0	Yes	
40	University of Iowa Hospitals and Clinics, Iowa City	21.2	3.6	0.85	353	1.6	Yes	6	8.0	Yes	
41	University Hospital, Cincinnati	21.2	1.0	0.37	386	1.6	No	5	7.0	Yes	
42	Carolinas Medical Center, Charlotte, N.C.	21.2	0.0	0.49	903	2.0	No	6	7.0	Yes	
43	Loyola University Hospital, Maywood, Ill.	21.1	1.1	0.59	722	2.4	No	5	7.0	Yes	
44	St. Cloud Hospital, St. Cloud, Minn.	21.0	0.0	0.54	613	1.7	Yes	5	7.0	Yes	
45	MeritCare Hospital, Fargo, N.D.	21.0	0.0	0.32	493	1.6	No	6	7.0	Yes	
46	Beth Israel Deaconess Medical Center, Boston	20.8	0.6	0.44	752	1.5	No	5	6.0	Yes	
47	St. Luke's Episcopal Hospital, Houston	20.8	2.4	0.68	712	1.9	Yes	4	6.0	No	
48	Wake Forest Univ. Baptist Med. Center, Winston-Salem, N.C.	20.6	1.2	0.72	562	1.6	Yes	6	7.0	Yes	
49	Virginia Commonwealth University Health System, Richmond	20.6	0.0	0.53	318	2.2	Yes	5	7.0	Yes	
50	Pennsylvania Hospital, Philadelphia	20.6	0.3	0.39	691	1.5	No	6	8.0	No	

## **Appendix G**

### **2008 Reputation-Only Rankings**

### Final Reputation-Only Rankings 2008—Ophthalmology

Rank	Hospital	Reputation (%)	
1	Bascom Palmer Eye Institute at the University of Miami	71.7	
2	Wilmer Eye Institute, Johns Hopkins Hospital, Baltimore	64.0	
3	Wills Eye Hospital, Philadelphia	54.8	(+3 SD)
4	Massachusetts Eye and Ear Infirmary, Boston	30.6	(+2 SD)
5	Jules Stein Eye Institute, UCLA Medical Center, Los Angeles	28.7	
6	University of Iowa Hospitals and Clinics, Iowa City	17.6	
7	Doheny Eye Institute, USC University Hospital, Los Angeles	15.7	
8	Duke University Medical Center, Durham, N.C.	14.3	
9	Emory University Hospital, Atlanta	8.1	
10	University of California, San Francisco Medical Center	8.0	
11	Cleveland Clinic	8.0	
12	Barnes-Jewish Hospital/Washington University, St. Louis	6.7	
13	Mayo Clinic, Rochester, Minn.	5.6	
14	Cullen Eye Institute, Methodist Hospital, Houston	4.3	
15	New York Eye and Ear Infirmary	3.7	
16	W.K. Kellogg Eye Center, University of Michigan, Ann Arbor	3.6	

### Final Reputation-Only Rankings 2008—Psychiatry

Rank	Hospital	Reputation (%)	
1	Massachusetts General Hospital, Boston	30.2	
2	Johns Hopkins Hospital, Baltimore	28.4	
3	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	22.1	
4	McLean Hospital, Belmont, Mass.	21.9	
5	UCLA's Neuropsychiatric Hospital, Los Angeles	18.3	(+3 SD)
6	Menninger Clinic, Houston	14.5	
7	Sheppard and Enoch Pratt Hospital, Baltimore	14.2	
8	Mayo Clinic, Rochester, Minn.	13.5	(+2 SD)
9	UPMC-University of Pittsburgh Medical Center	10.8	
10	Stanford Hospital and Clinics, Stanford, Calif.	10.7	
11	Emory University Hospital, Atlanta	10.1	
12	Duke University Medical Center, Durham, N.C.	9.2	
13	Yale-New Haven Hospital, New Haven, Conn.	8.8	
14	Barnes-Jewish Hospital/Washington University, St. Louis	6.7	
15	Austen Riggs Center, Stockbridge, Mass.	6.5	
16	NYU Medical Center, New York	5.6	
17	Methodist Hospital, Houston	5.0	
18	University of California, San Francisco Medical Center	4.3	
19	Long Island Jewish Medical Center, New Hyde Park, N.Y.	3.9	
20	Mount Sinai Medical Center, New York	3.8	
21	University of California, San Diego Medical Center	3.6	
22	Cleveland Clinic	3.4	
23	Hartford Hospital's Institute of Living, Hartford, Conn.	3.4	
24	Hospital of the University of Pennsylvania, Philadelphia	3.2	

### Final Reputation-Only Rankings 2008—Rehabilitation

Rank	Hospital	Reputation (%)	
1	Rehabilitation Institute of Chicago	67.6	
2	University of Washington Medical Center, Seattle	37.4	
3	Kessler Institute for Rehabilitation, West Orange, N.J.	36.1	
4	Memorial Hermann TIRR, Houston	30.8	(+3 SD)
5	Mayo Clinic, Rochester, Minn.	23.5	
6	Craig Hospital, Englewood, Colo.	17.1	(+2 SD)
7	Spaulding Rehabilitation Hospital, Boston	12.0	
8	Rusk Institute, NYU Medical Center, New York	11.5	
9	Shepherd Center, Atlanta	10.7	
10	Ohio State University Hospital, Columbus	9.5	
11	National Rehabilitation Hospital, Washington, D.C.	9.1	
12	Thomas Jefferson University Hospital, Philadelphia	7.9	
13	Baylor Institute for Rehabilitation, Dallas	7.0	
14	UPMC-University of Pittsburgh Medical Center	6.7	
15	Johns Hopkins Hospital, Baltimore	6.3	
16	Rancho Los Amigos National Rehabilitation Center, Downey, Calif.	5.7	
17	Mount Sinai Medical Center, New York	5.4	
18	Magee Rehabilitation Hospital, Philadelphia	4.7	
19	Cleveland Clinic	4.5	
20	University of Colorado Hospital, Denver	4.4	
21	University of Michigan Hosps. and Health Centers, Ann Arbor	4.0	
22	Moss Rehab, Elkins Park, Pa.	3.7	
23	Hospital of the University of Pennsylvania, Philadelphia	3.6	
24	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	3.5	
25	Virginia Commonwealth University Health System, Richmond	3.2	

### Final Reputation-Only Rankings 2008—Rheumatology

Rank	Hospital	Reputation (%)	
1	Johns Hopkins Hospital, Baltimore	56.2	
2	Cleveland Clinic	43.8	
3	Mayo Clinic, Rochester, Minn.	42.1	
4	Hospital for Special Surgery, New York	40.7	(+3 SD)
5	Ronald Reagan UCLA Medical Center, Los Angeles	22.1	(+2 SD)
6	Massachusetts General Hospital, Boston	20.8	
7	Brigham and Women's Hospital, Boston	20.1	
8	University of Alabama Hospital at Birmingham	18.4	
9	University of California, San Francisco Medical Center	14.4	
10	UPMC-University of Pittsburgh Medical Center	13.2	
11	NYU Hospital for Joint Diseases, New York	11.8	
12	Stanford Hospital and Clinics, Stanford, Calif.	10.6	
13	Northwestern Memorial Hospital, Chicago	7.6	
14	Duke University Medical Center, Durham, N.C.	6.9	
15	University of Michigan Hosps. and Health Centers, Ann Arbor	6.3	
16	University of California, San Diego Medical Center	5.8	
17	Hospital of the University of Pennsylvania, Philadelphia	5.7	
18	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	4.8	
19	Medical University of South Carolina, Charleston	3.9	
20	Boston Medical Center	3.7	
21	Barnes-Jewish Hospital/Washington University, St. Louis	3.6	
22	University of Washington Medical Center, Seattle	3.5	
23	Mayo Clinic, Jacksonville, Fla.	3.2	
24	Methodist Hospital, Houston	3.1	
25	University of Colorado Hospital, Denver	3.1	

## **Appendix H**

### **The 2008 Honor Roll**

## Honor Roll 2008

Rank	Hospital	Points	Specialties
1	Johns Hopkins Hospital, Baltimore	30	15
2	Mayo Clinic, Rochester, Minn.	28	15
3	Ronald Reagan UCLA Medical Center, Los Angeles	25	14
4	Cleveland Clinic	25	13
5	Massachusetts General Hospital, Boston	24	12
6	New York-Presbyterian Univ. Hosp. of Columbia and Cornell	22	12
7	University of California, San Francisco Medical Center	21	11
8	Brigham and Women's Hospital, Boston	18	11
8	Duke University Medical Center, Durham, N.C.	18	11
10	Hospital of the University of Pennsylvania, Philadelphia	18	10
10	University of Washington Medical Center, Seattle	18	10
12	Barnes-Jewish Hospital/Washington University, St. Louis	17	11
13	University of Michigan Hosps. and Health Centers, Ann Arbor	14	9
14	UPMC-University of Pittsburgh Medical Center	13	8
15	Vanderbilt University Medical Center, Nashville	12	7
16	Stanford Hospital and Clinics, Stanford, Calif.	10	7
17	University of Chicago Medical Center	9	8
18	Cedars-Sinai Medical Center, Los Angeles	8	7
19	Yale-New Haven Hospital, New Haven, Conn.	8	6

