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Methodology:
U.S. News & World Report
Best Children's Hospitals 2015-16

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To Whom It May Concern:

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Executive Summary

In 1990, U.S. News & World Report published a number of short lists of hospitals in various specialties. The intent of America's Best Hospitals, as the annual rankings were called, was to identify the best medical centers, by specialty, for the most difficult patients – those whose illnesses pose unusual challenges because of underlying conditions, procedure difficulty or other medical issues that add significant risk. "America's" was dropped from the name several years ago, but the annual rankings' focus on identifying top sources of care for the most difficult patients is unchanged.

Pediatrics was among the specialties in which hospitals were first ranked, but until 2007 the pediatric rankings were based entirely on a reputational survey of physicians because of the absence of hard data. Pediatric-specific data are critical because young patients present special challenges. Their small size relative to adults complicates every facet of care, from intubation to drug dosages; they are more vulnerable to infection; they depend on adults to manage and administer their medications, and they are treated for congenital diseases such as spina bifida and cystic fibrosis.

In the absence of data bases for pediatrics comparable to the MedPAR files for Medicare recipients, U.S. News resolved to collect data directly from children's hospitals. The first rankings incorporating such data were published in 2007 as the top 30 children's centers in General Pediatrics.

Data collection was subsequently broadened and deepened. Best Children's Hospitals now ranks the top 50 centers in 10 specialties: Cancer, Cardiology & Heart Surgery, Diabetes & Endocrinology, Gastroenterology & GI Surgery, Neonatology, Nephrology, Neurology & Neurosurgery, Orthopedics, Pulmonology and Urology.

The current methodology combines clinical and operational data, results from a reputational survey of board-certified pediatric specialists, and supplemental information from resources such as the National Cancer Institute.

Most of the 184 facilities surveyed for the 2015-16 Best Children's Hospitals rankings are either freestanding children's hospitals or a "hospital within a hospital" – a large and essentially autonomous multidisciplinary pediatric department within a major medical center. Almost all are members of the Children's Hospital Association (CHA).*

* In 2012, the National Association for Children's Hospitals and Related Institutions (NACHRI) was renamed the Children's Hospital Association. For more information, please visit: http://www.childrenshospitals.net.

RTI International,† which developed the methodology for U.S. News, collects and analyzes the data for the "Best Children's Hospitals" rankings. The methodology reflects the level and quality of *hospital resources* directly related to patient care, such as staffing, technology and special services; *delivery of healthcare*, such as reputation among pediatric specialists, programs that prevent infections and adherence to best practices; and *clinical outcomes*, such as patient survival, infection rates and complications.

In the 2015-16 rankings, 83 of the 184 surveyed hospitals were ranked in one or more specialties. The Best Children's Hospitals Honor Roll recognizes hospitals with scores in the top 10 percent in at least three specialties. The 2015-16 Honor Roll lists 12 such hospitals.

† RTI International is the trade name of Research Triangle Institute.

Table of Contents

List of Tables

List of Figures

List of Appendixes

I. Introduction

Rankings in pediatrics were included when U.S. News introduced "America's Best Hospitals" in 1990. Until 2007, however, the pediatric rankings relied entirely on reputational surveys of board-certified pediatricians and adolescent-medicine specialists. Quantitative measures in pediatrics barely existed. A large, rich database, comparable to the Centers for Medicare & Medicaid Services MedPAR (Medicare Provider Analysis and Review) files that determine mortality in 12 adult specialties, was unavailable[§]. Reliable structural measures also were absent. Available data sources generally reported volume, advanced technologies and patient services for the hospital as a whole and did not break out pediatric-specific information.

Continuing to rank children's hospitals on reputation for an indeterminate period while performance data were codified and the means of collecting and verifying them were settled was deemed unacceptable. U.S. News therefore asked RTI to develop a methodology for ranking hospitals in pediatrics that would incorporate data obtained directly from the hospitals.

"General Pediatrics" rankings incorporating data obtained through a direct survey of pediatric facilities (the Pediatric Hospital Survey) appeared in the September 3, 2007, issue of U.S. News & World Report as "Best Children's Hospitals." The pediatric rankings were published in a separate issue from the adult rankings to highlight the change and minimize possible confusion due to similar methodologies in both sets of rankings.

The Pediatric Hospital Survey and Physician Survey were expanded in 2008, permitting pediatric hospitals to be ranked in six pediatric specialties as well as in General Pediatrics.[**] In 2009, General Pediatrics was dropped and the number of specialties was expanded to the 10 listed below:

- Cancer
- Cardiology & Heart Surgery
- Diabetes & Endocrinology
- Gastroenterology & GI Surgery
- Neonatology
- Nephrology
- Neurology & Neurosurgery
- Orthopedics
- Pulmonology
- Urology

§ A relatively small number of children, under narrow eligibility definitions, do receive care under Medicare because of legislatively mandated changes in coverage over time.

** Previous methodology reports are available online at www.rti.org/besthospitals.

The Best Children's Hospitals rankings, like their adult counterpart, reflect the interrelationship between structure, process and outcomes, the three components of the Donabedian paradigm.[1-5] The specific measures, their weights and the way in which hospitals are scored are quite different in the pediatric rankings, however.

The concepts of the Donabedian components are as follows:

- *Structure* refers to hospital resources directly related to patient care. Examples include the ratio of nurses to patients, specialized clinics and programs, and certification by recognized external organizations.
- The *process* of healthcare delivery encompasses overall rendering of diagnosis, treatment, prevention and patient education. In both the pediatric and adult rankings, process is represented primarily by a reputational score based on the annual survey of board-certified physicians cited above. Starting with the 2012-13 rankings, the pediatric methodology has incorporated compliance with best practices and activities to prevent infections and other patient safety issues.
- *Outcomes* most obviously include survival but can also include functional success, such as in children with cystic fibrosis and adverse events, such as bloodstream infections and failure of transplanted organs.

Section II of this report provides an overview of the general eligibility requirements for the pediatric rankings. As in previous years, most structure and outcomes data for the 2015-16 rankings were obtained directly from children's hospitals through the Pediatric Hospital Survey (***Section III***). Data for three measures were supplied by external organizations: the American Nurses Credentialing Center (Nurse Magnet recognition), the Foundation for the Accreditation of Cellular Therapy (FACT -accreditation for BMT and tissue transplant) and National Association of Epilepsy Centers (commitment to best practices).

The specific mission of the Best Children's Hospitals rankings is to identify hospitals that provide the highest quality of care for children with the most serious or complicated medical conditions, using the most robust and sensitive measures available to represent the three Donabedian components. ***Section IV*** describes the data and the construction of each component.

The methodology also incorporates nominations of hospitals from board-certified pediatric specialists in each of the 10 specialties through the Pediatric Physician Survey, as described in ***Section VI***.

II. Eligibility

A. General Eligibility

To be considered for the pediatric rankings, hospitals had to provide extensive data about their services and capabilities through the 2015-16 Pediatric Hospital Survey (https://usnewspediatricsurvey.rti.org/Documents/PediatricHospitalSurvey_Full_2015-16.pdf). Most hospitals asked to submit data were in one of three Children's Hospital Association (CHA)[††] membership categories: a freestanding children's hospital; a "hospital within a hospital" (as described above, a pediatric service that functions autonomously within a larger medical center); or an associate member (a pediatric hospital that is affiliated with a medical school but is not the medical school's primary pediatric teaching hospital). Several CHA specialty hospitals (such as orthopedics) were included as well.

A small number of hospitals that are not CHA members were added because they had appeared previously in the Best Children's Hospitals rankings or expert advisory panels on pediatric hospital quality measures recommended that they be included.

Of the 184 hospitals that qualified for inclusion, 109 submitted sufficient data to be considered for ranking in at least one specialty, a response rate of 59.2 percent.

B. Specialty-Specific Eligibility

To be eligible for ranking within a specialty, hospitals had to satisfy two additional requirements:

- In specialties other than Neonatology, a hospital had to verify in the Pediatric Hospital Survey that the specialty was in fact available. A hospital also had to have a Level IV neonatal intensive care unit (NICU) to be eligible for ranking in Neonatology. For validating the latter status, we accepted hospitals that either have been granted Level IV status by their state or that meet the eligibility requirements for a Level IV NICU as specified by the American Academy of Pediatrics guidelines.[‡‡]
- A full-time equivalent (FTE) of at least 1.0 attending physicians in certain specialty-related medical fields was required. The physician categories are shown in ***Table 1***. Text and table references (e.g. "B2a") indicate the related section and question in the Pediatric Hospital Survey.

[††] More information about CHA and its member hospitals can be found at www.childrenshospitals.net.

[‡‡] AAP guidelines, Pediatrics, 2012, 130:587-597.

Table 1. Specialty-Specific Eligibility Requirements

Specialty	Must have at least 1.0 FTE attending staff in the following categories:
Cancer	Pediatric hematologist/oncologist (B2a)*
Cardiology & Heart Surgery	Pediatric cardiothoracic surgeon (E2a) **and** Pediatric cardiac intensivist (from training in cardiology, pediatric critical care or anesthesiology) **or** Other pediatric cardiac specialist (pediatric cardiac interventionalist, pediatric cardiac electrophysiologist or pediatric anesthesiologist with specialty cardiac training) (E2b, E2c, E2d, E2e, E2f or E2g)
Diabetes & Endocrinology	Pediatric endocrinologist (C2a)
Gastroenterology & GI Surgery	Pediatric gastroenterologist (D2a)
Neonatology	Pediatric neonatologist (F2a)
Nephrology	Pediatric nephrologist (G2a)
Neurology & Neurosurgery	Pediatric neurologist (H2a) **or** Pediatric neurosurgeon (H2b)
Orthopedics	Pediatric orthopedic surgeon (I2a)
Pulmonary	Pediatric pulmonologist (J2a) **or** Pediatric sleep medicine physician (J2b)
Urology	Pediatric urologist (K2a)

* Parenthetical references indicate related survey questions

III. Pediatric Hospital Survey

As part of the process of creating the initial pediatric rankings, RTI convened advisory panels to inform the hospital survey. These working groups have been retained to help the survey evolve by providing new findings and perspectives that can be incorporated before the survey is finalized and sent to hospitals.

Panel members are recruited in cooperation with the CHA, which issues a request to the pediatric hospital community to propose candidates with broad expertise in both general and specialty pediatric medical care and familiarity with current research on hospital quality. The 2015-16 panels comprised pediatric physicians, nurses, hospital quality experts, health information systems/coding experts and other healthcare professionals. A group of infection-control experts worked with the 10 specialty panels to address specialty-specific infection-control and prevention issues.

Through conference calls, ad hoc phone discussions and emails during the summer and fall of 2014, panel members proposed, reviewed and discussed revisions to the previous survey, including prospective new measures.

The RTI project team created a draft set of measures and a survey instrument. A smaller group of advisors reviewed both the broad content and specific information, such as individual ICD-9-CM (*International Classification of Diseases, Ninth Revision, Clinical Modification*) codes that identify diagnoses and treatments.[6] In addition, experts at several children's hospitals extensively reviewed the survey to ensure that the questions were appropriate and answerable. The final result was to slightly expand and refine the 2015-16 survey.

The survey was provided as a Microsoft Word document to hospitals in mid-December 2014 on an FYI basis, to give them as much time as possible to collect and organize data. They received the data submission form in early January 2015 via a dedicated Web page; the form was administered through March.

Some measures were ultimately excluded after data were submitted because the results failed to demonstrate meaningful variability. The remaining items defined the majority of the structural, process and outcomes measures. The items are described in detail below. References to the corresponding survey question numbers are provided in parentheses.

The Pediatric Hospital Survey data submission form will continue to be updated and modified in subsequent years to reflect the quality of care provided by U.S. pediatric facilities and the evolving discipline of quality improvement.

IV. Structure

The structural component is represented by volume, technology, clinical services and other characteristic features of a high-quality pediatric hospital. In the Best Hospitals adult specialty rankings, most structural measures and their associated data are extracted from the American Hospital Association (AHA) annual survey. Because the AHA survey focuses primarily on overall hospital measures, however, pediatric data from the survey lack specificity. Structural data were therefore collected through the Pediatric Hospital Survey.

All measures used in the rankings are described in the following sections. The print version of the rankings displays a subset of the online measures.

A. Structural Measures

The structural measures used in the rankings were selected because they represent fundamental elements of high-quality, hospital-based pediatric care. Descriptions of the measures and the specialties to which they are applied are listed alphabetically. Text and table references such as (A6a) indicate the related section and question in the Pediatric Hospital Survey. The relative weight of each measure within a specialty is provided in ***Section IV.B. Normalization and Weighting***.

Active Fellowship Program (All Specialties)

Participation in fellowship training programs represents a commitment by hospitals to provide high-quality care in a specialty area and assure that their programs meet standards of quality. Hospitals that offer fellowship programs accredited by the Accreditation Council for Graduate Medical Education were awarded 1 point for each fellowship program that had at least one active fellow in the program in the past academic year. ***Table 2*** indicates fellowships credited.

Adoption of Health Information Technology (All Specialties)

In each specialty, hospitals received up to 12 points for incorporating and using a computerized physician order entry (CPOE) system and electronic medical records (EMRs). Hospitals received up to 6 points for CPOE: 1 point for implementing a CPOE system (A20), 1 point for documenting 95% or more of inpatient medication orders (A21a), 1 point for identifying medication orders if an allergy to the medication is documented (A21b), 1 point for including alerts for dosing errors for high-risk medications (A21c) and up to 2 points for providing details on two or more current projects using CPOE that focus on dosing errors for high-risk medications (A21.1).

Hospitals received up to 4 points for EMR: 1 point for implementation (A22), 1 point if the EMR identifies and reports potential adverse events for patients (A23) and up to 2 points for providing details on two current projects with the EMR system that identify potential adverse events (A23.1).

Hospitals received 2 points based on their current Meaningful Use certification. Meaningful Use is used to evaluate a hospital's EMR to improve quality, safety, and care coordination as well as engage patients and their families. Hospitals that have achieved Stage 2 achieved 2 points, and hospitals that achieved stage 1 received 1 point.

Adult Congenital Heart Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 10 points for having an adult congenital heart program. Hospitals received 1 point for providing an organized adult congenital

heart program (E16). Hospitals could also receive 1 additional point if the program was listed with the Adult Congenital Heart Association (E20). These programs are often provided by pediatric heart centers, which frequently have the most expertise in inherited or congenital heart disorders.

Table 2. Active Fellowship Programs by Specialty

Fellowship Program*	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Child neurology (A6a)					●		●			
Congenital cardiac surgery (A6b)		●			●					
Neonatal-perinatal medicine (A6c)					●					
Neurosurgery (with training in pediatrics) (A6d)					●		●			
Pediatric cardiology(A6e)		●			●					
Pediatric endocrinology (A6f)			●							
Pediatric gastroenterology (A6g)				●	●					
Pediatric hematology-oncology (A6h)	●									
Pediatric nephrology (A6i)						●				
Pediatric orthopedics (A6j)								●		
Neuroradiology or interventional radiology (with training in pediatrics) (A6k)	●				●					
Pediatric pulmonology (A6l)					●				●	
Pediatric urology (A6m)										●
Pediatric surgery (A6n)		●								

(continued)

Table 2. Active Fellowship Programs by Specialty (continued)

Fellowship Program*	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Pediatric infectious diseases (A6o)	●	●	●	●	●	●	●	●	●	●
Orthopedic surgery of the spine (with training in pediatrics) (A6p)								●		
Pediatric critical care medicine (A6q)	●	●	●	●	●	●	●	●	●	●
Pediatric advanced transplant hepatology (A6r)				●						
Advanced motility training program (D34)				●						
Advanced nutritional training program (D35)				●						
Total Elements	**4**	**5**	**3**	**6**	**10**	**3**	**4**	**4**	**3**	**3**

* Parenthetical references indicate related survey questions

Up to 6 additional points were awarded if the adult congenital heart program provided the following: a formal plan to transition patients from the pediatric to adult congenital heart program (E17a); joint participation from adult and pediatric cardiologists (E17b); participation from cardiothoracic surgeons (E17c), cardiothoracic interventionalists (E17d) and cardiothoracic electrophysiologists (E17e) who have specialty expertise in the care of adults with congenital heart disease; and specialty care for high-risk obstetrics for patients with congenital heart disease (E17f).

Hospitals received 1 point for performing from 1 to 49 cardiac surgical encounters on patients age 18 and above in the past four calendar years and 2 points for performing 50 or more surgical encounters in the past four calendar years (E19).

Advanced Clinical Services (All Specialties)

Hospitals frequently offer clinical services and organize teams or programs to address special needs of specific groups of patients. These services or programs may be organized around a particular diagnosis, need or age group. The structure of the services or programs ensures that a range of resources is available. Specialized skills of a multidisciplinary staff improve overall quality of care and, presumably, outcomes. The clinical services recognized in each specialty are described in

Table 3. Four points were awarded for having a pediatric trauma center in all specialties except Neonatology and Urology. In those specialties, only 2 points were awarded. The trauma center measure recognizes the enhanced resources and staff available to hospitals that provide this service, which benefit other inpatient specialty care. One point was awarded for the additional services listed for each specialty.

Table 3. Advanced Clinical Services Offered by Specialty

Cancer (24 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Cancer care coordination	Primary oncologist involved in more than 50% of the evaluations and management visits with pediatric patient on active cancer therapy (B7)	1
Support staff/programs	Offers the following programs and supporting staff (B11 and B11.1): • Complementary and alternative medicine or holistic health program • Pediatric child-life specialists • Psychosocial support program • Social work support • School programs for hospitalized patients • Neuropsychological evaluation focused on school re-entry issues • APHON chemotherapy/biotherapy course and safe handling procedures • Adolescent and young adult support program • Having at 50% or more of nurses with national oncology certification	9

* Parenthetical references indicate related survey questions (continued)

Table 3. Advanced Clinical Services Offered by Specialty (continued)

Cancer (24 points)		
Service	**Description***	**Points**
Chemotherapy support services	Offers the following: • Dedicated pediatric chemotherapy pharmacy (B15a) • Pediatric oncology pharmacist (B15b) • Pharmacists assigned to participate in daily inpatient rounds with the pediatric cancer treatment team (B15c) • Outpatient pediatric chemotherapy facility (B15d) • Formal annual chemotherapy training (e.g., order writing, dispensing, administration) (B15e) • Formal chemotherapy safety program with standardized procedures and event tracking (B15f) • Designated pediatric oncology faculty leader for the chemotherapy safety program (B15g) • Reporting system capturing chemotherapy order misses/near misses (B15h)	8
Chemotherapy orders	1 point for handwritten chemotherapy orders; 2 points for orders written using word processing or spreadsheet software or CPOE (B16)	2
Cardiology & Heart Surgery (21 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
ECMO	ECMO program designated as center of excellence by the Extracorporeal Life Support Organization (ELSO) (A9)	1
Echocardiography laboratory	Offers certified echocardiography laboratory (E5) in: • Transthoracic echocardiographic testing • Transesophageal echocardiographic testing • Fetal echocardiographic testing	3
Cardiovascular services	Offers these diagnostic and treatment services (E6a-l): • Inpatient cardiology consultation • Dedicated pediatric cardiac surgical operating room • Cardiac intensive care unit • Remote monitoring capability • Cardiac diagnostic catheterization laboratory • Cardiac interventional catheterization laboratory • Electrophysiology laboratory • Ventricular assist program • 24/7 ECMO • Cardiovascular genetics clinic • Pediatric cardiac anesthesia services	11
Heart failure program	Provides heart failure program with a designated medical director and nursing coordinator (E24)	1
Circulatory support	Provided ventricular assist devices (other than ECMO) for one or more patients in the past 4 years (E26)	1

* Parenthetical references indicate related survey questions (continued)

Table 3. Advanced Clinical Services Offered by Specialty (continued)

Diabetes & Endocrinology (24 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Diabetes support staff	Having the following staff, who are Certified Diabetes Educators, provide diabetes education to patients: • Nurses, pharmacists, social workers, psychologists (C5a and C5c) • Dietitians(C5c)	2
	Having at least 1 of the following staff provide onsite services to pediatric endocrinology patients: • Social workers (C6a) • Psychologists (C6b) • Genetic counselors (C7a) • Certified exercise physiologists or physical therapists (C7b) • Psychiatrists (C7c) • Pharmacists (C7d)	6
Remote access to records	1 point for providing physicians with remote access (e.g., EHRs) to patient records or 2 points for providing remote access for both inpatients and outpatients (C8)	2
Diabetes patient services	Provides the following services onsite (C9): • Written educational protocol used to evaluate and prepare patients for use of an insulin pump • Certified pump educators to provide insulin pump training to patients and their families • Written education program used to evaluate and prepare patients for use of continuous glucose monitors (CGMs) • Certified CGM trainers to provide CGM training to patients and their families • Written educational program for families of new-onset diabetes patients • Formal diabetes educational program for school nurses through a yearly school nurse education conference • A specified RN or CDE who is responsible for advising and supporting schools in setting up safe programs for managing diabetes	7
Support services	Offered the following programs or services in the last calendar year: • Hosted or was actively involved in organizing diabetes-specific support group for parents and families (C12) • Took a leadership role in organizing or supporting family-support groups for special populations other than diabetes (e.g., Turner syndrome) (C60) • Had a Family Advisory Board that includes families of non-diabetes Endocrinology patients (C61)	3

* Parenthetical references indicate related survey questions (continued)

Table 3. Advanced Clinical Services Offered by Specialty (continued)

Gastroenterology & GI Surgery (12 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Gastro-intestinal (GI) specialists	Has following specialists available for consultation 7 days a week (D8): • Pediatric gastroenterology/liver-specialized pathologists • Pediatric interventional radiologists	2
GI support groups	Provides access to the following support groups (D12): • Inflammatory bowel disease • Celiac disease • Liver disease • Cystic fibrosis • Eosinophilic esophagitis • Chronic intestinal failure	6
Neonatology (6 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	2
NICU support staff	NICU-dedicated staff in these units (F7): • NICU-specific pharmacist onsite who attends work rounds with clinical team • NICU-dedicated respiratory therapy team who attends work rounds on weekdays with clinical team • NICU-designated nutritionist who supports clinical team • NICU-dedicated social workers (F11)	4
Nephrology (13 services)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Maintenance dialysis staff	Has at least 1.0 FTE of the following staff dedicated to maintenance dialysis (G5): • Clinical nurses • Social workers • Dieticians • Advanced practice nurses • Child life specialists	5
Dialysis treatment	Provides following dialysis options for acute kidney insufficiency (G7): • Hemodialysis • Peritoneal dialysis • Continuous renal replacement therapy	3
Kidney transplant	United Network for Organ Sharing (UNOS)-recognized kidney transplant program (G28)	1

* Parenthetical references indicate related survey questions (continued)

Table 3. Advanced Clinical Services Offered by Specialty (continued)

Neurology & Neurosurgery (14 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Neurology & neurosurgery support services and technology	Offers the following: • Ketogenic diet evaluation and management program (H5c) • Neuroendovascular interventionalists (H5d) • Neuroanesthesia program (H5e) • Neurocritical care program (H24) • Inpatient neurological rehabilitation program (H13) • Inpatient neurological rehabilitation program certified by Commission on Accreditation of Rehabilitation Facilities (H13.1) • Inpatient neurological rehabilitation program that participates in and submits data to the Universal Data System for Medical Rehabilitation (UDSMR) (H31.2) • neuropsychological testing by pediatric neuropsychologists (H14)	8
Epilepsy treatment	Offers the following: • Electroencephalography (EEG) lab staffed 24/7, accredited by ABRET (H7) • Epilepsy monitoring unit with emergency management of seizures protocols (H30)	2
Orthopedics (10 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Advanced care services	Comprehensive pediatric orthopedic program with: • Designated inpatient unit for pediatric orthopedic patients (I7) • Dedicated pediatric imaging center (I8) • Imaging center staffed by a pediatric radiologist (I9) • Multidisciplinary musculoskeletal oncology program (I16) • Motion laboratory (gait laboratory) (I19) • Seating services or wheelchair clinics for patients with neuromuscular disorders (I43 & I44)	6

* Parenthetical references indicate related survey questions (continued)

Table 3. Advanced Clinical Services Offered by Specialty (continued)

Pulmonology (22 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	4
Asthma care specialists	At least 1 FTE staff with clinical responsibilities (J5): • Respiratory therapists • Certified asthma educators • Social workers • Dieticians • Physical therapists • Psychiatrists or psychologists	6
Dedicated staff	Following cystic fibrosis center staff who attend clinic or participate in patient care conferences (J17): • Gastroenterologist • Endocrinologist • Psychiatrists or psychologists Following staff who support patients with neuromuscular weakness disorders (J32): • Pulmonologist • Physiatrist • Orthopedist • Cardiologist • Neurologist • Physical therapist • Psychiatrists or psychologists	10
Support services	Offers following: • Cystic fibrosis center accredited by Cystic Fibrosis Foundation (J16) • Sleep center accredited by American Academy of Sleep Medicine (J35)	2
Urology (6 points)		
Service	**Description***	**Points**
Pediatric trauma center	Level 1 or 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	2
Treatment options	Offers the following treatment modalities (K11): • Stone treatment, including shock wave lithotripsy • Laparoscopic orchiopexy/orchidectomy • Robotic-assisted laparoscopic pediatric surgery • Laparoscopic surgery, including cyst ablation, pyeloplasty, nephrectomy and partial nephrectomy	4

* Parenthetical references indicate related survey questions

Advanced Technologies (All Specialties)

To receive credit, hospitals can either provide access to key diagnostic and treatment technologies directly, through the hospital's health system or a local community network, or indirectly, through a contractual arrangement or joint venture with another community provider. On- and off-site services received equal credit. Data are from the Pediatric Hospital Survey. The values for this measure were based on specialty-specific mixes of technology, as listed in ***Table 4***. Definitions can be found in the glossary in ***Appendix A***.

Table 4. Advanced Technologies by Specialty

Specialty	Technologies*
Cancer (16 technologies)	• Positron emission tomography (PET) or PET/computerized tomography (PET/CT) scanning (A10a or A10b) • Intraoperative magnetic resonance imaging (ioMRI) (A10c) • 3-Tesla magnetic resonance imaging (3T MRI) (A10d) • Image-guided radiation therapy (A10e) • Intensity-modulated radiation therapy (A10f) • Bone scan (A10g) • Linear accelerator or other linear particle accelerator, gamma knife, CyberKnife, or other shaped-beam stereotactic radiation therapies (A11) • Magnetic resonance spectroscopy (B8a) • Therapeutic/diagnostic meta-iodine-benzyl-guanidine with I-131 radionuclide (B8b) • Functional magnetic resonance (B8c) • Intraoperative ultrasound for vascular access procedures (B8d) • Stereotactic radiosurgery (B8e) • Dedicated pediatric anesthesiology for radiation therapy (B8f) • Intra-arterial chemotherapy or embolization for solid tumors (B8g) • Radiofrequency ablation and/or cryoablation (B8h) • Pediatric interventional radiology equipment and room (B9)
Cardiology & Heart Surgery (7)	• CT angiography (E7a) • Cardiac MRI (E7b) • Stress PET scanning (E7c) • Nuclear stress testing (E7d) • Stress echo testing (E7e) • Transcatheter arrhythmia ablation methodologies (three-dimensional mapping, cryoablation or radiofrequency ablation) (E14a-c) • Transesophageal echocardiographic testing (E6k)

* Parenthetical references indicate related survey questions (continued)

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Diabetes & Endocrinology (10)	• PET or PET/CT scanning (A10a or A10b) • Diagnostic radioisotope scan (C51a) • Therapeutic radioiodine treatment for Graves' disease (C51b) • Therapeutic radioiodine treatment for thyroid cancer (C51c) • Fine needle aspiration of thyroid nodule (C51d) • Thyroidectomy(C51e) • Dual-energy x-ray absorptiometry (DXA) scans using pediatric software and normative data (C51f) • Intraoperative PTH assay (C51g) • Intravenous bisphosphonate therapy (C51h) • Endocrine testing and infusion studies (with endocrinology providers on site) (C55)
Gastroenterology & GI Surgery (11)	• PET or PET/CT scanning (A10a or A10b) • Magnetic resonance cholangiopancreatography (D7a) • Magnetic resonance enterography (D7b) • DXA scan (D7c) • Capsule endoscopy (D11a) • Endoscopic band ligation (D11b) • Esophageal impedance or resolution esophageal manometry (D11c) • Endoscopic retrograde cholangiopancreatography (D11d) • Antroduodenal and full colonic motility studies (D11e) • Esophageal dilation, either bougie or pneumatic (D11f) • Alternative hemostatis therapies (D11g)
Neonatology (6)	• PET or PET/CT scanning (A10a or A10b) • Continuous electroencephalography (EEG) monitoring with pediatric neurology support (F12a) • Non-sedated MRI 24x7 (F12b) • Virology laboratory with weekday 24 hour availability (F12c) • Specialized chemistry laboratory (F12d) • Onsite genetic specialists with expertise in interpreting and counseling family about exome sequencing results (F12e)
Nephrology (1)	• PET or PET/CT scanning (A10a or A10b)
Neurology & Neurosurgery (7)	• PET or PET/CT scanning (A10a or A10b) • ioMRI (A10c) • 3T MRI (A10d) • Neurophysiological intraoperative monitoring (H5a) • EEG source localization (H5b) • Functional MRI (H5f) • Availability of 24/7 EEG monitoring in pediatric intensive care unit (PICU)/neonatal intensive care unit (NICU) (H5g)
Orthopedics (3)	• PET or PET/CT scanning (A10a or A10b) • Bone scan (A10g) • Remote retrieval of test results, images, and medical records (I10c)

* Parenthetical references indicate related survey questions (continued)

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Pulmonology (1)	• PET or PET/CT scanning (A10a or A10b)
Urology (3)	• PET or PET/CT scanning (A10a or A10b) • Dedicated laparoscopic skills lab for faculty and trainees (K7a) • Video pediatric urodynamic fluoroscopy (K7b)

* Parenthetical references indicate related survey questions

Bone Marrow Transplant Services (Cancer)

In Cancer, hospitals could receive up to 21 points for having a stem cell transplant program. Stem cell transplants are critical in treating a variety of cancers:

- Hospitals received 1 point for having a stem cell transplant unit with specially trained pediatric nurses and physicians (B17).
- Hospitals received up to 6 points for offering various stem cell transplant services (B18): cord blood stem cell transplantation, autologous stem cell transplantation, allogeneic matched unrelated transplantation, allogeneic matched related donor, haploidentical (half-matched) transplantation and cellular therapy infusions.
- Hospitals received up to 12 points based on transplant volume (B18). For each of the four types of transplantation listed above, hospitals received points as follows: 1 point for conducting from 2 to 10 transplants in the past 3 years and 2 points for conducting 11 or more transplants in the past 3 years.
- Hospitals received up to 2 points for recognition as a transplant center by the National Marrow Donor Program (B19b) and for membership in the Pediatric Blood and Marrow Transplant Consortium (B19c).

Clinical Support Services (All Specialties)

Many hospitals provide access to medical and surgical clinical support services through the hospital's health system, a local community network or a contractual arrangement or joint venture with another provider in the community. On- and off-site services received equal credit. Up to 10 services are included in the clinical support services, depending on specialty. Data came from the Pediatric Hospital Survey. For eligible hospitals, specialty-specific mixes of medical and surgical services are used in computing the points for this measure. ***Table 5*** presents the complete list of medical and surgical services considered for each specialty in 2015-16. Definitions can be found in the glossary in ***Appendix A***.

Commitment to Clinical Research (All Specialties)

Networks, clinical trials and other research activities advance the ability of the field to treat pediatric patients and also enhance care by making new or novel treatments available at centers that participate in such research.

Cancer (12 points). Hospitals received up to 12 total points for participating in clinical research activities such as clinical trials or other translational research activities. Hospitals received up to 4 points for participating in cancer research networks (B24) such as the Children's Oncology Group, National Cancer Institute (NCI) Phase 1/Pilot Consortium, NCI-Designated Cancer Center or another cancer-related organized clinical research network. Hospitals received 1 point each for having at least one Phase I or Phase II clinical trial (translational research) during the past two years (B25). Hospitals received up to 5 points for engaging in clinical trials in these specific areas (B26): leukemia/lymphoma, solid tumors, CNS tumors, transplants, or trials for biologically targeted novel agents that are not disease-specific (e.g., tyrosine kinase inhibitors). Hospitals could receive an additional 1 point by demonstrating the depth of their involvement in any of the clinical trials (B26.1).

Table 5. Clinical Support Services, by Specialty

Clinical Support Service*	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Neonatal intensive care unit (A7a)	●	●	●	●		●	●	●	●	●
Pediatric intensive care unit (A7b)	●	●	●	●		●	●	●	●	●
Patient care rooms with protective environment (A7c)	●									
Genetic testing/counseling (A7d)	●		●	●	●					
Palliative care program (A7e)	●	●	●	●	●	●	●	●	●	●
Vascular tumor program (A35)	●	●	●	●	●	●	●	●	●	●
Rapid response team available onsite 24/7 (A8a)	●	●	●	●	●	●	●	●	●	●
Pediatric anesthesia program available onsite 24 hours a day (A8b)	●	●	●	●	●	●	●	●	●	●

* Parenthetical references indicate related survey questions (continued)

Table 5. Clinical Support Services, by Specialty (continued)

Clinical Support Service*	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Pediatric pain management program available onsite 24/7 (A8c)	●	●	●	●	●	●	●	●	●	●
Multidisciplinary pediatric acute pain/sedation service available onsite 24/7 hours a day (A8d)	●	●		●	●	●	●	●	●	●
Total Elements	**10**	**8**	**8**	**9**	**7**	**8**	**8**	**8**	**8**	**8**

* Parenthetical references indicate related survey questions

Cardiology & Heart Surgery (12 points). Hospitals received points for participating in externally audited, national quality-improvement research networks. Hospitals received up to 10 points for participating and contributing data to the following organizations:

- Society of Thoracic Surgeons (E29a)
- Congenital Heart Surgeons' Society (E29b)
- National Pediatric Cardiology Quality Improvement Collaborative (E29c)
- Congenital Cardiac Anesthesia Society database (E29d)
- National Cardiovascular Disease Registry—improving pediatric and adult congenital treatment (E29e)
- National Cardiovascular Disease Registry—internal cardioverter defibrillator (E29f)
- Pediatric Cardiac Critical Care Consortium or Virtual Pediatric ICU System (E29g)
- Pediatric Heart Transplant Study (E29h)
- Radiation reduction with either the Reducing Radiation Risk Quality Initiative or the Congenital Cardiac Catheterization Project (E29i)
- Other externally audited national quality-improvement initiatives (E29.1)

Hospitals received up to 2 additional points based on the number of investigative studies they participate in (E30). Hospitals were awarded 1 point for participating in 1 or 2 of the following

types of studies and 2 points for participating in 3 or more of the following types of studies: single institution retrospective studies, multi-institutional retrospective studies, basic science studies with extramural funding, prospective clinical trials or studies with industry funding, or prospective clinical trials or studies with competitive extramural funding.

Diabetes & Endocrinology (3 points). Hospitals received up to 3 points based on the number of give patients access to novel, unlabeled medications, diagnostic/monitoring devices or treatment options in the following areas (C68). Hospitals received 1 point for participating in 1-5 studies, 2 points for participating in 6 to 9 studies, and 3 points for participating in 10 or more studies in the past year.

Gastroenterology & GI Surgery (4 points). Hospitals received up to 4 points for participating in externally audited, national quality-improvement research networks. Hospitals received 1 point each for participating in prospective research activities (D15): randomized clinical trials, observational studies, or clinical databases on patient care. Hospitals received 1 point for having at least one IRB-approved study being led by the Pediatric Gastroenterology & GI Surgery program (D16).

Neonatology (4 points). Hospitals received up to 4 total points for participation in externally audited, national NICU treatment and quality-improvement research networks. Hospitals received 1 point for participating in clinical research activities that allow patients access to novel medications or experimental treatment options (F25). Hospitals received up to 3 additional points for participation in the following organizations (F24):

- Vermont Oxford Network, Children's Hospitals Neonatal Consortium or Child Health Corporation of America database
- Extracorporeal Life Support Organization (ELSO) data exchange network/registry
- Other clinical research or data exchange program.

Nephrology (9 points). Hospitals received points for participation in externally audited, national quality-improvement research networks. Hospitals received 1 point for participating in specialty-specific clinical research activities that allow patients access to novel medications or experimental treatment options (G39). Hospitals received up to 8 additional points for participation in the following research collaboratives (G40):

- Midwest Pediatric Nephrology Consortium
- International Pediatric Dialysis Network
- North American Pediatric Renal Trials and Collaborative Studies

- Prospective Pediatric Acute Kidney Injury Research Group
- Pediatric Trials Network
- Chronic Kidney Disease in Children cohort study
- Nephrotic Syndrome Study Network
- CHA Peritonitis Collaborative (SCOPE).

Neurology & Neurosurgery (4 points). Hospitals received 1 point for belonging to a neuro-oncology clinical research consortium (H21) and up to 3 additional points for participating in active prospective research trials, studies or databases (H6a-H6d) with 1, 2 or 3 points, respectively, for 1-4, 5-9 or 10 or more research activities within the past year.

Orthopedics (1 point). Hospitals received 1 point for participating in 1 or more IRB-approved trials, studies or databases, such as prospective randomized clinical trials, prospective observational studies or prospective clinical database on patient care (I38).

Pulmonology (5 points). Hospitals received 1 point for participating in 1 or more IRB-approved trials, studies or databases, such as prospective randomized clinical trials, prospective observational studies or prospective clinical database on patient care (J51). Hospitals received up to four points for being members of the following research networks (J52): Children's Interstitial Lung Disease Foundation; Therapeutics Development Network of the CF Foundation; certified site for the Severe Asthma Research Program, the Inner City Asthma Consortium or Asthma-Net; and American Lung Association Asthma Clinical Research Centers.

Urology (3 points). Hospitals received up to 3 total points for participating in the following prospective research activities: randomized clinical trials, observational studies or clinical databases on patient care (K18).

Commitment to Quality Improvement (All Specialties)

Hospitals received points in all specialties for participation in quality-improvement activities. Such activities promote internal review and improvement programs and procedures that often lead to improvements in care. The number of points varies by specialty, but in all specialties, hospitals could receive up to 15 points for participating in the following quality improvement activities:

- 1 point for publicly reporting performance data on one or more quality metrics (A16 and A16.1);
- Hospitals received up to 2 points for having quality improvement projects approved by the American Board of Pediatrics (A17):

    - 2 points for being a pediatric portfolio sponsor for Part 4 Maintenance of Certification (MOC);
    - 1 point for supporting one or more projects that are approved for Part 4 MOC.
- 1 point for participating in an external review process for measuring patient/parent satisfaction (A18 and A18.1);
- 1 point for participating in the American College of Surgeons National Surgical Quality Improvement Program (A30a);
- 1 point for participating in the Children's Hospital Solutions for Patient Safety learning network (A30b);
- 1 point for bedside care staff (e.g., nurses, physicians assistants, nurse practitioners) participating in quality and safety initiatives (A40);
- Up to 2 points for having a physician serve as a designated Chief Quality/Safety Officer (A41):
    - 2 points for at least .50 FTE
    - 1 point for at least .25 FTE, but less than .50 FTE.

In all specialties, hospitals received up to 6 additional points for implementing specialty-specific quality measures (B23/B23.1, C53/C53.1, D25/D25.1, E28/E28.1, F27/F27.1, G11/G11.1, H23/H23.1, I11/I11.1, J45/J45.1, K5/K5.1). These include 1 point each for implementing a formal program review plan, determining appropriate performance-based metrics, regularly tracking patient data, regularly presenting results of clinical quality performance metrics to clinical staff, participating in one or more quality improvement initiatives specific to cancer care, and demonstrating how the improvement initiative improved the quality of care.

In Diabetes & Endocrinology, hospitals received an additional 1 point (16 points total) for supporting development of a physician-led innovation to improve health care delivery for Pediatric Endocrinology patients (C67).

In Gastroenterology & GI Surgery, hospitals received up to 3 additional points (18 points total) for participating in the following formal quality initiatives: studies of pediatric liver transplantation (D14a, Improve Care Now (D14b) or other formal multicenter quality initiatives (D14c and D14.1).

In Neonatology, hospitals received up to 3 additional points (18 points total) if the quality initiatives included having a specified quality-improvement or safety leader and including a parent or family member. Hospitals received 1 point for having a safety leader with less than 0.5 FTE devoted to quality improvement or safety and 2 points for 0.5 FTE or more (F28). Hospitals received 1 point for having a parent/family member of a former NICU patient involved in one or more initiatives as an integral member of the QI/safety team (F28.1).

Congenital Heart Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 20 points for having a congenital heart program. Hospitals were rewarded for tracking and reporting data for their congenital heart surgery program and for the volume and type of congenital heart surgeries offered:

- Hospitals received 1 point for having at least one congenital heart surgeon who performed 100 or more congenital heart procedures in the past calendar year and 2 points for having two or more surgeons (E39).
- Hospitals could receive up to 8 points based on the mechanism for determining and reporting volume and outcomes measures. For each of the past four reporting years, hospitals received 2 points each year for reporting to the Society of Thoracic Surgeons (STS) Congenital Heart Surgery Database or 1 point for reporting to another organization (E18).
- Hospitals received up to 1 point for treating 1 to 4 patients with a Berlin Heart or other ventricular assist device and 2 points for treating 5 or more patients (E26).
- Hospitals received up to 8 points based on the number of cardiac surgical procedures performed in the operating room in the four reporting years: 1 point for 100-249 surgeries/year and 2 points for 250 or more surgeries/year (E38).

ECMO Availability (Neonatology)

Extracorporeal membrane oxygenation (ECMO) technology involves a pump that circulates blood through an artificial lung back into the bloodstream of a very ill neonate, essentially providing heart-lung bypass support outside the child's body. In Neonatology, hospitals received up to 5 points for ECMO services. Hospitals received 1 point for having a specialized, multidisciplinary ECMO team (F14d), and 1 point if the ECMO program is designated as a Center for Excellence by the Extracorporeal Life Support Organization (A9). Hospitals received 1 point for having a neonatal-specific transport team capable of transporting high-risk pre-ECMO patients between hospitals (F13) and 1 point if the neonatal-specific transport team has monthly case reviews (F13.1). Hospitals received 1 point if the NICU has the capability of providing inhaled nitric oxide therapy during transport with high-risk pre-ECMO patients whenever indicated (F13.3).

FACT-Accredited for BMT and Tissue Transplant (Cancer)

Accreditation indicates that as of March 1, 2015, a hospital met standards set by FACT for transplanting cells to treat pediatric cancer, an indication of a high degree of care in handling and using cellular tissue. Programs can be certified as an adult or as a pediatric service provider and as offering two types of transplant services: autologous and allogeneic. For the Cancer specialty, a hospital was awarded 1 point if it was accredited by FACT as a pediatric service provider for allogeneic transplants (B19a). Currently accredited facilities are listed at http://www.factwebsite.org.

Fulltime Subspecialists Available (All Specialties)

This measure evaluates the presence of a variety of physician specialists, surgeons and dedicated full-time medical staff who are critical to the delivery of appropriate care by pediatric hospitals. ***Table 6*** identifies the relevant specialists, surgeons and other medical staff for each pediatric specialty. Hospitals received 1 point for each appropriate specialist or surgeon and 1 point for having at least 1.0 FTE of the other medical staff relevant to the specialty.

Heart Transplant Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 4 points for having a heart transplant program. Hospitals received 1 point for having an on-site heart or heart-lung transplant program recognized by the United Network for Organ Sharing (UNOS) (E21). Hospitals received up to 3 additional points based on the number of unique patients who received heart transplants in the past 4 years combined (E22): 1 point for 1-7 transplants, 2 points for 8-15 transplants and 3 points for 16 or more transplants.

Table 6. Subspecialists by Specialty

Cancer* (14 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric head and neck surgeon (A5a) • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d) • Pediatric ophthalmology surgeon (A5e) • Pediatric orthopedic surgeon (A5f) • Pediatric urology surgeon (A5g)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric hematologists/oncologists (B2a) • Other attending on-staff physicians with specific involvement in pediatric cancer program (B2b) • Nurse practitioner and/or physician assistant (B3a and B3b)
Cardiology & Heart Surgery* (11 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Other medical staff	At least 2.0 FTE of the following staff: • Pediatric cardiothoracic surgeon (E2a) • Pediatric cardiac intensivists (cardiologists, pediatric critical care or anesthesiologists) (E2b, E2c, or E2d) • Pediatric cardiac interventionalists (E2e) At least 1.0 FTE of the following staff: • Pediatric cardiac electrophysiologist (E2f) • Anesthesiologist with pediatric training/experience (E2g) 1 point for 24/7 in-house coverage to the cardiac ICU with providers trained in management of congenital heart disease (E3, E3.1 and E3.2)

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Diabetes & Endocrinology* (13 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric rheumatologist (A4e) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric head and neck surgeon (A5a) • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric endocrinologist (C2a) • Nurse practitioner and/or physician assistant (C3) • Bachelor's-level registered nurse dedicated to outpatient care (C4b) • Master's-level or doctorate- level registered nurse dedicated to outpatient care (C4c, C4d)
Gastroenterology & GI Surgery* (8 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric gastroenterologist (D2a) • Nurse practitioner and/or physician assistant (D3)

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Neonatology* (16 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric head and neck surgeon (A5a) • Pediatric cardiothoracic surgeon (A5b) • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d) • Pediatric ophthalmology surgeon (A5e) • Pediatric orthopedic surgeon (A5f) • Pediatric urology surgeon (A5g) • Pediatric plastic surgeon (A5h)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric neonatologist (F2a) • Clinical care registered nurse certified in neonatal intensive care (F4a) At least 2.0 Physician extenders (F3)
Nephrology* (8 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric nephrologist (G2a) • Nurse practitioner and/or physician assistant (G3)

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Neurology & Neurosurgery* (11 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric neurologist (H2a) • Pediatric neurosurgeon (H2b) • Nurse practitioner and/or physician assistant (H3) • Certified neuroscience nurse (H4)
Orthopedics* (19 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric rheumatologist (A4e) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c) • Pediatric orthopedic surgeon (A5f) • Pediatric plastic surgeon (A5h) • Pediatric orthopedic surgery fellow (I6.1a) • Pediatric orthopedic surgery resident (I6.1b) At least 0.5 FTE of the following staff: • Hand surgery fellow (I6a) • Spinal surgery fellow (I6b) • Musculoskeletal oncology surgical fellow (I6c) • Sports medicine surgical fellow (I6d) • Hip preservation specialist (I6e)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric orthopedic surgeon (I2a) • Nurse practitioner and/or physician assistant (I3) • Clinical registered nurses or medical assistants (I4)

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Pulmonology* (10 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric pulmonologist (J2a) • Pediatric sleep medicine physician (J2b) • Nurse practitioner and/or physician assistant (J3) • Clinical registered nurse (J4)
Urology* (11 points)	
Physician specialists	At least one of the following staff: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Pediatric radiologist specializing in interventional radiology (A4d) • Pediatric infectious disease specialist (A4f)
Pediatric surgeons	At least one of the following staff: • Pediatric general surgeon (A5c) • Pediatric urology surgeon (A5g) • Pediatric plastic surgeon (A5h)
Other medical staff	At least 1.0 FTE of the following staff: • Pediatric urologist (K2a) • Nurse practitioner and/or physician assistant (K3) • Clinical registered nurse (K4)

* Parenthetical references indicate related survey questions

Liver Transplant Program (Gastroenterology & GI Surgery)

In Gastroenterology & GI Surgery, hospitals received up to 5 points for having a liver transplant program. Hospitals received 1 point for having a UNOS-recognized liver transplant program (D20), 1 point for having at least 1 transplant hepatologist (D20.1) and up to 3 points based on the number of unique patients who received a liver transplant in the past 2 years (D21): 1 point for 1-9 patients, 2 points for 10-19 patients, and 3 points for 20 or more patients.

Lung Transplant Program (Pulmonology)

In Pulmonology, hospitals received up to 6 points for having a lung transplant program. Hospitals received 1 point for offering a UNOS-recognized lung transplant program (J46). Hospitals received 1 point for performing one lung transplant in the past 2 years or 2 points for performing two or more lung transplants in the past 3 years (J47). Hospitals received up to 3 points based on the most recent 1-year Scientific Registry of Transplant Recipients (SRTR)/UNOS patient survival percentage for pediatric lung transplant patients (J48). Points were awarded as follows: 1 point for a survival rate ≥ 50% and < 80%, 2 points for a survival rate ≥ 80% and < 90% and 3 points for a survival rate ≥ 90%.

Management of Asthma Patients (Pulmonology)

In Pulmonology, hospitals received up to 20 points for management of asthma patients, based on the percentage of patients following specific protocols. Hospitals received 1 point for having a system to identify and treat patients with high-risk asthma (J7) and 1 point for having a written protocol for evaluation of patients with high-risk asthma (J8). Hospitals received points based on the percentage of asthma patients following five specific protocols. The protocols evaluated were the following: providing inpatients with documentation of a personalized asthma management plan (J10b), completing an outpatient follow-up visit within 30 days of discharge (J10c), providing outpatients in subspecialty care clinics with documentation of a personalized asthma management plan (J10e), providing outpatients in subspecialty care clinics with a documented assessment of asthma control (e.g., ACT, ATAQ) (J10f), providing outpatients in primary care clinics with documentation of a personalized asthma management plan (J10h) and providing outpatients in primary care clinics with a documented assessment of asthma control (J10i). For each protocol, up to 3 points were awarded for the percentage of patients following the protocol: 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90% and 3 points for ≥ 90%.

Management of Lung Disease of Prematurity (Pulmonology)

In Pulmonology, hospitals received up to 6 points for management of lung disease of prematurity. Hospitals received up to 6 points based on the percentage of patients diagnosed with chronic lung disease or prematurity (J28a) who received respiratory syncytial virus (RSV) prophylaxis (J28b) and the percentage of patients who received all of their recommend doses for the most recent RSV prophylaxis season (J28c). Hospitals received up to 3 points for each item as follows: 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%.

Management of Neuromuscular Weakness Disorder (Pulmonology)

In Pulmonology, hospitals received up to 6 points for muscular dystrophy management. This measure is composed of two items: the percentage of muscular dystrophy patients who had

pulmonary function testing in the past calendar year (J30) and the percentage of muscular dystrophy patients undergoing general anesthesia who had pulmonary function testing within 90 days prior to the procedure (J31). Hospitals received up to 3 points for each item based on the percentage of patients as follows: 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%.

Nurse Magnet Recognition (All Specialties)

The Nurse Magnet measure, added to all specialties in 2004, is a formal designation by the Magnet Recognition Program®. The Magnet Recognition Program was developed by the American Nurses Credentialing Center (ANCC) to recognize health care organizations that meet certain quality indicators on specific standards of nursing excellence. The list of Magnet-recognized facilities is updated throughout the year as organizations apply for designation and redesignation status. Hospitals received credit based on their Magnet Recognition status as of February 1, 2015. The current list of Magnet-recognized organizations is shown at http://www.nursecredentialing.org/Magnet/FindaMagnetFacility.

Nursing Intensity (All Specialties)

This measure is a relative ratio of the number of nurses to the average daily patient census. The numerator is the number of on-staff registered nurses (RNs) dedicated to inpatient clinical care, expressed as FTEs (A2). Nurses are included only if they have an RN degree from an approved nursing school and hold a current state license. The denominator is the average daily number of pediatric inpatients (A1). The source was the Pediatric Hospital Survey. This measure was used in all specialties. For Neonatology, the measure counted only nurses dedicated specifically to the NICU (F4a) and the average daily census comprised only NICU patients (F6). For scoring purposes, nurse-patient values above 4.0 were capped at 4.0 in all specialties to prevent skewness in this measure.

Palliative Care Program (Cancer)

In Cancer, hospitals received up to 8 points for palliative care. Hospitals received 1 point for offering a qualified palliative care program onsite (B29). A qualified program is defined as one that is organized and staffed for children nearing the end of life or living with conditions that limit lifespan or quality of life. It is intended to minimize pain and discomfort, provide emotional and spiritual support for children and their families, assist with financial guidance and social services and support decision-making. The program must include at least one physician providing direct patient care as well as a nurse coordinator and either a social worker, certified child life specialist or pastoral counselor, and all staff must have training in palliative care.

Hospitals could receive up to 4 points for offering the following pain control programs (B29.1): patient-controlled analgesia, nurse-controlled analgesia, pediatric pain service consults and pediatric outpatient pain management services.

Hospitals received 1 point for having at least 1 physician board-certified in Hospice and Palliative Medicine (B29.2).

Hospitals could receive up to 2 points based on the percentage of patients with advanced and refractory cancer who were referred to the palliative care program (B30): 1 point for ≥ 50% and < 75%, and 2 points for ≥ 75%.

Patient and Family Services (All Specialties)

The Patient and Family Services measure evaluates access to medical specialists and services. The Pediatric Hospital Survey supplied the data. A core set of submeasures for all specialties is worth up to 8 points, which includes providing direct access to a family resource center (A13a), sleep rooms for parents or siblings (A13b), a school intervention program (A13c), a Ronald McDonald House (or other residential facility) (A13d), certified child life specialists (A12a), family-support specialists (A12b), pediatric psychologists or psychiatrists (A12c) and in-person interpreter services (A12d).

In Neonatology, hospitals could receive up to 8 additional points (for a total of 16 points). Hospitals received points for offering the following patient and family services (F8): NICU-specific family support program, 24/7 parental visitation, sibling visitation, influenza vaccination program for parents of NICU patients, NICU-specific parent-to-parent support groups, designated psychologists or psychiatrists available for referrals and consultations with parents, Child Life support team available to NICU families and NCIU-dedicated multidisciplinary developmental care team.

In Nephrology, hospitals could receive up to 4 additional points (for a total of 12 points). Hospitals received 1 point for offering summer camp for kidney transplant patients (G33b). Hospitals received up to an additional 3 points for offering the following programs to support patients in a pediatric maintenance dialysis program (G9): teachers dedicated to working with patients, a standard review of school performance and patient's Individualized Education Program and/or summer camp.

Specialized Clinics and Programs (Cancer, Cardiology & Heart Surgery, Diabetes & Endocrinology, Gastroenterology & GI Surgery, Neonatology, Neurology & Neurosurgery, Orthopedics, Urology)

Cancer (6 points). Hospitals received 1 point for each of the following specialized treatment programs (B10): clinical brain tumor program, clinical bone and soft tissue sarcomas program, clinical leukemia/lymphoma program, comprehensive longer-term survivors program, fertility preservation program or cancer genetics/hereditary program.

Cardiology & Heart Surgery (11 points). Hospitals received points for each of the following catheter procedures (E8, E9, E11, E12, E15) offered to at least one patient in the past calendar year: balloon angioplasty; balloon valvuloplasty; stent implantation; transcatheter occlusion of cardiac shunts; transcatheter placement (or attempted placement) of stented pulmonary valves (e.g. Melody); aortic and pulmonary catheter-based valvuloplasty; transcatheter arrhythmia ablations; ablations for atrial tachycardia, supraventricular tachycardia and ventricular tachycardia; and implantation of permanent transvenous pacing/cardioversion/defibrillation or event recording devices.

Diabetes & Endocrinology (10 points). Hospitals received 1 point for each of the following specialized treatment programs for endocrine patients (C46): lipid disorders, hypertension, comprehensive weight management, Turner syndrome, cystic fibrosis-related diabetes, oncology or brain tumors, gender dysphoria, disorders of sexual development, metabolic bone disorders or thyroid nodules.

Gastroenterology & GI Surgery (11 points). Hospitals received 1 point for each of the following interdisciplinary treatment programs for gastrointestinal disorders (D10): intestinal rehabilitation, cystic fibrosis treatment, total parenteral nutrition (TPN), pediatric intensive feeding, multidisciplinary childhood obesity management, inflammatory bowel disease, multidisciplinary allergic gastrointestinal disease, chronic liver disease, neurogastrointestinal/motility, advanced therapeutic endoscopy and pancreatic disease.

Neonatology (17 points). Hospitals received 1 point for having a cardiac ICU to care for neonatal patients needing specialized care for heart conditions (F17) and up to 15 additional points for providing specialized treatment teams or clinics to deal with particularly challenging conditions (F14, F15). Hospitals received 1 point for each of the following: craniofacial team, spina bifida team, comprehensive retinopathy of prematurity program, neonatal-neurointensive care program, palliative care program, micrognathia team, chronic lung disease team, congenital diaphragmatic hernia team, chronic pulmonary hypertension team, neonatal dialysis team, multidisciplinary team for follow-up with congenital diaphragmatic hernia patients after discharge, metabolic team, bowel rehabilitation

team, home ventilator management team, neurodevelopmental follow-up clinic for premature/high-risk NICU patients and neurodevelopmental clinic for high-risk congenital heart neonatal patients.

Neurology & Neurosurgery (18 points). Hospitals received up to 18 points for access to specialized treatment clinics or programs for pediatric neurological disorders (H12). To receive credit, a hospital had to have an organized program that included a medical director and nursing coordinator. One point was awarded for each of the following clinics or programs: cerebral palsy/spasticity clinic, cerebrovascular accident, craniofacial surgical, movement disorders, neurofibromatosis, neuromuscular, neuro-oncology, spina bifida, tuberous sclerosis, brachial plexus, genetic metabolic, neonatal neurology, multidisciplinary spine, head trauma/post-concussion, new-onset seizures, neuro-fetal, headache and pain.

Orthopedics (9 points). Hospitals received up to 9 points for providing specialized treatment clinics or programs to treat significant conditions (I15). To receive credit, the clinic had to be attended regularly by the pediatric orthopedic service. Hospitals received 1 point for each of the following clinics or programs: spina bifida, spasticity, skeletal dysplasia, brachial plexus, neurofibromatosis, muscle disease, pain, sports medicine and sports concussion program.

Urology (6 points). Hospitals received 1 point for each of the following specialized treatment clinics or programs to treat significant urological conditions (K10): spina bifida, voiding dysfunction, comprehensive stone program, prenatal intervention, disorders of sexual differentiation and genitourinary reconstructive surgery/exstrophy.

Steps to Engage Families (All Specialties)

This measure reflects the extent to which a hospital involves parents and families in care. It applied to all pediatric specialties and was worth up to 7 points. Hospitals received 1 point for having a parent advisory committee that meets one to three times a year or 2 points for having a committee that meets four or more times a year (A14.1). Hospitals received up to 4 additional points if the hospital met all of the following requirements (A15): At least one parent or family member is an active member of the strategic or facility committee; at least one parent or family member is an active member of one or more standing committees (e.g., quality improvement, patient safety, ethics); parents or family members are regularly involved in clinical decision-making through such ways as family-centered rounds, care conferences or other participatory programs, and parents or family members can participate in family-centered rounds. Hospitals received 1 additional point for describing the impact of having patients' family members serve on advisory committees (A15.1).

In Neonatology, hospitals could receive 1 additional point (for a total of 8 points) for having a NICU-specific parent advisory committee (F9).

Transplants to Dialysis Patients (Nephrology)

Hospitals received up to 12 points in Nephrology based on the percentage of patients receiving maintenance dialysis (G20) who received kidney transplants within the past 2 years (G21). In the Nephrology specialty, four groups of patients were evaluated separately: children under 5 receiving hemodialysis, children aged 5-19 receiving hemodialysis, children under 5 receiving peritoneal dialysis and children aged 5-19 receiving peritoneal dialysis. For each type of patient, hospitals received up to 3 points for having a higher percentage of patients receiving transplants as follows: 1 point if ≥ 25% and < 50%, 2 points if ≥ 50% and < 75%, and 3 points if ≥ 75%.

Volume of Patients (All Specialties)

Unless noted otherwise, volume measures indicate the number of unique patients in the past calendar year who had the specified diagnoses or conditions or who received the specified procedures or treatments. If data were unavailable for the most recent calendar year, hospitals were instructed to use data from the most recent 12 months that data were available.

For most measures, low-, medium- and high-volume categories were created based on the distribution of volume across all hospitals. For other measures, categories were based on conceptual thresholds for the number of patients or procedures needed to indicate a sufficient level of experience. We assigned points based on categories rather than on continuous values to ensure that one or two hospitals with extremely high volumes did not skew scoring. Hospitals that had zero volume or that did not respond received 0 points. Hospitals in the lowest-volume category received 1 point, medium-volume hospitals received 2 points and high-volume hospitals received 3 points. For items with extremely low volume, such as GI and urological surgical procedures , the measure was divided only into low and medium volumes, with a maximum of 2 points. ***Table 7*** identifies the volume measures used by specialty and the points assigned to volume scores within a certain range.

Table 7. Volume Measures by Specialty

Cancer Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
New-patient volume, 2 years (B6), (max points = 3)	1-99	100-399	400+
Patient volume (max points = 9)			
• Leukemia (B27a1)	1-199	200-399	400+
• Brain tumors (B27b1)	1-149	150-299	300+
• Solid tumors (B27c1)	1-299	300-599	600+
Surgery volume** (B27), (max points = 6)			
• Brain tumors (B27b2)	1-149	150-299	300+
• Solid tumors (B27c2)	1-299	300-599	600+
Cardiology & Heart Surgery Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Catheter procedure volume* (max points = 30)			
• Balloon angioplasty procedures (E8a)	1-29	30-59	60+
• Balloon valvuloplasty procedures (E8b)	1-19	20-39	40+
• Stent implantation procedures (E8c)	1-34	35-69	70+
• Transcatheter occlusion of cardiac shunt procedures (E8d)	1-59	60-119	120+
• Transcatheter placement of stented pulmonary valve (E8e)	1-14	15-29	30+
• Aortic/pulmonary catheter-based valvuloplasty (E10)	1-6	7-13	14+
• Atrial tachycardia procedures (E12a)	1-19	20-39	40+
• Supraventricular tachycardia procedures (E12b)	1-39	40-79	80+
• Ventricular tachycardia procedures (E12c)	1-4	5-8	9+
• Placement of permanent transvenous pacing (E15)	1-19	20-39	40+
Norwood/hybrid surgery volume (max points = 12)			
• Patients receiving hybrid or Norwood Stage 1, year 1 (E40a)	1-6	7-13	14+
• Patients receiving hybrid or Norwood Stage 1, year 2 (E40b)	1-6	7-13	14+
• Patients receiving hybrid or Norwood Stage 1, year 3 (E40c)	1-6	7-13	14+
• Patients receiving hybrid or Norwood Stage 1, year 4 (E40d)	1-6	7-13	14+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Cardiology & Heart Surgery Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Surgery volume (max points = 12)			
• STAT[§§] Level 2: Years 1-4 (E42)	1-299	300-599	600+
• STAT Level 3: Years 1-4 (E42)	1-149	150-299	300+
• STAT Level 4: Years 1-4 (E42)	1-149	150-299	300+
• STAT Level 5: Years 1-4 (E42)	1-59	60-119	120+
Diabetes & Endocrinology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Patient volume (max points = 48)			
• Type 1 primary care diabetes outpatients (C29a)	1-299	300-799	800+
• Type 2 primary care diabetes outpatients (C29b)	1-74	75-149	150+
• Diabetes-related care admissions for Type 1 primary care patients (C29c)	1-49	50-99	100+
• Diabetes-related care admissions for Type 2 primary care patients (C29d)	1-9	10-19	20+
• Congenital adrenal hyperplasia (C47a)	1-39	40-79	80+
• CNS and endocrine tumors (C47b)	1-99	100-199	200+
• Diabetes insipidus (C47c)	1-24	25-49	50+
• Hypopituitarism (C47d)	1-99	100-199	200+
• Turner Syndrome (C47e)	1-24	25-49	50+
• Noonan Syndrome(C47f)	1-24	25-49	50+
• Gender dysphoria (C47g)	1-24	25-49	50+
• Disorders of sexual development (C47h)	1-24	25-49	50+
• Metabolic bone disease (C47i)	1-24	25-49	50+
• Newly diagnosed growth hormone deficiency or multiple pituitary hormone deficiencies that include growth hormone deficiency (C48)	1-24	25-49	50+
• Nondiabetes endocrine disorders outpatients (C57a1)	1-1,999	2,000-3,999	4,000+
• Nondiabetes endocrine disorders inpatients (C57b1)	1-124	125-249	250+

* Parenthetical references indicate related survey questions. (continued)

[§§] Society of Thoracic Surgery & European Association for Cardio-Thoracic Surgery Congenital Heart Surgery Mortality Categories (STAT)

Table 7. Specialty-Specific Volume Measures (continued)

Diabetes & Endocrinology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Procedure volume* (max points = 42)			
• Diagnostic radioisotope (C51a)	1-19	20-39	40+
• Therapeutic radioiodine for Graves' disease (C51b)	1-5	6-10	11+
• Therapeutic radioiodine for thyroid cancer (C51c)	1-3	4-7	8+
• Fine needle aspiration of thyroid nodule (C51d)	1-4	5-9	10+
• Thyroidectomy (C51e)	1-4	5-9	10+
• Dual-energy x-ray absorptiometry (DXA) scans (C51f)	1-39	40-79	80+
• Intravenous bisphosphonate therapy (C51h)	1-39	40-79	80+
• Thyroid cancer surgery (C51.1a)	1-4	5-9	10+
• Parathyroid surgery (C51.1b)	1	2	3+
• Brain tumor surgery involving hypothalamus or pituitary (C51.1c)	1-9	10-19	20+
• Abdominal endocrine surgery (C51.1d)	1	2-3	4+
• Brain or pituitary MRI (2 years) (C49a)	1-29	30-59	60+
• Growth hormone therapy (C49b)	1-29	30-59	60+
• Serum IGF-1 measurement (C49c)	1-29	30-59	60+
Gastroenterology & GI Surgery Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Nonsurgical procedure volume**,** (max points = 21)			
• Capsule endoscopy (D11a)	1-19	20-39	40+
• Endoscopic band ligation (D11b)	1-9	10-19	20+
• Esophageal impedance or high resolution esophageal manometry (D11c)	1-49	50-99	100+
• Endoscopic retrograde cholangiopancreato-graphy (D11d)	1-29	30-59	60+
• Antroduodenal and full colonic motility studies (D11e)	1-14	15-29	30+
• Esophageal dilation (D11f)	1-49	50-99	100+
• Alternative hemostasis therapies (D11g)	1-7	8-15	16+
Patient volume, (max points = 63)			
• Intestinal rehabilitation program (D10a)	1-44	45-89	90+
• Cystic fibrosis treatment program (D10b)	1-99	100-199	200+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Gastroenterology & GI Surgery Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
• Total parenteral nutrition support program (D10c)	1-299	300-599	600+
• Pediatric intensive feeding program (D10d)	1-299	300-599	600+
• Multidisciplinary childhood obesity program (D10e)	1-299	300-599	600+
• Inflammatory bowel program (D10f)	1-299	300-599	600+
• Multidisciplinary allergic gastrointestinal disease program (D10g)	1-149	150-300	300+
• Chronic liver disease program (D10h)	1-199	200-399	400+
• Neurogastrointestinal/motility program (D10i)	1-99	100-199	200+
• Advanced therapeutic endoscopy program (D10j)	1-99	100-199	200+
• Pancreatic disease program (D10k)	1-99	100-199	200+
• Gastrointestinal bleeding (D13a)	1-149	150-299	300+
• Pseudo-obstruction (D13b)	1-12	13-24	25+
• Chronic intestinal failure (D13c)	1-29	30-59	60+
• Chronic liver disease (D13d)	1-69	70-139	140+
• Recurring acute or chronic pancreatitis (D13e)	1-34	35-69	70+
• Biliary atresia (D13f)	1-19	20-39	40+
• Portal hypertension (D13g)	1-19	20-39	40+
• Celiac disease (D13h)	1-149	150-299	300+
• Inflammatory bowel disease (D13i)	1-249	250-499	500+
• Eosinophilic esophagitis (D13j)	1-74	75-149	150+
Surgery volume (max points = 16)			
• Hepatoportoenterostomy or Kasai procedure (D17a)	1-3	4+	n/a
• Bowel lengthening (D17b)	1	2+	n/a
• Laparoscopic gastrointestinal surgeries (D17c)	1-19	20+	n/a
• Bariatric surgery (D17d)	1-3	4+	n/a
• Posterior sagittal anorectoplasties (Pena) (D17e)	1-4	5+	n/a
• Laparoscopic procedures for ulcerative colitis (pouch) and Crohn's disease (D17g)	1-19	20+	n/a
• Laparoscopic pyloromyotomies for pyloric stenosis (D17h)	1-4	5+	n/a
• Esophageal atresia repair (D17i)	1-4	5+	n/a

n/a = not applicable. (continued)
* Parenthetical references indicate related survey questions.
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Neonatology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Patient volume (max points = 21)			
• Congenital diaphragmatic hernia (F16a)	1-5	6-11	12+
• Hirschsprung's disease treatment (F16b)	1-4	5-9	10+
• Hypothermia treatment (F16c)	1-8	9-17	18+
• Spina bifida treatment (F16d)	1-7	8-15	16+
• Surgical care of gastroschisis (F16e)	1-8	9-17	18+
• Repair of tracheoesophageal fistula (F16f)	1-4	5-9	10+
• Cardiac surgeries (F19)	1-44	45-89	90+
Nephrology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Catheter procedure volume**, 2 years (max points = 15)			
• Permanent hemodialysis vascular central venous catheters placed in children < 5 years of age) (G22a)	1-2	3-6	7+
• Permanent hemodialysis vascular central venous catheters placed in children, 5-19 years of age (G22b)	1-9	10-17	18+
• Hemodialysis AV fistula/graft access placements in children, 5-19 years of age (G22c)	1-3	4-7	8+
• Peritoneal dialysis catheters placed in children < 5 (G22d)	1-3	4-7	8+
• Peritoneal dialysis catheters placed in children and adolescents, 5-19 (G22e)	1-4	5-9	10+
Dialysis volume, 2 years (max points = 18)			
• Hemodialysis with children < 5 years of age (G20a)	1-2	3-4	5+
• Hemodialysis with children 5-19 years of age (G20b)	1-10	11-26	27+
• Peritoneal dialysis with children < 5 years of age (G20c)	1-3	4-8	9+
• Peritoneal dialysis with children 5-19 years of age (G20d)	1-6	7-20	21+
• Dialysis treatment volume in days (previous year) (G8a)	1-249	250-499	500+
• Dialysis treatment volume in days (current year) (G8b)	1-249	250-499	500+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Nephrology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Kidney biopsy volume, 2 years (max points = 9)			
• Native kidney percutaneous biopsies (G14a)	1-50	51-99	100+
• Nonprotocol kidney transplant biopsies (G27a)	1-20	21-54	55+
• Protocol kidney transplant biopsies (G27b)	1-10	11-20	21+
Kidney transplant volume, 2 years (max points = 6)			
• Deceased-donor kidney transplant patients (G31a)	1-8	9-17	18+
• Living-donor kidney transplant patients (G31b)	1-7	8-16	17+
Patient volume, 2 years (max points = 36)			
• Acute kidney injury (G6)	1-99	100-249	250+
• Primary nephrotic syndrome (G18a)	1-29	30-59	60+
• Henoch-Schönlein purpura (G18b)	1-10	11-47	48+
• Hemolytic uremic syndrome (G18c)	1-10	11-23	24+
• Chronic kidney disease (nontransplant) Stages II-IV (G18d)	1-39	40-79	80+
• Primary or essential hypertension (G18e)	1-50	51-99	100+
• Polycystic kidney disease (G18f)	1-19	20-45	46+
• Membranoproliferative glomerulonephritis (G16a)	1-5	6-12	13+
• IgA nephropathy (G16b)	1-10	11-36	37+
• Systemic lupus erythematosus with renal involvement (G16c)	1-8	9-24	25+
• Membraneous nephropathy (G16d)	1-5	6-15	16+
• Focal segmental glomerulosclerosis (G16e)	1-5	6-12	13+
Neurology & Neurosurgery Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Clinic patient volume (max points = 54)			
• Cerebal palsy/spasticity clinic (H12a)	1-249	250-499	500+
• Cerebrovascular accident (stroke) program (H12b)	1-49	50-99	100+
• Craniofacial surgical program (H12c)	1-249	250-499	500+
• Movement disorders program (H12d)	1-199	200-399	400+
• Neurofibromatosis clinic(H12e)	1-69	70-139	140+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Neurology & Neurosurgery Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
• Neuromuscular clinic (H12f)	1-199	200-399	400+
• Neuro-oncology program (H12g)	1-99	100-199	200+
• Spina bifida program (H12h)	1-149	150-299	300+
• Tuberous sclerosis clinic (H12i)	1-39	40-79	80+
• Brachial plexus / Peripheral nerve clinic (H12j)	1-49	50-99	100+
• Genetic metabolic clinic (H12k)	1-79	80-159	160+
• Neonatal neurology clinic (H12l)	1-149	150-299	300+
• Spine program (H12m)	1-199	200-399	400+
• Head trauma/post-concussion (H12n)	1-199	200-399	400+
• New-onset seizures (H12o)	1-299	300-599	600+
• Neuro-fetal program (H12p)	1-29	30-59	60+
• Headache clinic (H12q)	1-299	300-599	600+
• Pain clinic (H12r)	1-299	300-599	600+
Epilepsy workup and care volume (max points = 15)			
• Initial medical evaluations for epilepsy (H9a)	1-599	600-1,199	1,200+
• Number of standard EEG evaluations (H9b)	1-999	1,000-1,999	2,000+
• Number of long-term video EEG (vEEG) evaluations (H9c)	1-599	600-1,199	1,200+
• Number of first-time surgical procedures for epilepsy (H9d)	1-24	25-49	50+
• VNS placements or surgical revisions (H9e)	1-24	25-49	50+
Surgical volume (max points = 45)			
• Surgical procedure for epilepsy (H8)	1-74	75-149	150+
• Brain tumors (benign/malignant) (H16a)	1-34	35-69	70+
• Craniosynostosis (H16b)	1-29	30-59	60+
• Hydrocephalus patient shunt procedures (H16c)	1-49	50-99	100+
• Repair of myelomeningocele for fetal CNS malfunction (H16d)	1-8	9-17	18+
• Medically intractable epilepsy (H16e)	1-19	20-39	40+
• Spinal dysraphism (H16f)	1-19	20-39	40+
• Chiari I malformation/syringomyelia (H16g)	1-19	20-39	40+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Neurology & Neurosurgery Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
• Endoscopic third ventriculostomy (H16h)	1-24	25-49	50+
• Brachial plexus exploration/reconstruction (H16i)	1-7	8-15	16+
• Spasticity (H16j)	1-19	20-39	40+
• Vascular cases including endovascular procedures (H16k)	1-24	25-49	50+
• Brain stimulation (H16l)	1-24	25-49	50+
• Spinal instrumentation (H16m)	1-19	20-39	40+
• Craniofacial procedures (H33)	1-29	30-59	60+
Orthopedics Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Patient volume (max points = 57)			
• Spina bifida clinic (I15a)	1-149	150-299	300+
• Spasticity or cerebral palsy clinic (I15b)	1-299	300-599	600+
• Skeletal dysplasia clinic (I15c)	1-99	100-199	200+
• Brachial plexus clinic (I15d)	1-59	60-119	120+
• Neurofibromatosis clinic (I15e)	1-59	60-119	120+
• Muscular dystrophy clinic (I15f)	1-149	150-299	300+
• Pain clinic (I15g)	1-149	150-299	300+
• Sports medicine clinic (I15h)	1-1,499	1,500-2,999	3,000+
• Sports concussion program (I15i)	1-349	350-699	700+
• Arthogryposis clinic (I15j)	1-39	40-79	80+
• Limb deficiency / limb reconstruction / prosthetics clinic (I15k)	1-199	200-399	400+
• Skeletal health / metabolic bone health clinic (I15l)	1-199	200-399	400+
• Orthopedic trauma patients with fractures (I14)	1-999	1,000-1,999	2,000+
• Scoliosis correction patients (I31a-d)	1-74	75-149	150+
• Hip construction surgery (I45a)	1-34	35-69	70+
• Posterior spinal fusion surgery (I45b)	1-14	15-29	30+
• Preoperative nutritional and pulmonary assessments (I45c)	1-39	40-79	80+
• Single event multi-level surgery (I45d)	1-19	20-39	40+
• Pediatric trauma patients with fractures who received pediatric orthopedic trauma surgery within 72 hours of admission (I14.1c)	1-249	250-499	500+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Orthopedics Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Procedure volume* * (max points = 33)			
• Motion laboratory evaluations (I20)	1-24	25-49	50+
• Developmental dysplasia of the hip (I24a)	1-59	60-119	120+
• Congenital hand disorders (I24b)	1-24	25-49	50+
• Musculoskeletal infections (I24c)	1-24	25-49	50+
• Complex hip surgery, children ages 12-18 (I24d)	1-24	25-49	50+
• Clubfeet—minimally invasive treatment (I24e)	1-34	35-69	70+
• Clubfeet—more-extensive open procedure (I24f)	1-24	25-49	50+
• Knee injury—anterior cruciate ligament repair (I24g)	1-39	40-79	80+
• Brachial plexus injury—primary repair with patients < 1 years of age (I24h)	1	2-3	4+
• Limb salvage for malignant tumors (I24i)	1-9	10-19	20+
• Implantation of a vertical expandable prosthetic titanium rib (I24j)	1-7	8-15	16+
Pulmonology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Nonsurgical procedure volume** (max points = 12)			
• 12- or 32- channel polysomnographic studies (J36)	1-699	700-1,399	1,400+
• Non-invasive positive pressure ventilation support (J37)	1-74	75-149	150+
• Home nocturnal PAP or bilevel therapy (J38)	1-74	75-149	150+
• Bronchoscopy (J49)	1-249	250-499	500+
Patient volume (max points = 24)			
• Asthma inpatients (J10a)	1-399	400-799	800+
• Asthma outpatients in subspecialty care clinics (J10d)	1-1,499	1,500-2,999	3,000+
• Asthma outpatients in primary care clinics (J10g)	1-1,499	1,500-2,999	3,000+
• CF patients (J24a)	1-124	125-249	250+
• Muscular dystrophy (J29)	1-39	40-79	80+
• Ventilator dependent patients, 3 years (J40)	1-59	60-119	120+
• Rare lung disease (J26)	1-29	30-59	60+
• Lung disease of prematurity (J27)	1-59	60-129	120+

* Parenthetical references indicate related survey questions. (continued)
** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Urology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Minimally invasive procedure volume (max points = 12)			
• Shock wave lithotripsy (K11a)	1-7	8-15	16+
• Laparoscopic orchiopexy (K11b)	1-24	25-49	50+
• Robotic laparoscopic pediatric surgery (K11c)	1-9	10-19	20+
• Laparoscopic pyeloplasty, nephrectomy and partial nephrectomy (K11d)	1-11	12-23	24+
Patient volume (max points = 24)			
• Pediatric urology outpatients (2 years), (K8b)	1-7,999	8,000-15,999	16,000+
• Pediatric urology surgical patients (K9)	1-999	1,000-1999	2,000+
• Spina bifida program (K10a)	1-124	125-249	250+
• Voiding dysfunction program (K10b)	1-599	600-1,199	1,200+
• Comprehensive stone program (K10c)	1-99	100-199	200+
• Prenatal program (K10d)	1-99	100-199	200+
• Disorders of sexual differentiation program (K10e)	1-49	50-99	100+
• Exstrophy/cloaca/GU sinus program (K10f)	1-49	50-99	100+
Surgery volume (max points = 19)			
• Open pyeloplasty (K12a)	1+	n/a	n/a
• Radical nephrectomy (K12b)	1-4	5+	n/a
• Open heminephrectomy, ureteral reimplantation or ureteroureterostomy for patients with duplication anomalies of the kidney (K12c)	1-19	20+	n/a
• Laparoscopic heminephrectomy, ureteral reimplantation or ureteroureterostomy for patients with duplication anomalies of the kidney (K12d)	1-4	5+	n/a
• Exstrophy closures (K13a)	1-2	3+	n/a
• Reconstructive procedures for incontinence or hostile bladder - open (K13b)	1-39	40+	n/a
• Endoscopic procedure for incontinence or hostile bladder (K13c)	1-9	10+	n/a
• Posterior urethral valve ablation (K13d)	1-8	9+	n/a
• Proximal urethroplasty for hypospadias (K13e)	1-44	45+	n/a
• Female reconstructive procedures (K13f)	1-5	6+	n/a

n/a = not applicable.
* Parenthetical references indicate related survey questions.
** Volume represents procedures, not patients.

B. Normalization

Starting with the 2012-13 rankings, all structural measures underwent normalization prior to weighting. Normalization transforms index values into a distribution between 0 and 1 based on the range of possible values for a given measure. The formula for normalization is provided in Equation (1):

Equation (1) $$Normalized\ Value = X_i/(Maximum_i - Minimum_i)$$

where

X_i = the value for measure *i* and

$Maximum_i$ = the highest *possible* value for measure *i*.

$Minimum_i$ = the lowest *possible* value for measure *i*.

For example, the Urology patient volume measure is worth a maximum of 24 points. If a given hospital received 18 out of 24 points, the normalized value for Urology patient volume would be 18/(24-0) = 0.75. For nurse-patient ratio, which does not have an absolute maximum, we capped the maximum value at 4.0 to reduce skewness in the data.

C. Weighting

For the 2012-13 rankings, we convened a special panel to provide feedback on the weighting of each measure within the three major rankings components. This evaluation was conducted both across specialties to build in a degree of consistency in weighting, and within specialties to identify keys to quality in a particular specialty. Overall, the weights were determined using input from the project team and working groups based on how important each measure was in defining the Donabedian components of quality of care within hospitals. The weights were revised slightly for 2015-16, based on changes to the measures used in each specialty.

Table 8 shows the relative weight for each of the measures that make up the structural component of the rankings, by specialty. The combined structural components comprise 33.3% of the overall score in each specialty. To determine the total structural points for a hospital, multiply the normalized value of each measure by the measure weight. In the example provided under normalization (Section IV.B), a hospital that received 18 out of 24 patients for Urology patient volume would have a normalized score of 0.75. The relative weight for patient volume in Urology is 1. Therefore the hospital would have a total of 0.75 for patient volume. Do this for all measures in a specialty, and then sum the values to determine the total points received. To determine the percent

of the overall score for a given measure, divide the individual measure relative weight by the total weight for that specialty and multiply by 33.3 (since the combined structural components comprise 33.3% of the overall score in each specialty).

Table 8. Relative Weights of Individual Structural Measures by Specialty

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Active fellowship program	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.5	1.25
Adoption of health information technology	1	1	1	1	1	1	1	1	1	1
Adult congenital heart program		1.25								
Advanced clinical services	1	1	1	1	1	1	1	1	1	1
Advanced technologies	1	1	1	1	1	1	1	1	1	1
Bone marrow transplant services	1									
Clinical support services	1	1	1	1	1	1	1	1	1	1
Commitment to clinical research	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.5	1.5
Commitment to quality improvement	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Congenital heart program		1.25								
ECMO availability					1					
FACT-accredited for BMT and tissue transplant	1.5									
Fulltime subspecialists available	1	1	1	1	1	1	1	1	1	1
Management of asthma patients									1.25	
Management of lung disease of prematurity									1.25	
Management of neuro-muscular weakness disorder									1.25	
Nurse Magnet recognition	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

(continued)

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Nursing intensity	2	2	2	2	2	2	2	2	2	2
Palliative care program	1.5									
Patient and family services	1	1	1	1	1	1	1	1	1	1
Specialized clinics and programs	1	1	1	1	1		1	1		1
Steps to engage families	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Transplant program/survival		1.25		1					1.25	
Transplants to dialysis patients						1.25				
Volume: Catheter procedure		1				0.67				
Volume: Dialysis						0.67				
Volume: Epilepsy workup and care							1			
Volume: Kidney biopsy						0.67				
Volume: Kidney transplant						0.67				
Volume: New-patient	1									
Volume: Norwood/hybrid surgery		1								
Volume: Patient	1		1	1	1.5	0.67	1	1	1	1
Volume: Procedure volume			1	1				1	1	1
Volume: Surgery volume	1	1.5		1			1			1
Total	**23.25**	**23.00**	**17.75**	**19.75**	**18.25**	**19.35**	**18.75**	**17.75**	**22.25**	**19.00**

V. Process

The process component in Best Children's Hospitals is represented by three measures—commitment to best practices, use of infection-preventing measures, and reputation with pediatric specialists. The process measures combined are worth 33.3% of the overall score.

A. Commitment to Best Practices

This measure evaluates hospitals' commitment to following and implementing best practices. Best practices were identified for all specialties. ***Table 9*** identifies the best practices identified for each specialty and the number of points awarded.

Table 9. Commitment to Best Practices by Specialty

Cancer* (28 points)	Points
Participating in regular morbidity and mortality conferences (B12)	1
Having multidisciplinary tumor boards that meet at least monthly to discuss the following patient populations in active treatment (B13):	
• Hematologic malignancy • Solid tumor • Brain tumor • Stem cell transplant	4
Promoting ease of access through the following mechanisms (B14):	
• Offering on-site direct patient care from hematology/oncology providers during evenings and weekends • Affiliate programs to assist patients facing barriers to care/community-based follow-up care • Multidisciplinary clinics allowing patients to see multiple care providers in a single visit	3
Percentage of patients presenting with febrile neutropenia who receive intravenous antibiotics within one hour of initial triage (B31.1)	1: ≥ 50% & < 75% 2: ≥ 75% & < 90% 3: ≥ 90%
Having at least 1.0 FTE nurse practitioners, physician assistants or clinical nurses devoted to case management for each of the following patient populations (B4):	
• Hematologic malignancies • Solid tumors • Brain tumors • Stem cell transplants	4
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
• Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Offering an institutional code team to immediately address emergencies in outpatient cancer treatment clinics (B5)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Cancer* (28 points)	Points
Percentage of patients 3-5 years post-completion of therapy seen in a formally structured late effects or off-therapy clinic from over the past 3 years (B28)	1: ≥ 50% & < 75% 2: ≥ 75%
Percentage of active patients with brain tumors, MDS and leukemia who had formal neuropsychological evaluations in the past year (B28.1)	1: ≥ 25% & < 75% 2: ≥ 75%
Percentage of school-age patients with brain tumors, MDS and leukemia who had formal school intervention evaluations in the past year (B28.2)	1: ≥ 25% & < 75% 2: ≥ 75%
Cardiology & Heart Surgery* (29 points)	**Points**
Offering the following conferences/programs (E27):	
• Multidisciplinary morbidity and mortality conferences • Multidisciplinary maternal/fetal medicine conferences • Active home surveillance program for infants after Stage 1 palliation for hypoplastic left heart syndrome • A follow-up program for children with complex congenital heart disease or at risk for adverse neurodevelopmental outcomes • Patient planning conference	5
Engaging in the following surgical safety procedures (E35):	
• Conventional pre-procedural "time-out" • Pre-procedural briefings • Post-procedural debriefings • Implementation of a hand-off protocol or briefing	4
Using clinical practice guidelines to manage perioperative and postoperative care for the following patient populations (E36):	
• Single ventricle/shunt management • Two-ventricle repairs • Infant feeding • Anticoagulation with Coumadin	4
Routinely tracking and reporting every occurrence of the following surgical admission outcomes parameters to the STS database (E37):	
• Unplanned reoperation during the same hospital admission • Re-exploration for bleeding • Deep sternal wound infection/mediastinitis requiring debridement • Atrioventricular block requiring placement of a permanent pacemaker	4
Number of pediatric cardiothoracic surgeons with subspecialty certification in congenital heart surgery (E2.1)	1: 1 surgeon 2: 2+ surgeons
Percent of hybrid and Norwood Stage 1 surgery patients alive 1 year after surgery who had a neurodevelopment evaluation between 9 and 15 months of age (E40.2):	
• At least 75% of patients in evaluation (Year 1) • At least 75% of patients in evaluation (Year 2) • At least 75% of patients in evaluation (Year 3) • At least 75% of patients in evaluation (Year 4)	4

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Cardiology & Heart Surgery* (29 points)	Points
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan addressing problems identified during training or simulation	5
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Diabetes & Endocrinology* (102 points)	**Points**
Having pediatric diabetes staff take a leadership role in a formal advocacy effort supporting the rights of patients (C11)	1
Hosting or actively involved in organizing a diabetes-specific technology education program (C13)	1
Administering a formal, written assessment of diabetes management knowledge after initial education and yearly thereafter (C15)	1
Percent of diabetes patients on insulin therapy admitted as inpatients to other services, but seen by providers in the pediatric diabetes program (C16 and C16.1)	1: ≥ 50% & < 75% 2: ≥ 75% & < 90% 3: ≥ 90%
Having a formal written transition program to prepare pediatric patients for the transition to an adult diabetes program (C17)	1
Percentage of diabetes patients receiving a written (or electronic) report of their diagnosis/findings and a treatment plan at the conclusion of their most recent visit:	
• Outpatients (C18a) • Inpatients (C18b)	For each measure: 1: ≥ 50% & < 75% 2: ≥ 75% & < 90% 3: ≥ 90%

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Diabetes & Endocrinology* (102 points)	Points
Including the following elements in summaries given to patients in outpatient clinic visits (C19):	
• Complete insulin dosages • Blood glucose testing and record-keeping recommendations • A1c values from today • Next visit date and time • Information on when and how to contact the Diabetes Center • Referrals made for laboratory, ophthalmological, dental and mental health before next visit • Behavioral goals	7
Having a clinical database of attributes of current, active diabetes patients that is used for quality assessment and improvement (C20)	1
Having a written plan to review inpatient incidents of insulin-related medication errors and adverse drug events requiring IV glucose treatment (C21)	1
Having written consensus protocols for management of the following patient populations (C22):	
• Inpatient management of diabetic ketoacidosis • Glucagon mini-dose for families • Periodic screening for complications of diabetes in the outpatient clinic • Evaluation of hyperglycemia in critically ill inpatients • Outpatient management of Type 2 diabetes patients • Outpatient management of pre-diabetes patients who typically have obesity and insulin resistance	6
Performing care review for all patients admitted with a primary diagnosis of diabetes at an interdisciplinary team prior to discharge (C23)	1
Conducting bedside rounds of all diabetes inpatients every weekday that involved an exchange of information between the interdisciplinary diabetes team members, the bedside nurse and the patient/family (C24)	1
Having regularly scheduled interdisciplinary care conferences to discuss diabetes patients with poor control (C25 and C26)	1: 1-11 times/year 2: 12+ times/year
Having written protocols for identifying "high risk" patients and enrolling them in special pathways (C27)	1
Interacting with clinical laboratory or pathology service to review lab findings, problems and updates (C28)	1
Percentage of primary diabetes care patients with following encounters (C30):	
• Medical nutrition therapy • Diabetes education with CDE or equivalent	For each measure: 1: ≥ 50% & < 75% 2≥ 75%
• Social worker or psychologist assessment	1: ≥ 25% & < 50% 2: ≥ 50%

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Diabetes & Endocrinology* (102 points)	Points
Percentage of Type 1 primary care diabetes patients	
• with a TSH documented in their medical chart in past 2 years (C31a) • over 10 years of age who had a lipid profile within the past 5 years (C31b)	For each measure 1: ≥ 50% & < 75% 2: ≥ 75% & <90% 3: ≥ 90%
Percentage of Type 1 and Type 2 primary care diabetes patients over 10 years of age (with diabetes for at least 5 years)	
• who received a microalbuminuria screening in the past year (C31c) • who received a dilated retinal or non-mydriatic camera examination with documentation of the findings of the exam in the medical record in the past year (C31d)	For each measure 1: ≥ 50% & < 75% 2: ≥ 75% & <90% 3: ≥ 90%
Percentage of Type 1 primary care diabetes patients treated in the past 12 months or longer	
• scheduled for 4 or more outpatient clinic visits in past 12 months (C32a) • attended 4 or more outpatient clinic visits (C32b)	For each measure 1: ≥ 50% & < 75% 2: ≥ 75% & < 90% 3: ≥ 90%
Percentage of Type 1 primary care diabetes patients on an insulin pump in the past calendar year (C33)	1: ≥ 25% & < 50% 2: ≥ 50%
Percentage of Type 1 and Type 2 primary care diabetes patients aged 13-17 screened for depression in the past calendar year (C34)	1: ≥ 25% & < 50% 2: ≥ 50%
Percentage of Type 1 diabetes outpatients with daily glucose blood glucose measurements available for review for the past 2 weeks (C36)	1: ≥ 50% & < 75% 2: ≥ 75% & < 90% 3: ≥ 90%
Having a written curriculum for diabetes self-management education that addresses self-care behaviors (C37)	1
Tracking the number of school days missed for diabetes-related reasons (C38)	1
Having 5% or fewer children attending school who are on **private** insurance miss more than 5 days of school in the past calendar year for diabetes-related reasons (C39)	1
Having 10% or fewer children attending school who are on **Medicaid** miss more than 5 days of school in the past calendar year for diabetes-related reasons (C39)	1
Providing a dedicated team of Type 2 diabetes providers (C40)	1
Distributing patient education materials that address the details of their conditions to patients with the following conditions (C44):	
• Adrenal insufficiency • Congenital hypothyroidism • Diabetes insipidus	3

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Diabetes & Endocrinology* (102 points)	Points
Distributing patient education materials to patients that address the potential side effects of taking the following medications (C45):	
• Anti-thyroid medication • Growth hormone • Cortisol • Oral contraceptive pills	4
Discussing thyroid cancer patient cases in active treatment at a tumor board at least once a quarter (C56)	1
Diabetes staff taking a leadership role in organizing and running a diabetes camp (C10)	1
Using a clinical database used by the program to evaluate performance (C54 and C54.1)	1
Percentage of patients admitted to the hospital in the past year with an endocrine disorder that were seen by a physician in the pediatric endocrinology program (C58)	1: <50% 2: ≥50%
Diabetes education program recognized by American Diabetes Association or American Association of Diabetes Educators as of December 31, 2013 (C14)	1
Implementing a policy where all bone age films ordered by Pediatric Endocrinology are interpreted by a radiologist (C50)	1: Outside radiologist without formal evaluation 2: In house or with formal validation
Percentage of pediatric Type 1 diabetes outpatients on private insurance that used continuous glucose monitoring in the last year (C52)	1: ≥ 50% & < 75% 2: ≥ 75%
Making use of a patient portal to enable families to access electronic medical records and communicate with their physicians and medical staff (C62)	1
Having a system in place to alert providers that the following types of patients have not returned for care (C63): • Type 1 diabetes • Congenital hypothyroidism • Congenital adrenal hyperplasia • Growth hormone therapy • Precocious puberty on therapy • Hyperthyroidism on anti-thyroid medication	1: 1-3 types 2: 4-6 types

* Parenthetical references indicate related survey questions.

(continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Diabetes & Endocrinology* (102 points)	Points
Having regularly scheduled conferences with pediatric radiologic to review the following tests (C64): • Abnormal brain and pituitary MRIs • Abnormal pelvic ultrasounds • Abnormal thyroid ultrasounds	1: 1-2 tests 2: 3 tests
Participating in multidisciplinary evaluation and management of the following types of patients (C65): • Endocrine complications in hematology/oncology patients • Endocrine complications in post-transplant patients • Metabolic bone disease and osteogenesis imperfecta • Inborn errors of metabolism or evaluation of hypoglycemia	1: 1-2 types 2: 3 types
Hosting or conducting the following conferences or educational programs in the last year (C66): • Joint case conferences with Internal Medicine • Joint case conferences with genetics program • Pediatric endocrinology case conference • Pediatric endocrinology journal club • CME-granting education activity conferences	1: 1-34 conferences 2: ≥ 35 conferences
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and 10.2)	1
Gastroenterology & GI Surgery* (12 points)	**Points**
Having regular, multidisciplinary morbidity and mortality conferences for pediatric GI patients (D26)	1
Having a standard mechanism to determine if complications have occurred in patients who underwent outpatient GI procedures (D27)	1
Having 1 or more IRB-approved protocols that provide GI patients access to drugs or devices through compassionate use (D28)	1

* Parenthetical references indicate related survey questions.

(continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Gastroenterology & GI Surgery* (12 points)	Points
Providing educational programs for the following disease-specific GI conditions (D9):	
• Inflammatory bowel disease, Crohn's disease or colitis • Celiac disease • Liver disease • Cystic fibrosis • Eosinophilic esophagitis • Chronic intestinal failure	6
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Average "third next available" time for new patients (D6)	1: >7 & ≤14 days 2: ≤ 7 days
Neonatology* (66 points)	**Points**
Patient load per nurse practitioner or physician assistant (F3)	1: ≥ 9 2: < 9
Patient load per neonatologist (F5)	1: ≥ 18 2: < 18
Patient load per nutritionist (F7.1)	1: ≥ 20 2: < 20
Patient load per staff person: • Licensed independent contractor (attending, fellow, resident or physician extender) on the night shift (F5.1) • Social workers (F11.1)	For each measure: 1: ≥ 15 2: < 15
Percent of eligible direct clinical care RNs who are nationally certified in neonatal intensive care (F4b)	1: ≥ 50% & <75% 2: ≥ 75%
Engaging in the following interaction with hospital's NICU (F18):	
• All preterm cardiac patients receive a neonatology consult • All newborn cardiac patients (preterm and full term) receiving a neonatology consult	2
Providing a percutaneous intravenous central catheter (PICC) team with specialized training to place and maintain PICC lines in NICU patients (F20)	1
Availability of PICC line placement services (F20.1)	1: Day shift 2: 24/7 coverage

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Neonatology* (66 points)	Points
Requiring NICU staff to participate in the following training protocols at least once in the past 2 years (F22):	
• Neonatal unplanned code response • Arrhythmia treatment including use of defibrillator • Simulation of emergency evacuation of the NICU • Simulation for maintenance of Neonatal Resuscitation Program and/or Pediatric Advanced Life Status active status • ECMO emergency simulation training • Exchange transfusion simulation or just in time training • Other training	7
Having at least 75% of neonatal fellows complete training in the following procedure protocols (F23.1):	
• Chest tube placement • Intubation • Neonatal resuscitation program	3
Having at least 75% of neonatal physician extenders complete training in the following procedure protocols (F23.1):	
• Chest tube placement • Intubation • Neonatal resuscitation program	3
Having at least 75% of attending physicians participate in a competency simulation for an infrequently performed procedure in the last 24 months (F23.2)	1
Having a quality metric for the NICU that includes monitoring the percent of infants discharged on breast milk (F10)	1
Offering a dedicated area within the facility for milk and formula preparation (F10.2)	1
Offering the following for nutrition and breastfeeding (F10.3)	
• NICU-dedicated certified lactation specialists • Cohort of NICU RNs specially trained in lactation counseling • NICU-specific breast milk committee • Process to rent breast pumps to families • NICU specific risk reduction program that includes process designed to reduce breast milk errors	5
Employing the following risk-reduction practices (F10.4): • Individual breast milk warmers at each bedside • Bar coding system for correct breast milk identification • Dedicated breast milk technician who prepares milk for proper identification and distribution	3
Tracking breast milk administration error rate (F10.5)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Neonatology* (66 points)	Points
Number of standardized hand-off tools used by physicians and physician extenders to inform clinical staff during shift transitions (F29.1)	1: 1-2 tools 2: 3-4 tools
Number of standardized hand-off tools used by nurses to inform clinical staff during shift transitions (F30.1)	1: 1 tool 2: 2-3 tools
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
Recording the first temperature on return to the NICU after operating room procedure (F31)	1
Percentage of temperatures under 36°C (F31.1)	1: 10-15% 2: <10%
Tracking unintended extubation of NICU patients (F32)	1
Frequency of quality review process (F32.2): • 1 points for a multidisciplinary review at some regular interval • 1 point for a mini-root cause analysis review within 12 hours	2
Tracking readmissions of NICU graduates within 30 days of discharge to home (F33)	1
Conducting multidisciplinary review of readmissions to determine if preventable (F33.2)	1
Providing the following for very-low-birth-weight and low gestational age infants (F34):	
• Starter protein solution available on day of admission • Very low birth weight feeding protocol • "Kangaroo care" routinely provided for infants receiving mechanical ventilation	3
Providing prescriber directed feedback for medication prescribing errors	1
Having a medication error reporting system/database	1
Having a formalized process for evaluating medication errors	1
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Nephrology* (33 points)	Points
Percentage of school-age pediatric dialysis patients enrolled in a school or vocational rehabilitation program (G10)	1: <50% 2: ≥ 50%
Participating in regular interdisciplinary clinical conferences to review and coordinate the care of patients in the following specialties (G17):	
• Urology/uroradiology • Renal pathology • Rheumatology	3
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and need for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
Providing the following services in support of the pediatric dialysis unit (G19):	
• Designated medical director board-certified in pediatric nephrology • Quality Assurance Performance Improvement activities reviewed independently from the adult dialysis service • Pediatric maintenance dialysis patients receive treatment in a unit independent from adult patients • Dedicated nursing staff with formal training in pediatric dialysis • At-home maintenance hemodialysis program for adolescents • Ambulatory blood pressure monitoring • At-home maintenance peritoneal dialysis program	7
Availability and coordination of plasmapheresis to patients: • Available and coordinated by Pediatric Nephrology (2 points) • Available but NOT coordinated by Pediatric Nephrology (1 point)	2
Offering a formal transition program for kidney transplant patients from pediatric to adult care when needed (G25)	1
Offering a formal transition program for dialysis patients into adult care when needed (G26)	1
Percentage of living donor nephrectomies conducted via laparoscopic procedure (G29)	1: ≤ 50% 2: > 50%
Reviewing the care of all kidney transplant inpatients at an interdisciplinary care conference (G30)	1

* Parenthetical references indicate related survey questions.

(continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Nephrology* (33 points)	Points
Maintaining a database of current kidney transplant patients with clinical data to allow for quality assessment and improvement of care (G38)	1
Offering the following programs to support pediatric patients undergoing kidney transplant (G33):	
• Quality of life assessment • Child life program for kidney transplant patients • Transplant pharmacist	3
Percentage of kidney transplant patients <18 years of age that were preemptive (G31.1)	1: 10-20% 2: >20%
At least 50% of native kidney biopsies were performed by a pediatric nephrologist or pediatric nephrology fellow (G14.1)	1
At least 50% of percutaneous kidney biopsies were performed by a pediatric nephrologist or pediatric nephrology fellow (G27.1)	1
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Neurology & Neurosurgery* (22 points)	**Points**
Conducting both pre- and postsurgical neuropsychological evaluations for surgical patients with the following diagnoses (H15):	
• Benign or malignant brain tumors • Traumatic brain injury/concussion • Medically intractable epilepsy • Craniofacial disorders	4
Participating in the following nationally audited research programs that focus on outcome measures specific to neurology and neurosurgery (H19)	
• Neurocritical Care Research Group • National Healthcare Safety Network • International Pediatric Stroke Study	3
Having an epilepsy program designated Level IV by National Association of Epilepsy Centers (H32)	1
Engaging in the following activities (H22):	
• Maintaining a surgical mortality database • Holding regular mortality and morbidity conferences • Regularly holding interdisciplinary care conferences	3
Having $\geq$ 75% of EEG tests incorporated into the patients' medical chart within 36 hours (H10):	
• Standard EEG medical evaluations for epilepsy within 36 hours • Long-term vEEG evaluations for epilepsy within 5 days from discharge	2
Participating in community outreach programs to improve health in the community (H20.1)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Neurology & Neurosurgery* (22 points)	Points
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
Having at least 50% of pediatric neurosurgeon FTE devoted to clinical care provided by staff participating in the ABNS Maintenance of Certification (H2b and H2.1)	1
Having at least 50% of patients receiving a surgical procedure for epilepsy have invasive EEG monitoring (H8 and H8.1)	1
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Orthopedics* (51 points)	**Points**
Number of pediatric orthopedic surgeons who are active or candidate members of the Pediatric Orthopaedic Society of North America (I5)	1: 1-2 2: 3+
Percentage of pediatric orthopedic staff receiving pediatric orthopedic surgery-related continuing education credit or continuing medical credit	
• Nurse practitioners (I3.1) • Physician assistants (I3.1) • RNs (I4.1) • Medical Assistants (I4.1)	For each measure: 1: ≥50% and <75% 2: ≥75%
Providing pediatric imaging center with the following services (I10):	
• Pediatric protocols to reduce radiation exposure • Ultrasonographers with specialized training to perform hip exams • Remote retrieval of test results, images, and medical records from locations off-site or away from the hospital • Intraoperative navigation system • Upright whole-body low-dose radiography system for evaluating scoliosis	5
All musculoskeletal cancer patients discussed at a tumor board at least once a quarter (I17)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Orthopedics* (51 points)	Points
More than 75% of tumor boards attended by a musculoskeletal oncologist (I17.1)	1
More than 75% of tumor boards attended by a musculoskeletal tumor surgeon (I17.1)	1
Participating in regular multidisciplinary morbidity and mortality conferences (I18)	1
Percentage of surgical spine patients, 8 or older, completing SRS-22 or SRS-30 (I36)	1 : ≥50% and <75% 2: ≥75%
Percent compliance with written checklists and/or evidence based guidelines for patients with the following orthopedic injuries (I37):	
• Neurological injury associated with surgery for idiopathic scoliosis • Neurovascular injuries associated with supracondylar fractures or dislocation of the knee • Spinal trauma resulting in acute spinal cord injury	For each measure: 1: ≥70 and <85% 2: ≥ 85%
• Having a designated trauma operating room that guarantees orthopedics a "first case of the day start" (I28)	1
• Having a policy in place that provides even greater operating room access based on periodic demand (I29)	1
• Having access to at least 1 of the following types of anesthesiologists:	
• Pediatric anesthesiologists or pediatric spine anesthesiologists to assist with pediatric orthopedic surgeries (I34) • Pediatric anesthesiologists or pediatric spine anesthesiologists to assist with pediatric surgical correction of scoliosis (I35)	2
• Having at least 1 in-service presentation or formal lecture to an RN audience (I39)	1
• Establishing a professional relationship with one or more prosthetic/orthotics providers such that they attend clinic on a regular basis (I40)	1
• More than 75% of patients with musculoskeletal infections who received an MRI completed the MRI study within 18 hours (I24.1)	1
• Having a designated surgery support team that are dedicated to working with pediatric orthopedic surgeons (I41)	1
• Having a surgery support team that provides "on call" service for after hours or weekend cases (I42)	1
• Having a preoperative coordinated care review process led by a nursing coordinator to evaluate high-risk patients and prepare them for surgery and hospitalization (I30)	1
• Having more than 75% of patients receiving hip reconstruction and posterior spinal fusion surgeries receive preoperative nutritional and pulmonary assessments (I45)	1

* Parenthetical references indicate related survey questions.

(continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Orthopedics* (51 points)	Points
• Rate of single-event multi-level surgery patients who received a preoperative physical therapy assessment (I46a / I45d)	1: ≥ 50%, < 75% 2: ≥ 75%
• Rate of single event multi-level surgery patients who received a perioperative regional anesthetic (I46b / I45d)	1: ≥ 50%, < 75% 2: ≥ 75%
• Rate of single event multi-level surgery patients who received a postoperative assessment by anesthetic/pain team (I46c / I45d)	1: ≥ 50%, < 75% 2: ≥ 75%
• Hosting or being actively involved in organizing a cerebral palsy support group	1
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
• Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Pulmonology* (28 points)	**Points**
Screening all pulmonology patients for tobacco smoke exposure and actively counseling family members who smoke (J6)	1
Having written consensus protocols for the following conditions (J13):	
• Asthma exacerbations • Bronchiolitis • Croup • Cystic fibrosis • Uncomplicated pneumonia • Complicated pneumonia • Initiation of tracheostomy of home ventilator support • Tracheostomy or ventilator-dependent patients	8
Routinely involving pulmonologists in outpatient management of pediatric patients with the following conditions (J50):	
• Sickle cell anemia • Primary immunodeficiency and/or post-bone marrow transplantation • Rheumatologic disorders • Aerodigestive disorders • Craniofacial disorders	5

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty (continued)

Pulmonology* (28 points)	Points
Having a protocol for preparing and assisting in the transition of patients from pediatric to adult pulmonology (J53)	1
Providing financial support for staff to attend extramural continuing education (J54)	1
Average "third next available" time for new patients (J55)	1: >7 & ≤14 days 2: ≤ 7 days
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
Providing thorough assessment of patients' home environment and offer guidance for reducing exposures that contribute to asthma (J9)	1
Having a multidisciplinary sleep disorders clinic that addresses the needs of patients with ventilation or other sleep disorders (J39)	1
Having multidisciplinary care team to coordinate the care of long-term ventilator-dependent patients (J41)	1
Having a formal plan to actively transition CF patients from pediatric care to adult care (J25)	1
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1
Urology* (29 points)	**Points**
Engaging in activities designed to ensure high reliability (A39):	
• All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with development of action plan to address problems identified during the training or simulation	5

Table 9. Commitment to Best Practices by Specialty (continued)

Urology* (29 points)	Points
Having regular morbidity and mortality conferences to discuss pediatric urology patients (K6a)	1
Having regular case conferences to discuss surgical management of complex cases (K6b)	1
Having an established surveillance system to monitor surgical site infections for major urological procedures and providing a description of the process (K17 and K17.1)	2
Monitoring reconstructive procedure for incontinence or hostile bladder for the following operative complications (K13.1):	
• Post-augment bladder capacity based on either VCUG or Urodynamic study • Compliance based on urodynamic study • Continence • Absence of reflux • Stomal complications	5
Average "third next available" time for new patients (K20)	1: >7 & ≤14 days 2: ≤ 7 days
Making the following provisions to increase access to care (K21)	
• Flexible clinic hours (early or late hours beyond the typical 8-5 business day) • Flexible hours for surgery (OR times beyond the typical 8-5 business day) • Weekend surgical hours	3
Having the following protocols in place (K22)	
• Protocol for preparing and assisting in the transition of patients from pediatric to adult urology • Protocol for teaching home intermittent catheterization • Radiation reduction/safety protocols for urology patients (e.g., Retrograde pyelogram protocol, Ureteroscopy protocol • Standardized clinical pathway for children presenting with acute stone pain to the Emergency Department • Standardized clinical pathway for postoperative patients • Educational materials for patients and families on urological conditions that are updated on a regular basis • Child life specialists for perioperative care in the operating room and for office procedures • Sedation services for VCUG/ noxious procedures	8
Making use of a patient portal to enable families to access electronic medical records and communicate with their physicians and medical staff (K23)	1
Participating in a program to reduce radiation exposure to patients and staff (A10.1 and A10.2)	1

* Parenthetical references indicate related survey questions.

B. Use of Infection-Preventing Measures

Incorporating infection-preventing measures captures the commitment of a hospital to identifying and implementing proven means of reducing the risk of various infections.

All-Specialty Infection-Preventing Measures

A core set of submeasures for all specialties was worth up to 24 points, as shown in ***Table 10***. Specialty-specific measures in all specialties except Urology allowed an additional 4-30 points, depending on the specialty.

Table 10. Core Infection Prevention Measures, All Specialties (24 points)

All Specialties* (24 points)	Points
Auditing hand hygiene compliance rates (F37 for Neonatology, A24 for all other specialties)	1
Auditing hand hygiene compliance rates via electronic monitoring or direct observation (compared to self-report) (F37 for Neonatology, A24 for all other specialties)	1
Percentage of compliant hand hygiene observations for inpatient care in the past 12 months (F37.1 for Neonatology, A25 for all other specialties)	1: ≥ 80% & < 90% 2: ≥ 90%
Providing at least .50 FTE financial support for a pediatric infectious disease specialist to serve as a dedicated director of the infection prevention program (A26)	1
Having at least 1.0 FTE infection preventionists (A27)	1
Having at least 1 infection preventionist certified by the Certification Board in Infection Control (A27.1)	1
Ensuring that at least 75% of the following staff received influenza vaccination (A28): • Physicians (including attending physicians, fellows, residents) • Nursing staff and mid-level providers • All other employees (excludes volunteers)	3
Ensuring that at least 50% of the following staff received Tdap vaccination (A29): • Physicians (including attending, fellows, residents) • Nursing staff and mid-level providers • All other employees (excludes volunteers)	3
Requiring all volunteers to receive or provide documentation of: • Influenza vaccination (A29.1) • Tdap vaccination (A29.2)	2
Having the following elements of antimicrobial stewardship program (A31): • Publishing yearly antimicrobial susceptibility summary that is readily available to clinicians • Restricting pharmacy use of selected antimicrobial agents to prevent potential resistance from overuse • Implementing prospective audit with intervention and feedback • Providing dedicated pharmacist to antimicrobial stewardship program (ASP) • FTE support for the role of medical director of the pediatric ASP program • Microbiology laboratory that restricts reporting of susceptibilities to some antimicrobials to prevent overuse • FTE support for a dedicated analyst to support ASP program	7
Performing surveillance for 1 or more respiratory viruses (A32)	1
Having formal program to prevent hospital-acquired pressure ulcers (A36)	1

* Parenthetical references indicate related survey questions.

Specialty-Specific Infection Prevention Measures

Cancer (4 additional points). Hospitals received 1 point for actively tracking seasonal influenza vaccinations in leukemia and neuroblastoma patients on active chemotherapy (B32). Up to 3 additional points were awarded according to the percentage vaccinated (B33): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%.

Cardiology & Heart Surgery (9 additional points). Hospitals received 1 point for monitoring compliance with preoperative antibiotic prophylaxis for a sample of cases or 2 points for monitoring compliance for all cardiothoracic surgeries (E32). Up to 2 additional points were awarded according to the percentage of compliance (E33): 1 point if ≥ 75% and < 90%, and 2 points if ≥ 90%. Hospitals received 2 points for formally monitoring surgical site infections (SSIs) for major cardiothoracic procedures (E34/E34.1). Hospitals received up to 3 additional points for engaging in the following surgical site infection prevention procedures (E31): pre-operative bath, no use of razor for hair removal, preparation of skin at surgical site with alcohol containing agent.

Diabetes & Endocrinology (4 additional points). Hospitals received 1 point for actively tracking seasonal influenza vaccinations in diabetes outpatients (C42). Up to 3 additional points were awarded according to the percentage vaccinated (C43): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%.

Gastroenterology & GI Surgery (9 additional points). Hospitals received up to 2 points for actively tracking seasonal influenza vaccinations for chronic intestinal failure patients (D18) and post-liver transplant patients (D23 Up to 3 points were awarded based on the percentage of both chronic intestinal failure patients (D19) and liver-transplant patients (D24) vaccinated: 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%. Hospitals received 1 additional point for tracking central-line associated bloodstream infections for total parenteral nutrition patients (D36).

Neonatology (1 additional point). Hospitals received 1 point for having processes to monitor and report usage of high risk, broad spectrum antimicrobials in the NICU (F38 and F38.1).

Nephrology (25 additional points). Hospitals received 1 point each (up to 6 points) for actively tracking seasonal influenza and pneumococcal vaccinations for hemodialysis patients (G12a, G13a), peritoneal dialysis patients (G12b, G13b) and kidney transplant patients (G34, G35). Up to 3 additional points were awarded for each of the 6 groups (up to 18 points) according to the percentage vaccinated (G12a, G12b, G13a, G13b, G34.1, G35.1): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%. One additional point was awarded for

tracking dialysis catheter-associated bloodstream infection (BSI) rates using NHSN guidelines for pediatric outpatients on maintenance dialysis (G36).

Neurology & Neurosurgery (8 additional points). Hospitals received 1 point for monitoring compliance with preoperative antibiotic prophylaxis for a sample of cases and 2 points for monitoring compliance for all ventricular surgeries (H25). Up to 2 additional points were awarded based on the percentage of compliance (H26): 1 point if ≥ 75% and < 90%, and 2 points if ≥ 90%. Hospitals received 1 point for actively tracking SSIs for ventricular shunt surgeries (H27). Up to 3 points were awarded for the rate of surgical site infections per 100 ventricular shunt surgeries performed in the past 2 years (H28). Points were awarded as follows: 1 point if > 6% and ≤ 10%, 2 points if > 3% and ≤ 6%, and 3 points if ≤ 3%.

Orthopedics (5 additional points). Hospitals received 1 point for monitoring compliance with preoperative antibiotic prophylaxis for a sample of cases and 2 points for monitoring compliance for all spinal fusion surgeries (I21). Up to 2 additional points were awarded according to the percentage of compliance (I22): 1 point if ≥ 75% and < 90%, and 2 points if ≥ 90%. Hospitals received 1 point for actively monitoring SSIs using NHSN criteria.

Pulmonology (17 additional points). Hospitals received 1 point each (up to 4 points) for actively tracking seasonal influenza vaccinations for asthma patients (J14), cystic fibrosis patients (J18), neuromuscular weakness disorder patients (J33) or ventilator-dependent patients (J43). Up to 3 additional points were awarded for each of the 4 groups (up to 12 points) according to the percentage vaccinated (J15, J19, J34, J44): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, and 3 points for ≥ 90%. Hospitals received 1 additional point for implementing infection-control guidelines recommended by the Cystic Fibrosis Foundation (J20).

Urology (0 additional points). There are currently no additional infection prevention measures in Urology.

C. Reputation with Pediatric Specialists

Reputation can be viewed as a form of peer review of the hospital's capabilities across a wide variety of processes related to quality of care. For all specialties, reputational scores were based on responses to the physician surveys conducted in 2013, 2014 and 2015. Scores were calculated separately in each year, and averaged such that each year's scores are given equal weighting in the final reputation score as shown in ***Table 11***.

Table 11. 2013-2015 Reputation Weight by Survey Year

Sample Source	2013-2015 Reputation Weight (%)
2015 Physician Survey	33.3
2014 Physician Survey	33.3
2013 Physician Survey	33.3

The sections below describe the approach used for the 2015 survey, which varied markedly from previous years. The approaches used for the 2013 and 2014 surveys are provided in the corresponding methodology reports for those years, available at www.rti.org/besthospitals.

2015 Survey Approach

Sample Selection

Prior to 2015, 1,500 specialists were sampled each year, representing a total sample of 4,500***. For the 2015 survey, the sample for the physician survey was expanded from 1,500 specialists – 150 in each of the 10 Best Children's Hospitals specialties – to over 8,000, resulting in an overall sample for the three years of approximately 11,000 physicians. The significantly larger sample yielded a greater number of survey responses and improved precision of survey estimates. The source of the increase was the addition of physicians via the Web through the use of the Doximity online panel of physicians. Doximity is the largest online professional network of U.S. physicians.

The 2015 sample was drawn from a database of U.S. physicians compiled by Doximity. Similar to the AMA Physician Masterfile, which was used as the sampling frame in previous years, Doximity's comprehensive Physician Database includes every practicing U.S. physician, identified by National Provider Identifier (NPI) number. Its sources include the U.S. Department of Health and Human Services NPI Registry, specialty boards (e.g., the American Board of Medical Specialties and the American Board of Surgery) and state medical boards. Doximity's proprietary database is augmented by more than 400,000 registered and verified physician members who review and update their profiles to provide another set of primary data. RTI also used address information from the AMA Masterfile, under license from MMS, Inc., to ensure the delivery of mail surveys that did not initially reach the intended recipient and to obtain email addresses for some physicians. ***Table 12***

*** This number does not represent 4,500 unique physicians. The universe of physicians in some pediatric specialties is very small, so some physicians were surveyed in more than one year.

provides the population counts of pediatric specialists in the database by Doximity members and nonmembers.

Table 12. Population Counts by Best Hospitals Specialty, Doximity Members and Nonmembers

Best Children's Hospitals Specialty	Subspecialties	Doximity Members	Doximity Nonmembers
Cancer	Pediatric Hematology-Oncology	882	887
Cardiology & Heart Surgery	Pediatric Cardiology	1081	754
	Congenital Heart Surgeon Society*	0	139
Gastroenterology & GI Surgery	Pediatric Gastroenterology	490	497
Diabetes & Endocrinology	Pediatric Endocrinology	463	546
Neonatology	Neonatal-Perinatal Medicine	1798	2239
Nephrology	Pediatric Nephrology	276	274
Neurology & Neurosurgery	Child Neurology	811	783
	Pediatric Neurological Surgery**	0	195
Orthopedics	Pediatric Orthopedics	228	305
Pulmonology	Pediatric Pulmonary	429	351
Urology	Pediatric Urology	103	150

* These specialists were drawn from the Congenital Heart Surgeons Society membership list.
** These specialists were drawn from the American Society of Pediatric Neurosurgeons.

Data Collection Procedures

Doximity members and nonmembers were surveyed separately, as described below.

Member survey. The Doximity member survey identified a total of 6,561 physicians across the 10 pediatric specialties from January to March 2015. Physicians received an initial email invitation with a link to the survey. The survey asked for names of up to 10 hospitals in the physician's specialty that provide the best care to patients with serious conditions, without considering location or expense. Nonresponding physicians received up to three follow-up email reminders with links to the survey. In addition, survey-eligible Doximity members – i.e., those board certified in a relevant specialty – received alerts upon login to Doximity.com or use of the Doximity

app inviting them to participate. Members who registered with Doximity during the survey period were permitted to send nominations. It was later determined, however, that response bias affected many of these responses, and they were excluded from the final analysis.

Nonmember survey. The nonmember survey was conducted by randomly sampling 1,500 Doximity nonmembers – 150 specialists in each of the 10 specialty areas. Stratifying by census region (http://www.census.gov/geo/www/us_regdiv.pdf), we selected physicians in each region proportional to the size of the population. For example, if 40% of all Doximity nonmembers in a specialty were from the South, then 40% of our sample would have included physicians in that region. Sampling physicians proportional to population size allowed us to minimize the weights needed to produce reputation scores that are representative of the nation.

Sampled physicians were asked to complete a brief survey containing a single nomination element. The survey of nonmembers was identical to the survey of Doximity members and asked physicians to supply the names of up to 10 hospitals in their specialty that provide the best care to patients with serious conditions, without considering location or expense. A copy of the mailed survey is available in ***Appendix B***.

For physicians whose email address was available, a mixed-mode (mail and Web) methodology was employed. Physicians without an email address were able to respond by mail only. Up to four mailings and up to two email reminders were sent to sample members. Each mailing included a cover letter, questionnaire, and business reply envelope. The first survey mailing also included a $2 bill as a token incentive. Reminder emails include a link to the Web version of the survey. The survey was conducted from January 5 through March 31, 2015.

Response Rates

The overall response rate for the 2013, 2014 and 2015 surveys was 39.4% using the American Association of Public Opinion Research (AAPOR) standard response rate 6[†††], which treats undeliverables as ineligibles. The 2015 combined response rate for the Doximity member and nonmember surveys was 35.8% using AAPOR standard response rate 6. Below we provide more detail on the response rates to the 2015 Doximity member and nonmember surveys.

Member survey. Of the 6,561 Doximity members identified, 62 were deemed ineligible due to closed accounts, invalid contact information, or credentials that could not be verified. Of the

††† Definitions available at http://www.aapor.org/Content/aapor/AdvocacyandInitiatives/StandardsandEthics/StandardDefinitions/StandardDefinitions2011.pdf

remaining 6,499 physicians, 2,206 completed the web survey by March 2, 2015. The final response rate was 33.1% using AAPOR standard response rate 6. ***Table 13*** shows response rates by region and specialty.

Table 13. Member Survey Response Rates (%) by Region and Specialty, 2015

Specialty	Midwest	Northeast	South	West	Total
Cancer	45.2	31.5	26.1	24.4	31.9
Cardiology & Heart Surgery	55.8	40.7	39.7	36.4	43.4
Diabetes & Endocrinology	39.8	28.9	36.4	27.5	33.7
Gastroenterology & GI Surgery	58.3	36.1	23.9	36.6	38.3
Neonatology	30.2	26.5	24.4	17.6	24.9
Nephrology	54.0	33.8	41.5	27.8	39.6
Neurology & Neurosurgery	50.0	32.0	22.1	23.2	31.7
Orthopedics	45.0	34.9	31.5	39.7	37.4
Pulmonology	59.0	37.3	23.5	25.0	37.1
Urology	58.7	50.0	36.0	40.6	46.4
Total	**45.4**	**32.0**	**29.0**	**26.2**	**33.1**

Nonmember survey. Of the 1,500 physicians sampled for this year's report, 254 were deemed ineligible after determining that they were no longer actively practicing. Of the remaining 1,246 physicians, 563 returned the completed questionnaire by the deadline of April 1, 2015. The final response rate was 45.2% using the AAPOR standard response rate 6. ***Table 14*** shows response rates by region and specialty.

Table 14. Nonmember Survey Response Rates (%) by Region and Specialty, 2015

Specialty	Midwest	Northeast	South	West	Total
Cancer	44.4	45.5	43.5	34.6	42.4
Cardiology & Heart Surgery	69.0	50.0	63.3	45.5	58.6
Diabetes & Endocrinology	52.2	24.4	35.5	37.9	35.5
Gastroenterology & GI Surgery	50.0	46.9	48.9	56.0	50.0
Neonatology	44.0	34.8	17.4	23.8	27.8
Nephrology	34.5	41.7	36.6	31.6	36.3
Neurology & Neurosurgery	50.0	34.4	57.9	33.3	45.0
Orthopedics	77.8	43.3	53.8	48.1	53.5
Pulmonology	50.0	43.3	32.6	42.9	40.7
Urology	45.5	67.9	60.5	55.8	58.1
Total	**51.0**	**42.5**	**45.3**	**42.4**	**45.2**

Survey Response Weighting

For the Doximity member survey, we used post-stratification weights for age*gender (55+ male, <55 male, and female) as well as census region. Weights were constructed and applied to each physician's survey response to make nominations representative of Doximity members at the national level. Since all Doximity members were surveyed, weights were used only to adjust for differences in nonresponse by region and demographics.

In each specialty, the sample for the Nonmember physician survey was stratified only by census region (Midwest, Northeast, South and West). The sample size in each specialty was too small to stratify by the demographic characteristics used in the Doximity sample. Weights were constructed and applied to each physician's survey response to make nominations representative of Doximity nonmembers at the national level. Weights were based on probability of selection within each unique specialty-region combination, adjusting to account for nonresponders.

Reputation scores were tabulated separately for Doximity members and nonmembers, and then combined to create the 2015 reputation score. ***Table 15*** shows the reputation weight for Doximity members and nonmembers in each specialty for 2015. The weight is based on the proportion of Doximity members and nonmembers in the population so the reputation score is representative of all physicians in the nation. Reputation scores for each of the past three years were then averaged to create the final, weighted reputation values that appear in the methodology report.

Table 15. 2015 Reputation Weight for Doximity Members and Nonmembers by Specialty

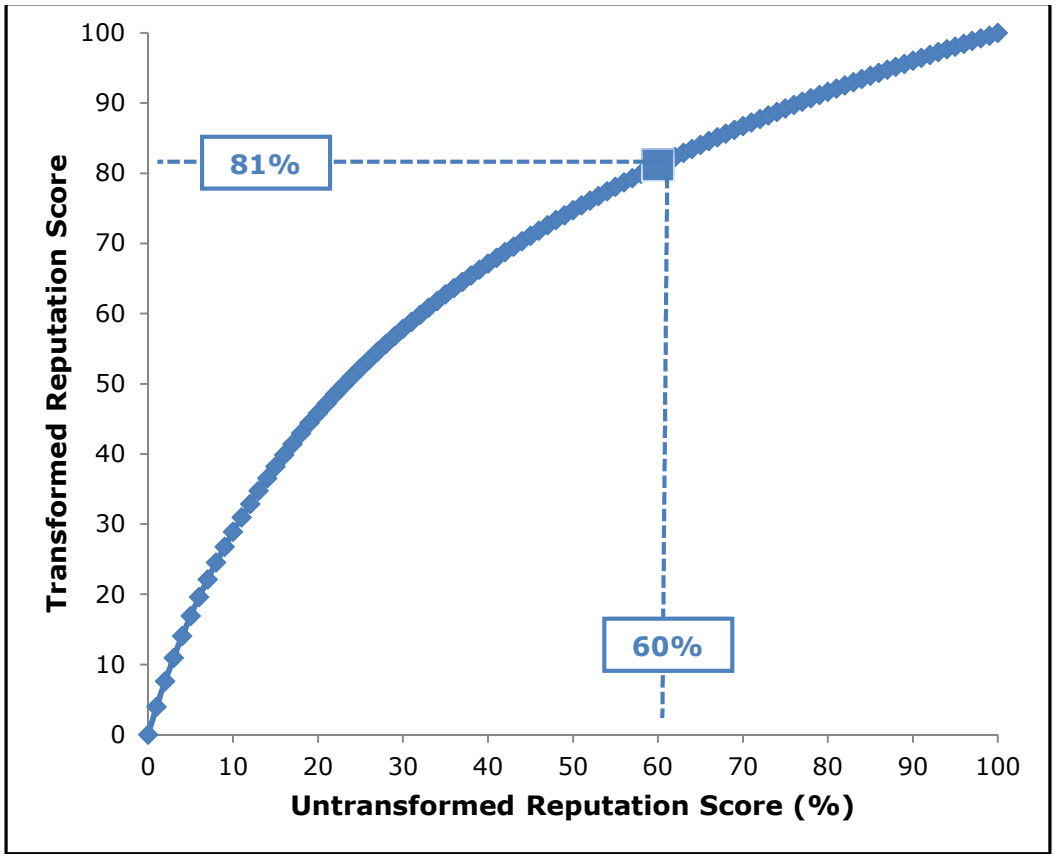
Best Children's Hospitals Specialty	Reputation Weight	
	Doximity Members	Doximity Nonmembers
Cancer	49.9	50.1
Cardiology & Heart Surgery	54.8	45.2
Gastroenterology & GI Surgery	49.7	50.3
Diabetes & Endocrinology	45.9	54.1
Neonatology	44.5	55.5
Nephrology	50.2	49.8
Neurology & Neurosurgery	45.3	54.7
Orthopedics	42.8	57.2
Pulmonology	55.0	45.0
Urology	40.7	59.3

Log Transformation

The weighted, three-year reputation values are displayed in the ranking tables. Before the reputation data were combined into the Index of Hospital Quality (IHQ), log transformation was implemented to adjust for the skewed distribution of values. By its nature, a survey that solicits recommendations for "best hospitals" will result in data that do not follow a normal distribution—relatively few hospitals will receive even one recommendation, and of the hospitals recommended, even fewer will receive a substantial number of nominations. Since other ranking components such as structural measures and mortality are not similarly skewed, reputation would have a greater impact on the final rankings than is warranted if left unadjusted.

Log transformation reshapes the distribution to more closely match reputation data to those of other components. The transformation is applied to the weighted reputation data. The transformed data are then normalized and multiplied by 100 to provide scores ranging from 0 to 100. ***Figure 1*** demonstrates the effect of the transformation.

Figure 1. Impact of Log Transformation on Reputation



The transformed reputation scores are mostly higher than the untransformed scores, but the relative increases are larger for low scores than for high ones. For example, an untransformed

reputation value of 1% has a transformed score of 4 (4 times greater), an untransformed value of 10% has a transformed score of 29 (2.9 times greater), and an untransformed value of 60% has a transformed score of 81 (1.4 times greater). Skewness is thus reduced, and the impact of reputation on final standing in the rankings is slightly diminished.

D. Normalization and Weighting

The process component in each specialty is worth one-third (33.3%) of the overall score. For all specialties, commitment to best practices and having an infection-prevention program each received a weight of 1, and reputation received a weight of 2 as shown in ***Table 16.***

Table 16. Relative Weight of Individual Process Measures

Process Measure	Relative Weight
Commitment to Best Practices	1
Infection-Preventing Measures	1
Reputation with Pediatric Specialists	2

As with the other components, individual process measures were normalized before being combined in the Index of Hospital Quality (IHQ). Normalization, as described in ***Section IV.B***, transforms a measure's index values into a distribution between 0 and 1 based on the range of possible values. The range of reputation scores is from 0% (no nominations) to 100% (every surveyed physician nominated the hospital). Starting with 2013-14 rankings, the normalized reputation score has determined the number of points hospitals received for reputation. After log transformation, if the highest reputation score in a given specialty is 80, for example, the hospital with that score receives a normalized score of 0.80. Because reputation is worth 16.7% of the overall score, the hospital receives 0.80 x 16.7, or 13.4 points, for reputation. In past years, hospitals with the highest reputation scores received the full point total, which would have been 16.7 points in this example.

VI. Outcomes

For the Best Hospitals adult specialty rankings, risk-adjusted mortality 30 days after admission is a key outcome measure. Other measures now used by healthcare researchers as quality indicators include readmissions following surgical or hospital discharge, patient functional status (or improvement), infection rates, and medical complications.[##]

[##] For more information on hospital quality measures and updates on national quality of hospital care initiatives, see reports from the Agency for Healthcare Research and Quality (AHRQ) at http://www.qualitymeasures.ahrq.gov/ and the Joint Commission at http://www.jointcommission.org/.

Because of the absence of comprehensive national sources of pediatric outcomes data comparable to the Medicare Provider Analysis and Review (MedPAR) data used in the adult rankings, outcomes-related data are obtained directly from pediatric hospitals through the Pediatric Hospital Survey. Such data include BSI rates, transplant survival rates, mitigation of adverse events, and surgical outcomes. Other data will be added over time to address the need for relevant outcomes measures and to provide a more complete picture of pediatric hospital care. Measures for the 2015-16 rankings were developed from recommendations by expert advisory panels, as previously described. Details on specific outcomes measures, how they were calculated and how they were scored are provided below.

A. Outcome Measures

Outcome measures are listed below, by specialty. Scoring rules used to assign points to hospitals for these outcomes are also described below. For all outcomes measures, a higher number of points indicates better outcomes (e.g., higher survival, lower mortality, fewer complications).

Cancer

Prevention of ICU Infections (15 points). The rate of infections in intensive care units (ICUs) is considered a good benchmark of patient safety and outcome because such infections in hospital-based care should be minimal. Rates for two types of infections were tracked: central line-associated blood-stream infections (CLABSIs) and catheter-associated urinary tract infections (CAUTIs). CLABSI rates were calculated as the number of BSIs per 1,000 central-line days during the previous 12 months, and CAUTI rates were calculated as the number of infections per 1,000 catheter days during the previous 12 months.

CLABSI (A33.1) and CAUTI (A34.1) rates were tracked for critical care patients (average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units). CLABSI rates were also tracked for all oncology/stem cell transplant patients (B22). Hospitals were rewarded for lower rates of infections. For hospital-wide CLABSI rates, hospitals received up to 5 points per group: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections, per 1,000 days 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections per 1,000 days. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections. Finally, for oncology/stem cell transplant patients CLABSI rates, hospitals received up to 5 points per group: 1 point for > 4.0 and ≤ 6.0 infections per 1,000 days, 2

points for > 2.0 and ≤ 4.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 2.0 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections and 5 points for ≤ 0.5 infections per 1,000 days.

Prevention of Pressure Ulcers (3 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure ulcers (A38.1 and A38.2). For each of the three categories, hospitals received 1 point for a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters.

Survival after Bone Marrow Transplant (6 points). This measure assessed the percentage of pediatric patients aged 20 years or younger receiving allogeneic blood marrow (including cord blood and stem cell) transplants (BMTs) in the past 5 years who survived for at least 100 days following transplant (B20). Hospitals could receive up to 3 points for survival rates for sibling-matched (HLA-identical) allogeneic transplants and up to 3 points for all other allogeneic transplants: 1 point for ≥ 75% and < 90% survival, 2 points for ≥ 90% and < 95% survival, and 3 points for ≥ 95% survival.

Survival at Five Years (12 points). This measure evaluated the percentage of pediatric patients at least 18 months old with all subtypes and risk levels of acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), Stage I-II neuroblastoma and Stage III-IV neuroblastoma who were alive after 5 years of treatment in the pediatric cancer program (B35). For each of the three measures, hospitals could receive up to 3 points for having a high percentage of 5-year survivors. For ALL, points were awarded as follows: 1 point for ≥ 70% and < 85% survival, 2 points for ≥ 85 and < 95% survival, and 3 points for ≥ 95% survival. For AML, points were awarded as follows: 1 point for ≥ 35% and < 50% survival, 2 points for ≥ 50 and < 60% survival, and 3 points for ≥ 60% survival. For Stage I-II neuroblastoma, points were awarded as follows: 1 point for ≥ 35% and < 50% survival, 2 points for ≥ 50 and < 70% survival, and 3 points for ≥ 70% survival. For Stage III-IV neuroblastoma, points were awarded as follows: 1 point for ≥ 30% and < 50% survival, 2 points for ≥ 50 and < 70% survival, and 3 points for ≥ 70% survival.

Cardiology & Heart Surgery

Norwood/Hybrid Surgery Survival (12 points). Hospitals received up to 12 points based on the percentage of patients who received the hybrid or Norwood Stage 1 procedure in the last 4 years and were alive without a heart transplant at 1 year of age (E40.1). Up to 3 points were awarded for each of the four reporting years for 1-year survival rates. Points were awarded as follows: 1 point for survival rates ≥ 25% and < 50%, 2 points for survival rates ≥ 50% and < 75%, and 3 points for survival rates ≥ 75%.

Prevention of ICU Infections (10 points). The rate was calculated as the number of CLABSI (A33.1) and CAUTI (A34.1) infections per 1,000 device-days (i.e., central-line days and catheter-days) in critical care patients (weighted average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units) during the previous 12 months. Hospitals were rewarded for lower rates of infections. For hospital-wide CLABSI rates, hospitals received up to 5 points per group: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections, 3 points for > 1.0 and ≤ 1.5 infections, 4 points for > 0.5 and ≤ 1.0 infections, and 5 points for ≤ 0.5 infections. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections.

Prevention of Pressure Ulcers (3 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure ulcers (A38.1 and A38.2). For each of the three categories, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters.

Survival After Various Complex Procedures (15 points). This measure represents the rate of operative mortality (patient deaths) following moderately complex to very difficult heart surgery procedures (STAT levels 1-5) at pediatric hospitals in the four most recent reporting periods (E42). For each STAT level 1-5, a survival rate was computed based on data from the past 4 years. In each of the five STAT levels, hospitals received greater points for having a lower operative mortality rate following surgery. Points were assigned as follows:

- **STAT Level 1.** 1 point for operative mortality rates > 3% and ≤ 5%, 2 points for rates > 1% and ≤ 3%, and 3 points for rates ≤ 1%.

- **STAT Level 2.** 1 point for operative mortality rates > 4% and ≤ 8%, 2 points for rates > 2% and ≤ 4%, and 3 points for rates ≤ 2%.

- **STAT Level 3.** 1 point for operative mortality rates > 6% and ≤ 12%, 2 points for rates > 3% and ≤ 6%, and 3 points for rates ≤ 3%.

- **STAT Level 4.** 1 point for operative mortality rates > 10% and ≤ 20%, 2 points for rates > 5% and ≤ 10%, and 3 points for rates ≤ 5%.

- **STAT Level 5**. 1 point for operative mortality rates > 15% and ≤ 30%, 2 points for rates > 8% and ≤ 15%, and 3 points for rates ≤ 8%.

Transplant Survival (6 points). Hospitals received up to 3 points based on estimated hazard ratios for 1-year and 3-year pediatric patient survival following heart transplant (E23). Both 1- and 3-year hazard ratios are used here because they provide somewhat different information about short-term and longer-term survival.

Beginning in 2015-2016, we have switched from using survival probabilities to hazard ratios. Hazard ratios determine the ratio of observed to expected deaths. Statistical models are used to estimate the number of expected deaths taking into account various factors of both recipients and donors that affect success. A ratio greater than 1.0 indicates that more patients died than expected, and a ratio of less than 1.0 indicates that fewer patients died than expected. Points were awarded for both 1-year and 3-year hazard ratios as follows: 1 point for hazard ratios ≥ 1.10 and ≤ 1.65, 2 points for hazard ratios ≥ 0.90 and < 1.10, and 3 points for hazard ratios < 0.90.

Diabetes & Endocrinology

Diabetic Patient Management (26 points). This measure evaluated adverse events in Type 1 and Type 2 diabetes outpatients, mean hemoglobin A1c levels in primary care Type 1 diabetes outpatients and inpatient admissions for Type 1 and Type 2 primary care diabetes patients. Diabetes-related adverse events can result from lapse of care. Such events included severe hypoglycemic events, serious diabetes-related morbidity, and diabetes-related mortality (C41). Hospitals received up to 2 points in each of the 3 conditions (6 points total), with more points for lower levels of adverse events. Points were awarded as follows: 1 point for > 5% and ≤ 10% of patients with adverse events, and 2 points for having ≤ 5% of patients with adverse events.

Median hemoglobin A1c percentages were evaluated for two types of payers (private insurance and Medicaid) and three age groups (0-5 years of age, 6-12 years of age and 13-19 years of age). Increases in A1c values increase the risk of microvascular complications in patients. Hospitals received up to 2 points in each of the six groups (12 points total) for maintaining lower median A1c values (C35). Points were awarded as follows: 1 point for median hemoglobin A1c values > 8% and ≤ 10%, and 2 points for values ≥ 4% and ≤ 8%.

Successful management of Type 1 and Type 2 diabetes patients is reflected by the type of primary care these patients receive. Hospitals were rewarded for a lower incidence of inpatient admissions and visits to the ER/urgent care for diabetes-related causes (C29). For inpatient admissions, up to 2 points were awarded for Type 1 primary care diabetes patients as follows: 1 point for > 5% and ≤ 10% of patients admitted for diabetes-related reasons, and 2 points for having ≤ 5% of patients admitted. Up to 2 points were awarded for Type 2 primary care diabetes patients as follows: 1 point for having > 8% and ≤ 16% of patients admitted for diabetes-related reasons, and 2 points for having ≤ 8% of patients admitted. For ER/urgent care visits, up to 2 points were

awarded separately for Type 1 and Type 2 primary care diabetes patients (4 points total) as follows: 1 point for having > 10% and ≤ 25% of patients come to ER/urgent care for diabetes-related reasons, and 2 points for having ≤ 10% of patients come to ER/urgent care.

Hypothyroid Management (3 points). Hospitals received up to 3 points for hypothyroid management (C59). Hospitals received points for having a higher percentage of new congenital hypothyroid patients referred at < 21 days of age who received a confirmatory serum TSH > 50uIU/ml and began thyroid hormone therapy also before 21 days of age. Points were awarded as follows: 1 point for ≥ 90% and < 95% of patients beginning therapy, 2 points for ≥ 95% and < 99% of patients beginning therapy, and 3 points for ≥ 99% patients beginning therapy.

Gastroenterology & GI Surgery

Liver Transplant Survival (3 points). Hospitals received up to 3 points based on the estimated hazard ratio for 1-year pediatric patient survival of isolated liver transplants (D22). Beginning in 2015-2016, we switched from using survival probabilities to hazard ratios. Hazard ratios determine the ratio of observed to expected deaths. Statistical models are used to estimate the number of expected deaths taking into account various factors of both recipients and donors that affect success. A ratio greater than 1.0 indicates that more patients died than expected, and a ratio of less than 1.0 indicates that fewer patients died than expected. Points were awarded as follows: 1 point for hazard ratios ≥ 1.10 and ≤ 1.65, 2 points for hazard ratios ≥ 0.90 and < 1.10, and 3 points for hazard ratios < 0.90.

Prevention of ICU Infections (10 points). The rate was calculated as the number of CLABSI (A33.1) and CAUTI (A34.1) infections per 1,000 device-days (i.e., central-line days and catheter-days) in critical care patients (weighted average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units) during the previous 12 months. Hospitals were rewarded for lower rates of infections. For hospital-wide CLABSI rates, hospitals received up to 5 points per group: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections, 3 points for > 1.0 and ≤ 1.5 infections, 4 points for > 0.5 and ≤ 1.0 infections, and 5 points for ≤ 0.5 infections. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections.

Prevention of Pressure Ulcers (3 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure ulcers (A38.1 and A38.1). For each of the three categories, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters.

Success of Selected Treatments (9 points). This measure is comprised of three items: percentage of patients receiving endoscopic procedures with severe complications (D30), percentage of patients receiving successful Kasai procedures (i.e., improvement total in bilirubin, no synthetic dysfunction, no surgical complications and delayed need for liver transplant) (D31) and percentage of patients treated for inflammatory bowel disease (IBD) experiencing prednisone-free remission (D32 and D33). For endoscopic procedures, points were awarded for fewer complications as follows: 1 point for > 3% and ≤ 5% complications, 2 points for > 1% and ≤ 3% complications, and 3 points for ≤ 1% complications. For Kasai procedure success and IBD prednisone-free remission at their most recent visit, points were awarded as follows: 1 point for ≥ 50% and < 75% success, 2 points for ≥ 75% and < 90% success, and 3 points for ≥90% success.

Neonatology

Breast Milk Management (5 points). Hospitals were rewarded for having a lower rate of breast milk administration errors. The rate was calculated as the number of breast milk administration errors per 1,000 breast feeding patient days (F10.6). Hospitals received up to 5 points as follows: 1 point for > 2.0 and ≤ 3.0 errors per 1,000 breast milk feeding patient days, 2 points for > 1.0 and ≤ 2.0 errors, 3 points for > .05 and ≤ 1.0 errors, 4 points for > 0.25 and ≤ 0.5 errors, and 5 points for ≤ 0.25 errors.

Minimizing 30-Day Readmissions (3 points). Hospitals were rewarded for having lower 30-day readmission rates in the NICU (F33.1). Points were awarded as follows: 1 point for > 3% and ≤ 10%, 2 points for > 1% and ≤ 3%, and 3 points for ≤ 1%.

Breast Milk at Discharge (3 points). Hospitals were rewarded for having higher rates of infants admitted at less than 7 days of age being discharged on partial or full breast milk (F10.1). Points were awarded as follows: 1 point for > 0% and < 50%, 2 points for ≥ 50% and < 75%, and 3 points for ≥75%.

Prevention of NICU Infections (5 points). The rate was calculated as the number of BSIs per 1,000 central-line days during the previous 12 months (F26). Hospitals were rewarded for lower rates. Hospitals received up to 5 points as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections, 3 points for > 1.0 and ≤ 1.5, 4 points for > 0.5 and ≤ 1.0 infections, and 5 points for ≤ 0.5 infections.

Unintended Removal of Breathing Tube (5 points). Hospitals were rewarded for having a lower rate of unintended extubations. The rate was calculated as the number of unintended extubations per 100 patient ventilator days (F32.1). Hospitals received up to 5 points as follows: 1 point for > 3.0 and ≤ 5.0 extubations per 100 days, 2 points for > 2.0 and ≤ 3.0 extubations, 3

points for > 1.0 and ≤ 2.0 extubations, 4 points for > 0.5 and ≤ 1.0 extubations, and 5 points for ≤ 0.5 extubation.

Nephrology

Managing Dialysis Patients (20 points). This measure evaluates outcomes for patients on maintenance dialysis during the past 2 calendar years (G23). Hospitals received up to 12 points for higher percentage of patients with these favorable outcomes: monthly Kt/V values of > 1.2 for patients who received hemodialysis three times a week, percentage of total Kt/V values of ≥ 1.8 for patients receiving peritoneal dialysis, and percentage of patients with average Hb between 10g/dl and 13g/dl at least once on record in the past 12 months. Points were awarded separately for the two most recent years for each of the three outcomes. For the first two outcomes, points were awarded as follows: 1 point for desirable outcome rates ≥ 80% and < 90%, and 2 points for desirable outcome rates ≥ 90%. For the third outcome, points were awarded as follows: 1 point for desirable outcome rates ≥ 60% and < 80%, and 2 points for desirable outcome rates ≥ 80%.

Hospitals received up to an additional 8 points based on the percentage of patients receiving maintenance dialysis for at least 3 consecutive months who survived (G20). Rates were divided into four submeasures: hemodialysis with infants and children under 5 years of age, hemodialysis in children and adolescents aged 5-19, peritoneal dialysis with infants and children under 5 years of age, and peritoneal dialysis in children and adolescents aged 5-19. Up to 2 points per item were awarded: 1 point for survival rates ≥ 80% and < 90%, and 2 points for survival rates ≥ 90%.

Preventing Biopsy Complications (6 points). This item measures the percentage of native kidney percutaneous biopsy procedures (G14) and percutaneous kidney transplant biopsies (G27) that resulted in a biopsy complication requiring readmission or a lengthened stay (G15 and G27.2). For both rates, hospitals receive more points for having lower complication rates, as follows: 1 point for complication rates > 5% and ≤ 10%, 2 points for complication rates > 2% and ≤ 5%, and 3 points for complication rates ≤ 2%.

Prevention of Dialysis-Related Infections (9 points). Hospitals received 6 points based on a lower peritonitis rate (months of dialyses/cases of peritonitis) for pediatric outpatients on maintenance peritoneal dialysis (G24). For each of the past 2 years, up to 3 points were awarded: 1 point for a peritonitis rate of ≥ 1 and < 10 months between peritonitis cases, 2 points for a rate of ≥ 10 and < 20 months between cases, and 3 points for a rate of ≥ 20 months between cases.

Hospitals could receive an additional 3 points for having lower hemodialysis catheter-associated BSIs for outpatients on maintenance hemodialysis in the last 2 years (G37). Hospitals

received points for each year as follows: 1 point for > 4.0 and ≤ 8.0 infections per 100 patient months, and 2 points for > 2.0 and ≤ 4.0 infections, and 3 points for ≤ 2.0 infections.

Prevention of ICU Infections (10 points). The rate was calculated as the number of CLABSI (A33.1) and CAUTI (A34.1) infections per 1,000 device-days (i.e., central-line days and catheter-days) in critical care patients (weighted average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units) during the previous 12 months. Hospitals were rewarded for lower rates of infections. For hospital-wide CLABSI rates, hospitals received up to 5 points per group: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections, 3 points for > 1.0 and ≤ 1.5 infections, 4 points for > 0.5 and ≤ 1.0 infections, and 5 points for ≤ 0.5 infections. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections.

Prevention of Pressure Ulcers (3 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure ulcers (A38.1 and A38.2). For each of the three categories, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters.

Survival After Kidney Transplant (24 points). Hospitals received up to 12 points based on estimated hazard ratios for graft survival (G32a and G32b) in patients who received kidney transplants. Beginning in 2015-2016, we switched from using survival probabilities to hazard ratios for graft survival. Hazard ratios determine the ratio of observed to expected deaths. Statistical models are used to estimate the number of expected deaths taking into account various factors of both recipients and donors that affect success. A ratio greater than 1.0 indicates that more patients died than expected, and a ratio of less than 1.0 indicates that fewer patients died than expected. A total of four rates, each worth up to 3 points were included: 1- and 3-year graft survival rates (deceased donor), 1- and 3-year graft survival rates (living donor). Points were awarded in each of the four groups as follows: 1 point for hazard ratios ≥ 1.10 and ≤ 1.65, 2 points for hazard ratios ≥ 0.90 and < 1.10, and 3 points for hazard ratios < 0.90.

Hospitals received up to 12 points for higher 1- and 3- year survival rates for patients who received kidney transplants (G32c and G32d). A total of four sets of rates, each worth up to 3 points, were included: 1- and 3-year patient survival rates (deceased donor) and 1- and 3-year patient survival rates (living donor). Points were awarded as follows: 1 point for survival ≥ 50% and < 80%, 2 points for survival ≥ 80% and < 90%, and 3 points for survival ≥ 90%.

Neurology & Neurosurgery

Management of Epilepsy Patients (10 points). Hospitals received up to 8 points for the percentage of patients receiving four specific treatments for epilepsy (temporal lobe epilepsy surgery, extra-temporal lobe epilepsy surgery, functional hemispherectomy, and corpus callosotomy for atonic seizures) who achieved Engle Class 1 after 12 months (H31). Hospitals were rewarded for higher rates as follows: 1 point for seizure-free rates ≥ 50% and < 80% and 2 points for seizure-free rates ≥ 80%.

Hospitals received up to 2 points for the percentage of patients admitted to the Epilepsy Monitoring Unit who developed convulsive seizures that persisted longer than 30 minutes despite the use of antiseizure medicine (H30.1). Hospitals were rewarded for lower rates as follows: 1 point for > 3% and ≤ 10% of patients having an adverse event and 2 points for ≤ 3% of patients having an adverse event.

Prevention of Surgical Complications (22 points). This measure rewards hospitals for having lower readmission rates for surgical complications. Hospitals received up to 8 points total for having a lower percentage of patients readmitted for cerebrospinal fluid leaks within 30 days of the following four surgical procedures: craniotomy, spinal surgery for dysraphism, Chiari decompression and shunt placement (H17). Points were awarded in each group as follows: 1 point for > 5% and ≤ 15% readmission rate and 2 points for ≤ 5% readmission rate.

Hospitals received up to 2 points for having a lower 90-day readmission rates for patients receiving an intrathecal baclofen pump insertion procedure (H18). Points were awarded as follows: 1 point for > 5% and ≤ 15% readmission rate and 2 points for ≤ 5% readmission rate.

Hospitals received up to 3 points for having lower 90-day readmission rates for patients receiving new/initial neurosurgical shunt placements (H29). Points were awarded as follows: 1 point for > 5% and ≤ 15% readmission rate, 2 points for > 3% and ≤ 5 readmission rate and 3 points for ≤ 3% readmission rate.

Hospitals received up to 3 points for having a lower percentage of unplanned returns to the operating room within two 30 days of receiving a craniotomy (H17.1). Points were awarded as follows: 1 point for > 5% and ≤ 15% readmission rate, 2 points for > 3% and ≤ 5% readmission rate and 3 points for ≤ 3% readmission rate.

Hospitals received up to 3 points for having a lower complication rate for craniofacial procedures performed (H33 and H34). Points were awarded as follows: 1 point for > 5% and

≤ 15% complication rate, 2 points for > 3% and ≤ 5% complication rate and 3 points for ≤ 3% complication rate.

Hospitals received up to 3 points for having lower complication rates for epilepsy surgical procedures (H8 and H8.2). Points were awarded as follows: 1 point for > 5% and ≤ 10% complication rate, 2 points for > 3% and ≤ 5% complication rate and 3 points for ≤ 3% complication rate.

Surgical Survival (14 points). Hospitals received up to 14 points for surgical survival rates for seven significant neurological disorders or procedures (H16), including brain tumors, craniosynostosis, hydrocephalus patient shunts, repair of myelomeningocele for fetal CNS malfunction, medically intractable epilepsy, spinal dysraphism and Chiari I malformation/syringomyelia. Lower mortality rates indicate better performance (i.e., a lower rate of death following surgery). Points were awarded as follows: 1 point for survival rates ≥ 95% and <99% and 2 points for survival rates ≥ 99%.

Orthopedics

Preventing Surgical Complications (18 points). Hospitals received up to 18 points based on the rate of adverse outcomes for patients who received surgical correction for two types of scoliosis: idiopathic scoliosis and neuromuscular scoliosis. Three adverse outcomes were measured for both types of scoliosis: unplanned admissions within 7 days for scoliosis related issues, unplanned admissions within 30 days of procedure for scoliosis-related issues and returns to the operating room for equipment or mechanical issues with 90 days (I32). Hospitals received up to 3 points in each of the six categories, with more points for better performance (i.e., lower levels of adverse events): 1 point for complication rate > 7% and ≤ 10%, 2 points for complication rate > 3% and ≤ 7% and 3 points for complication rate ≤ 3%.

Speed and Success with Complex Fractures (6 points). Hospitals received up to 4 points for having a higher percentage of patients with an operating room start time within 18 hours of admission to the ER for two conditions: operative reduction and fixation of supracondylar fracture (I25) of the humerus and femoral shaft fracture (I26). Points were awarded for supracondylar fractures as follows: 1 point for ≥ 60% and <90% of patients with operating room start times within 18 hours and 2 points for ≥ 90%. Points were awarded for femoral shaft fractures as follows: 1 point for ≥ 40% and <80% of patients with operating room start times within 18 hours and 2 points for ≥ 80%.

Hospitals received up to 2 points for successful outpatient treatment (without requiring hospital admission) of patients with radiographically assisted reductions of displaced forearm

fractures (I27). Points were awarded as follows: 1 point for ≥ 60% and <90% of patients without requiring hospital admission and 2 points for ≥ 90%.

Pulmonology

Management of Cystic Fibrosis Patients (16 points). Hospitals received up to 14 points for representing better outcomes for patients with cystic fibrosis (J24b-e). Hospitals received up to 12 points (3 points for each item) for improving the functional status of cystic fibrosis patients' median body mass index (BMI), median forced expiratory volume (FEV_1), the percentage of children 6-17 who met treatment guidelines for CF patients (at least four outpatient visits, one culture, two spirometries), and median weight-for-length percentile for CF patients 24 months of age or less. More points indicate better outcomes or better functional status. For BMI, points were awarded as follows: 1 point for median BMI percentile ≥ 40 and < 45%, 2 points for median BMI percentile ≥ 45% and < 50% and 3 points for median BMI percentile ≥ 50%. For the FEV_1 measure, points were awarded as follows: 1 point for median FEV_1 ≥ 80 and < 90%, 2 points for median FEV_1 ≥ 90% and < 100% and 3 points for median FEV_1 ≥ 100%. For the percentage of children meeting treatment guidelines, points were awarded as follows: 1 point for ≥ 50 and < 75%, 2 points for ≥ 75% and < 90% and 3 points for median FEV_1 ≥ 90%. For median weight-for-length percentile for CF patients 24 months of age or less, points were awarded as follows: 1 point for ≥ 25 and < 50%, 2 points for ≥ 50% and < 75% and 3 points for median FEV_1 ≥ 75%.

Hospitals received up to 2 additional points for meeting performance benchmarks for cystic fibrosis. One point was awarded for having met the benchmark of < 10% quantity not sufficient (QNS) when conducting pilocarpine iontophoresis (sweat test) for cystic fibrosis with infants (0-3 months of age) (J21); 1 additional point was awarded for meeting the benchmark of < 5% QNS for children over 3 months (J22).

Hospitals received up to 2 points for having higher rates of patients over age 10 with cystic fibrosis (not already taking insulin) who completed an oral glucose tolerance test in the previous 12 months (J23). One point was awarded for ≥ 50% and < 75% of patients completing the test and 2 points were awarded for ≥ 75% of patients completing the test.

Prevention of ICU Infections (10 points). The rate was calculated as the number of CLABSI (A33.1) and CAUTI (A34.1) infections per 1,000 device-days (i.e., central-line days and catheter-days) in critical care patients (weighted average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units) during the previous 12 months. Hospitals were rewarded for lower rates of infections. For hospital-wide CLABSI rates, hospitals received up to 5 points per group: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 2.0 infections, 3 points for > 1.0 and ≤ 1.5 infections, 4 points for > 0.5 and ≤ 1.0

infections, and 5 points for ≤ 0.5 infections. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections.

Prevention of Pressure Ulcers (3 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure ulcers (A38.1 and A38.2). For each of the three categories, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters.

Success with Asthma Inpatients (5 points). Success with asthma patients was measured by two factors: shorter inpatient stays and lower readmission rates for asthma-related symptoms. Up to 2 points are awarded for shorter lengths of stay for asthma inpatients (J11): 1 point for an average stay > 2 days and ≤ 4 days and 2 points for a stay ≤ 2 days.

Hospitals were awarded up to 3 points based on the percentage of asthma inpatients readmitted within 7 days for exacerbation of asthma-related symptoms (J12). Hospitals were rewarded for lower percentages of inpatient readmissions: 1 point for readmission rates > 3% and ≤ 5%, 2 points for rates > 1% and ≤ 3% and 3 points for rates ≤ 1%.

Ventilator Patient Survival (6 points). Hospitals received up to 6 points for lower rates of inpatient deaths and at-home deaths over the last 3 years for ventilator-dependent patients due to accidental obstruction, decannulation or tracheostomy (J42). For both inpatient and at-home, higher survival rates indicate better performance (i.e., lower rate of death of patients on ventilators) and were awarded more points, as follows: 1 point for survival ≥ 95% and < 97%, 2 points for survival ≥ 97% and < 99% and 3 points for survival ≥ 99%.

Urology

Emergency Treatment for Testicular Torsion (2 points). This measure evaluates how quickly patients who presented with torsion of the testis received care (K19). Hospitals received 1 point for ≥ 50% and < 90% of patients having an OR start time < 4 hours following check-in at the hospital, and 2 points for ≥ 90% of patients having an OR start time < 4 hours.

Prevention of Surgical Complications (18 points). This measure evaluated a number of complications and adverse outcomes in patients who received urologic surgical procedures. Complications included distal hypospadias, proximal hypospadias and pyeloplasty (K15). Hospitals received up to 9 points total for the three measures, with more points awarded for better

performance (i.e., lower complication rates): 1 point for rates > 3% and ≤ 5%, 2 points for rates > 1% and ≤ 3% and 3 points for rates ≤ 1%.

Adverse events included unplanned hospital admissions for urologic issue within 30 days of inpatient surgery, unplanned hospital admission within 30 days following an ambulatory procedure, and unplanned reoperation for a urologic issue within 48 days of surgery (K16). Hospitals received up to 9 points total for the three measures, with more points awarded for better performance (i.e., lower adverse event rates): 1 point for rates > 5% and ≤ 10%, 2 points for rates > 1% and ≤ 5% and 3 points for rates ≤ 1%.

Prevention of Urinary-Tract Infections (5 points). The rate was calculated as the number of CAUTI infections per 1,000 catheter-days in critical care patients (weighted average across patients in PICU, SICU, medical/surgical critical care and cardiothoracic critical care units) during the previous 12 months (A34). Hospitals were rewarded for lower rates of infections. For hospital-wide CAUTI rates, hospitals received up to 5 points per group: 1 point for > 3.0 and ≤ 5.0 infections per 1,000 days, 2 points for > 1.5 and ≤ 3.0 infections per 1,000 days, 3 points for > 1.0 and ≤ 1.5 infections per 1,000 days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 days, and 5 points for ≤ 0.5 infections.

B. Normalization and Weighting

As with structural and process measures, individual outcomes measures were normalized to have a distribution between 0 and 1. ***Table 17*** shows the relative weight of each measure on the total outcomes score for that specialty. The outcomes measures combined are worth 33.3% of the overall score. To determine the percent of the overall score for a given measure, divide the individual measure relative weight by the total weight for that specialty and multiply by 33.3 (since the combined structural components comprise 33.3% of the overall score in each specialty).

Table 17. Relative Weights of Outcomes Measures, by Specialty

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Breast milk management					1					
Diabetic patient management			2							
Emergency treatment for testicular torsion										1
Hypothyroid management			1							
Management of cystic fibrosis patients									2	
Management of epilepsy patients							1			
Managing dialysis patients						1				
Minimizing 30-day readmissions					1					
Norwood/hybrid surgery survival		1								
On breast milk at discharge					1					
Preventing biopsy complications						1				
Prevention of dialysis-related infections						1				
Prevention of ICU infections	1	1		1	2	1			1	1
Prevention of pressure ulcers	0.5	0.5		0.5		0.5			0.5	
Prevention of surgical complications							1.25	1		1.75
Speed and success with complex fractures								1		
Success at selected treatments				2						
Success with asthma inpatients									1.5	
Surgical survival							1			
Survival after bone marrow transplant	1									
Survival after various complex procedures		2								
Survival at five years	1									
Transplant survival		1		1		1				
Unintended removal of breathing tube					1					
Ventilator patient survival									1	
Total	**3.5**	**5.5**	**3**	**4.5**	**6**	**5.5**	**3.25**	**2**	**6**	**3.75**

VII. U.S. News Score

The weight of each major component of the U.S. News ranking score—structure, outcomes and process—was worth exactly one-third of the overall score.

Although each measure represents a specific aspect of quality, a single score provides a result that is easy to use and understand and that portrays overall quality more accurately than any of the three components would individually. The rankings for the top 50 hospitals in each of the pediatric specialties, by U.S. News score, are shown in ***Appendix C***. Starting with the 2012-13 rankings, hospitals with the same U.S. News rounded score are considered tied.

The formula for calculating the U.S. News score for a given hospital is shown in Equation (2). The score can be thought of as a simple weighted sum of structural, process and outcome measures as shown below:

Equation (2) $Score = \left(\sum_{i=1}^{n_s} wts_i * s_i\right) + \left(\sum_{i=1}^{n_p} wtp_i * p_i\right) + \left(\sum_{i=1}^{n_o} wto_i * o_p\right)$,

where

$Score$ = raw hospital score in a given specialty,

wts_i = weight assigned to structure measure i,

wtp_i = weight assigned to process measure i,

wto_i = weight assigned to outcomes measure i,

s_i = normalized value for structural measure i,

p_i = normalized value for process measure i,

o_i = normalized value for outcomes measure i.

Please note that the formula is meant for illustrative purposes only; it *cannot* be used to directly calculate a score for an individual hospital. For presentation purposes, raw scores are transformed to a scale that assigns a U.S. News score of 100 to the top hospital. The formula for the transformation is shown in Equation (3):

Equation (3) U.S. News *Score* = *(score - minimum)/range*

VIII. Pediatric Honor Roll

In all, 83 different hospitals were ranked in at least one pediatric specialty in the 2015-16 rankings. The Best Children's Hospitals Honor Roll, established in 2009, recognizes excellence

across a broad range of pediatric specialties. Honor Roll hospitals are highly ranked in at least three specialties. Within the Honor Roll, hospitals are ordered by points. Starting with the 2012-13 rankings, a hospital received 2 points if it ranked among the top 5% of all ranking-eligible hospitals in a specialty (among the top five in a specialty with 90 to 109 eligible hospitals, for example) and 1 point if ranked in the top 6-10%. For 2015-16, 12 hospitals qualified for the Honor Roll. ***Appendix D*** lists the 2015-16 Honor Roll hospitals.

IX. Summary of 2015-16 Changes

- **Changed sampling frames for physician survey**. For the 2015 survey, the physician sample was selected from the Doximity comprehensive Physician Database. Like the American Medical Association Masterfile, the Doximity database includes every U.S. physician whether a Doximity member or not.
- **Increased sample for physician survey**. In past years, the physician survey included a total sample of 1,500 physicians, 150 for each specialty. The 2015 survey included a total sample of over 8,000 physicians. For this year, we surveyed a random sample of 1,500 nonmembers as well as surveying all Doximity members (approximately 6,500 physicians). Survey responses were combined to be representative of all physicians across the country.
- **Added outcome measures**. Three new outcome measures were added in two different specialties:
    - Breast milk management in Neonatology
    - Unintended removal of breathing tube in Neonatology
    - Emergency treatment of testicular torsion in Urology
- **Additional refinements**. Other changes reflect revisions to the survey that improve the quality of the data collected and reported by hospitals. Revisions to scoring ranges and relative weights were also made to better reflect excellent care by hospitals.

X. Future Improvements

Continued refinements are anticipated during the next few years. They are likely to include the following:

- **Move to ICD-10**. To adapt to the changes in hospital record-keeping practices, the Pediatric Hospital Survey will transition from ICD-9 to ICD-10 over the next couple of years. Based on recent communications, most children's hospitals plan use both

ICD-9 and ICD-10 codes to track patient care for the remainder of the year following the implementation of ICD-10 on October 1, 2015. To reduce the burden to hospitals, we will maintain a focus on ICD-9 diagnoses and procedures in the Pediatric Hospital survey which will be administered in the first quarter of 2016 and will provide data for the 2016-17 rankings. For 2017-18, the Pediatric Hospital Survey will transition to ICD-10 diagnostic and procedure codes. In preparation for this transition, the project team will collaborate with the working groups, children's hospitals and the CHA to update the survey.

- **Expand outcome measures.** For example, we plan to explore alternatives for collecting additional mortality data, infection rates, patient functional measures, and complication rates.
- **Explore risk adjustment.** We will continue to investigate methods for risk-adjusting pediatric mortality data to better reflect hospital-to-hospital differences in patient mix, severity and comorbidities. These efforts are complicated by the fact that there are currently no national databases that cover all pediatric health care in the U.S. However organizations such as the Children's Hospital Association, the Children's Hospital Neonatal Consortium and the Society for Thoracic Surgeons are seeking to make some specialty-specific data available for the majority of pediatric institutions across the country. As these databases are developed and further expanded to include more pediatric facilities, we will explore their possible use in creating risk-adjusted outcomes and performance measures of health care.
- **Identify additional structural measures.** External certifications of hospital quality, excellence in specialty areas and awards for high-quality care will be considered for incorporation in the rankings. Additional technologies, teams and practices that define high-quality pediatric services also will be evaluated.

The project team will continue to work with advisory panels of physicians, nurses, hospital quality specialists and other healthcare professionals. RTI and U.S. News are grateful to these expert volunteers. Their recommendations and advice have been invaluable.

X. Contact Information

We welcome suggestions and questions. Readers and users of the rankings are encouraged to contact the Best Children's Hospitals research team at BestHospitals@rti.org. This report and methodology reports for the adult rankings can be viewed or downloaded online in their entirety from the RTI International Web site at http://www.rti.org/besthospitals.

XI. References

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Appendix A

Glossary of Terms

Continuous EEG monitoring with pediatric neurology support. EEG is a technology for measuring electrical activity produced by the brain, as recorded from electrodes placed on the scalp. EEG monitoring provides the ability to collect the brain's electrical activity continuously to help detect and diagnose neurological problems.

Cryoablation. This process uses cooled, thermally conductive gases and fluids circulated through hollow needles (cryoprobes) that are inserted adjacent to diseased tissue in order to kill the tissue.

Functional magnetic resonance (fMR). fMR is a specialized type of MRI scan that measures changes in blood flow related to neural activity.

Genetic testing/counseling. A genetic testing/counseling service is equipped with the appropriate laboratory facilities and is directed by a physician qualified to advise parents and prospective parents on potential problems in cases of genetic defects. A genetic test is the analysis of human DNA, RNA, chromosomes, proteins and certain metabolites to detect heritable disease-related genotypes, mutations, phenotypes or karyotypes for clinical purposes. Genetic tests can have diverse purposes, including the diagnosis of genetic diseases in newborns, children and adults; the identification of future health risks; the prediction of drug responses; and the assessment of risks to future children.

Image-guided radiation therapy (IGRT). IGRT is an automated system that produces high-resolution x-ray images to pinpoint tumor sites, adjust patient positioning and generally make treatment more effective and efficient.

Intensity-modulated radiation therapy (IMRT). IMRT is a three-dimensional radiation therapy that improves the targeting of treatment delivery in a way that is likely to decrease damage to normal tissues and allows for varying intensities.

Intraoperative magnetic resonance imaging (ioMRI). ioMRI uses a uniform magnetic field and radio frequencies to study tissue and structure of the body. It enables visualization of biochemical cellular activity in vivo without the use of ionizing radiation, radioisotopes or ultrasound.

Magnetic resonance cholangiopancreatography (MRCP). MRCP is a noninvasive approach for imaging the biliary and pancreatic ducts using MRI.

Magnetic resonance spectroscopy (MRS). MRS differs from MRI in that MRS uses a continuous band of radio wave frequencies to analyze the chemical composition of proton (hydrogen)-hydrogen based molecules in a variety of chemical compounds. This technology evaluates the chemical composition and integrity of functioning upper-motor neurons in the brain.

Multidisciplinary pediatric acute pain/sedation service (available onsite 24 hours a day). This service provides monitored anesthesia care and sedation within the hospital (but not within an operating room or PICU), as well as emergency airway management and acute and chronic pain management for neonates and pediatric patients on a 24-hour basis. A qualified program must have at least an identified medical director (e.g., general pediatrician, pediatric subspecialist or anesthesiologist) with documented education in conscious sedation and a registered nurse coordinator (or pain management clinical nurse specialist).

Neonatal intensive care unit (NICU). An NICU provides mechanical ventilation, neonatal surgery and special care for the sickest infants, including those with the lowest birth weights (below

1,500 grams), who are born in the hospital or transferred from another institution. The NICU is separate from the newborn nursery. A full-time neonatologist serves as director.

Neurophysiological intraoperative monitoring. This uses electrophysiological methods, including electroencephalography and electromyography, to monitor parts of the brain, spinal cord and peripheral nerves during surgery.

Palliative care program. A palliative care program is organized and staffed for children nearing the end of life or living with lifespan-limiting conditions. The program's purpose is to minimize pain and discomfort, provide emotional and spiritual support for children and their families, assist with financial guidance and social services and support decision making. Programs must include at least one physician providing direct patient care; a nurse coordinator; and a social worker, certified child-life specialist or pastoral counselor. All program staff must have training in palliative care.

Pediatric anesthesia program (available onsite 24 hours a day). This team provides anesthesia care for children before, during and after surgery (or other medical procedures). The team provides 24-hour coverage by board-certified anesthesiologists who specialize in pediatric anesthesia.

Pediatric intensive care unit (PICU). A PICU is staffed with specially trained personnel and has monitoring and specialized support equipment for treating pediatric patients who, because of shock, trauma or other life-threatening conditions, require intensified, comprehensive observation and care.

Pediatric pain management program (available onsite 24 hours a day). Administered by specially trained physicians and other clinicians, this is a recognized clinical service or program providing specialized medical care, drugs or therapies for the management of acute or chronic pain and other distressing symptoms among children suffering from an acute illness of diverse causes.

PET/computed tomography (PET/CT) scanning. PET/CT combines the capabilities of PET and CT scanning into a single, integrated device that provides metabolic functional information for monitoring chemotherapy, radiotherapy, and surgical planning.

Positron emission tomography (PET) scanning. PET scanning is a computerized nuclear medicine imaging technology that uses radioactive (positron-emitting) isotopes created in a cyclotron or generator to produce composite images of the brain and heart activity. The scans are sectional images depicting metabolic activity or blood flow rather than anatomy.

Radiofrequency ablation. This procedure involves placing probes that emit radiofrequency energy into the heart using a catheter. The radiofrequency energy is then used to destroy abnormal electrical activity in the heart tissue.

Rapid response team. A rapid response team, also known as a medical emergency team, is distinct from the hospital "code" team. It is available 24 hours a day and has three essential characteristics: (1) the team creates tools and provides staff education for recognizing an acute deterioration in patient condition; (2) the team follows the SBAR (situation, background, assessment, recommendation) method to communicate such a change in condition effectively and efficiently (i.e., escalation policy); and (3) the team responds to the change in condition with the goal of reducing/eliminating preventable "codes."

Surgical intensive care unit (SICU) or dedicated beds in an NICU or a PICU for surgical patients. A SICU is a specialized unit designed to meet the needs of pediatric surgical patients who

require intensive care services following surgery. If you do not have a SICU, having dedicated surgical intensive care beds in your PICU is acceptable.

Therapeutic/Diagnostic meta-iodine-benzyl-guanidine with I-131 radionuclide (I-131 MIBG). I-131 MIBG is a functional imaging agent used to help locate and diagnose tumors of adrenergic tissues, such as neuroblastoma and pheochromocytoma.

Three-dimensional mapping. This includes the use of three-dimensional imaging systems such as MRI or ultrasound to guide ablation probes.

3-Tesla magnetic resonance imaging (3T MRI). 3T MRI is a higher-powered version of MRI that offers improved morphological and functional studies of the brain compared with the more common field strength of 1.5T.

Appendix B

2015-16 Sample Physician Questionnaire

Best Children's Hospitals

Your nominations will be reflected in the 2015-16 U.S. News *& World Report* «specialty» rankings.

Please name up to 10 U.S. hospitals that you believe provide the best care in <<specialty>> for patients who have the most challenging conditions or who need particularly difficult procedures. *(Do not consider location or cost. Individual hospitals should be listed, not hospital systems or medical schools.)*

	Hospital	City	State
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			
i.			
j.			

Fax response to (800) XXX-XXXX

or return in postpaid envelope.

Appendix C

2015-16 Best Children's Hospital Rankings by Specialty

Best Children's Hospital 2015-16: Cancer

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Survival at five years	Survival after bone marrow transplant	Use of infection-preventing measures	Prevention of ICU infections	Prevention of pressure ulcers	Patient volume	New-patient volume	Surgery volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	FACT-accredited for BMT and tissue transplant	Bone marrow transplant services	Palliative care program	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Dana-Farber Boston Children's Cancer and Blood Disorders Ctr.	100.0	76.9	11	4	27	9	3	9	3	6	4.0	1	28	1	17	8	24	10	16	6	8	7	15	12	14	4	12	
2	Cincinnati Children's Hospital Medical Center	97.3	62.1	11	4	27	11	2	9	3	6	3.5	1	28	1	17	8	23	10	16	6	8	7	15	12	14	4	12	
3	Children's Hospital of Philadelphia	95.8	80.8	10	5	28	9	1	9	3	4	3.4	1	26	1	21	8	24	10	16	6	8	7	15	11	14	4	12	
4	Texas Children's Hospital	94.5	50.7	9	5	26	12	2	8	3	3	3.2	1	27	1	20	8	24	10	16	6	8	7	15	11	14	4	12	Top 5%
5	Seattle Children's Hospital	91.4	42.3	9	6	28	9	2	9	3	4	2.7	1	24	1	19	8	19	10	15	6	8	7	14	10	14	4	12	
6	St. Jude Children's Research Hospital	90.6	62.2	10	4	28	8	2	9	3	6	4.7	0	28	1	21	8	19	10	16	6	8	7	15	11	14	4	12	
7	Nationwide Children's Hospital	89.8	14.3	11	5	27	10	3	8	3	5	3.5	1	28	1	15	8	23	10	16	6	8	7	15	12	14	4	12	
8	Children's Hospital Los Angeles	89.6	35.0	10	4	25	12	2	9	3	6	3.2	1	25	1	18	8	24	10	15	6	8	7	13	12	14	4	10	
9	Children's Healthcare of Atlanta	85.9	23.2	11	5	28	8	2	9	3	5	3.2	0	28	1	20	8	24	10	16	6	8	7	15	12	14	4	12	
9	Children's Hospital Colorado	85.9	26.5	11	5	25	9	1	9	3	3	3.0	1	26	1	20	7	24	10	15	6	8	7	15	11	14	4	12	Top 10%
11	Johns Hopkins Children's Center	83.7	25.0	10	4	27	6	2	7	3	5	3.2	1	28	1	17	8	23	10	16	6	8	7	13	12	14	4	12	
12	UCSF Benioff Children's Hospital	82.6	14.8	10	4	28	8	3	7	3	2	3.2	1	24	1	18	8	23	10	16	6	8	7	15	12	14	4	12	
13	Children's National Medical Center	82.5	20.8	9	2	28	12	2	9	3	3	3.3	1	27	1	17	8	23	10	16	6	8	7	15	11	14	4	12	
14	Children's Hospital of Wisconsin	82.0	1.9	10	6	24	10	3	7	3	2	3.7	1	28	1	21	8	23	10	15	6	8	7	15	11	14	4	11	
15	Ann and Robert H. Lurie Children's Hospital of Chicago	80.6	18.8	9	4	27	11	0	8	3	2	3.3	1	28	1	18	8	24	10	16	6	8	7	15	11	14	4	12	
16	Phoenix Children's Hospital	80.5	2.1	12	5	27	12	3	7	3	5	3.1	0	26	1	18	8	23	10	16	6	8	7	13	11	14	4	12	
17	NY-Presby Morgan Stanley-Komansky Children's Hosp.	78.1	2.9	10	6	28	13	2	6	2	2	3.0	0	25	1	16	8	23	10	16	6	8	7	14	12	14	4	12	
18	Mayo Clinic Children's Center	77.2	1.4	11	6	26	8	2	6	3	2	3.4	1	25	1	13	8	22	10	16	6	8	6	15	12	14	4	12	
19	Rainbow Babies and Children's Hospital	77.1	4.6	8	5	28	11	1	6	3	4	3.0	1	28	1	14	8	23	10	16	6	8	7	14	12	14	4	11	
20	Cleveland Clinic Children's Hospital	76.6	0.1	9	5	22	11	3	5	3	6	3.5	1	27	1	13	8	23	10	16	6	8	7	15	12	14	3	11	
21	Memorial Sloan Kettering Cancer Center	76.4	26.2	9	2	23	10	3	4	3	2	3.8	0	27	1	21	7	20	8	16	6	8	7	11	12	14	4	12	
22	Children's Hospital of Pittsburgh of UPMC	76.3	7.8	8	5	27	12	1	7	2	2	3.1	1	24	1	16	8	23	10	15	6	8	7	13	12	14	4	9	
23	Duke Children's Hospital and Health Center	76.1	11.5	6	5	27	9	2	3	3	3	2.5	1	27	1	17	8	19	10	16	6	8	7	13	12	14	4	9	
24	Penn State Hershey Children's Hospital	75.8	0.9	8	5	25	15	3	4	2	2	2.6	1	24	1	13	8	24	10	14	6	8	7	14	12	13	4	6	
25	Rady Children's Hospital	75.2	2.2	10	6	28	9	1	8	3	5	3.0	0	28	1	17	8	24	10	16	6	8	7	13	12	14	4	12	
26	St. Louis Children's Hospital-Washington University	74.5	8.7	8	4	24	12	1	6	2	2	3.4	1	24	1	15	8	24	10	16	6	8	7	15	12	14	4	12	
27	Doernbecher Children's Hospital at OHSU	74.4	1.9	10	4	26	10	3	5	2	5	3.6	1	22	1	13	7	24	10	16	6	8	7	14	12	14	3	11	
28	American Family Children's Hospital	74.3	1.7	9	5	26	11	2	3	2	2	3.0	1	25	1	15	8	22	10	16	6	8	7	15	12	14	4	10	
29	UF Health Shands Children's Hospital	73.5	1.1	9	6	26	10	2	4	3	2	2.6	1	25	1	15	8	22	10	15	6	8	7	12	12	13	2	10	
30	Monroe Carell Jr. Children's Hospital at Vanderbilt	73.1	2.7	11	2	26	9	3	7	3	2	3.4	1	24	1	16	8	23	10	15	6	8	7	15	12	14	4	12	
31	Children's Mercy Hospitals and Clinics	72.9	4.8	8	4	28	7	2	6	3	2	4.2	1	28	1	18	7	24	10	14	6	8	7	15	12	14	3	8	
32	Children's Hospital of Michigan	72.5	1.6	9	6	28	9	3	4	2	2	3.1	0	21	1	16	8	22	10	15	6	8	7	15	12	14	4	11	
33	Primary Children's Hospital	72.0	4.6	11	4	27	9	1	5	3	2	4.4	0	27	1	17	8	23	10	16	6	8	7	15	10	14	4	11	
34	University of Chicago Comer Children's Hospital	71.6	1.9	9	4	24	12	3	3	2	2	2.8	0	28	1	17	8	24	10	16	6	7	7	14	10	14	4	12	
35	Children's Medical Center Dallas	71.2	7.4	8	3	25	7	3	8	3	2	3.0	1	23	1	15	7	23	10	15	6	8	7	14	12	14	4	10	
36	Spectrum Health Helen DeVos Children's Hospital	70.9	0.3	11	4	23	10	3	6	2	2	3.1	1	25	1	12	7	24	10	15	6	8	7	14	11	13	1	10	
37	Mattel Children's Hospital UCLA	70.5	2.9	10	3	27	9	2	3	2	3	3.2	1	25	1	16	8	23	10	15	6	8	7	11	11	14	4	11	
38	Nemours Alfred I. duPont Hospital for Children	70.4	0.4	9	4	25	9	2	3	2	2	3.4	1	28	1	15	8	24	10	15	6	8	7	15	12	14	3	12	
39	University of Michigan C.S. Mott Children's Hospital	69.1	3.9	11	3	28	9	1	5	2	2	3.6	0	27	1	17	8	24	10	16	6	8	7	14	11	14	4	12	
40	Cook Children's Medical Center	68.5	1.9	10	4	27	11	1	8	2	2	4.2	1	22	1	15	8	23	10	16	6	8	7	14	11	14	0	4	
40	Lucile Packard Children's Hospital at Stanford	68.5	8.6	8	4	27	7	0	8	3	5	3.5	0	28	1	18	8	23	10	15	6	8	7	15	10	14	4	10	
42	Children's Hospital of Orange County	68.4	1.5	8	3	27	11	2	6	2	2	2.5	1	27	1	16	8	24	10	15	6	8	7	13	11	14	2	9	
42	Steven and Alexandra Cohen Children's Medical Center	68.4	1.5	10	1	28	15	3	6	2	2	3.4	0	25	1	13	8	22	10	16	6	8	7	13	12	14	3	7	
44	Yale-New Haven Children's Hospital	67.1	0.3	10	3	25	9	3	4	2	2	2.5	1	21	1	13	7	24	10	16	6	8	7	14	12	14	4	8	
45	Akron Children's Hospital	66.6	0.2	10	5	28	10	2	3	2	2	3.1	1	24	0	12	8	22	10	14	4	8	7	14	12	14	1	5	
46	Riley Hospital for Children at IU Health	65.9	5.1	8	2	26	5	3	3	3	2	2.9	1	25	1	16	8	23	10	15	6	8	7	15	12	14	3	9	
47	University of Iowa Children's Hospital	65.6	0.4	8	5	27	6	1	6	2	2	2.8	1	28	1	12	8	23	10	14	6	8	7	13	12	13	2	10	
48	Children's Hospital at Montefiore	65.1	0.9	6	4	28	7	3	4	2	3	3.6	0	25	1	12	8	23	10	16	6	8	7	15	12	14	4	11	
49	University of Minnesota Children's Hospital	63.4	8.1	6	2	22	6	3	6	3	4	2.8	0	26	1	20	8	19	10	16	6	8	7	13	12	14	4	12	
50	Mount Sinai Kravis Children's Hospital	63.2	0.1	5	6	25	8	3	3	1	2	3.4	1	21	1	8	8	20	10	16	5	8	7	13	12	14	1	2	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Cardiology & Heart Surgery

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Survival after various complex procedures	Norwood/hybrid surgery survival	Transplant survival	Prevention of ICU infections	Use of infection-preventing measures	Prevention of pressure ulcers	Surgery volume	Catheter procedure volume	Norwood/hybrid surgery volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Congenital heart program	Adult congenital heart program	Heart transplant program	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	89.5	12	10	6	5	32	3	12	30	12	4.0	1	25	20	10	4	21	8	7	11	8	7	15	12	11	5	11	
2	Texas Children's Hospital	93.0	68.9	14	11	2	8	31	2	10	27	12	3.2	1	25	20	10	4	21	8	7	11	8	7	15	11	11	5	12	
3	Children's Hospital Los Angeles	89.4	24.6	12	12	6	9	30	2	10	22	12	3.2	1	29	20	10	4	21	8	7	11	8	7	13	12	11	5	10	
4	Children's Hospital of Philadelphia	88.2	86.7	10	9	3	5	33	1	11	27	12	3.4	1	29	20	10	4	21	8	7	11	8	7	15	11	11	5	12	Top 5%
5	Children's Hospital of Wisconsin	86.5	26.2	14	12	4	5	29	3	8	15	12	3.7	1	29	20	10	4	21	8	7	11	8	7	15	11	11	5	12	
6	University of Michigan C.S. Mott Children's Hospital	86.4	57.7	11	10	6	5	33	1	11	23	12	3.6	0	28	20	10	4	20	8	7	11	8	7	14	11	11	5	11	
7	Cincinnati Children's Hospital Medical Center	85.1	39.6	12	9	4	7	32	2	6	19	10	3.5	1	29	20	10	4	21	8	7	11	8	7	15	12	11	4	12	
8	Children's Healthcare of Atlanta	83.5	38.6	13	10	4	5	33	2	11	30	12	3.2	0	27	20	10	4	21	8	6	11	8	7	15	12	11	5	12	Top 10%
9	NY-Presby Morgan Stanley-Komansky Children's Hosp.	81.2	24.9	12	11	4	8	33	2	11	20	12	3.0	0	27	20	10	4	21	8	7	11	8	7	14	12	11	5	12	
10	Children's Hospital of Pittsburgh of UPMC	79.5	11.4	14	10	6	9	31	1	6	17	9	3.1	1	26	20	10	4	21	8	7	11	8	7	13	12	11	5	11	
11	Nationwide Children's Hospital	76.7	29.6	11	9	3	6	32	3	7	22	12	3.5	1	25	16	10	3	21	8	6	11	8	7	15	12	11	4	11	
12	Seattle Children's Hospital	74.6	9.5	13	9	6	6	33	2	8	17	9	2.7	1	25	20	10	4	16	8	7	11	8	7	15	10	11	5	11	
13	Mayo Clinic Children's Center	73.7	10.5	13	11	6	5	31	2	6	19	4	3.4	1	28	12	10	3	21	8	7	11	8	6	15	12	10	4	12	
14	Ann and Robert H. Lurie Children's Hospital of Chicago	72.2	9.9	14	10	4	8	32	0	6	13	4	3.3	1	27	20	10	4	20	8	7	11	8	7	15	11	11	5	11	
15	Lucile Packard Children's Hospital at Stanford	70.9	53.6	11	8	3	4	32	0	10	22	9	3.5	0	23	20	10	4	21	8	7	11	8	7	15	10	11	5	8	
16	Phoenix Children's Hospital	69.5	3.4	13	11	6	8	32	3	6	21	9	3.1	0	25	18	10	4	21	8	7	11	8	7	13	11	11	3	8	
17	Children's Medical Center Dallas	69.0	4.2	13	12	4	3	30	3	8	22	12	3.0	1	26	20	10	4	20	8	6	11	8	7	14	12	11	5	10	
18	Children's Hospital Colorado	68.0	10.1	13	10	3	5	30	1	8	24	11	3.0	1	24	20	10	4	21	8	7	11	8	7	15	11	11	5	11	
19	Children's National Medical Center	67.7	9.7	11	12	2	7	32	2	7	24	8	3.3	1	25	20	10	2	21	8	7	11	8	7	15	11	11	4	12	
20	Monroe Carell Jr. Children's Hospital at Vanderbilt	67.2	3.4	9	9	6	5	31	3	9	26	12	3.4	1	25	20	10	4	21	8	7	11	8	7	15	12	11	4	11	
20	Primary Children's Hospital	67.2	4.5	14	11	4	5	33	1	9	26	9	4.4	0	25	20	10	4	21	8	6	11	8	7	15	10	11	5	12	
22	Duke Children's Hospital and Health Center	65.8	4.0	11	11	4	7	32	2	5	19	6	2.5	1	29	20	10	4	17	8	7	11	8	7	13	12	11	3	12	
23	St. Louis Children's Hospital-Washington University	65.4	10.6	9	9	3	8	29	1	7	23	10	3.4	1	25	20	10	4	21	8	7	11	8	7	15	12	11	5	12	
24	Cleveland Clinic Children's Hospital	63.4	4.0	10	12	4	6	26	3	4	11	6	3.5	1	29	15	10	3	21	8	7	11	8	7	15	12	11	4	11	
25	UCSF Benioff Children's Hospital	63.0	7.6	13	11	NR	5	33	3	6	24	8	3.2	1	25	17	10	1	21	8	7	11	8	7	15	12	11	4	11	
26	All Children's Hospital	62.4	4.0	12	10	5	5	31	3	6	16	9	3.3	0	26	20	10	4	21	8	5	10	8	7	14	12	10	2	11	
27	Riley Hospital for Children at IU Health	61.7	3.0	10	9	5	3	31	3	7	16	9	2.9	1	26	20	10	4	21	8	7	11	8	7	15	12	10	4	11	
28	Mattel Children's Hospital UCLA	59.9	6.3	10	8	3	5	32	2	5	27	6	3.2	1	26	20	10	4	21	8	7	11	8	7	11	11	11	4	11	
29	UF Health Shands Children's Hospital	58.4	1.1	13	11	2	6	31	2	4	10	6	2.6	1	27	19	9	4	21	8	7	11	8	7	12	12	10	4	10	
30	University of Iowa Children's Hospital	58.1	0.5	13	11	5	4	32	1	4	13	6	2.8	1	29	13	10	2	21	8	7	11	8	7	13	12	8	3	10	
31	MUSC Children's Heart Program of South Carolina	57.9	10.3	12	10	2	5	26	2	7	14	12	3.1	0	25	20	10	4	20	7	7	11	7	7	15	12	11	1	12	
32	Nemours Alfred I. duPont Hospital for Children	56.6	1.7	13	9	3	5	30	2	5	12	6	3.4	1	25	18	9	3	21	8	6	10	8	7	15	12	10	2	12	
33	Arnold Palmer Medical Center	55.9	0.4	13	12	NA	10	27	3	4	19	7	3.3	1	29	13	9	0	19	8	7	11	8	7	13	12	11	0	11	
34	Miami Children's Hospital	54.9	5.8	13	10	NA	6	30	2	6	16	8	2.5	1	26	20	9	0	21	8	5	11	8	7	14	11	11	3	10	
35	Rady Children's Hospital	54.4	2.8	13	12	NR	6	33	1	8	20	8	3.0	0	28	18	10	1	20	8	6	11	8	7	13	12	11	5	9	
36	Children's Mercy Hospitals and Clinics	53.9	2.0	11	9	NR	4	33	2	8	19	10	4.2	1	27	18	9	1	20	8	7	11	8	7	15	12	10	5	12	
37	Arkansas Children's Hospital	53.6	3.3	11	9	5	6	30	0	6	12	9	3.4	0	23	20	10	4	21	8	5	11	8	6	13	12	10	4	10	
37	Penn State Hershey Children's Hospital	53.6	0.3	13	10	NR	10	30	3	4	13	5	2.6	1	25	13	10	1	17	8	6	11	8	7	14	12	8	4	9	
39	Johns Hopkins Children's Center	52.8	3.1	10	8	2	3	32	2	4	10	5	3.2	1	29	12	10	4	21	8	7	11	8	7	13	12	11	5	11	
40	Children's Hospital at Montefiore	52.1	1.5	9	4	6	4	33	3	4	10	4	3.6	0	27	16	9	4	21	8	7	11	8	7	15	12	11	3	12	
40	Holtz Children's Hospital at UM-Jackson Mem. Med. Ctr.	52.1	1.0	11	12	5	7	22	3	4	9	4	4.0	0	24	14	10	2	20	8	7	10	7	7	12	11	8	3	9	
42	Advocate Children's Hospital	51.8	0.9	11	11	NA	5	31	2	7	18	12	3.4	1	29	18	9	0	14	7	6	11	8	7	15	12	11	4	10	
42	Children's Hospital of Michigan	51.8	3.3	11	6	2	5	33	3	7	21	8	3.1	0	24	20	10	2	20	8	7	11	8	7	15	12	10	4	9	
44	Children's Hospital of Alabama at UAB	51.7	0.5	9	9	6	5	27	2	7	20	9	3.2	0	22	20	10	4	18	8	7	11	8	7	14	11	11	3	11	
45	SSM Cardinal Glennon Children's Medical Center	51.6	0.9	13	8	5	5	27	2	5	12	7	2.9	0	25	15	10	3	20	8	7	11	8	7	14	11	9	2	9	
46	Levine Children's Hospital	51.4	0.9	11	11	4	4	27	1	4	16	9	2.8	1	27	19	10	3	20	7	7	11	8	7	14	11	11	0	9	
47	Inova Children's Hospital	50.9	0.2	10	9	2	8	28	2	4	11	7	3.9	1	26	18	10	2	19	7	6	11	8	7	13	12	10	3	10	
48	Children's Hospital and Medical Center	50.1	0.2	10	11	2	4	30	3	6	16	6	3.2	1	25	19	9	2	19	7	5	11	8	7	14	10	10	3	11	
49	Doernbecher Children's Hospital at OHSU	49.7	0.1	9	7	4	6	31	3	4	12	6	3.6	1	26	13	10	1	18	8	7	11	8	7	14	12	8	3	8	
50	Joe DiMaggio Children's Hospital at Mem. Reg. Hosp.	49.6	0.3	8	8	6	6	30	3	4	12	4	3.4	0	26	16	9	3	19	7	7	11	8	7	13	11	11	1	12	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Diabetes & Endocrinology

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Diabetic patient management	Hypothyroid management	Use of infection-preventing measures	Commitment to best practices	Patient volume	Procedure volume	Nursing intensity	Nurse Magnet recognition	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	72.6	26	3	25	83	42	39	4.0	1	24	8	10	10	8	7	16	12	13	3	3	
2	Children's Hospital of Philadelphia	99.3	71.4	24	3	28	98	42	39	3.4	1	23	8	10	10	8	7	16	11	13	3	3	
3	Children's Hospital of Pittsburgh of UPMC	93.7	32.6	26	3	27	96	42	32	3.1	1	24	8	10	10	8	7	14	12	13	3	3	
4	Children's Hospital Colorado	87.2	41.0	21	3	24	90	36	34	3.0	1	24	8	10	10	8	7	16	11	13	3	3	Top 5%
5	Yale-New Haven Children's Hospital	86.8	26.7	23	3	25	96	38	34	2.5	1	23	8	10	10	8	7	15	12	13	3	3	
6	Children's Hospital Los Angeles	86.6	29.0	24	3	24	78	45	32	3.2	1	24	8	8	10	8	7	14	12	13	3	3	
7	Cincinnati Children's Hospital Medical Center	84.5	32.7	21	3	26	91	39	25	3.5	1	24	8	10	10	8	7	16	12	13	3	1	
8	UCSF Benioff Children's Hospital	83.6	16.1	22	3	28	92	38	31	3.2	1	23	8	10	9	8	7	16	12	13	3	3	Top 10%
9	Johns Hopkins Children's Center	82.3	19.8	22	3	27	95	39	32	3.2	1	23	8	10	10	8	7	14	12	12	3	1	
10	Texas Children's Hospital	82.0	22.0	21	3	24	79	44	36	3.2	1	24	8	10	10	8	7	16	11	13	3	3	
11	NY-Presby Morgan Stanley-Komansky Children's Hosp.	80.1	20.8	22	3	27	90	36	27	3.0	0	24	8	10	10	8	7	15	12	13	3	3	
12	Lucile Packard Children's Hospital at Stanford	79.1	16.3	25	3	26	78	28	22	3.5	0	24	8	10	8	8	7	16	10	11	3	3	
13	Nationwide Children's Hospital	78.1	12.2	20	3	25	90	42	34	3.5	1	24	8	10	10	8	7	16	12	13	3	2	
14	Seattle Children's Hospital	77.8	15.0	21	3	27	89	40	30	2.7	1	20	8	10	10	8	7	16	10	13	3	1	
15	Rady Children's Hospital	75.5	4.4	25	3	26	91	38	34	3.0	0	24	8	10	8	8	7	14	12	13	3	3	
16	UF Health Shands Children's Hospital	74.2	11.7	20	3	26	92	24	21	2.6	1	24	8	10	9	8	7	13	12	12	2	3	
17	Children's Medical Center Dallas	73.7	6.8	22	3	23	75	44	35	3.0	1	23	8	10	9	8	7	15	12	12	3	2	
18	Children's National Medical Center	72.5	3.4	20	3	26	92	42	28	3.3	1	24	8	9	10	8	7	16	11	13	3	2	
19	Ann and Robert H. Lurie Children's Hospital of Chicago	71.9	5.9	19	3	25	81	44	33	3.3	1	23	8	10	10	8	7	16	11	13	3	2	
20	St. Louis Children's Hospital-Washington University	71.7	8.8	19	3	20	82	38	22	3.4	1	23	8	10	10	8	7	16	12	12	3	3	
21	Mayo Clinic Children's Center	71.6	3.6	21	3	24	88	26	30	3.4	1	23	8	10	10	8	6	16	12	12	3	2	
22	Children's Mercy Hospitals and Clinics	71.5	3.1	17	3	27	90	43	29	4.2	1	24	8	10	10	8	7	16	12	13	3	3	
23	Children's Healthcare of Atlanta	71.0	2.2	23	3	26	88	43	31	3.2	0	24	8	9	10	8	7	16	12	13	3	2	
24	Children's Hospital of Orange County	70.6	2.5	25	3	25	75	42	27	2.5	1	24	8	10	9	8	7	14	11	13	1	1	
25	Monroe Carell Jr. Children's Hospital at Vanderbilt	70.3	5.1	18	3	24	82	35	28	3.4	1	24	8	9	10	8	7	16	12	13	3	3	
26	Steven and Alexandra Cohen Children's Medical Center	70.1	3.7	21	3	28	98	33	30	3.4	0	24	8	10	10	8	7	14	12	13	3	1	
26	University of Iowa Children's Hospital	70.1	1.2	21	3	26	91	30	26	2.8	1	23	8	10	10	8	7	14	12	12	2	3	
28	Mattel Children's Hospital UCLA	70.0	7.0	18	3	27	99	36	33	3.2	1	21	8	10	10	8	7	12	11	12	3	0	
29	Cook Children's Medical Center	69.8	1.5	22	3	26	94	41	30	4.2	1	23	8	10	9	8	7	15	11	13	0	1	
30	Children's Memorial Hermann Hospital	69.0	0.6	24	3	21	97	40	29	2.2	1	24	8	10	10	8	4	14	12	11	3	1	
31	American Family Children's Hospital	68.9	2.8	21	3	24	87	22	19	3.0	1	24	8	10	10	8	7	16	12	12	3	1	
32	Duke Children's Hospital and Health Center	68.6	5.0	18	3	27	89	35	24	2.5	1	20	8	10	10	8	7	14	12	11	3	2	
33	University of California Davis Children's Hospital	68.1	1.4	21	3	27	95	22	17	3.7	1	22	8	10	10	8	7	15	12	12	1	1	
34	Holtz Children's Hospital at UM-Jackson Memorial Medical Center	67.8	1.1	25	3	17	101	30	27	4.0	0	24	8	10	10	7	7	13	11	11	3	1	
34	Winthrop-University Hospital Children's Medical Center	67.8	0.9	25	3	27	92	29	10	4.2	0	24	7	10	9	8	6	15	12	13	1	1	
36	Mount Sinai Kravis Children's Hospital	67.7	3.2	17	3	27	99	33	23	3.4	1	20	8	10	10	8	7	14	12	13	2	2	
37	Phoenix Children's Hospital	66.9	1.2	20	3	27	93	42	35	3.1	0	24	8	10	9	8	7	14	11	13	3	2	
38	University of Michigan C.S. Mott Children's Hospital	66.7	4.1	19	3	28	87	34	30	3.6	0	24	8	10	10	8	7	15	11	12	3	1	
39	Miami Children's Hospital	65.5	5.3	18	3	25	95	35	26	2.5	1	24	8	7	10	8	7	15	11	13	1	1	
40	Cleveland Clinic Children's Hospital	65.2	1.7	20	3	22	86	37	30	3.5	1	22	8	10	9	8	7	16	12	12	1	1	
41	Children's Hospital of Alabama at UAB	64.0	0.8	19	3	22	90	37	31	3.2	0	24	8	10	10	8	7	15	11	13	3	3	
42	University of Rochester-Golisano Children's Hospital	63.6	0.7	24	3	24	71	21	13	2.5	1	11	8	9	10	6	7	14	12	11	2	1	
43	Arnold Palmer Medical Center	63.5	0.2	19	3	22	95	41	36	3.3	1	22	8	9	10	8	7	14	12	12	0	2	
44	Children's Hospital at Montefiore	63.1	2.7	14	3	27	95	34	31	3.6	0	24	8	10	10	8	7	16	12	13	3	3	
45	Akron Children's Hospital	62.9	1.1	18	3	27	87	36	24	3.1	1	24	8	10	10	8	7	15	12	13	0	1	
46	Riley Hospital for Children at IU Health	62.6	15.4	17	1	24	87	39	29	2.9	1	23	8	10	10	8	7	16	12	12	2	3	
47	University of Chicago Comer Children's Hospital	61.8	2.5	19	3	24	92	20	24	2.8	0	24	8	10	10	7	7	15	10	13	3	1	
48	University of Minnesota Children's Hospital	61.6	3.2	18	3	21	86	32	24	2.8	0	20	8	10	9	8	7	14	12	12	3	3	
49	Massachusetts General Hospital for Children	61.5	7.7	16	3	19	80	30	10	2.9	1	22	8	10	9	8	7	14	12	11	2	2	
50	Barbara Bush Children's Hospital at Maine Medical Center	61.1	1.4	25	3	22	78	21	10	1.8	1	18	6	9	9	6	7	12	12	10	0	1	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Gastroetnerology & GI Surgery

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Success of selected treatments	Liver transplant survival	Prevention of pressure ulcers	Use of infection-preventing measures	Prevention of ICU infections	Patient volume	Surgery volume	Nonsurgical procedure volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Liver transplant program	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	73.2	6	3	3	31	5	62	14	19	4.0	1	12	5	12	9	11	11	8	7	18	12	8	6	4	
2	Children's Hospital of Pittsburgh of UPMC	90.9	38.4	6	3	1	32	9	59	16	9	3.1	1	12	5	11	9	10	11	8	7	15	12	8	4	4	
3	Children's Hospital of Philadelphia	89.2	70.6	5	2	1	33	5	60	15	19	3.4	1	12	5	12	9	11	11	8	7	18	11	8	6	4	
4	Cincinnati Children's Hospital Medical Center	88.9	75.5	5	1	2	32	7	58	15	18	3.5	1	12	5	12	9	11	11	8	7	18	12	8	4	4	Top 5%
5	Ann and Robert H. Lurie Children's Hospital of Chicago	88.6	22.0	8	3	0	30	8	56	13	14	3.3	1	12	5	12	9	11	11	8	7	17	11	8	4	4	
6	Children's Hospital Colorado	83.1	41.8	6	2	1	30	5	52	12	19	3.0	1	12	5	12	9	11	10	8	7	18	11	8	4	4	
6	Nationwide Children's Hospital	83.1	53.5	7	NA	3	32	6	61	14	13	3.5	1	11	NA	12	9	11	11	8	7	17	12	8	4	4	
8	Seattle Children's Hospital	82.6	15.8	8	3	2	27	6	51	13	10	2.7	1	11	5	8	9	11	11	8	7	18	10	8	3	4	
9	Children's National Medical Center	80.4	5.5	7	3	2	33	7	43	15	10	3.3	1	10	5	12	9	11	11	8	7	18	11	8	6	4	Top 10%
10	Children's Hospital Los Angeles	80.3	15.3	7	2	2	24	9	49	13	17	3.2	1	10	5	12	9	11	11	8	7	15	12	8	5	4	
11	Texas Children's Hospital	76.6	45.5	4	0	2	30	8	58	14	21	3.2	1	10	5	12	9	11	11	8	7	18	11	8	6	4	
12	NY-Presby Morgan Stanley-Komansky Children's Hosp.	76.5	8.0	6	3	2	32	8	53	14	17	3.0	0	11	5	12	9	11	10	8	7	16	12	8	4	4	
13	Children's Hospital of Wisconsin	75.6	6.8	6	3	3	26	5	51	11	15	3.7	1	11	3	11	9	11	11	8	7	18	11	8	5	4	
14	Mattel Children's Hospital UCLA	75.2	12.2	9	1	2	32	5	37	10	11	3.2	1	10	5	12	9	11	11	8	7	13	11	8	3	4	
14	St. Louis Children's Hospital-Washington University	75.2	9.9	6	3	1	27	8	34	13	10	3.4	1	10	5	12	9	11	10	8	7	18	12	8	3	4	
16	Children's Medical Center Dallas	74.3	5.4	6	3	3	30	3	47	12	20	3.0	1	12	4	12	9	11	11	8	7	17	12	8	3	4	
16	Riley Hospital for Children at IU Health	74.3	5.4	6	3	3	30	3	44	14	15	2.9	1	12	3	12	9	11	11	8	7	18	12	7	5	4	
18	UCSF Benioff Children's Hospital	73.2	10.6	5	2	3	33	5	49	12	13	3.2	1	10	4	12	9	11	11	8	7	18	12	8	5	4	
19	University of Michigan C.S. Mott Children's Hospital	72.9	1.8	8	3	1	33	5	44	14	10	3.6	0	12	5	12	9	11	11	8	7	17	11	8	4	4	
20	Cleveland Clinic Children's Hospital	71.7	9.9	6	1	3	27	6	54	14	14	3.5	1	12	3	12	9	11	11	8	7	17	12	8	3	4	
21	Massachusetts General Hospital for Children	70.9	4.9	8	2	3	28	2	46	12	12	2.9	1	12	2	12	9	11	11	8	7	16	12	8	3	4	
22	Lucile Packard Children's Hospital at Stanford	69.9	15.4	5	3	0	32	4	58	15	9	3.5	0	11	5	12	9	11	11	8	7	18	10	8	5	4	
23	Children's Mercy Hospitals and Clinics	69.0	1.9	5	3	2	32	4	52	13	15	4.2	1	11	4	12	9	11	10	8	7	18	12	8	3	4	
24	Johns Hopkins Children's Center	68.7	14.1	6	1	2	32	3	57	15	18	3.2	1	10	3	12	9	11	11	8	7	15	12	8	4	4	
25	Mount Sinai Kravis Children's Hospital	68.4	3.1	7	1	3	31	6	38	15	10	3.4	1	12	3	8	9	10	11	8	7	16	12	8	2	4	
26	Children's Healthcare of Atlanta	67.4	9.3	3	3	2	31	5	54	16	14	3.2	0	11	5	12	9	10	11	8	7	18	12	8	6	4	
26	Yale-New Haven Children's Hospital	67.4	1.9	7	3	3	29	4	24	11	6	2.5	1	10	4	12	9	10	6	8	7	17	12	7	3	4	
28	Mayo Clinic Children's Center	65.6	2.9	7	2	2	28	5	41	10	11	3.4	1	10	3	10	9	11	10	8	6	17	12	8	3	4	
29	Duke Children's Hospital and Health Center	65.2	1.9	7	3	2	31	7	29	8	7	2.5	1	9	2	5	9	10	8	8	7	13	12	8	2	4	
30	Arnold Palmer Medical Center	65.1	0.3	8	NA	3	26	10	42	11	14	3.3	1	12	NA	11	9	10	11	8	7	15	12	8	1	4	
31	SSM Cardinal Glennon Children's Medical Center	64.7	0.6	8	3	2	26	5	32	10	5	2.9	0	12	3	12	9	10	11	8	7	17	11	8	0	4	
32	Monroe Carell Jr. Children's Hospital at Vanderbilt	63.7	1.9	7	NA	3	31	5	53	10	15	3.4	1	12	NA	12	9	11	11	8	7	18	12	8	4	4	
33	Penn State Hershey Children's Hospital	62.5	0.0	9	NA	3	26	10	41	11	7	2.6	1	9	NA	12	9	10	10	8	7	16	12	7	3	3	
34	Children's Hospital of Michigan	62.2	0.5	9	NR	3	33	5	43	11	9	3.1	0	11	3	12	9	11	11	8	7	15	12	8	3	4	
35	Nemours Alfred I. duPont Hospital for Children	61.4	2.1	5	1	2	30	5	48	12	6	3.4	1	12	4	12	9	11	11	8	7	18	12	8	4	4	
36	Phoenix Children's Hospital	61.3	2.1	5	1	3	31	8	44	13	18	3.1	0	11	4	12	9	10	11	8	7	16	11	8	2	4	
37	Rady Children's Hospital	61.2	3.4	6	2	1	31	6	45	14	11	3.0	0	10	3	12	9	11	11	8	7	16	12	8	3	4	
38	Children's Hospital at Montefiore	61.1	2.2	6	2	3	33	4	26	11	5	3.6	0	11	3	11	9	10	10	8	7	17	12	8	3	3	
39	Holtz Children's Hospital at UM-Jackson Mem. Med. Ctr.	60.9	0.4	7	3	3	21	7	22	9	8	4.0	0	9	5	11	9	11	10	7	7	13	11	8	3	1	
40	Children's Hospital and Medical Center	60.3	3.2	9	NA	3	25	4	31	15	7	3.2	1	10	NA	10	8	11	11	8	7	16	10	8	2	4	
41	American Family Children's Hospital	59.9	0.5	5	3	2	28	6	20	10	5	3.0	1	10	2	11	9	10	9	8	7	15	12	8	2	4	
42	Miami Children's Hospital	59.7	3.1	7	NA	2	30	6	37	12	13	2.5	1	12	NA	12	9	11	11	8	7	17	11	8	1	4	
43	St. Christopher's Hospital for Children	57.7	0.9	7	NA	3	31	6	25	8	6	3.2	1	12	NA	11	8	10	11	7	7	13	12	8	2	4	
44	Steven and Alexandra Cohen Children's Medical Center	56.6	2.1	4	NA	3	33	10	40	15	11	3.4	0	11	NA	12	9	11	11	8	7	14	12	8	4	4	
45	Cook Children's Medical Center	55.6	1.3	7	NA	1	29	6	40	9	15	4.2	1	11	NA	12	9	11	11	8	7	15	11	8	0	4	
46	University of Minnesota Children's Hospital	54.9	1.4	5	2	3	26	3	42	14	10	2.8	0	12	4	5	9	10	10	8	7	16	12	8	2	4	
47	Children's Hospital of Orange County	54.7	1.0	8	NA	2	32	6	38	10	12	2.5	1	10	NA	12	9	11	11	8	7	14	11	8	1	0	
47	Wolfson Children's Hospital	54.7	0.3	8	NA	3	22	6	31	11	14	2.6	1	12	NA	7	8	11	9	7	7	15	11	7	0	4	
49	UF Health Shands Children's Hospital	54.6	1.0	5	1	2	31	6	25	8	10	2.6	1	10	4	10	9	10	11	8	7	14	12	7	2	4	
50	Rainbow Babies and Children's Hospital	54.3	2.9	5	NR	1	33	6	35	11	11	3.0	1	12	1	12	9	10	11	8	7	16	12	8	3	3	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Neonatology

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	On breast milk at discharge	Minimizing 30-day readmissions	Use of infection-preventing measures	Prevention of NICU infections	Unintended removal of breathing tube	Breast milk management	Patient volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	ECMO availability	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship programs	Commitment to clinical research	
1	Children's Hospital of Philadelphia	100.0	62.4	3	3	25	2	4	5	21	3.7	1	64	5	6	7	6	17	16	8	18	11	16	10	4	
2	Boston Children's Hospital	95.3	56.9	3	2	24	2	4	5	19	3.7	1	64	5	6	7	6	17	16	8	18	12	16	10	4	
3	Rainbow Babies and Children's Hospital	92.7	34.5	3	3	24	3	3	5	9	3.8	1	62	5	6	7	6	17	16	8	17	12	16	10	4	
4	Children's National Medical Center	91.7	19.6	3	1	25	5	4	5	17	3.0	1	63	5	6	7	6	17	16	8	18	11	16	8	4	
5	Seattle Children's Hospital	91.6	16.8	3	3	25	3	5	5	18	4.0	1	60	5	4	7	6	17	16	8	18	10	16	10	4	Top 5%
6	Children's Hospital Colorado	91.1	19.6	3	2	23	4	4	5	18	3.4	1	61	5	6	7	6	17	16	8	18	11	16	10	4	
7	Ann and Robert H. Lurie Children's Hospital-Prentice Women's Hospital	89.2	12.1	3	3	24	4	4	5	17	2.5	1	60	5	6	7	6	17	16	8	17	11	16	10	4	
8	Children's Hospital Los Angeles	89.0	17.9	2	2	21	5	4	5	19	3.2	1	60	5	6	7	6	17	16	8	15	12	16	10	4	
9	Cincinnati Children's Hospital Medical Center	88.7	49.2	2	1	24	3	3	5	21	3.3	1	63	5	6	7	6	17	16	8	18	12	16	9	4	
10	Children's Hospital of Pittsburgh of UPMC	88.6	13.6	3	2	24	4	4	5	16	3.2	1	64	5	6	7	6	17	16	8	16	12	16	10	4	Top 10%
11	Johns Hopkins Children's Center	88.3	29.9	2	3	23	4	3	5	17	2.9	1	53	5	6	7	6	15	12	8	15	12	16	10	4	
12	Lucile Packard Children's Hospital at Stanford	87.7	27.5	3	2	24	3	5	5	17	4.0	0	58	5	6	7	6	17	16	8	18	10	16	10	4	
13	Miami Children's Hospital	87.2	4.4	3	3	21	5	5	5	11	4.2	1	60	5	6	7	6	17	16	8	17	11	16	5	4	
14	St. Louis Children's Hospital-Washington University	85.0	16.9	3	3	21	3	3	5	15	3.1	1	59	5	6	7	6	17	16	8	18	12	16	10	4	
15	Children's Mercy Hospitals and Clinics	84.8	5.4	3	2	25	4	4	5	18	4.2	1	63	5	6	7	6	16	16	8	18	12	16	7	4	
16	UCSF Benioff Children's Hospital	84.6	11.9	3	2	25	3	3	5	20	5.7	1	63	5	6	7	6	17	16	8	18	12	16	9	4	
17	University of California Davis Children's Hospital	84.3	0.1	3	3	25	5	5	5	17	3.0	1	61	5	6	7	6	17	16	7	17	12	16	3	4	
18	NY-Presby Morgan Stanley-Komansky Children's Hosp.	84.2	24.0	3	3	25	3	5	3	14	2.5	0	60	5	6	7	6	17	16	8	17	12	16	10	4	
19	Nationwide Children's Hospital	84.0	19.9	2	2	24	3	4	5	20	3.0	1	59	5	6	7	6	17	16	8	18	12	16	9	4	
20	Mattel Children's Hospital UCLA	83.1	3.5	3	3	24	4	4	5	10	4.2	1	60	5	6	7	6	17	16	8	14	11	16	9	4	
21	Children's Hospital of Orange County	82.5	0.8	3	3	24	5	4	5	13	3.0	1	63	5	6	7	6	17	16	8	16	11	16	4	4	
22	University of Michigan C.S. Mott Children's Hospital	82.0	8.7	3	2	25	5	3	5	15	3.0	0	59	5	6	7	6	17	16	8	17	11	16	10	4	
23	University of Iowa Children's Hospital	81.1	5.5	2	3	24	4	5	5	13	2.4	1	58	5	6	7	6	17	16	8	16	12	15	7	4	
24	Cook Children's Medical Center	79.8	2.7	2	3	25	5	5	5	14	2.7	1	53	5	6	7	6	17	16	8	16	11	16	0	4	
25	Rady Children's Hospital	79.4	5.2	3	1	25	5	4	5	18	3.2	0	59	5	6	7	6	17	16	8	16	12	16	10	4	
26	Texas Children's Hospital	79.3	32.4	3	2	22	1	2	5	19	3.0	1	61	5	6	7	6	17	16	8	18	11	16	10	4	
27	Monroe Carell Jr. Children's Hospital at Vanderbilt	79.1	6.5	2	2	23	5	2	5	17	2.8	1	59	5	6	7	6	17	15	8	18	12	16	9	4	
28	Children's Medical Center Dallas-Parkland Memorial Hospital	78.4	4.4	2	3	23	4	3	5	16	2.5	1	59	5	6	7	6	17	16	8	17	12	16	10	4	
29	Inova Children's Hospital	77.4	2.7	3	3	21	5	3	5	8	2.5	1	61	4	6	6	6	12	15	8	16	12	16	6	4	
30	Steven and Alexandra Cohen Children's Medical Center	77.1	1.0	3	3	25	5	3	5	14	2.3	0	60	5	6	7	6	17	16	8	16	12	16	8	4	
31	Doernbecher Children's Hospital at OHSU	76.7	1.9	3	2	23	4	5	4	14	2.5	1	62	5	6	7	6	17	16	8	17	12	16	6	4	
32	Children's Hospital of Wisconsin	76.0	1.4	3	3	21	3	4	5	17	2.9	1	59	5	6	7	6	17	15	8	18	11	16	9	4	
33	Cleveland Clinic Children's Hospital	75.8	3.9	2	3	18	4	4	5	9	2.6	1	62	5	6	7	6	17	16	8	18	12	16	8	4	
34	University of Minnesota Children's Hospital	75.7	4.2	3	3	18	5	4	5	11	2.7	0	56	5	4	7	6	17	16	8	16	12	16	7	4	
35	Akron Children's Hospital	75.6	1.2	3	3	25	4	4	5	12	2.9	1	59	4	6	7	4	16	16	8	17	12	16	0	4	
36	Duke Children's Hospital and Health Center	75.4	9.5	2	1	24	4	5	4	13	2.4	1	61	5	4	7	6	17	16	8	16	12	16	7	4	
37	UF Health Shands Children's Hospital	75.1	1.0	2	2	23	4	5	5	13	2.9	1	62	5	6	7	6	17	16	8	15	12	15	8	4	
38	Children's Healthcare of Atlanta	74.8	7.5	2	3	25	3	3	5	18	3.1	0	58	5	6	7	6	17	16	8	18	12	16	10	4	
39	Nemours Alfred I. duPont Hospital for Children	74.0	1.8	3	3	22	5	2	2	15	2.0	1	65	5	6	7	6	17	16	8	18	12	16	6	4	
40	Le Bonheur Children's Hospital	72.9	2.8	2	2	22	5	4	5	13	2.1	0	59	5	6	7	6	17	16	8	18	12	16	9	4	
41	Levine Children's Hospital	70.5	0.1	3	3	19	5	3	5	13	2.2	1	56	5	5	6	6	15	15	8	17	11	16	0	3	
42	Children's Hospitals and Clinics of Minnesota	70.1	2.8	3	2	21	4	4	5	19	2.7	0	55	5	6	7	6	17	16	8	18	12	16	1	4	
43	Children's Hospital of Alabama at UAB	69.8	3.5	2	3	20	3	4	5	18	3.1	0	60	5	6	7	6	17	16	8	16	11	16	8	4	
44	Holtz Children's Hospital at UM-Jackson Mem. Med. Ctr.	69.4	1.7	3	3	14	4	5	5	9	2.1	0	64	4	6	7	6	17	15	8	15	11	16	7	4	
45	Primary Children's Hospital	68.4	3.6	2	1	25	3	4	5	19	3.4	0	63	5	6	7	6	17	16	8	18	10	16	9	4	
46	Mayo Clinic Children's Center	68.3	1.1	3	3	23	1	4	5	10	4.7	1	58	5	6	7	6	17	16	7	18	12	16	9	3	
46	Yale-New Haven Children's Hospital	68.3	2.3	2	1	22	4	4	5	11	2.5	1	58	5	6	7	6	13	16	8	17	12	16	9	3	
48	Riley Hospital for Children at IU Health	68.0	4.6	1	1	24	3	5	5	15	2.6	1	57	5	6	7	6	17	16	8	17	12	16	9	3	
49	Advocate Children's Hospital	67.9	0.7	3	3	23	4	2	5	8	2.4	1	55	4	4	6	6	15	16	8	17	12	16	2	4	
50	University of Virginia Children's Hospital	67.3	0.2	3	2	23	4	4	5	12	2.4	0	58	5	6	6	6	16	16	7	14	12	16	7	4	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Nephrology

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Survival after kidney transplant	Managing dialysis patients	Preventing biopsy complications	Use of infection-preventing measures	Prevention of ICU infections	Prevention of dialysis-related infections	Prevention of pressure ulcers	Patient volume	Catheter procedure volume	Dialysis volume	Kidney biopsy volume	Kidney transplant volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Transplants to dialysis patients	Advanced clinical services	Clinical support services	Advanced technologies	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	67.4	22	19	6	48	5	9	3	36	10	14	5	6	4.0	1	33	7	13	8	1	12	7	15	12	8	3	8	
2	Cincinnati Children's Hospital Medical Center	97.4	64.0	21	18	6	48	7	8	2	34	10	13	8	5	3.5	1	32	8	10	8	1	12	7	15	12	8	3	9	
3	Seattle Children's Hospital	93.4	56.6	21	17	6	49	6	8	2	33	12	15	8	5	2.7	1	32	6	7	8	1	12	7	15	10	8	3	9	
4	Texas Children's Hospital	92.8	38.8	21	18	6	47	8	8	2	29	12	16	8	4	3.2	1	33	4	13	8	1	12	7	15	11	8	3	7	Top 5%
5	Children's Mercy Hospitals and Clinics	90.6	25.2	23	20	6	49	4	9	2	31	8	13	9	4	4.2	1	33	5	13	8	1	12	7	15	12	8	3	8	
6	Children's Hospital of Philadelphia	88.6	54.5	20	17	6	45	5	6	1	34	13	13	5	6	3.4	1	32	3	12	8	1	12	7	15	11	8	3	9	
7	Nationwide Children's Hospital	87.4	21.2	22	20	5	48	6	9	3	24	11	13	4	3	3.5	1	32	4	12	8	1	12	7	15	12	7	3	7	
8	Lucile Packard Children's Hospital at Stanford	84.3	38.9	23	19	6	46	4	8	0	29	11	16	9	5	3.5	0	33	4	10	8	1	12	7	15	10	8	3	8	
9	Children's Healthcare of Atlanta	83.9	21.9	24	15	6	47	5	8	2	30	13	17	7	6	3.2	0	33	5	13	8	1	12	7	15	12	8	3	8	Top 10%
10	UCSF Benioff Children's Hospital	83.1	6.7	23	18	6	49	5	9	3	27	8	12	8	5	3.2	1	33	8	9	8	1	12	7	15	12	8	3	6	
11	Mattel Children's Hospital UCLA	83.0	28.6	22	17	5	48	5	5	2	18	15	18	7	5	3.2	1	32	5	12	8	1	12	7	11	11	7	3	8	
12	Children's Medical Center Dallas	82.2	13.9	22	18	6	46	3	9	3	24	14	14	6	4	3.0	1	30	2	13	8	1	12	7	14	12	8	3	8	
13	Children's National Medical Center	81.9	7.9	19	18	6	49	7	9	2	28	11	17	5	3	3.3	1	33	4	12	8	1	12	7	15	11	8	3	6	
14	Ann and Robert H. Lurie Children's Hospital of Chicago	80.3	16.7	17	17	6	46	8	7	0	25	10	11	5	5	3.3	1	33	4	12	8	1	12	7	15	11	8	3	7	
15	Children's Hospital of Pittsburgh of UPMC	78.3	16.7	22	13	6	47	9	6	1	28	5	6	5	3	3.1	1	33	3	11	8	1	12	7	13	12	7	3	4	
16	Johns Hopkins Children's Center	75.9	15.8	21	17	6	48	3	5	2	17	6	12	4	4	3.2	1	30	5	10	8	1	12	7	13	12	7	3	8	
17	Phoenix Children's Hospital	75.7	3.1	22	20	6	48	8	8	3	34	15	17	6	3	3.1	0	31	0	13	8	1	12	7	13	11	8	2	5	
18	Children's Hospital Los Angeles	74.3	7.9	22	9	6	40	9	8	2	25	13	15	4	5	3.2	1	30	3	12	8	1	11	7	13	12	8	2	3	
19	Mount Sinai Kravis Children's Hospital	74.2	3.6	21	20	6	48	6	5	3	22	7	6	3	4	3.4	1	32	10	8	8	1	12	7	13	12	7	2	4	
20	Children's Hospital of Wisconsin	73.6	3.3	22	15	6	42	5	7	3	23	11	13	4	2	3.7	1	31	4	12	8	1	12	7	15	11	8	3	5	
20	St. Louis Children's Hospital-Washington University	73.6	2.9	19	15	6	45	8	7	1	20	8	11	6	3	3.4	1	33	3	10	8	1	12	7	15	12	8	3	8	
22	Riley Hospital for Children at IU Health	73.4	3.9	20	17	6	46	3	8	3	25	11	14	4	4	2.9	1	32	4	12	8	1	12	7	15	12	8	2	4	
23	Children's Hospital of Alabama at UAB	73.3	1.9	20	19	6	42	5	8	2	31	12	12	9	5	3.2	0	33	7	13	8	1	12	7	14	11	8	3	8	
24	Children's Hospital at Montefiore	72.7	11.9	18	12	6	49	4	6	3	19	8	8	3	3	3.6	0	32	3	13	8	1	12	7	15	12	7	3	9	
25	Doernbecher Children's Hospital at OHSU	72.0	1.1	18	20	6	47	6	7	3	28	5	12	8	2	3.6	1	29	5	11	8	1	12	7	14	12	8	1	5	
26	University of Iowa Children's Hospital	71.6	10.4	11	17	6	48	4	7	1	28	7	10	3	3	2.8	1	33	6	11	8	1	12	7	13	12	7	2	8	
27	Children's Hospital of Michigan	71.3	4.1	19	17	6	47	5	9	3	19	8	9	3	3	3.1	0	31	3	9	8	1	10	7	15	12	7	3	7	
28	University of Michigan C.S. Mott Children's Hospital	70.2	10.6	21	15	5	46	5	5	1	24	12	15	7	5	3.6	0	30	5	9	8	1	12	7	14	11	8	3	7	
29	Mayo Clinic Children's Center	70.0	2.7	22	17	6	46	5	6	2	34	5	7	6	3	3.4	1	30	6	9	8	1	12	6	15	12	7	2	4	
29	Rainbow Babies and Children's Hospital	70.0	2.9	21	16	6	49	6	6	1	24	11	10	4	2	3.0	1	29	5	10	8	1	12	7	14	12	7	3	5	
31	NY-Presby Morgan Stanley-Komansky Children's Hosp.	69.5	1.6	20	14	6	43	8	8	2	17	9	7	5	4	3.0	0	32	6	12	8	1	11	7	14	12	8	3	5	
32	Children's Memorial Hermann Hospital	69.0	0.5	16	20	6	41	4	8	3	30	11	14	4	3	2.2	1	30	10	11	8	1	12	4	13	12	7	3	4	
32	Holtz Children's Hospital at UM-Jackson Mem. Med. Ctr.	69.0	1.7	20	19	6	38	7	8	3	17	6	12	2	4	4.0	0	32	0	12	8	1	11	7	12	11	7	3	4	
34	Duke Children's Hospital and Health Center	68.8	2.2	21	15	6	45	7	9	2	18	4	6	3	2	2.5	1	30	6	5	8	1	12	7	13	12	8	2	2	
35	Levine Children's Hospital	68.7	2.3	18	19	6	43	4	9	1	23	12	12	7	4	2.8	1	32	5	12	7	1	12	7	14	11	8	0	5	
36	American Family Children's Hospital	68.4	1.3	22	19	6	41	6	8	2	18	3	7	5	2	3.0	1	30	1	9	8	1	11	7	15	12	8	2	3	
37	University of Minnesota Children's Hospital	68.0	6.4	17	17	6	42	3	7	3	26	11	13	5	5	2.8	0	31	8	5	8	1	10	7	13	12	8	3	3	
38	Rady Children's Hospital	67.5	2.3	22	17	6	47	6	6	1	28	9	11	6	3	3.0	0	32	2	11	8	1	12	7	13	12	8	3	5	
39	Nemours Alfred I. duPont Hospital for Children	67.3	1.6	18	17	6	46	5	4	2	23	7	10	2	2	3.4	1	31	9	12	8	1	12	7	15	12	8	1	7	
40	UF Health Shands Children's Hospital	66.3	0.9	19	17	6	47	6	4	2	24	11	10	6	4	2.6	1	28	6	11	8	1	12	7	12	12	6	2	6	
41	University of Rochester-Golisano Children's Hospital	66.2	1.4	22	15	6	41	5	9	3	22	5	9	3	2	2.5	1	26	7	4	7	1	8	7	13	12	7	3	2	
42	Monroe Carell Jr. Children's Hospital at Vanderbilt	66.1	0.7	19	15	3	43	5	9	3	24	6	7	3	3	3.4	1	30	4	10	8	1	12	7	15	12	8	3	3	
43	Penn State Hershey Children's Hospital	65.5	0.0	22	15	3	45	10	8	3	14	5	8	1	2	2.6	1	27	8	9	8	1	12	7	14	12	6	2	1	
44	Cleveland Clinic Children's Hospital	65.4	1.1	8	16	6	42	6	8	3	33	9	6	2	1	3.5	1	30	0	11	8	1	12	7	15	12	8	1	7	
44	Primary Children's Hospital	65.4	1.0	20	16	6	49	5	6	1	31	11	9	4	4	4.4	0	33	5	9	8	1	12	7	15	10	8	2	3	
46	Le Bonheur Children's Hospital	65.0	4.3	17	15	5	44	6	6	2	22	6	9	4	3	2.6	0	33	4	10	8	1	12	7	15	12	7	3	5	
47	Steven and Alexandra Cohen Children's Medical Center	64.3	0.2	NR	20	6	49	10	9	3	21	10	10	3	0	3.4	0	26	3	10	8	1	12	7	13	12	7	2	5	
48	Children's Hospital of Richmond at VCU	64.2	0.9	14	18	6	43	4	6	3	21	6	7	4	2	2.0	1	32	9	11	6	1	12	4	11	12	8	2	7	
49	Spectrum Health Helen DeVos Children's Hospital	63.8	0.4	20	11	6	41	6	7	3	24	4	11	4	2	3.1	1	30	4	12	8	1	12	7	14	11	7	0	4	
49	St. Christopher's Hospital for Children	63.8	2.4	17	20	6	43	6	7	3	18	5	8	3	1	3.2	1	29	1	9	7	0	9	7	12	12	8	2	0	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Neurology & Neurosurgery

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Surgical survival	Use of infection-preventing measures	Prevention of surgical complications	Management of epilepsy patients	Clinic patient volume	Surgery volume	Epilepsy workup and care volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialist availability	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	69.6	14	31	20	7	54	43	15	4.0	1	21	14	8	7	18	8	7	15	12	11	4	4	
2	Texas Children's Hospital	94.6	32.6	14	30	19	10	50	35	13	3.2	1	20	14	8	7	18	8	7	15	11	11	4	4	
3	Children's Hospital of Philadelphia	94.0	56.3	14	32	20	5	53	39	12	3.4	1	21	13	8	7	18	8	7	15	11	11	4	4	
4	Children's National Medical Center	93.7	26.9	14	32	19	10	54	32	12	3.3	1	21	14	8	7	18	8	7	15	11	11	3	4	Top 5%
5	Johns Hopkins Children's Center	93.4	38.3	14	30	21	8	41	33	8	3.2	1	21	14	8	7	18	8	7	13	12	11	4	4	
6	Cincinnati Children's Hospital Medical Center	90.6	35.0	14	30	20	6	51	34	15	3.5	1	19	14	8	7	18	8	7	15	12	11	4	4	
7	Miami Children's Hospital	86.6	14.8	12	29	22	9	47	32	13	2.5	1	22	14	8	6	18	8	7	14	11	11	3	4	
8	Ann and Robert H. Lurie Children's Hospital of Chicago	86.1	16.9	14	30	17	8	43	36	10	3.3	1	22	13	8	7	18	8	7	15	11	11	4	4	
9	Nationwide Children's Hospital	85.5	19.5	12	31	18	8	50	25	11	3.5	1	20	14	8	7	18	8	7	15	12	11	4	4	Top 10%
10	Children's Hospital of Pittsburgh of UPMC	84.7	14.1	13	29	19	8	44	35	13	3.1	1	21	13	8	7	18	8	7	13	12	11	4	4	
10	Seattle Children's Hospital	84.7	22.9	11	32	19	8	50	35	8	2.7	1	21	10	8	6	18	8	7	15	10	10	4	4	
12	St. Louis Children's Hospital-Washington University	83.9	32.9	10	28	19	6	42	26	12	3.4	1	21	14	8	6	18	8	7	15	12	11	4	4	
13	UCSF Benioff Children's Hospital	83.6	20.3	13	32	13	9	41	30	6	3.2	1	21	13	8	7	18	8	7	15	12	11	4	4	
14	Phoenix Children's Hospital	83.3	4.5	14	31	22	10	45	39	13	3.1	0	21	14	8	7	18	8	7	13	11	11	4	4	
15	Monroe Carell Jr. Children's Hospital at Vanderbilt	82.7	6.0	14	29	20	9	32	25	9	3.4	1	21	13	8	6	17	8	7	15	12	11	4	4	
16	Children's Hospital Colorado	82.5	17.2	14	28	17	7	43	30	13	3.0	1	20	13	8	6	18	8	7	15	11	11	4	4	
17	Children's Hospital Los Angeles	81.0	11.1	13	29	19	8	43	34	12	3.2	1	18	12	8	6	18	8	7	13	12	10	4	4	
17	Cleveland Clinic Children's Hospital	81.0	23.5	11	26	21	5	48	30	12	3.5	1	20	14	8	7	18	8	7	15	12	11	3	3	
19	Rady Children's Hospital	80.1	2.4	13	32	22	10	47	41	13	3.0	0	19	12	8	7	18	8	7	13	12	11	4	4	
20	Mayo Clinic Children's Center	79.8	11.1	14	29	16	8	34	23	7	3.4	1	20	14	8	7	18	8	6	15	12	10	4	4	
21	Primary Children's Hospital	79.1	10.5	14	29	20	6	46	29	11	4.4	0	21	13	8	7	18	8	7	15	10	11	4	4	
22	Rainbow Babies and Children's Hospital	78.2	6.6	12	29	18	9	39	18	7	3.0	1	21	14	8	7	18	8	7	14	12	11	4	3	
23	Steven and Alexandra Cohen Children's Medical Center	76.2	0.2	14	32	22	10	27	29	10	3.4	0	19	14	8	7	15	8	7	13	12	11	4	2	
24	Children's Hospital of Michigan	75.6	1.7	14	31	18	9	40	29	11	3.1	0	20	14	8	7	18	8	7	15	12	10	4	4	
25	Mount Sinai Kravis Children's Hospital	75.2	0.9	14	30	22	8	21	19	11	3.4	1	21	10	8	7	15	8	7	13	12	11	1	3	
26	Mattel Children's Hospital UCLA	74.7	8.7	12	30	18	7	29	16	6	3.2	1	20	11	8	6	17	8	7	11	11	11	4	4	
27	NY-Presby Morgan Stanley-Komansky Children's Hosp.	74.2	9.0	14	30	17	6	31	24	9	3.0	0	21	14	8	7	17	8	7	14	12	11	4	4	
28	Akron Children's Hospital	73.7	1.6	14	32	15	10	33	28	6	3.1	1	20	12	8	6	18	8	7	14	12	11	0	4	
28	Lucile Packard Children's Hospital at Stanford	73.7	10.3	12	31	15	8	39	23	7	3.5	0	21	12	8	6	16	8	7	15	10	10	4	4	
30	Children's Hospital of Wisconsin	73.2	0.3	14	28	18	7	47	20	10	3.7	1	20	12	8	6	18	8	7	15	11	11	3	4	
31	Children's Hospital of Orange County	72.9	2.1	12	32	17	8	31	30	12	2.5	1	19	14	8	7	16	8	7	13	11	11	3	4	
32	Cook Children's Medical Center	72.8	3.4	14	32	18	5	31	30	11	4.2	1	21	12	8	7	17	8	7	14	11	11	0	4	
33	University of Michigan C.S. Mott Children's Hospital	72.7	4.0	14	32	19	6	29	22	7	3.6	0	20	12	8	7	17	8	7	14	11	11	4	4	
34	Doernbecher Children's Hospital at OHSU	72.5	0.8	14	30	18	6	29	23	7	3.6	1	21	14	8	7	17	8	7	14	12	10	3	4	
35	Children's Healthcare of Atlanta	71.7	2.4	12	32	19	7	35	34	11	3.2	0	20	14	8	7	15	8	7	15	12	11	4	3	
36	Children's Medical Center Dallas	71.3	2.2	12	29	17	6	44	30	10	3.0	1	21	11	8	6	17	8	7	14	12	11	4	4	
37	Children's Hospital at Montefiore	70.8	1.6	14	32	22	3	39	20	11	3.6	0	21	14	8	7	18	8	7	15	12	11	3	4	
37	Riley Hospital for Children at IU Health	70.8	2.3	14	30	14	6	36	34	6	2.9	1	21	13	8	7	17	8	7	15	12	11	3	4	
39	Yale-New Haven Children's Hospital	70.3	2.3	14	28	19	6	16	16	6	2.5	1	20	14	8	7	13	8	7	14	12	10	3	4	
40	Children's Hospital of Alabama at UAB	69.0	12.3	13	23	15	5	35	35	10	3.2	0	21	11	8	6	17	8	7	14	11	10	4	4	
41	Le Bonheur Children's Hospital	68.6	8.6	12	29	20	3	35	23	9	2.6	0	19	14	8	7	17	8	7	15	12	11	4	4	
42	Arnold Palmer Medical Center	66.7	0.2	14	25	16	8	18	25	9	3.3	1	19	13	8	7	13	8	7	13	12	10	0	4	
43	Children's Mercy Hospitals and Clinics	66.6	2.3	14	32	14	2	40	33	10	4.2	1	19	12	8	6	18	8	7	15	12	11	3	4	
44	Penn State Hershey Children's Hospital	66.3	0.1	11	29	19	5	29	18	7	2.6	1	20	14	8	6	17	8	7	14	12	10	4	4	
45	Levine Children's Hospital	65.5	0.3	14	25	20	6	15	18	9	2.8	1	20	13	7	6	10	8	7	14	11	10	0	4	
45	University of California Davis Children's Hospital	65.5	0.5	14	30	22	1	28	20	5	3.7	1	19	13	8	7	18	8	7	14	12	10	1	4	
47	University of Chicago Comer Children's Hospital	64.9	1.1	12	28	21	4	30	25	9	2.8	0	19	14	8	7	18	7	7	14	10	11	4	4	
48	Children's Memorial Hermann Hospital	64.8	0.4	13	25	20	6	26	18	8	2.2	1	18	13	8	6	18	8	4	13	12	10	3	3	
49	University of Iowa Children's Hospital	64.2	0.7	11	30	17	5	32	18	6	2.8	1	21	11	8	6	18	8	7	13	12	10	3	3	
50	Wolfson Children's Hospital	63.9	0.6	14	24	18	6	28	20	7	2.6	1	19	10	7	7	18	7	7	13	11	10	0	4	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Orthopedics

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Speed and success with complex fractures	Preventing surgical complications	Use of infection-preventing measures	Patient volume	Procedure volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Children's Hospital of Philadelphia	100.0	72.2	6	17	29	50	32	3.4	1	48	10	8	3	9	8	7	15	11	19	4	1	
2	Rady Children's Hospital	95.9	64.2	6	18	29	46	28	3.0	0	51	10	8	3	9	8	7	13	12	19	4	1	
3	Boston Children's Hospital	95.5	77.4	4	18	28	57	32	4.0	1	49	10	8	3	9	8	7	15	12	19	4	1	
4	Cincinnati Children's Hospital Medical Center	95.2	43.7	6	18	28	34	21	3.5	1	46	10	8	3	9	8	7	15	12	19	4	1	Top 5%
5	Nemours Alfred I. duPont Hospital for Children	93.9	34.9	6	18	26	45	29	3.4	1	50	10	8	3	9	8	7	15	12	19	3	1	
6	Children's Medical Center Dallas-Texas Scottish Rite Hospital for Children	89.2	65.1	4	17	26	41	29	3.0	1	47	10	8	3	9	8	7	14	12	19	4	1	
7	Children's Hospital Colorado	86.5	24.5	5	18	26	42	25	3.0	1	46	10	8	3	9	8	7	15	11	19	4	1	
8	Rainbow Babies and Children's Hospital	84.2	11.4	6	18	29	32	19	3.0	1	46	10	8	3	9	8	7	14	12	18	2	1	
9	Children's Hospital Los Angeles	82.4	40.1	4	14	27	48	32	3.2	1	46	10	8	3	9	8	7	13	12	19	4	1	Top 10%
10	Primary Children's Hospital	82.1	12.3	6	17	29	29	26	4.4	0	44	10	8	3	8	8	7	15	10	19	4	1	
11	St. Louis Children's-Washington University-Shriners Hospital	80.5	27.4	4	17	25	39	21	3.4	1	42	10	8	3	9	8	7	15	12	19	3	1	
12	Monroe Carell Jr. Children's Hospital at Vanderbilt	80.4	4.0	6	17	27	37	25	3.4	1	42	9	8	3	9	8	7	15	12	19	4	1	
13	Nationwide Children's Hospital	80.2	6.6	5	18	28	47	27	3.5	1	43	10	8	3	9	8	7	15	12	19	3	1	
14	Ann and Robert H. Lurie Children's Hospital of Chicago	80.1	9.6	5	18	28	32	17	3.3	1	41	10	8	3	9	8	7	15	11	18	4	1	
15	Children's Mercy Hospitals and Clinics	79.9	2.0	6	18	29	35	25	4.2	1	42	10	8	3	9	8	7	15	12	16	2	1	
16	Johns Hopkins Children's Center	79.4	7.1	5	17	28	37	27	3.2	1	50	10	8	3	9	8	7	13	12	19	3	1	
17	Children's Healthcare of Atlanta	78.9	20.2	4	17	29	47	30	3.2	0	47	10	8	3	9	8	7	15	12	19	4	1	
18	Children's National Medical Center	78.7	4.2	5	18	29	43	29	3.3	1	43	10	8	3	9	8	7	15	11	19	3	1	
18	Mattel Children's Hospital UCLA	78.7	2.0	6	18	28	33	21	3.2	1	45	10	8	3	9	8	7	11	11	19	3	1	
20	Cleveland Clinic Children's Hospital	78.6	2.8	6	18	23	34	24	3.5	1	46	10	8	3	9	8	7	15	12	19	2	1	
21	Le Bonheur Children's Hospital	78.2	5.9	6	18	26	29	21	2.6	0	48	10	8	3	8	8	7	15	12	19	4	1	
22	Gillette Children's Specialty Healthcare	77.8	9.3	6	17	26	48	20	4.9	0	44	9	8	3	9	8	7	14	10	16	2	1	
23	Riley Hospital for Children at IU Health	77.2	3.1	6	18	27	33	19	2.9	1	42	10	8	3	8	8	7	15	12	18	1	1	
24	Seattle Children's Hospital	77.1	15.1	5	16	29	30	25	2.7	1	36	6	8	3	9	8	7	15	10	19	3	1	
25	University of Michigan C.S. Mott Children's Hospital	75.5	6.5	5	18	29	37	16	3.6	0	41	10	8	3	9	8	7	14	11	19	4	1	
26	Texas Children's Hospital	74.9	7.1	5	16	27	25	19	3.2	1	38	9	8	3	9	8	7	15	11	19	4	1	
27	Penn State Hershey Children's Hospital	74.4	0.0	6	18	26	22	15	2.6	1	41	10	8	3	9	8	7	14	12	17	3	1	
28	Phoenix Children's Hospital	74.2	1.1	6	18	28	37	27	3.1	0	46	10	8	3	8	8	7	13	11	18	2	1	
29	UC Davis Children's Hospital-Shriners Hospitals for Children	74.0	2.6	4	18	29	33	27	3.7	1	48	10	8	3	9	8	7	14	12	19	2	1	
30	Children's Hospital of Michigan	73.5	0.7	6	17	29	42	23	3.1	0	46	9	8	3	9	8	7	15	12	17	2	1	
31	American Family Children's Hospital	73.0	0.2	6	18	27	19	14	3.0	1	35	10	8	3	8	8	7	15	12	16	2	1	
32	Cook Children's Medical Center	72.8	0.7	6	18	29	24	10	4.2	1	35	9	8	3	6	8	7	14	11	18	0	1	
33	Miami Children's Hospital	72.7	2.4	5	18	26	37	19	2.5	1	41	10	8	3	8	8	7	14	11	15	3	1	
34	North Carolina Children's Hospital at UNC	72.5	0.0	6	18	25	27	15	4.5	1	39	10	8	3	8	7	7	10	12	18	1	1	
35	Joe DiMaggio Children's Hospital at Memorial Regional Hospital	72.3	0.5	6	18	26	42	30	3.4	0	49	10	7	3	8	8	7	13	11	17	0	1	
36	Mayo Clinic Children's Center	71.9	3.6	4	18	27	24	19	3.4	1	47	10	8	3	9	8	6	15	12	18	2	1	
37	Children's Hospital of Wisconsin	71.8	3.2	4	18	25	35	21	3.7	1	45	10	8	3	9	8	7	15	11	18	2	1	
38	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	71.1	10.1	4	17	29	21	18	3.0	0	40	10	8	3	9	8	7	14	12	19	4	1	
39	Arnold Palmer Medical Center	70.8	1.9	6	15	23	19	24	3.3	1	43	10	8	3	8	8	7	13	12	17	1	1	
40	Children's Hospital of Orange County	70.6	2.7	5	16	29	23	15	2.5	1	48	9	8	3	8	8	7	13	11	18	1	1	
41	Akron Children's Hospital	70.4	2.4	4	18	29	29	16	3.1	1	48	10	8	3	9	8	7	14	12	18	0	1	
42	Levine Children's Hospital	69.7	1.2	6	17	23	24	15	2.8	1	42	9	7	3	7	8	7	14	11	16	0	1	
43	Children's Hospital and Medical Center	69.5	0.8	6	16	26	21	9	3.2	1	38	10	7	3	8	8	7	14	10	16	1	1	
44	Children's Hospital of Pittsburgh of UPMC	69.4	3.6	4	16	28	38	25	3.1	1	34	10	8	3	9	8	7	13	12	19	4	1	
45	University of Iowa Children's Hospital	69.3	3.5	4	17	28	26	15	2.8	1	47	10	8	3	9	8	7	13	12	18	1	1	
46	Children's Hospital at Montefiore	69.0	0.8	4	18	29	22	17	3.6	0	48	10	8	3	8	8	7	15	12	19	4	1	
47	University of Virginia Children's Hospital	68.8	0.0	6	17	27	20	14	2.6	0	42	10	7	3	8	8	7	12	12	18	3	1	
48	Brenner Children's Hospital	68.4	0.9	6	17	25	13	13	2.0	1	43	10	7	3	4	8	6	15	12	17	0	1	
49	Kosair Children's Hospital	68.0	1.7	4	18	24	20	15	2.2	1	40	10	8	3	9	8	7	15	12	18	4	1	
50	Steven and Alexandra Cohen Children's Medical Center	67.9	0.1	5	17	29	20	17	3.4	0	46	10	8	3	8	8	7	13	12	18	2	1	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Pulmonology

Rank	Hospital	U.S. News Specialty Score	Reputation with specialists	Success with asthma inpatients	Management of asthma patients	Management of cystic fibrosis patients	Management of lung disease of prematurity	Management of neuromuscular weakness disorder	Ventilator patient survival	Prevention of ICU infections	Use of infection-preventing measures	Prevention of pressure ulcers	Patient volume	Nonsurgical procedure volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Lung transplant program	Advanced clinical services	Clinical support services	Advanced technologies	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Cincinnati Children's Hospital Medical Center	100.0	68.0	5	14	12	6	6	5	7	39	2	20	11	3.5	1	26	2	21	8	1	8	7	15	12	10	3	5	
2	Texas Children's Hospital	99.4	52.2	5	14	11	4	5	6	8	39	2	23	11	3.2	1	28	6	21	8	1	8	7	15	11	10	3	4	
3	Children's Hospital of Philadelphia	96.9	70.8	4	13	12	6	6	6	5	41	1	24	12	3.4	1	26	4	22	8	1	8	7	15	11	10	3	3	
4	Boston Children's Hospital	95.9	65.6	4	11	9	6	4	6	5	38	3	22	9	4.0	1	28	5	22	8	1	8	7	15	12	10	3	4	Top 5%
5	Nationwide Children's Hospital	92.5	18.5	4	17	13	6	6	6	6	40	3	23	12	3.5	1	26	6	22	8	1	8	7	15	12	10	3	3	
6	Children's Hospital of Pittsburgh of UPMC	92.1	36.5	5	8	10	4	6	5	9	39	1	20	8	3.1	1	28	4	21	8	1	8	7	13	12	10	3	5	
7	Children's Hospital Colorado	90.1	61.0	4	12	10	6	4	6	5	37	1	19	12	3.0	1	27	NA	22	8	1	8	7	15	11	10	3	4	
8	St. Louis Children's Hospital-Washington University	89.7	31.7	5	20	10	6	6	4	8	36	1	17	8	3.4	1	25	4	20	8	1	8	7	15	12	10	3	5	
9	Seattle Children's Hospital	89.0	38.0	5	15	10	6	6	5	6	40	2	17	10	2.7	1	26	NA	17	8	1	8	7	15	10	10	3	3	Top 10%
10	Johns Hopkins Children's Center	86.8	31.1	4	17	12	6	6	6	3	37	2	17	8	3.2	1	26	1	21	8	1	8	7	13	12	9	3	4	
11	Rainbow Babies and Children's Hospital	85.2	23.2	4	15	10	6	6	6	6	41	1	20	7	3.0	1	28	1	21	8	1	8	7	14	12	10	3	3	
12	Lucile Packard Children's Hospital at Stanford	83.9	18.3	5	13	13	6	5	6	4	40	0	17	11	3.5	0	27	6	21	8	1	8	7	15	10	10	3	2	
13	Riley Hospital for Children at IU Health	79.8	13.3	4	18	10	6	6	6	3	39	3	22	10	2.9	1	26	NA	21	8	1	8	7	15	12	10	2	2	
14	Cleveland Clinic Children's Hospital	79.1	3.7	5	20	10	6	6	6	6	35	3	15	10	3.5	1	28	1	21	8	1	8	7	15	12	9	1	3	
15	Monroe Carell Jr. Children's Hospital at Vanderbilt	79.0	3.5	5	10	11	6	6	6	5	37	3	15	7	3.4	1	27	NA	18	8	1	8	7	15	12	10	3	3	
16	Children's Hospital Los Angeles	78.3	15.4	2	17	10	3	5	6	9	38	2	18	10	3.2	1	26	NA	20	8	1	8	7	13	12	10	3	3	
17	North Carolina Children's Hospital at UNC	78.1	21.1	4	12	10	6	6	6	4	34	1	10	7	4.5	1	27	2	22	8	1	7	7	10	12	9	2	2	
18	Mount Sinai Kravis Children's Hospital	77.7	0.0	5	18	14	6	6	6	6	40	3	9	4	3.4	1	27	NA	15	8	1	8	7	13	12	9	1	3	
19	UCSF Benioff Children's Hospital	77.4	2.5	4	13	12	6	4	6	5	41	3	14	8	3.2	1	27	NA	18	8	1	8	7	15	12	10	3	3	
20	Children's Hospital of Wisconsin	76.8	1.8	4	12	14	3	6	5	5	37	3	18	10	3.7	1	28	NA	20	8	1	8	7	15	11	10	3	2	
21	Miami Children's Hospital	76.0	1.7	5	18	12	6	6	6	6	38	2	19	5	2.5	1	28	NA	20	8	1	8	7	14	11	10	1	2	
22	Children's National Medical Center	75.8	3.0	4	12	10	4	6	6	7	40	2	19	8	3.3	1	27	NA	22	8	1	8	7	15	11	10	3	2	
23	Ann and Robert H. Lurie Children's Hospital of Chicago	75.7	13.0	5	9	13	1	3	1	8	34	0	17	9	3.3	1	28	NA	19	8	1	8	7	15	11	10	3	5	
24	NY-Presby Morgan Stanley-Komansky Children's Hosp.	75.2	9.2	4	9	7	6	4	6	8	39	2	18	8	3.0	0	24	6	21	8	1	8	7	14	12	10	3	3	
25	University of Michigan C.S. Mott Children's Hospital	73.3	5.4	4	11	12	4	6	6	5	40	1	17	6	3.6	0	27	NA	21	8	1	8	7	14	11	9	3	3	
26	Children's Hospital of Alabama at UAB	73.0	5.1	5	14	12	6	4	6	5	33	2	17	10	3.2	0	23	NA	19	8	1	8	7	14	11	10	3	2	
27	Arnold Palmer Medical Center	72.3	0.0	3	20	11	6	6	6	10	35	3	16	4	3.3	1	28	NA	17	8	1	8	7	13	12	10	0	3	
28	Phoenix Children's Hospital	72.0	0.1	5	15	10	3	6	5	8	40	3	19	11	3.1	0	28	NA	22	8	1	8	7	13	11	10	2	1	
29	Winthrop-University Hospital Children's Medical Center	71.9	0.9	4	15	10	5	6	6	10	40	3	9	4	4.2	0	28	NA	20	7	1	8	6	14	12	9	1	2	
30	Maria Fareri Children's Hospital at Westchester Med. Ctr.	71.8	2.2	4	16	14	6	6	6	3	33	3	23	8	2.9	0	27	NA	22	8	1	8	7	11	12	9	1	4	
30	Penn State Hershey Children's Hospital	71.8	0.5	4	10	9	6	4	6	10	37	3	15	4	2.6	1	25	NA	17	8	1	8	7	14	12	8	3	2	
32	Children's Healthcare of Atlanta	71.5	2.6	5	14	12	0	0	5	5	37	2	20	10	3.2	0	28	1	22	8	1	8	7	15	12	10	3	4	
33	Rady Children's Hospital	71.4	2.8	5	19	11	2	5	6	6	38	1	16	6	3.0	0	26	NA	19	8	1	8	7	13	12	9	3	3	
34	Children's Hospital of Orange County	71.3	0.3	5	14	10	6	6	6	6	41	2	15	9	2.5	1	25	NA	18	8	1	8	7	13	11	10	1	1	
34	UF Health Shands Children's Hospital	71.3	0.8	5	17	11	0	6	4	6	39	2	8	6	2.6	1	26	4	20	8	1	8	7	12	12	9	2	4	
36	Children's Hospital of Michigan	71.0	0.1	5	17	10	1	6	6	5	37	3	13	7	3.1	0	28	NA	18	8	1	8	7	15	12	10	2	5	
37	University of Virginia Children's Hospital	70.9	0.0	4	12	14	6	6	6	7	37	2	10	4	2.6	0	28	NA	15	7	1	8	7	12	12	9	2	4	
38	Steven and Alexandra Cohen Children's Medical Center	70.2	0.2	3	17	10	2	6	6	10	41	3	13	5	3.4	0	26	NA	17	8	1	8	7	13	12	9	3	3	
39	Le Bonheur Children's Hospital	69.9	1.8	5	17	8	5	6	6	6	35	2	17	8	2.6	0	26	NA	22	8	1	8	7	15	12	10	3	2	
40	Doernbecher Children's Hospital at OHSU	69.6	0.3	4	14	9	6	6	6	6	38	3	12	7	3.6	1	25	NA	17	8	1	8	7	14	12	9	1	2	
41	Children's Mercy Hospitals and Clinics	69.4	1.4	4	12	9	1	4	6	4	39	2	19	9	4.2	1	26	NA	21	8	1	8	7	15	12	9	2	4	
42	Nemours Alfred I. duPont Hospital for Children	69.2	1.1	3	19	9	6	4	6	5	38	2	20	7	3.4	1	28	NA	20	8	1	8	7	15	12	10	2	2	
42	Spectrum Health Helen DeVos Children's Hospital	69.2	0.5	5	11	11	1	6	6	6	30	3	12	9	3.1	1	28	NA	19	8	1	8	7	14	11	9	0	2	
44	Yale-New Haven Children's Hospital	68.6	2.0	4	11	11	6	6	4	4	38	3	11	6	2.5	1	24	NA	15	8	1	8	7	14	12	9	3	2	
45	Mayo Clinic Children's Center	68.5	2.0	4	12	10	2	6	6	5	37	2	9	6	3.4	1	28	NA	16	8	1	8	6	15	12	9	2	1	
46	Duke Children's Hospital and Health Center	68.2	1.1	4	11	12	0	4	3	7	38	2	12	5	2.5	1	27	4	11	8	1	8	7	13	12	10	3	3	
46	Massachusetts General Hospital for Children	68.2	2.8	4	10	8	6	6	6	2	36	3	12	4	2.9	1	27	NA	18	8	1	8	7	13	12	8	2	4	
48	All Children's Hospital	67.5	0.0	5	11	12	4	5	6	5	33	3	12	5	3.3	0	27	NA	12	8	1	8	7	14	12	10	1	2	
49	Akron Children's Hospital	67.4	1.2	4	11	10	4	6	6	7	37	2	16	4	3.1	1	23	NA	20	8	1	8	7	14	12	10	0	2	
49	University of Iowa Children's Hospital	67.4	2.1	4	14	9	6	6	6	4	36	1	10	4	2.8	1	28	NA	22	8	1	8	7	13	12	8	2	2	

Rankings are based on all of the above measures. NA: not applicable. NR: not reported.

Best Children's Hospital 2015-16: Urology

Rank	Hospital	U.S. News Specialty Score	Reputation wkh specialists	Prevention of surgical complications	Emergency treatment for testicular torsion	Prevention of urinary tract infections	Use of infection-preventing measures	Patient volume	Surgery volume	Minimally invasive procedure volume	Nursing intensity	Nurse Magnet recognition	Commitment to best practices	Advanced clinical services	Clinical support services	Advanced technologies	Specialized clinics and programs	Patient and family services	Steps to engage families	Commitment to quality improvement	Adoption of health information technology	Fulltime subspecialists available	Active fellowship program	Commitment to clinical research	
1	Boston Children's Hospital	100.0	83.0	13	2	2	23	22	18	11	4.0	1	27	6	8	3	6	8	7	15	12	11	3	3	
2	Children's Hospital of Philadelphia	99.9	81.1	13	2	2	24	24	16	10	3.4	1	29	6	8	3	6	8	7	15	11	11	3	3	
3	Texas Children's Hospital	97.7	39.4	13	2	4	22	21	16	12	3.2	1	29	6	8	3	6	8	7	15	11	11	3	3	
4	Riley Hospital for Children at IU Health	97.4	63.2	16	2	2	22	21	16	8	2.9	1	27	6	8	3	6	8	7	15	12	11	2	3	Top 5%
5	Cincinnati Children's Hospital Medical Center	95.3	48.9	15	1	4	23	19	15	10	3.5	1	28	6	8	3	6	8	7	15	12	11	3	3	
6	Monroe Carell Jr. Children's Hospital at Vanderbilt	95.2	48.1	13	2	2	22	24	18	12	3.4	1	29	6	8	3	6	8	7	15	12	11	3	3	
7	Steven and Alexandra Cohen Children's Medical Center	92.9	6.9	18	2	5	24	22	19	12	3.4	0	28	6	8	3	6	8	7	13	12	11	3	3	
8	Johns Hopkins Children's Center	91.0	26.8	16	2	2	23	15	13	6	3.2	1	29	6	8	3	6	8	7	13	12	11	3	3	Top 10%
9	Ann and Robert H. Lurie Children's Hospital of Chicago	89.6	38.7	12	1	4	23	22	14	11	3.3	1	28	6	8	3	6	8	7	15	11	11	3	3	
10	Children's Hospital Los Angeles	85.1	10.4	15	1	5	22	17	17	12	3.2	1	28	6	8	3	6	8	7	13	12	11	2	3	
11	Children's National Medical Center	84.8	20.0	12	2	2	24	19	10	12	3.3	1	26	6	8	3	6	8	7	15	11	11	3	3	
12	Seattle Children's Hospital	84.3	40.5	13	1	3	24	13	12	9	2.7	1	25	4	8	3	6	8	7	15	10	11	3	3	
13	St. Louis Children's Hospital-Washington University	80.9	5.5	12	2	4	20	14	12	8	3.4	1	27	6	8	3	6	8	7	15	12	11	3	3	
14	Mayo Clinic Children's Center	80.5	3.5	18	2	2	22	17	10	7	3.4	1	26	6	8	3	6	8	6	15	12	10	2	3	
15	Penn State Hershey Children's Hospital	78.6	1.4	14	2	5	21	9	11	7	2.6	1	27	6	8	3	6	8	7	14	12	10	2	2	
16	Children's Hospital of Pittsburgh of UPMC	78.1	12.8	10	1	4	23	16	14	10	3.1	1	29	6	8	3	6	8	7	13	12	11	3	3	
17	Children's Healthcare of Atlanta	77.4	12.4	15	1	2	24	19	18	11	3.2	0	29	6	8	3	6	8	7	15	12	11	3	3	
18	Akron Children's Hospital	76.3	1.0	17	2	2	24	18	10	6	3.1	1	27	6	8	3	6	8	7	14	12	11	0	3	
19	Mattel Children's Hospital UCLA	76.1	5.0	17	1	3	23	10	10	5	3.2	1	29	6	8	3	6	8	7	11	11	11	2	3	
20	UC Davis Children's Hospital-Shriners Hospitals for Children	76.0	1.1	17	2	2	24	11	8	5	3.7	1	27	6	8	3	6	8	7	14	12	11	0	3	
21	Phoenix Children's Hospital	75.3	2.5	13	2	3	23	24	18	7	3.1	0	29	6	8	3	6	8	7	13	11	11	2	3	
22	Cleveland Clinic Children's Hospital	75.0	0.7	18	2	2	18	10	11	7	3.5	1	29	6	8	3	6	8	7	15	12	11	1	2	
22	UCSF Benioff Children's Hospital	75.0	9.8	9	2	2	24	12	11	3	3.2	1	28	6	8	3	6	8	7	15	12	11	3	3	
24	University of Iowa Children's Hospital	74.9	4.2	13	2	2	23	14	10	10	2.8	1	29	6	8	3	6	8	7	13	12	10	1	3	
25	Arnold Palmer Medical Center	74.8	0.5	18	2	5	18	5	8	8	3.3	1	26	6	8	3	3	8	7	13	12	10	0	0	
26	Lucile Packard Children's Hospital at Stanford	74.6	7.8	11	2	3	23	14	9	5	3.5	0	28	6	8	3	5	8	7	15	10	11	3	3	
27	Children's Hospital Colorado	73.2	6.4	10	2	2	21	15	12	7	3.0	1	27	6	8	3	6	8	7	15	11	11	3	3	
27	Nemours Alfred I. duPont Hospital for Children	73.2	1.9	13	2	2	21	13	12	9	3.4	1	29	6	8	3	6	8	7	15	12	11	2	2	
29	Children's Mercy Hospitals and Clinics	73.0	1.7	15	2	0	24	17	13	6	4.2	1	27	6	8	3	6	8	7	15	12	11	2	3	
30	Nationwide Children's Hospital	72.8	19.3	13*	1	2	23	23	13	10	3.5	1	25	6	8	3	6	8	7	15	12	11	3	3	
31	Primary Children's Hospital	72.4	8.4	10	2	1	24	21	18	9	4.4	0	27	6	8	3	6	8	7	15	10	11	3	3	
32	NY-Presby Morgan Stanley-Komansky Children's Hosp.	71.9	5.3	9	2	3	24	14	15	10	3.0	0	28	6	8	3	6	8	7	14	12	11	2	3	
33	Children's Medical Center Dallas	71.4	18.4	11	1	0	21	21	16	12	3.0	1	29	6	8	3	6	8	7	14	12	11	3	3	
34	Mount Sinai Kravis Children's Hospital	71.1	0.5	15	2	2	23	9	7	4	3.4	1	28	4	8	3	5	8	7	13	12	10	1	3	
35	Children's Hospital at OU Medical Center	71.0	8.8	17	2	1	17	15	11	12	3.3	0	24	6	7	3	5	7	7	11	12	11	1	3	
36	Children's Hospital of Orange County	70.7	2.3	12	2	1	24	17	14	8	2.5	1	28	6	8	3	6	8	7	13	11	11	2	3	
37	Rady Children's Hospital	69.8	6.1	16	1	2	24	17	11	5	3.0	0	29	6	8	2	6	8	7	13	12	11	3	2	
38	University of Michigan C.S. Mott Children's Hospital	68.9	7.6	14	1	2	24	14	14	8	3.6	0	26	6	8	3	5	8	7	14	11	11	3	2	
39	Children's Hospital of Alabama at UAB	67.0	3.6	14	1	4	18	13	9	7	3.2	0	27	6	8	3	4	8	7	14	11	11	2	3	
40	Children's Hospital of Wisconsin	66.7	1.8	11	1	2	20	21	17	11	3.7	1	26	6	8	3	6	8	7	15	11	11	3	3	
41	University of Virginia Children's Hospital	66.3	1.6	12	1	5	22	7	10	8	2.6	0	28	6	7	3	4	8	7	12	12	11	2	3	
42	Children's Hospital of Michigan	66.1	3.9	13	1	2	24	16	10	10	3.1	0	27	6	8	3	6	8	7	15	12	11	2	3	
43	Maria Fareri Children's Hospital at Westchester Med. Ctr.	65.8	1.1	14	2	2	17	14	19	12	2.9	0	25	6	8	3	5	8	7	11	12	11	1	3	
44	Connecticut Children's Medical Center	65.3	4.1	13	2	2	15	18	12	11	2.1	0	28	6	7	3	6	7	6	15	10	10	1	3	
44	North Carolina Children's Hospital at UNC	65.3	3.3	11	2	2	20	7	8	5	4.5	1	26	6	8	3	5	7	7	10	12	10	1	2	
46	Duke Children's Hospital and Health Center	64.6	4.0	16	1	2	23	10	7	7	2.5	1	21	4	8	3	4	8	7	12	12	11	2	2	
47	Rainbow Babies and Children's Hospital	64.0	2.5	14	1	1	24	9	10	6	3.0	1	29	6	8	2	6	8	7	14	12	10	2	2	
48	Joe DiMaggio Children's Hospital at Mem. Reg. Hosp.	63.9	0.2	14	1	5	21	5	6	9	3.4	0	28	6	7	2	3	8	7	13	11	11	1	2	
49	Doernbecher Children's Hospital at OHSU	62.4	1.9	15	1	1	22	8	8	6	3.6	1	25	6	8	3	3	8	7	14	12	11	1	3	
50	Children's Hospital at Montefiore	61.2	1.3	12	2	1	24	8	9	4	3.6	0	24	6	8	3	6	8	7	15	12	11	2	1	

*Value revised from 8 to 13 after receiving corrected data from hospital. The specialty score and rank are based on the initial data and have not been recalculated.

Appendix D

2015-16 Best Children's Hospitals Honor Roll

2015-16 Best Children's Hospitals Honor Roll

Rank	Hospital	Points	Specialties
1	Boston Children's Hospital	20	10
2	Children's Hospital of Philadelphia	19	10
3	Cincinnati Children's Hospital Medical Center	15	10
4	Texas Children's Hospital, Houston	12	6
5	Children's Hospital Colorado, Aurora	7	6
6	Seattle Children's Hospital	7	5
7	Children's Hospital Los Angeles	6	5
8	Children's Hospital of Pittsburgh of UPMC	6	4
9	Nationwide Children's Hospital, Columbus, Ohio	5	5
10	Children's National Medical Center, Washington, D.C.	5	3
11	Ann and Robert H. Lurie Children's Hospital of Chicago	3	3
11	Children's Healthcare of Atlanta	3	3