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Methodology:
U.S. News & World Report
Best Children's Hospitals 2018-19

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To Whom It May Concern:

Executive Summary

Pediatrics has been an element of Best Hospitals ever since 1990, when U.S. News & World Report published the first annual "America's Best Hospitals" rankings, as they were then called. The initial evaluations, in 12 specialties, comprised short lists of centers that were identified through a survey of physician specialists as providing the best care for the most challenging patients.

For the first time, patients and families had a tool to help narrow their search for a hospital particularly skilled in performing difficult procedures, treating serious conditions and otherwise demonstrating an especially high level of care. While that core mission has not changed, U.S. News broadened its scope in 2015 by adding ratings of some 4,600 hospitals in relatively commonplace procedures and conditions such as heart bypass surgery, knee and hip joint replacement and COPD.

By 1993 hard data had been incorporated into most Best Hospitals specialty rankings, but until 2007 the pediatric rankings continued to rely entirely on an annual survey of pediatric specialists because hard data comparable to the MedPAR files for Medicare recipients was unavailable. Pediatric-specific data were critical. Benchmarking and data generated from adult patients, to the extent that such information existed at all, could not be applied to children. Structuring coordinated care for congenital conditions such as spina bifida and cystic fibrosis, determining drug dosages and minimizing vulnerability to infection are a few of many factors that make pediatric patients unique.

Lacking robust pediatric data bases, U.S. News elected to collect data directly from children's hospitals through a comprehensive clinical and operational survey. The first rankings to incorporate data from such a survey, developed by RTI International[*], were published in 2007 in the form of the top 30 children's centers in General Pediatrics. Specialty rankings were not included.

In the years that followed, data collection was broadened and deepened. The current methodology continues to include reputational survey results (expert opinion) as well as supplemental information from resources such as the National Cancer Institute. 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.

To provide parents with information about more centers and demonstrate transparency, pediatric centers below the line – that is, those that are not nationally ranked – are now displayed.

[*] RTI International is the trade name of Research Triangle Institute.

Pediatric centers that provided sufficient data to receive an overall U.S. News Score but fell short of the top 50 are displayed with their calculated metrics but without rank or score.

Each of the 189 facilities surveyed for the 2018-19 Best Children's Hospitals rankings is either a freestanding children's hospital or a "hospital within a hospital" – a large, essentially autonomous multidisciplinary pediatric department within a major medical center. Most are members of the Children's Hospital Association (CHA).†

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

In the 2018-19 rankings, 86 of the 189 surveyed hospitals were ranked among the top 50 in at least one specialty. The 2018-19 Best Children's Hospitals Honor Roll recognizes the 10 hospitals with the highest rankings across all specialties.

† The National Association for Children's Hospitals and Related Institutions (NACHRI) was renamed the Children's Hospital Association in 2012. See http://www.childrenshospitals.net for details.

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

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I. Introduction

Rankings in pediatrics were included in the initial "America's Best Hospitals" rankings in 1990. Until 2007, however, the pediatric rankings relied entirely on reputational surveys of board-certified pediatricians and adolescent-medicine specialists.

The reason was that quantitative pediatric measures in 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 solely on expert opinion for an indeterminate period while performance data were codified and the means of collecting and verifying them settled was felt to be unacceptable. U.S. News asked RTI International, U.S. News contractor for the adult Best Hospitals rankings, to develop a rigorous methodology for ranking hospitals in pediatrics that would incorporate data obtained directly from the hospitals.

The resulting methodology and initial version of a direct hospital survey (referenced in this report as the Pediatric Hospital Survey) produced General Pediatrics rankings of 30 hospitals, published in the September 3, 2007, issue of U.S. News & World Report as "Best Children's Hospitals." The issue was separate from the issue with the adult rankings, to highlight the change and minimize possible confusion.

The Pediatric Hospital Survey and the reputational 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 specialties expanded to 10 that still define the specialty universe:

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

[**] A relatively small number of children do receive care under Medicare under narrow eligibility definitions because of legislatively mandated coverage.

[††] Previous methodology reports are available online at www.rti.org/besthospitals.

Like their adult counterpart, the Best Children's Hospitals rankings reflect the interrelationship between structure, process and outcomes, the three components of the Donabedian paradigm.[1-5] Individual measures, their weights and approach to scoring are quite different in the pediatric rankings, however.

The Donabedian components represent the following healthcare concepts:

- *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.
- *Process* encompasses overall rendering of diagnosis, treatment, prevention and patient education. Process is represented in part by an expert opinion 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* obviously include survival but can also include functional success (as in children with cystic fibrosis) and incidence of adverse events (such as bloodstream infections and transplant-organ failure).

Each major component of the Best Children's Hospitals ranking score—structure, outcomes and process—is worth exactly one-third of the overall score other than in Cardiology & Heart Surgery, in which outcomes weight in the overall score has been increased in the 2017-18 rankings to 38.3 percent and the process weight lowered to 28.3 percent. (Details are provided in Table 15.) The specific measures, their weights and the scoring algorithm all are quite different from their adult counterparts.

Section II of this report outlines the general eligibility requirements for consideration in the pediatric rankings. As in previous years, most structure and outcomes data for the 2018-19 rankings were obtained directly from children's hospitals through the Pediatric Hospital Survey (***Section III***). Data for three measures were supplied by external organizations: Nurse Magnet recognition (American Nurses Credentialing Center), accreditation by FACT for BMT and tissue transplant (Foundation for the Accreditation of Cellular Therapy) and commitment to best practices in treating patients with seizure disorders (National Association of Epilepsy Centers).

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. ***Sections IV, V, and VI*** describe 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 V***.

II. Eligibility

A. General Eligibility

To be considered for the 2018-19 pediatric rankings, hospitals had to provide extensive data about their services and capabilities through the 2018-19 Pediatric Hospital Survey (https://usnewspediatricsurvey.rti.org/PaperSurvey.aspx).

Historically, initial eligibility for the rankings has been determined by membership in the Children's Hospital Association (CHA) or by nomination by teams of expert advisers. U.S. News and RTI have supplemented the universe by adding hospitals that have expressed interest in public reporting, after consideration of the size and scope of each hospital's pediatric program.

Of the 189 hospitals that qualified for 2018-19 inclusion, 118, or 62.4 percent, submitted sufficient data through the Pediatric Hospital Survey to be considered for ranking in at least one specialty. Each facility met the description of one of three groups: 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 a specialty hospital (such as one that exclusively treats cancer or orthopedic patients).

As of the 2016-17 rankings, participating hospitals had to agree that their evaluated data would be publicly displayed even if they did not rank among the top 50 in a specialty. In previous years, only results for the top 50 hospitals in a specialty were publicly available. This requirement provides families with additional important information and demonstrates commitment to transparency by the hospitals and the Best Children's Hospital rankings process.

B. Specialty-Specific Eligibility

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

- In specialties other than Neonatology, a hospital had to verify in the Pediatric Hospital Survey that services in the specialty were in fact available. In Neonatology, a

hospital also had to have a Level IV neonatal intensive care unit (NICU). Validation of this NICU status could be met based either on state determination of Level IV status or satisfaction of Level IV eligibility requirements 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.

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, pediatric anesthesiologist with specialty cardiac training, or pediatric radiologist) (E2b, E2c, E2d, E2e, E2f, E2g, or E2h)
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

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

evolve by providing new findings and perspectives that can be incorporated before the survey is finalized and sent to hospitals.

Panel members do not serve fixed terms. Members who drop out through normal attrition are replaced by RTI through a request to the pediatric hospital community for candidates with broad expertise in both general and specialty pediatric medical care and familiarity with current research on hospital quality. The 2018-19 panels included pediatric physicians, nurses, hospital quality experts, health information systems/coding experts and other healthcare professionals. A group of infection-control experts and a group of radiologists worked with the 10 specialty panels to address specialty-specific infection-control and prevention issues. The names and institutions of all individual working group members are provided, with their permission, in ***Appendix A***.

Through conference calls, ad hoc phone discussions and emails during the summer and fall of 2017, working group members proposed, reviewed and discussed revisions to the previous version, including potential new measures. Smaller subgroups of members in each working group were responsible for reviewing the revised codes to ensure that the selected codes were relevant and appropriate. The RTI project team then created a draft set of measures and a survey instrument.

A draft of the survey was provided as a Microsoft Word document to hospitals at the beginning of December 2017 on an FYI basis, to give them as much time as possible to collect and organize data before the official start date. They received the finalized survey in early January 2018 via a dedicated Web page. Survey responses were accepted until mid- March.

Some measures were ultimately excluded after data were submitted because the results failed to demonstrate meaningful variability. The remaining items are described in detail below, with references to the corresponding survey question numbers in parentheses.

The Pediatric Hospital Survey 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 and system measures, the 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 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. Each measure's relative weight within a specialty is provided in ***Section IV.B. Normalization and Weighting***.

Accredited by FACT (Cancer)

Accreditation indicates that as of March 1, 2018, a hospital met standards set by the Foundation for Accreditation of Cellular Therapy for transplanting cells to treat pediatric cancer, an indication of a high degree of care in handling and using cellular tissue. Programs could be certified as providing adult or pediatric services 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 or adult service provider for either autologous or allogeneic transplants (B19a). Currently accredited facilities are listed at http://www.factwebsite.org.

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. Each specialty has one or more programs that are considered flagship programs in their specialty. Hospitals that have at least one active fellow in these programs are awarded 2 points for each program. ***Table 2*** indicates fellowships credited and the number of points for each specialty.

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)					1		2			
Congenital cardiac surgery (A6b)		2			1					
Neonatal-perinatal medicine (A6c)					2					
Neurosurgery (with training in pediatrics) (A6d)	1				1		2			
Pediatric cardiology (A6e)		2			1					
Pediatric endocrinology (A6f)			2							
Pediatric gastroenterology (A6g)				2	1					
Pediatric hematology-oncology (A6h)	2									
Pediatric nephrology (A6i)						2				
Neuroradiology (with training in pediatrics) (A6j)	1				1					
Pediatric pulmonology (A6k)					1				2	
Pediatric urology (A6l)	1									2
Pediatric surgery (A6m)	1	1								
Pediatric infectious diseases (A6n)	1	1	1	1	1	1	1	1	1	1
Orthopedic surgery of the spine (with training in pediatrics) (A6o)								2		
Pediatric critical care medicine (A6p)	1	1	1	1	1	1	1	1	1	1
Pediatric advanced transplant hepatology (A6q)				1						
Pediatric rheumatology (A6r)			1					1		
Pediatric physical medicine and rehabilitation (A6s)	1	1	1	1	1	1	1	1	1	1
Pediatric radiology (A6t)	1	1	1	1	1	1	1	1	1	1

(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 interventional radiology (with training in pediatrics) (A6u)	1				1	1	1			
Advanced motility training program (D34)				1						
Advanced nutritional training program (D35)				1						
Advanced hepatology training program (D36)				1						
Pediatric orthopedics (I6.1)								2		
Total Elements	**11**	**9**	**7**	**10**	**14**	**7**	**9**	**9**	**6**	**6**

* Parenthetical references indicate related survey questions

Adoption of Health Information Technology (All Specialties)

In each specialty, hospitals received up to 13 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 7 points for EMR: 1 point if the EMR identifies and reports potential adverse events for patients (A23), 1 point if they could exchange patient information with organizations that have the same EMR system or 2 points if they could exchange patient information with organizations that have a different EMR system (A23.2). Hospitals that have an EMR with certain patient engagement features received up to 4 points, 1 for each of the following: online access to medical notes or records (A23.3a), ability to request a revision to medical notes or records online (A23.3b), ability to schedule visits online (A23.3c), and ability to send and receive electronic messages with medical providers (A23.3d).

Adult Congenital Heart Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 11 points for having an adult congenital heart program. Hospitals received 1 point for providing an organized adult congenital heart program (E16). Hospitals received up to 2 additional points based on the status of accreditation with the Adult Congenital Heart Association to become an Adult Congenital Heart Association Comprehensive Care Center (E20): 2 points if the program is fully accredited, or 1 point if the program has partially completed the accreditation process. These programs are often provided by pediatric heart centers, which frequently have the most expertise in inherited and congenital heart disorders.

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

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

Advanced Clinical Services Offered (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***. Up to eight points were awarded for having a pediatric trauma center in Neurology & Neurosurgery, Orthopedics, and Pulmonology. 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.

[§§] Specific adult cardiac surgical operations included are listed in Table 7 of the STS Congenital Heart Surgery Database for the past four reporting years.

Table 3. Advanced Clinical Services Offered by Specialty

Cancer (25 points)		
Service	**Description***	**Points**
Sedation services	Provides sedation/anesthesia by pediatric specialists for radiation therapy, lumbar punctures and bone marrow biopsies. (B7)	1
Support staff/programs	Offers the following programs and supporting staff (B11, B11.1, and B11.2): • Complementary and alternative medicine or holistic health program • Pediatric cancer 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 • Fertility preservation program • Cancer genetics/hereditary program • Sibling targeted support services • Bereavement services for families • Developmentally appropriate procedural preparation support for invasive medical procedures • Having 50% or more of direct clinical care RNs with national oncology certification • Having 50% or more of chemotherapy patients with a formal initial psychosocial assessment before or within 4 weeks of therapy	15
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) • Formal annual chemotherapy training (e.g., order writing, dispensing, administration) (B15d) • Formal chemotherapy safety program with standardized procedures and event tracking (including order misses/near-misses) (B15e) • Designated pediatric oncology faculty leader for the chemotherapy safety program (B15f)	6
Chemotherapy orders	1 point for orders written using word processing or spreadsheet software; 2 points for CPOE; 3 points for CPOE with plan-driven orders (B16)	3

* Parenthetical references indicate related survey questions (continued)

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

Cardiology & Heart Surgery (15 points)		
Service	**Description***	**Points**
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-j, E6l): • 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	10
Circulatory support	Provided ventricular assist devices (other than ECMO) for one or more patients in the past 4 years (E26)	1
Diabetes & Endocrinology (20 points)		
Service	**Description***	**Points**
Diabetes & Endocrinology support staff	Having at least 1 of the following staff with Certified Diabetes Educator certification provide diabetes education to patients: • Nurses, pharmacists, social workers, psychologists (C5a and C5c) • Dietitians (C5b)	2
	Having at least 1.0 FTE of the following staff dedicated 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 to records for both inpatients and outpatients (C8)	2

* Parenthetical references indicate related survey questions (continued)

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

Diabetes & Endocrinology, continued (20 points)		
Description*	**Description***	**Points**
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 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) • A Family Advisory Board that includes families of non-diabetes Endocrinology patients (C61)	3
Gastroenterology & GI Surgery (7 points)		
Service	**Description***	**Points**
Gastro-intestinal (GI) specialists	Has following specialists available for consultation 7 days a week (D8): • Pediatric gastroenterology/liver-specialized pathologists • Pediatric gastroenterology interventional radiologists	2
GI support groups	Provides access to the following support groups (D12): • Inflammatory bowel disease • Celiac disease • Liver disease or transplant • Eosinophilic esophagitis • Chronic intestinal failure	5

* Parenthetical references indicate related survey questions (continued)

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

Neonatology (4 points)		
Service	**Description***	**Points**
NICU support staff	NICU-dedicated staff in these units: • NICU-specific pharmacist onsite who attends weekday work rounds daily with clinical team (F7a) • NICU-dedicated respiratory therapy team who attends weekday work rounds daily with clinical team (F7b) • NICU-designated dietician who attends weekday work rounds daily with clinical team (F7c) • NICU-dedicated social workers (F11)	4
Nephrology (9 points)		
Service	**Description***	**Points**
Maintenance dialysis staff	Has at least 0.5 FTE of the following staff dedicated to maintenance dialysis (G5): • Clinical nurses • Social workers • Dieticians • Child life specialists • Psychologists/Psychiatrists	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)

Neurology & Neurosurgery (20 points)		
Service	**Description***	**Points**
Pediatric trauma center	8 points for Level 1 pediatric trauma center or 4 points for Level 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	8
Neurology & neurosurgery support services and technology	Offers the following: • Ketogenic diet evaluation and management program (H5c) • Neuroendovascular interventionalists (H5d) • Neuroanesthesia program (H5e) • Multidisciplinary neurocritical care program (H24) • Inpatient pediatric rehabilitation program with pediatric physiatrist (H13) • Inpatient pediatric rehabilitation program certified by Commission on Accreditation of Rehabilitation Facilities (H13.1) • Inpatient pediatric rehabilitation program that participates in and submits data to the Universal Data System for Medical Rehabilitation (UDSMR) (H13.2) • Neuropsychological testing by pediatric neuropsychologists (H14)	8
Epilepsy treatment	Offers the following: • Electroencephalography (EEG) lab accredited by ABRET (H7) • In-house EEG technologists available 24/7 to place electrodes (H7.1) • In-house EEG technologists available to review EEG continuously 24/7 (H7.2) • Epilepsy monitoring unit with emergency management of seizures protocols (H30)	4

* Parenthetical references indicate related survey questions (continued)

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

Orthopedics (15 points)		
Service	**Description***	**Points**
Pediatric trauma center	8 points for Level 1 pediatric trauma center or 4 points for Level 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	8
Advanced care services	Comprehensive pediatric orthopedic program with: • Designated inpatient unit for pediatric orthopedic patients (I7) • Dedicated pediatric imaging center located in outpatient clinics (not separate facility) (I8) • Imaging center staffed by a pediatric radiologist with qualification in pediatric radiology by American Board of Radiology (I9) • Multidisciplinary musculoskeletal oncology program (I16) • Advanced Motion Analyses Laboratory (gait laboratory) (I19) • Gait laboratory accredited by the Commission for Motion Laboratory Accreditation (CMLA) (I19.1) • Providing seating services or wheelchair clinics for at least 1 patient with neuromuscular disorders (I43 & I44)	7
Pulmonology (27 points)		
Service	**Description***	**Points**
Pediatric trauma center	8 points for Level 1 pediatric trauma center or 4 points for Level 2 pediatric trauma center certified by American College of Surgeons or state licensing board (A19)	8
Asthma care specialists	Access to at least 0.5 FTE staff with clinical responsibilities (J5): • Respiratory therapists • Social workers • Dieticians • Physical therapists • Psychiatrists or psychologists	5

* Parenthetical references indicate related survey questions (continued)

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

Pulmonology, continued (27 points)		
Description*	**Description***	**Points**
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 • Dietician • Social worker	12
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 (3 points)		
Service	**Description***	**Points**
Treatment options	Offers the following treatment modalities (K11): • Stone treatment, including shock wave lithotripsy • Laparoscopic orchiopexy/orchidectomy for intra-abdominal testes • Laparoscopic surgery, including cyst ablation, pyeloplasty, nephrectomy, partial nephrectomy, heminephrectomy, ureteral reimplantation, or ureteroureterostomy	3

* Parenthetical references indicate related survey questions

Advanced Technologies (All Specialties)

To receive credit, hospitals must provide access to key diagnostic and treatment technologies. For the technologies listed in A10, hospitals had to offer services onsite. For other technologies, hospitals could offer the services onsite or through the hospital's health system, a local community network or indirectly, through a contractual arrangement or joint venture with another community provider. 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 B***.

Table 4. Advanced Technologies by Specialty

Specialty	Technologies*
Cancer (14 technologies)	• Positron emission tomography (PET)/magnetic resonance imaging (MRI) or PET/computerized tomography (CT) scanning offered onsite (A10a or A10b) • Intraoperative magnetic resonance imaging (ioMRI) offered onsite (A10c) • 3-Tesla magnetic resonance imaging (3T MRI) offered onsite (A10d) • Image-guided radiation therapy offered onsite (A10e) • Intensity-modulated radiation therapy offered onsite (A10f) • Portable CT scanning unit offered onsite (A10g) • Linear accelerator or other linear particle accelerator, Gamma Knife, CyberKnife, or other shaped-beam stereotactic radiation therapies (A11) • Therapeutic meta-iodo-benzyl-guanidine with I-131 radionuclide (B8a) • Functional magnetic resonance (B8b) • Brachytherapy (B8c) • Stereotactic radiosurgery (B8d) • Intra-arterial chemotherapy or embolization for solid tumors (B8e) • Radiofrequency ablation and/or cryoablation (B8f) • Pediatric interventional radiology equipment and room (B9)
Cardiology & Heart Surgery (8)	• Portable CT scanning unit offered onsite (A10g) • Dedicated interventional radiology team offered onsite (A10j) • Intraoperative transesophageal echocardiographic testing (E6k) • Cardiac CT angiography (E7a) • Cardiac MRI with functional cardiac imaging (E7b) • Stress echo testing (E7c) • Quantitative Pulmonary Perfusion Scan (E7d) • Transcatheter arrhythmia ablation methodologies (three-dimensional mapping, cryoablation or radiofrequency ablation) (E14a-c)

* Parenthetical references indicate related survey questions (continued)

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Diabetes & Endocrinology (12)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Portable CT scanning unit offered onsite (A10g) • Dedicated interventional radiology team offered onsite (A10j) • Diagnostic radioisotope scan (C51a) • Therapeutic radioiodine treatment for Graves' disease (C51b) • Therapeutic radioiodine treatment for thyroid cancer (C51c) • Ultrasound guided fine needle biopsy or 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 (17)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Portable CT scanning unit offered onsite (A10g) • 24/7 availability of ultrasound for suspected appendicitis offered onsite (A10h) • Dedicated interventional radiology team offered onsite (A10j) • Magnetic resonance cholangiopancreatography (D7a) • Magnetic resonance enterography (D7b) • DXA scan (D7c) • Ultrasound elastography (USE) for assessing liver fibrosis (D7d) • Magnetic resonance elastography (MRE) for assessing liver fibrosis (D7e) • Capsule endoscopy (D11a) • Endoscopic band ligation/sclerotherapy (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) • Deep enteroscopy-single or double balloon (D11h)

* Parenthetical references indicate related survey questions (continued)

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Neonatology (10)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Portable CT scanning unit offered onsite (A10g) • Fast shunt MRI for hydrocephalus offered onsite (A10i) • Dedicated interventional radiology team offered onsite (A10j) • Continuous video electroencephalography (EEG) monitoring and reading with pediatric neurology support (F12a) • Virology laboratory with weekday 24-hour availability (F12b) • Onsite genetic specialists with expertise in interpreting and counseling family about exome sequencing results (F12c) • Less than 24-hour turnaround time for comprehensive respiratory viral molecular testing (F12d) • Less than 24-hour turnaround time for amino acid analysis (F12e) • Less than 24-hour turnaround time for urine organic acid (F12f)
Nephrology (1)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b)
Neurology & Neurosurgery (11)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • ioMRI offered onsite (A10c) • 3T MRI offered onsite (A10d) • Portable CT scanning unit offered onsite (A10g) • Fast shunt MRI for hydrocephalus offered onsite (A10i) • Dedicated interventional radiology team offered onsite (A10j) • 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) • Nuclear medicine brain SPECT and/or brain PET (H5h)
Orthopedics (4)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Digitally stored test results, images, and medical records (I10b) • Portable CT scanning unit offered onsite (A10g) • Dedicated interventional radiology team offered onsite (A10j)
Pulmonology (3)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Portable CT scanning unit offered onsite (A10g) • Dedicated interventional radiology team offered onsite (A10j)
Urology (5)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Portable CT scanning unit offered onsite (A10g) • Dedicated interventional radiology team offered onsite (A10j) • 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 15 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 4 points for offering various stem cell transplant services: autologous stem cell transplantation (B18a), allogeneic matched (related or unrelated) transplantation (B18b), haploidentical (half-matched) transplantation (B18c), and cellular therapy infusions (B18d).
- Hospitals received up to 8 points based on transplant volume (B18). For each of the four types of transplantation listed above, hospitals received points as follows for all transplant except for haploidentical (half-matched) transplantation: 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. For haploidentical (half-matched) transplantation: 1 point for conducting from 2 to 5 transplants in the past 3 years and 2 points for conducting 6 or more transplants in the past 3 years.
- Hospitals received up to 2 points for transplant center recognition by the National Marrow Donor Program (B19b) and for membership in the Pediatric Blood and Marrow Transplant Consortium (B19c).

Clinical Support Services Offered (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 offsite services received equal credit. Up to 11 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 2018-19. Definitions can be found in the glossary in ***Appendix B***.

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)	●	●	●	●	●	●	●	●	●	●
Rehabilitation program and consultation service (A7f)	●	●	●	●	●	●	●	●	●	●
Vascular tumor program (A35)	●	●	●	●	●	●	●	●	●	●
Rapid-response team available onsite 24/7 (A8a)	●	●	●	●	●	●	●	●	●	●
Pediatric anesthesia program available onsite 24 hours a day (A8b)	●	●	●	●	●	●	●	●	●	●
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	**11**	**9**	**9**	**10**	**8**	**9**	**9**	**9**	**9**	**9**

* Parenthetical references indicate related survey questions

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 such as the Children's Oncology Group (B24a), National Cancer Institute (NCI) Phase 1/Pilot Consortium (B24b), NCI-Designated Cancer Center (B24c), or another cancer-related organized clinical research network (B24d). Hospitals received 1 point each (2 points total) for enrolling at least one patient in a 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: leukemia/lymphoma (B26a), solid tumors (B26b), CNS tumors (B26c), transplants (B26d), and trials for biologically targeted novel agents that are not disease-specific (e.g., tyrosine kinase inhibitors) (B26e). Hospitals could receive an additional 1 point by demonstrating the depth of their involvement in any of the clinical trials (B26.1).

Cardiology & Heart Surgery (11 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 or the Congenital Cardiac Catheterization Project (C3PO) (E29e)
- ELSO registry (E29f)
- Pediatric Cardiac Critical Care Consortium or Virtual Pediatric ICU System (E29g)
- Pediatric Heart Transplant Study (E29h)
- Other externally audited national quality-improvement initiatives (E29.1)

Hospitals received up to 2 additional points based on the number of types of investigative studies they participate in (E30). Hospitals were awarded 1 point for participating in 1 or 2 of the following types of studies or 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 trials that give patients access to novel, unlabeled medications, diagnostic/monitoring devices or treatment options in the following areas (C67). Hospitals received 1 point for

participating in 1 to 8 studies, 2 points for participating in 9 to 30 studies, or 3 points for participating in 31 or more studies in the past year.

Gastroenterology & GI Surgery (7 points). Hospitals received up to 5 points for participating in externally audited, national quality-improvement research networks. Hospitals received 1 point each for participating in prospective research activities: randomized clinical trials (D15a), observational studies (D15b), clinical databases on patient care (D15c), or non-randomized clinical trials (D15d). Hospitals received up to 3 additional points for having IRB-approved studies being led by the Pediatric Gastroenterology & GI Surgery program (D16): 1 point for 1 to 5 studies, 2 points for 6 to 9 studies, or 3 points for 10 or more studies.

Neonatology (4 points). Hospitals received up to 4 total points for participating in externally audited, national NICU treatment and quality-improvement research networks. Hospitals received up to 3 points for participation in the following organizations:

- Vermont Oxford Network, Children's Hospitals Neonatal Consortium or Child Health Corporation of America database (F24a)
- ELSO data exchange network/registry (F24b)
- Other clinical research or data exchange program (F24c).

Hospitals received 1 additional point for participating in clinical research activities, registered on clinicaltrials.gov, that allow patients access to novel medications or experimental treatment options (F25).

Nephrology (8 points). Hospitals received points for participating 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 7 additional points for participation in the following research collaboratives:

- Midwest Pediatric Nephrology Consortium (G40a)
- International Pediatric Dialysis Network (G40b)
- North American Pediatric Renal Trials and Collaborative Studies (G40c)
- Prospective Pediatric Acute Kidney Injury Research Group (G40d)
- Cure GN (G40e)
- Chronic Kidney Disease in Children cohort study (G40f)

- Standardizing Care to Improve Outcomes in Pediatric Endstage Renal Disease (SCOPE) collaborative (G40g).

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, IRB-approved pediatric clinical studies (patient-related observational studies or trials) (H6): 1 point for 1-9 studies, 2 points for 10-19 studies, or 3 points for 20 or more studies.

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 (3 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 2 points for being a member of 4-5 of the following research networks, or 1 point for being a member of 1-3 of the following research networks: Children's Interstitial Lung Disease Foundation (J52a); Therapeutics Development Network of the CF Foundation (J52b); certified site for the Severe Asthma Research Program, the Inner City Asthma Consortium or Asthma-Net (J52c); American Lung Association Airways Clinical Research Centers (J52d); and PCD Foundation Clinical and Research Centers Network (J52e).

Urology (3 points). Hospitals received up to 3 total points for participating in the following prospective research activities: randomized clinical trials (K18a), observational studies (K18b), or clinical databases on patient care (K18c).

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 from 14 to 17 points. In all specialties, hospitals could receive up to 8 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 sponsoring quality improvement activities that provide credit to physicians for maintenance of certification (MOC) Part IV:

    - 1 point for being approved by the ABMS as a multispecialty portfolio program (MSPP) sponsor (A17a), or for being approved by the ABP as a pediatric portfolio sponsor (A17b);
    - 1 point for sponsoring one or more projects that are approved by the ABP (A17c).
- 1 point for participating in an external review process for measuring patient/parent satisfaction (A18 and A18.1);
- 1 point for participating in national quality and safety collaboratives such as the American College of Surgeons National Surgical Quality Improvement Program or Children's Hospital Solutions for Patient Safety learning network (A30);
- 1 point for bedside care staff (e.g., nurses, physician 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 developing and implementing a written plan for program review and quality improvement, 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 (15 points total) for supporting development of a physician-led innovation to improve health care delivery for Pediatric Endocrinology patients (C66).

In Gastroenterology & GI Surgery, hospitals received up to 2 additional points (16 points total) for participating in studies of pediatric liver transplantation (D14a) or other formal, multicenter quality initiatives (D14b and D14.1).

In Neonatology, hospitals received up to 3 additional points (17 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 23 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 75 or more congenital heart procedures in the past calendar year or 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 1 point for treating 1 to 4 patients with a Berlin Heart or other ventricular assist device or 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 or 2 points for 250 or more surgeries/year (E38).
- Hospitals received up to 3 points based on the number of neonatal cardiac operations: 1 point for 1-44 operations, 2 points for 45-89 operations, or 3 points for 90 or more operations (E20.1).

ECMO Availability (Neonatology)

In Neonatology, hospitals received up to 2 points for extracorporeal membrane oxygenation (ECMO) services. 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.

Hospitals received 1 point for having an ECMO program designated by ELSO as a Center for Excellence (A9).

Hospitals received 1 point for having a specialized multidisciplinary ECMO team with neonatologists managing or co-managing the patient (F14d).

Enlists Families in Structuring Care (All Specialties)

This measure reflects the extent to which a hospital involves parents and families in care. It includes a core set of measures that applied to all pediatric specialties and was worth up to 7 points in all specialties except Neonatology, in which 8 points were possible. 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 for meeting the following requirements: At least one parent or family member is an active member of the strategic or facility committee (A15a); at least one parent or family member is an active member of one or more standing committees (e.g., quality improvement, patient safety, ethics) (A15b); parents or family members are regularly involved in clinical decision-making through such ways as family-centered rounds, care conferences or other participatory programs (A15c); and parents or family members can participate in family-centered rounds (A15d).

Hospitals received 1 additional point for describing the impact of patients' family members 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 that meets at least quarterly (F9).

Has 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.

Table 6. Subspecialists by Specialty

Cancer* (15 points)	Points
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist or rehabilitation specialist (A4g)	6
Having at least one of each of the following pediatric surgeons: • 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)	6
Having at least 1.0 FTE of the following other medical 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)	3
Cardiology & Heart Surgery* (20 points)	
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
At least 2.0 FTE of the following staff: • Pediatric cardiothoracic surgeon (E2a) • Pediatric cardiac intensivists (cardiologists, pediatric critical care or anesthesiologists) or pediatric radiologists (E2b, E2c, E2d, or E2h) • Pediatric cardiac interventionalists (E2e)	3
At least 1.0 FTE of the following staff: • Pediatric cardiac electrophysiologist (E2f) • Anesthesiologist with pediatric training/experience (E2g) • Clinical nurse, advanced registered nurse practitioner, advanced practice registered nurse, or physician assistant (E4a,E4b, and E4c)	3

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Cardiology & Heart Surgery, continued* (20 points)	Points
Up to 2 points for 24/7 in-house coverage of the cardiac ICU: • 2 points if staffed with pediatric intensivists; pediatric cardiology, pediatric cardiac intensive care or pediatric cardiac surgery trainees; or non-physician advanced practice providers (APPs)dedicated to cardiac intensive care management (E3.1) • 1 point if staffed with other medical staff (E3.1 and E3.2)	2
Up to 3 points for the type of 24-hour in-house coverage provided every day to the cardiac-specific ICU (E3): • 3 points for having a dedicated Cardiac ICU (CICU) • 2 points for having a dedicated section of a Pediatric ICU (PICU) and/or Neonatal ICU (NICU) • 1 point for having a blended Pediatric ICU (PICU) and/or Neonatal ICU (NICU) without a dedicated section	3
Having eligible RNs working in the CICU (or dedicated beds in the PICU) meet the following thresholds: • Less than 20% with less than 2 years of cardiac critical care experience (E4d) • At least 80% with a BSN or higher degree (E4e) • At least 10% with CCRN certification for critical care nursing from the AACN (E4f)	3
Diabetes & Endocrinology* (14 points)	**Points**
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric rheumatologist (A4e) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	7
Having at least one of each of the following pediatric surgeons: • Pediatric head and neck surgeon (A5a) • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d)	3
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 (C4a) • Master's or doctorate-level registered nurse dedicated to outpatient care (C4b, C4c)	4

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Gastroenterology & GI Surgery* (10 points)	
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
Having at least one pediatric general surgeon (A5c)	1
Having at least 1.0 FTE of the following other medical staff: • Pediatric gastroenterologist (D2a) • Pediatric surgeon available 7 days a week (D2.2) • Nurse practitioner and/or physician assistant (D3)	3
Neonatology* (17 points)	**Points**
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
Having at least one of each of the following pediatric surgeons: • 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)	8
Having at least 1.0 FTE of the following other medical staff: • Pediatric neonatologist (F2a) • Clinical registered nurse (F4a)	2
Having at least 1 physician extender (F3)	1

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Nephrology* (9 points)	
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
Having at least one pediatric general surgeon (A5c)	1
Having at least 1.0 FTE of the following other medical staff: • Pediatric nephrologist (G2a) • Nurse practitioner and/or physician assistant (G3)	2
Neurology & Neurosurgery* (12 points)	**Points**
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
Having at least one of each of the following pediatric surgeons: • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d)	2
Having at least 1.0 FTE of the following other medical staff: • Pediatric neurologist (H2a) • Pediatric neurosurgeon (H2b) • Nurse practitioner and/or physician assistant (H3)	3
Having at least 1.0 FTE of nurses with advanced neurologic certification (H4)	1

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Orthopedics* (20 points)	Points
Having at least one of each of the following physician specialists: • 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 physiatrist (A4g)	7
Having at least one of each of the following pediatric surgeons: • Pediatric general surgeon (A5c) • Pediatric orthopedic surgeon (A5f) • Pediatric plastic surgeon (A5h) • Pediatric orthopedic surgery resident (I6.1b)	4
Having at least one of each of the following specialists: • Hand surgery (I6a) • Spinal surgery (I6b) • Musculoskeletal oncologist (I6c) • Sports medicine surgery (I6d) • Hip preservation specialist (I6e) • Musculoskeletal radiologist (I6f)	6
Having at least 1.0 FTE of the following other medical staff: • Pediatric orthopedic surgeon (I2a) • Nurse practitioner and/or physician assistant (I3) • Clinical registered nurses or medical assistants (I4)	3
Pulmonology* (11 points)	**Points**
Having at least one of each of the following physician specialists: • Pediatric anesthesiologist (A4a) • Pediatric critical care specialist (A4b) • Pediatric radiologist specializing in diagnostic radiology (A4c) • Radiologist specializing in pediatric interventional radiology (A4d) • Pediatric infectious disease specialist (A4f) • Pediatric physiatrist (A4g)	6
Having at least one pediatric general surgeon (A5c)	1
Having at least 1.0 FTE of the following other medical staff: • Pediatric pulmonologist (J2a) • Pediatric sleep medicine physician (J2b) • Nurse practitioner and/or physician assistant (J3) • Clinical registered nurse (J4)	4

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Urology* (13 points)	Points
Having at least one of each of the following physician specialists: • 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 physiatrist (A4g)	6
Having at least one of each of the following pediatric surgeons: • Pediatric general surgeon (A5c) • Pediatric urology surgeon (A5g) • Pediatric plastic surgeon (A5h)	3
Having at least 1.0 FTE of the following other medical staff: • Pediatric urologist (K2a) • Nurse practitioner and/or physician assistant (K3) • Clinical registered nurse (K4)	3
Having an in-house ultrasound technologist to support prompt imaging and diagnosis of suspected testicular torsion (K20)	1

* Parenthetical references indicate related survey questions

Heart Transplant Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 11 points for having a heart transplant program. Hospitals received 1 point for having an onsite heart or heart-lung transplant program recognized by the United Network for Organ Sharing (UNOS) (E21). Hospitals received up to 3 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. Three additional points were awarded based on the number of patients < 1 year of age who received heart transplants (E22.1): 1 point for 1-4 patients, 2 points for 5-9 patients, and 3 points for 10 or more patients. Hospitals also received 1 point for having performed cardiac transplantation in a recipient with high ($\geq$ 10%) panel reactive antibody (PRA) (E25a), 1 point for having a written protocol for the management of recipients with high ($\geq$ 10%) PRA (E25b), 1 point for having performed an ABO-incompatible heart transplant (E25c), and 1 point for having a written protocol for the management of ABO incompatible recipients (E25d).

Help for Families (All Specialties)

The Patient and Family Services measure evaluates access to medical specialists and services. A core set of submeasures for all specialties is worth up to 8 points, which includes providing direct access to certified child life specialists (A12a), family-support specialists (A12b), pediatric

psychologists or psychiatrists (A12c), in-person interpreter services (A12.1), a family resource center (A13a), sleep rooms for parents or siblings (A13b), a school intervention program (A13c), and a Ronald McDonald House (or other residential facility) (A13d).

In Neonatology, hospitals could receive up to 7 additional points (for a total of 15 points). Hospitals received points for offering the following patient and family services: NICU-specific family psychosocial support program (F8a), 24/7 parental visitation (F8b), sibling visitation (F8c), NICU-specific parent-to-parent support groups (F8d), designated psychologists or psychiatrists available for referrals and consultations with parents (F8e), Child Life support team available to NICU families (F8f), and NCIU-dedicated multidisciplinary developmental care team (F8g).

In Nephrology, hospitals could receive up to 5 additional points (for a total of 13 points). Hospitals received 1 point for offering summer camp for kidney transplant patients (G33b). Hospitals received up to an additional 4 points for offering the following programs to support patients in a pediatric maintenance dialysis program: teachers dedicated to working with patients (G9a), a standard review of school performance and patient's Individualized Education Program (G9b), summer camp (G9c), and quality of life assessment (G9d).

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 (D19.1) and up to 3 points based on the number of unique patients who received a liver transplant in the past 5 years (D21a and D22a): 1 point for 1-9 patients, 2 points for 10-19 patients, or 3 points for 20 or more patients.

Lung Transplant Program (Pulmonology)

In Pulmonology, hospitals received up to 5 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 between January 2012 and June 2014 or 2 points for performing two or more lung transplants between January 2012 and June 2014 (J48a). Hospitals received 1 point for performing one lung transplant between July 2014 and December 2016 or 2 points for performing two or more lung transplants between July 2014 and December 2016 (J47a).

Neonatal Transport (Neonatology)

In neonatology, hospitals received up to 11 points for ensuring the safety of newborns during transport. Hospitals received up to 5 points for providing a neonatal-specific transport team with each of the following:

- A medical director board-certified in Neonatal-Perinatal Medicine (F13a)
- At least 2 clinicians (e.g., RN, RT, MD, DO, NNP, PA) on each transport who are non-drivers (F13b)
- All RN's and RT's have at least 1 year of NICU level III or IV experience (F13c)
- Neonatal transport team is immediately available 24/7 to respond to emergent neonatal transports (F13d)
- Active servo-controlled cooling on transport for term and near term infants with hypoxic ischemic encephalopathy (F13e).

Hospitals received 1 point for tracking temperature at admission for infants cooled during transport (F13.1). Hospitals received an additional 2 points if more than 80% of infants had an admission temperature between 33.0 and 34.5 centigrade (F13.2) or 1 point if 40-80% of infants had that temperature upon admission.

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). Hospitals received 2 additional points for having more than 80% of neonatal transports dispatched within 30 minutes of the call being logged as received or 1 point for having 40-80% dispatched within 30 minutes (F13.4).

Nurse Staffing (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) hospital-wide (other than in Neonatology) who are dedicated to inpatient pediatric clinical care, expressed as FTEs (A2). Nurses must 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. In 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 were capped at 4.0 in all specialties to prevent skewness.

Percent of Dialysis Patients Who Had Transplants (Nephrology)

Hospitals received up to 6 points in Nephrology based on the percentage of end-stage renal disease (ESRD) patients with a completed CMS-2728 (Medical Evidence) form receiving hemodialysis or peritoneal dialysis (G20) who received kidney transplants within the past 2 years (G21). Patients were evaluated separately by age group: children under 5 and children aged 5-19. For each age group, hospitals received up to 3 points for having a higher percentage of patients receiving transplants as follows: 1 point if ≥ 20% and < 40%, 2 points if ≥ 40% and < 60%, or 3 points if ≥ 60%.

Provides Advanced Palliative Care Program (Cancer)

In Cancer, hospitals received up to 8 points for palliative care. Hospitals could receive up to 4 points for offering the following pain control programs: patient-controlled analgesia (B29a), nurse-controlled analgesia (B29b), pediatric pain service consults (B29c), and pediatric outpatient pain management services (B29d).

Hospitals received 1 point for offering a qualified palliative care program onsite (B29.1). 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 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% or < 75% or 2 points for ≥ 75%.

Recognized as Nurse Magnet Hospital (All Specialties)

The Nurse Magnet status measure is a formal designation by the Magnet Recognition Program®. The program was developed by the American Nurses Credentialing Center (ANCC) to recognize healthcare 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 March 14, 2018. The current list of Magnet-recognized organizations is shown at http://www.nursecredentialing.org/Magnet/FindaMagnetFacility.

Hospitals received 1 point for being recognized as a Nurse Magnet hospital. For children's hospitals that are part of a special merger*** or a multiplex healthcare system, the primary hospital is required to have Magnet Recognition status for the combination hospital to receive 1 point. If there is no defined primary hospital, then if either hospital in the special merger has Magnet Recognition status then both receive credit. Partial credit was not offered in the 2018-19 rankings.

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

Cancer (5 points). Hospitals received 1 point for each of the following specialized treatment programs: clinical brain tumor program (B10a), solid tumor program (B10b), clinical leukemia/lymphoma program (B10c), comprehensive longer-term survivors program (B10d), and histiocytosis program (B10e).

Cardiology & Heart Surgery (13 points). Hospitals received 1 point for providing the following procedures and tests in the past calendar year: balloon angioplasty (E8a); balloon valvuloplasty (E8b); stent implantation (E8c); transcatheter occlusion of cardiac shunts (E8d); transcatheter placement (or attempted placement) of stented pulmonary valves (e.g. Melody) (E8e); stent re-dilation (E8f); aortic and pulmonary catheter-based valvuloplasty (E9); transcatheter arrhythmia ablations (E11); ablations for atrial tachycardia(E12a); ablations for supraventricular tachycardia (E12b); ablations for ventricular tachycardia (E12c); diagnostic electrophysiological procedures (E13); and implantation of permanent transvenous pacing/cardioversion/defibrillation or event recording devices (E15).

Diabetes & Endocrinology (22 points). Hospitals received up to 2 points for specialized treatment programs for endocrine patients. Hospitals received one point for having the following programs and an additional point for each program if pediatric endocrinologists regularly attended the program: lipid disorders (C46a), hypertension (C46b), comprehensive weight management (C46c), Turner syndrome (C46d), cystic fibrosis-related diabetes (C46e), gender dysphoria (C46f), disorders of sexual development (C46g), thyroid nodules (C46h), 22q11.2 Deletion Syndrome (C46i), Muscular Dystrophy (C46j) or Prader Willi Syndrome (C46k).

*** In a special merger, two separate hospitals operate as one and their data are combined for analysis. Boston Children's Hospital and Dana-Farber Cancer Center are an example in pediatric Cancer. Specialty or secondary hospitals that are combined with the primary hospital are noted on the US News website for that hospital.

Gastroenterology & GI Surgery (12 points). Hospitals received 1 point for each of the following interdisciplinary treatment programs for gastrointestinal disorders with at least 10 patients in the last calendar year: intestinal rehabilitation (D10a), cystic fibrosis treatment (D10b), total parenteral nutrition (TPN) (D10c), aerodigestive (D10j), pancreatic disease (D10k), and anorectal or colorectal program (D10l). Hospitals received 1 point for each of the following interdisciplinary treatment programs for gastrointestinal disorders with at least 20 patients in the last calendar year: pediatric intensive feeding (D10d), multidisciplinary childhood obesity management (D10e), inflammatory bowel disease (D10f), multidisciplinary allergic gastrointestinal disease (D10g), chronic liver disease (D10h), and neurogastrointestinal (D10i).

Neonatology (17 points). Hospitals received 1 point for having a cardiac ICU to care for newborn infants (<28 days) that need specialized care for heart conditions (F17), and up to 16 additional points for providing specialized treatment teams or clinics to deal with particularly challenging conditions. Hospitals received 1 point for each of the following: craniofacial team (F14a), spina bifida team (F14b), comprehensive retinopathy of prematurity program (F14c), neonatal-neurointensive care program (F14e), palliative care program (F14f), micrognathia team (F14g), chronic lung disease team (F14h), congenital diaphragmatic hernia team (F14i), chronic pulmonary hypertension team (F14j), neonatal dialysis team (F14k), multidisciplinary team for follow-up with congenital diaphragmatic hernia patients after discharge (F14l), metabolic team (F15a), bowel rehabilitation team (F15b), home ventilator management team (F15c), neurodevelopmental follow-up clinic for premature/high-risk NICU patients (F15d) and neurodevelopmental clinic for high-risk congenital heart neonatal patients (F15e).

Neurology & Neurosurgery (19 points). Hospitals received up to 20 points for access to specialized treatment clinics or programs for pediatric neurological disorders. 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 multidisciplinary clinics or programs: cerebral palsy/spasticity (H12a), cerebrovascular/stroke multidisciplinary (H12b), craniofacial surgical (H12c), surgical movement disorders (H12d), neurofibromatosis (H12e), neuromuscular (H12f), neuro-oncology (H12g), spina bifida (H12h), tuberous sclerosis (H12i), brachial plexus (H12j), genetic metabolic (H12k), neonatal neurology (H12l), head trauma/post-concussion (H12m), new-onset seizures (H12n), neuro-fetal (H12o), headache (H12p), pain (H12q), demyelinating disorders (H12r), and autism/neurodevelopmental disorders (H12s).

Orthopedics (12 points). Hospitals received up to 12 points for providing specialized treatment clinics or programs to treat significant conditions. To receive credit, the clinic had to be attended regularly by the pediatric orthopedic service and see a minimum of 25 patients in the last calendar year. Hospitals received 1 point for each of the following clinics or programs: spina bifida

(I15a), spasticity (I15b), skeletal dysplasia (I15c), brachial plexus (I15d), neurofibromatosis (I15e), muscle disease (I15f), pain (I15g), sports medicine (I15h), sports concussion program (I15i), arthrogryposis (I15j), limb deficiency/limb reconstruction/prosthetics (I15k), and skeletal health/metabolic bone health (I15l).

Urology (9 points). Hospitals received 1 point for each of the following specialized treatment clinics or programs to treat significant urological conditions or issues: spina bifida (K10a), voiding dysfunction (K10b), comprehensive stone program (K10c), prenatal intervention (K10d), disorders of sexual differentiation (K10e), exstrophy/cloaca/GU sinus program (K10f), transitional care (K10g), end stage renal disease (K10h), and oncofertility (K10i).

Success in Helping Patients Manage Their Asthma (Pulmonology)

In Pulmonology, hospitals received up to 13 points for management of asthma patients. Hospitals received up to 4 points for their treatment of severe asthma patients: hospitals received 1 point for having a program with dedicated staff (at least 0.5 FTE) to identify and treat patients with severe, high-risk, difficult-to-control or life-threatening asthma (J7), 1 point for having a written protocol for evaluation of patients with severe asthma (J8), 1 point for monitoring medication adherence in severe asthma patients (J8.1), and 1 point for having access to at least 1.0 FTE of Certified Asthma Educators in the last calendar year (J8.2).

Hospitals received up to 9 additional points based on the percentage of asthma patients following 3 specific protocols. The protocols evaluated were as follows: providing eligible outpatients in subspecialty care clinics with a documented assessment of asthma control (e.g., ACT, ATAQ) (J10e/J10d), completing an outpatient follow-up visit within 30 days of discharge (J10c/J10b), and successfully managing outpatients so that they were not admitted for care related to their asthma (J10b/J10a†††). For the first two protocols, 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% or 3 points for ≥ 90%. For the last protocol, points were awarded for a *lower* percentage of patients being admitted for care related to their asthma: 3 points for ≤ 10% of patients admitted, 2 points for >10% and ≤ 25% or 1 point for >25% and ≤50%.

Success in Managing Neuromuscular Weakness Disorder (Pulmonology)

In Pulmonology, hospitals received up to 3 points for the percentage of muscular dystrophy patients who had pulmonary function testing in the past calendar year (J30). Points were based on

††† This survey item was reverse scored to reward hospitals for having FEWER outpatients admitted for asthma-related care.

the percentage of patients as follows: 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% or < 90%, and 3 points for ≥ 90%.

Tracking Growth Metrics for Treated Patients (Neonatology)

Hospitals received up to 7 points in Neonatology for recording growth metrics on infants within 7 days prior to discharge or transfer, including weight (F40a), length (F40b) and head circumference (F40c). For each of the 3 growth metrics, points were awarded as follows: 1 point for recording metrics on ≥ 60% and < 90% of infants; or 2 points for recording metrics on ≥ 90% of infants. Hospitals received an additional 1 point for measuring infant length using a length board (F41).

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 data were available.

Low-, medium- and high-volume categories were created for most measures, 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. For almost all measures, hospitals in the lowest-volume category received 1 point, medium-volume hospitals received 2 points and high-volume hospitals received 3 points. An exception is two of the items in the Number of Patients in Orthopedics which received 2 points, 4 points or 6 points respectively for low, medium or high volume. The increased points reflects these items' increased importance relative to other items in the measure.

In addition, 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)
Number of new patients, 2 years (B6) (max points = 3)	1-99	100-399	400+
Number of patients (max points = 21)			
• Leukemia (B27a1)	1-149	150-299	300+
• Brain tumors/Central Nervous System (B27b1)	1-99	100-199	200+
• Neuroblastoma (B27c1)	1-24	25-49	50+
• Bone tumors (B27d1)	1-19	20-39	40+
• Soft tissue sarcomas (B27e1)	1-19	20-39	40+
• Wilms' tumor (B27f1)	1-14	15-29	30+
• Liver tumors (B27g1)	1-5	6-11	12+
***Number of surgeries** (B27),* (max points = 18)			
• Brain tumors (B27b2)	1-29	30-59	60+
• Neuroblastoma (B27c2)	1-4	5-9	10+
• Bone tumors (B27d2)	1-9	10-19	20+
• Soft tissue sarcomas (B27e2)	1-9	10-19	20+
• Wilms' tumor (B27f2)	1-4	5-9	10+
• Liver tumors (B27g2)	1-3	4-7	8+

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

Table 7. Volume Measures by Specialty (continued)

Cardiology & Heart Surgery Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Number of catheter procedures ** (max points = 33)			
• Balloon angioplasty (E8a)	1-29	30-59	60+
• Balloon valvuloplasty (E8b)	1-9	10-19	20+
• Stent implantation (E8c)	1-19	20-39	40+
• Transcatheter occlusion of cardiac shunt (E8d)	1-49	50-99	100+
• Transcatheter placement of stented pulmonary valve (E8e)	1-7	8-15	16+
• Stent re-dilation (E8f)	1-9	10-19	20+
• Aortic/pulmonary catheter-based valvuloplasty (E10)	1-4	5-9	10+
• Atrial tachycardia (E12a)	1-4	5-9	10+
• Supraventricular tachycardia (E12b)	1-39	40-79	80+
• Ventricular tachycardia (E12c)	1-2	3-5	6+
• Placement of permanent transvenous pacing (E15)	1-19	20-39	40+
Number of Norwood or hybrid surgeries (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+
Number of surgeries (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+

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

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

Table 7. Volume Measures by Specialty (continued)

Diabetes & Endocrinology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Number of patients (max points = 30)			
• Type 1 diabetes outpatient visits (C28.1a)	1-499	500+	NA
• Type 2 diabetes outpatient visits (C28.1b)	1-249	250+	NA
• Diabetes-related care admissions for Type 1 patients (C28.1c)	1+	NA	NA
• Diabetes-related care admissions for Type 2 patients (C28.1d)	1+	NA	NA
• Congenital adrenal hyperplasia (C47a)	1-39	40+	NA
• CNS and endocrine tumors (C47b)	1-99	100+	NA
• Diabetes insipidus (C47c)	1-24	25+	NA
• Hypopituitarism (C47d)	1-99	100+	NA
• Turner Syndrome (C47e)	1-24	25+	NA
• Noonan Syndrome(C47f)	1-24	25+	NA
• Gender dysphoria (C47g)	1-24	25+	NA
• Disorders of sexual development (C47h)	1-24	25+	NA
• Metabolic bone disease (C47i)	1-24	25+	NA
• Newly diagnosed growth hormone deficiency or multiple pituitary hormone deficiencies that include growth hormone deficiency (C48)	1-24	25+	NA
• Nondiabetes endocrine disorders outpatients (C57a1)	1-1,999	2,000+	NA
• Nondiabetes endocrine disorders inpatients (C57b1)	1-124	125+	NA

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

Table 7. Volume Measures by Specialty (continued)

Diabetes & Endocrinology, continued Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of procedures ** (max points = 26)			
• Brain or pituitary MRI (2 years) (C49a)	1-29	30+	NA
• Growth hormone therapy (C49b)	1-29	30+	NA
• Serum IGF-1 measurement (C49c)	1-29	30+	NA
• Diagnostic radioisotope (C51a)	1-19	20+	NA
• Therapeutic radioiodine for Graves' disease (C51b)	1-2	3+	NA
• Therapeutic radioiodine for thyroid cancer (C51c)	1-2	3+	NA
• Fine needle aspiration of thyroid nodule (C51d)	1-9	10+	NA
• Thyroidectomy (C51e)	1-9	10+	NA
• Dual-energy x-ray absorptiometry (DXA) scans (C51f)	1-79	80+	NA
• Thyroid cancer surgery (C51.1a)	1-3	4+	NA
• Parathyroid surgery (C51.1b)	1	2+	NA
• Brain tumor surgery involving hypothalamus or pituitary (C51.1c)	1-3	4+	NA
• Abdominal endocrine surgery (C51.1d)	1	2+	NA
Gastroenterology & GI Surgery Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of noninvasive procedures ** (max points = 16)			
• Capsule endoscopy (D11a)	1-19	20+	NA
• Endoscopic band ligation/sclerotherapy (D11b)	1-4	5+	NA
• Esophageal impedance or high resolution esophageal manometry (D11c)	1-49	50+	NA
• Endoscopic retrograde cholangiopancreatography (D11d)	1-19	20+	NA
• Antroduodenal and full colonic motility studies (D11e)	1-4	5+	NA
• Esophageal dilation (D11f)	1-29	30+	NA
• Alternative hemostasis therapies (D11g)	1-7	8+	NA
• Deep enteroscopy-single or double balloon (D11h)	1-3	4+	NA

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

(continued)

Table 7. Volume Measures by Specialty (continued)

Gastroenterology & GI Surgery, continued Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Number of patients (max points = 24)			
• Pseudo-obstruction (D13a)	1-12	13-24	25+
• Chronic intestinal failure patients who require TPN for 2 months or more (D13b)	1-39	40-79	80+
• Chronic liver disease (D13c)	1-99	100-199	200+
• Acute recurring or chronic pancreatitis (D13d)	1-49	50-99	100+
• Biliary atresia (D13e)	1-14	15-29	30+
• Portal hypertension (D13f)	1-19	20-39	40+
• Celiac disease (D13g)	1-99	100-199	200+
• Eosinophilic esophagitis (D13h)	1-99	100-199	200+
Number of surgeries (max points = 14)			
• Hepatoportoenterostomy or Kasai procedure on a patient with biliary atresia (D17a)	1	2+	NA
• Bowel lengthening (D17b)	1	2+	NA
• Laparoscopic gastrointestinal surgeries (D17c)	1-19	20+	NA
• Bariatric surgery (D17d)	1	2+	NA
• Posterior sagittal anorectoplasties (D17e)	1-4	5+	NA
• Laparoscopic procedures for ulcerative colitis (pouch) and Crohn's disease (D17f)	1-5	6+	NA
• Esophageal atresia repair (D17g)	1-3	4+	NA

* Parenthetical references indicate related survey questions. (continued)
** 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)**
Number of patients (max points = 30)			
• Congenital diaphragmatic hernia (F16a)	1-4	5-9	10+
• Hirschsprung's disease (F16b)	1-3	4-7	8+
• Hypothermia treatment and either hypoxic ischemic encephalopathy or severe birth asphyxia (F16c)	1-14	15-29	30+
• Open neural tube defect treatment (F16d)	1-4	5-9	10+
• Gastroschisis (F16e)	1-5	6-11	12+
• Tracheoesophageal fistula (F16f)	1-4	5-9	10+
• Omphalocele (F16g)	1-3	4-7	8+
• Duodenal atresia, jejunal atresia, or ileal atresia (F16h)	1-6	7-13	14+
• Imperforate anus (F16i)	1-4	5-9	10+
• Extracorporeal life support therapy (F16j)	1-4	5-9	10+
Nephrology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of dialysis patients, 2 years (max points = 12)			
• End-stage renal disease (ESRD) patients < 5 years of age on hemodialysis or peritoneal dialysis (G20a)	1-4	5-9	10+
• ESRD patients 5-19 years of age on hemodialysis or peritoneal dialysis (G20b)	1-14	15-29	30+
• 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+
Number of kidney biopsies, 2 years (max points = 6)			
• Native kidney percutaneous biopsies (G14a)	1-25	26-75	76+
• Percutaneous kidney transplant biopsies (G27)	1-19	20-39	40+
Number of kidney transplants (max points = 6)			
• Deceased-donor kidney transplant patients (G32.1a1 and G32.2a1)	1-8	9-17	18+
• Living-donor kidney transplant patients (G32.1a2 and G32.2a2)	1-7	8-16	17+

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

Table 7. Specialty-Specific Volume Measures (continued)

Nephrology, continued Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of patients, 2 years (max points = 20)			
• Acute kidney injury (G6)	1-199	200-399	400+
• Membranoproliferative glomerulonephritis (G16a)	1-2	3-5	6+
• Systemic lupus erythematosus with renal involvement (G16b)	1-8	9-16	17+
• Membraneous nephropathy (G16c)	1-2	3-5	6+
• Focal segmental glomerulosclerosis (G16d)	1-5	6-10	11+
• Inpatient admissions and consultations (G18.1)	1-299	300+	NA
• New outpatient evaluations/consultations (G18.3)	1-499	500-999	1,000+
Neurology and Neurosurgery Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of epilepsy workups and treatments* (max points = 15)			
• Initial medical evaluations with patients newly diagnosed with epilepsy (H9a)	1-599	600-1,199	1,200+
• Standard EEG evaluations (H9b)	1-999	1,000-1,999	2,000+
• Long-term video EEG evaluations (H9c)	1-449	450-899	900+
• Number of first-time surgical procedures for epilepsy (H9d)	1-9	10-19	20+
• VNS placements or surgical revisions (H9e)	1-14	15-29	30+
Number of surgeries (max points = 42)			
• Surgical resection for epilepsy (H8)	1-7	8-15	16+
• Brain tumors (benign/malignant) (H16a)	1-24	25-49	50+
• Craniosynostosis (H16b)	1-19	20-39	40+
• Hydrocephalus shunt procedures (H16c)	1-49	50-99	100+
• Medically intractable epilepsy (H16d)	1-11	12-23	24+
• Spinal dysraphism (H16e)	1-19	20-39	40+
• Chiari I malformation/syringomyelia (H16f)	1-14	15-29	30+
• Endoscopic third ventriculostomy (H16g)	1-29	30-59	60+
• Brachial plexus exploration/reconstruction performed by neurosurgeons (H16h)	1-2	3-5	6+
• Spasticity (H16i)	1-11	12-23	24+

* Parenthetical references indicate related survey questions. (continued)

** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Neurology and Neurosurgery, continued Volume Measures *	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
***Number of surgeries*, continued**			
• Vascular cases including endovascular procedures performed by neurosurgeons (H16j)	1-9	10-19	20+
• Deep brain stimulation for dystonic cerebral palsy (H16k)	1-4	5-9	10+
• Spinal instrumentation performed by neurosurgeons (H16l)	1-14	15-29	30+
• Craniofacial procedures (H33)	1-29	30-59	60+
Orthopedics Volume Measures*	**Low Volume (2 points)**	**Medium Volume (4 points)**	**High Volume (6 points)**
Number of patients (max points = 21)			
• Patients transferred from another hospital for inpatient care (I14.1a)	1-149	150-299	300+
• Pediatric trauma patients who received pediatric orthopedic trauma surgery within 72 hours of admission (I14.1b)	1-299	300-599	600+
	Low Volume (1 point)	**Medium Volume (2 points)**	**High Volume (3 points)**
• Pediatric trauma patients with fractures or musculoskeletal injuries (I14)	1-999	1,000-1,999	2,000+
• Scoliosis correction patients (I31a-c)	1-149	150-299	300+
• Single event multi-level surgery (I45)	1-19	20-39	40+
Number of procedures and surgeries ** (max points = 23)			
• Motion laboratory evaluations (I20)	1-24	25-49	50+
• Open reduction developmental dysplasia of the hip (I24a)	1-7	8-15	16+
• Ponsetti treatment for clubfoot in patients < 1 years old (I24b)	1-99	100-199	200+
• Bernese pelvic osteotomy in patients < 18 years old (I24c)	1-6	7-13	14+
• Cast treatment for infantile scoliosis < 5 years old (I24d)	1-9	10-19	20+
• ACL reconstruction (males < 14 years old or females < 12 years old) (I24e)	1-9	10-19	20+
• Femoral and tibial leg lengthening surgery (I24f)	1-3	4-7	8+
• Pollicization hand surgeries (I24g)	1	2+	NA

* Parenthetical references indicate related survey questions. (continued)

** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Pulmonology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of tests and noninvasive procedures ** (max points = 12)			
• 12- or 32- channel polysomnographic studies (J36)	1-699	700-1,399	1,400+
• Home nocturnal PAP or bilevel therapy (J37)	1-89	90-179	180+
• Non-invasive positive pressure ventilation support (J39)	1-34	35-69	70+
• Bronchoscopy and laryngoscopy (J49)	1-199	200-399	400+
Number of patients (max points = 17)			
• CF patients (J24a)	1-124	125-249	250+
• Neuromuscular weakness disorders (J29)	1-49	50-99	100+
• Ventilator dependent patients, 3 years (J40)	1-69	70-139	140+
• Rare lung disease (J26)	1-39	40-79	80+
• Lung disease of prematurity (J27)	1-59	60-119	120+
• Lung transplants, 2 years (J46.1)	1	2+	NA
Urology Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of minimally invasive procedures (max points = 9)			
• Stone treatment/shock wave lithotripsy (K11a)	1-14	15-29	30+
• Laparoscopic orchiopexy/orchidectomy (K11b)	1-13	14-27	28+
• Laparoscopic cyst ablation, pyeloplasty, nephrectomy, partial nephrectomy, heminephrectomy, ureteral reimplantation, or ureteroureterostomy for patients with duplication anomalies of the kidney (K11c)	1-13	14-27	28+

* Parenthetical references indicate related survey questions. (continued)

** Volume represents procedures, not patients.

Table 7. Specialty-Specific Volume Measures (continued)

Urology, continued Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of patients (max points = 30)			
• Pediatric urology outpatients (2 years), (K8b)	1-4,999	5,000-9,999	10,000+
• Pediatric urology surgical cases** (2 years) (K9)	1-999	1,000-1,999	2,000+
• Spina bifida program (K10a)	1-149	150-299	300+
• Voiding dysfunction program (K10b)	1-599	600-1,199	1,200+
• Comprehensive stone program (K10c)	1-74	75-149	150+
• Prenatal program (K10d)	1-49	50-99	100+
• Disorders of sexual differentiation program (K10e)	1-49	50-99	100+
• Exstrophy/cloaca/GU sinus program (K10f)	1-39	40-79	80+
• End stage renal disease program (K10h)	1-14	15-29	30+
• Oncofertility program (K10i)	1-9	10-19	20+
Number of surgeries (max points = 22)			
• Radical or partial nephrectomy for malignancies** (K12a)	1-2	3+	NA
• Open heminephrectomy, ureteral reimplantation or ureteroureterostomy for patients with duplication anomalies of the kidney** (K12b)	1-19	20+	NA
• Exstrophy closures (K13a)	1-2	3+	NA
• Reconstructive procedures for incontinence or hostile bladder - open (K13b)	1-19	20+	NA
• Endoscopic procedure for incontinence or hostile bladder (K13c)	1-9	10+	NA
• Posterior urethral valve ablation (K13d)	1-5	6+	NA
• Proximal urethroplasty for hypospadias (K13e)	1-44	45+	NA
• Female reconstructive procedures (K13f)	1-5	6+	NA
• Distal hypospadias** (K14a)	1-59	60-119	120+
• Pyeloplasty** (K14b)	1-14	15-29	30+

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

B. Normalization

As of the 2012-13 rankings, all structural measures have been normalized 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 33 points. If a hospital received 18 out of 33 points, its normalized value for Urology patient volume would be 18/(33-0) = 0.55. For nurse staffing, which does not have an absolute maximum, we cap 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 have been revised slightly for 2018-19, based on changes to the measures used in each specialty.

Table 8 shows the relative weight, by specialty, for each measure that makes up the structural component of the specialty rankings. 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 33 points for Urology patient volume would have a normalized score of 0.55. The relative weight for patient volume in Urology is 1. Therefore, the hospital would have a total of 0.55 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
Accredited by FACT	1.5									
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 offered	1	1	1	1	1	1	1	1	1	1
Advanced technologies available	1	1	1	1	1	1	1	1	1	1
Bone marrow transplant services	1									
Clinical support services offered	1	1	1	1	1	1	1	1	1	1
Commitment to clinical research	1.5	1.25	1.25	1.25	1.25	1	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					
Enlists families in structuring care	1.5	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Has fulltime subspecialists available	1	1	1	1	1	1	1	1	1	1
Help for families	1	1	1	1	1	1	1	1	1	1
Neonatal Transport					1					
Nurse staffing	2	2	2	2	2	2	2	2	2	2
Percent of dialysis patients who had transplants						1.25				
Provides advanced palliative care	1.5									
Recognized as a Nurse Magnet hospital	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Specialized clinics and programs	1.25	1	1	1	1		1	1		1
Success in helping patients manage their asthma									1.25	

(continued)

Table 8. Relative Weights of Individual Structural Measures by Specialty, Continued

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Success in managing neuro-muscular weakness disorder									1.25	
Tracking growth metrics for treated patients					1					
Transplant program (heart, liver, lung)		1.25		1					1.25	
Volume: Number of catheter procedures		1								
Volume: Number of dialysis patients						0.67				
Volume: Number of epilepsy workups and treatment							1			
Volume: Number of kidney biopsies						0.67				
Volume: Number of kidney transplants						0.67				
Volume: Number of minimally invasive procedures										1
Volume: Number of new patients	1									
Volume: Number of Norwood or hybrid surgeries		1								
Volume: Number of patients	1		1	1	1.5	0.67		1.5	1	1
Volume: Number of procedures			1							
Volume: Number of procedures and surgeries								1.5		
Volume: Number of surgeries	1	1.5		1			1			1
Volume: Number of tests and noninvasive procedures				1					1	
Total	**24.00**	**23.00**	**17.75**	**19.75**	**20.25**	**18.43**	**17.75**	**18.75**	**21.00**	**19.00**

V. Process

The process component in Best Children's Hospitals is represented by three measures—commitment to best practices, ability to prevent infections, and expert opinion of pediatric specialists. The combined process measures are worth 33.3% of the overall score in all specialties except for pediatric cardiology. In pediatric cardiology, the process component is worth 28.3% of the total 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* (42 points)	Points
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with the American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cancer, continued* (42 points)	Points
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Having at least 0.5 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
Offering an institutional code team to immediately address emergencies in outpatient cancer treatment clinics (B5)	1
Offering a parent advisory committee that meets at least twice a year (B11.3)	1
Participating in morbidity and mortality conferences at least quarterly (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 onsite direct oncology-specific patient care from hematology/oncology providers during evenings and weekends • A coordinated outreach program that provides community-based follow-up care • Multidisciplinary clinics allowing patients to see multiple care providers in a single visit	3
Submitting data to the Center for International Blood & Marrow Transplant Research (CIBMTR) or the Stem Cell Therapeutic Outcome Database (SCTOD) (B20)	1
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 point for ≥ 50% & < 75% • 2 points for ≥ 75%	2

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cancer, continued* (42 points)	Points
Percentage of patients with certain cancer diagnoses, 3-5 years post-therapy, who had formal neuropsychological evaluations in the past year (B28.1): • 1 point for ≥ 25% & < 75% • 2 points for ≥ 75%	2
Percentage of school-age patients with certain cancer diagnoses were formally assessed for school intervention services since diagnosis and before the end of the last calendar year (B28.2): • 1 point for ≥ 25% & < 75% • 2 points for ≥ 75%	2
Percentage of patients presenting with febrile neutropenia who receive intravenous antibiotics within one hour of initial triage (B31.1): • 1 point for ≥ 75% & < 85% • 2 points for ≥ 85% & < 95% • 3 points for ≥ 95%	3
Cardiology & Heart Surgery* (51 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with the American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cardiology & Heart Surgery, continued* (51 points)	Points
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Number of pediatric cardiothoracic surgeons with subspecialty certification in congenital heart surgery from the American Board of Thoracic Surgery (E2.1): • 1 point for 1 surgeon • 2 points for 2+ surgeons	2
Offering lead extraction for pacemaker and automatic implantable cardioverter defibrillator (ICD/AICD) leads onsite (E15.1) • 1 point for offsite • 2 points for onsite	2
Participating in the STS Public Reporting On-Line Program (E18.3)	2
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 neurodevelopmental follow-up program for children with complex congenital heart disease or at risk for adverse neurodevelopmental outcomes • Patient planning conference • Support groups for patients and families with congenital heart conditions • Multidisciplinary management program for complex congenital heart disease patients who experience long term change to physical or cognitive functioning	7
Engaging in the following surgical safety procedures for cardiac surgical procedures (E35): • Conventional pre-procedural "time-out" • Pre-procedural briefings • Post-procedural debriefings • Implementation of a hand-off protocol or briefing	4
Engaging in the following surgical safety procedures for cardiac catheterization procedures (E35.1): • Conventional pre-procedural "time-out" • Pre-procedural briefings • Implementation of a hand-off protocol or briefing	3

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cardiology & Heart Surgery, continued* (51 points)	Points
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 • Sedation and pain management	5
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 • Arrhythmia necessitating pacemaker or permanent pacemaker	4
Routinely tracking and submitting to IMPACT every unplanned cardiothoracic procedure, vascular surgical procedure, other surgical procedure or cardiac catheterization due to a catheterization complication (E37.1)	1
Percent of hybrid and Norwood Stage 1 surgery patients alive 1 year after surgery who had a neurodevelopment evaluation prior to 24 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
Diabetes & Endocrinology* (108 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with the American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (108 points)	Points
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from the American College of Radiology (ACR) • Accreditation in nuclear medicine from the American College of Radiology (ACR) • Pediatric sonographer accreditation by the American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by the American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from the ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review each of the following test results (A10.4): • Abnormal brain and pituitary MRIs • Abdominal and pelvic ultrasounds • Thyroid ultrasounds	3
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	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
Diabetes staff taking a leadership role in organizing and running a diabetes camp (C10)	1
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
Diabetes education program recognized by American Diabetes Association or American Association of Diabetes Educators (C14)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (108 points)	Points
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 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
Having a formal written transition program to prepare pediatric patients for the transition to an adult diabetes program (C17)	1
Having ≥ 90% of diabetes **outpatients** receive a written (or electronic) report of their diagnosis/findings and a treatment plan at the conclusion of their most recent visit (C18a)	1
Having ≥ 90% of diabetes **inpatients** receiving a written (or electronic) report of their diagnosis/findings and a treatment plan at the conclusion of their most recent visit (C18b)	1
Always 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
Having regularly scheduled interdisciplinary care conferences to discuss diabetes patients with poor control (C25 and C26): • 1 point for 1-11 times/year • 2 points for 12+ times/year	2

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (108 points)	Points
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 face-to-face visit with nutritionist or certified diabetes educator for medical nutrition therapy (C30a): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75%	2
Percentage of primary diabetes care patients with face-to-face visit with CDE or equivalent for diabetes education (C30b): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75%	2
Percentage of primary diabetes care patients with face-to-face visit with a social worker or psychologist for an assessment (C30c): • 1 point for ≥ 25% & < 50% • 2 points for ≥ 50%	2
Percentage of Type 1 primary care diabetes patients with a TSH documented in their medical chart in past 2 years (C31a): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
Percentage of Type 1 and Type 2 primary care diabetes patients over 10 years of age who had a lipid profile within the past 5 years (C31b): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
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): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
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 dilated retinal or non-mydriatic camera examination in the past year (C31d): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (108 points)	Points
Percentage of Type 1 primary care diabetes patients that are < 18 years of age who were treated in the past 12 months or longer who scheduled for 4 or more outpatient clinic visits in past 12 months (C32a): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
Percentage of Type 1 primary care diabetes patients treated in the past 12 months or longer who attended 4 or more outpatient clinic visits (C32b): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
Percentage of primary Type 1 diabetes care pediatric patients that are < 18 years of age using continuous glucose monitoring (CGM) that had documented interpretation of CGM readings both associated and not associated with ambulatory visits in the past year (C32.1, C32.2): • 1 point for >0 and <1 CGM per patient • 2 points for ≥1 CGM per patient	2
Percentage of Type 1 primary care diabetes patients that are < 18 years of age on an insulin pump in the past calendar year (C33): • 1 point ≥ 20% & < 40% • 2 points ≥ 40%	2
Percentage of Type 1 and Type 2 primary diabetes care patients aged 13 to < 18screened for depression in the past calendar year (C34): • 1 point for ≥ 25% & < 50% • 2 points for ≥ 50%	2
Percentage of Type 1 diabetes outpatients with daily glucose blood glucose measurements available for review for the past 2 weeks (C36): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
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 covered by private insurance miss more than 5 days of school in the past calendar year for diabetes-related reasons (C39a)	1
Having 10% or fewer children covered by Medicaid miss more than 5 days of school in the past calendar year for diabetes-related reasons (C39b)	1
Providing a dedicated team of Type 2 diabetes providers (C40)	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (108 points)	Points
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
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
Using a clinical database used by the program to evaluate performance (C54 and C54.1)	1
Discussing thyroid cancer patient cases in active treatment at a tumor board at least once a quarter (C56)	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 point for <50% • 2 points for ≥50%	2
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 Hospitals received 1 point for 1-3 types and 2 points for 4-6 types.	2
Participating in multidisciplinary evaluation and management of the following types of patients (C64): • 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 Hospitals received 1 point for 1-2 types and 2 points for 3-4 types.	2

* Parenthetical references indicate related survey questions. (continued)

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

Diabetes & Endocrinology, continued* (108 points)	Points
Hosting or conducting the following conferences or educational programs in the last year (C65): • 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 Hospitals received 1 point for 1-34 conferences and 2 points for 35 or more conferences.	2
Gastroenterology & GI Surgery* (34 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry or use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review abnormal abdominal and pelvic ultrasounds (A10.4b)	1
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1

* Parenthetical references indicate related survey questions. (continued)

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

Gastroenterology & GI Surgery, continued* (34 points)	Points
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Average "third next available" appointment time for new patients for an outpatient office visit (D6): • 1 point for >7 & ≤ 30 days • 2 points for ≤ 7 days	2
Providing educational programs for the following disease-specific GI conditions (D9): • Inflammatory bowel disease, Crohn's disease or colitis • Celiac disease • Liver disease • Eosinophilic esophagitis • Chronic intestinal failure	5
Providing the following diagnostic and therapeutic procedures (D11.1) • Interventional radiology embolization for gastrointestinal bleeding • Interventional radiology for image guided liver biopsies • Interventional radiology performance of transjugular intrahepatic portosystemic shunt (TIPS) • Interventional radiology performance of transjugular (TJ) liver biopsies • Interventional radiology performance of hepatic vein wedge pressure measurement	5
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, biologics or devices through compassionate use (D28)	1

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology* (94 points)	Points
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review each of the following test results (A10.4): • Brain and pituitary MRIs • Abnormal abdominal and pelvic ultrasounds • Thyroid ultrasounds	3
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Having in-house 24x7 coverage provided by board-certified or board-eligible neonatologists (F2.1)	1
Patient load per nurse practitioner or physician assistant (F3): • 1 point for ≥ 9 patients • 2 points for < 9 patients	2

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (94 points)	Points
Percentage of eligible direct clinical care RNs who are nationally certified in neonatal intensive care (F4b): • 1 point for ≥ 25% & <50% • 2 points for ≥ 50%	2
Patient load per neonatologist (F5): • 1 point for ≥ 18 • 2 points for < 18	2
Patient load per Licensed independent contractor (attending, fellow, resident or advanced practitioner) on the night shift (F5.1): • 1 point for ≥ 15 • 2 points for < 15	2
Patient load per nutritionist (F7.1): • 1 point for ≥ 20 • 2 points for < 20	2
Providing the following elements of a "Safe Sleep" program (F8.1): • Mandatory Safe Sleep Education for NICU Staff • Required documentation that safe sleep has been discussed with family prior to discharge • Policy in place for use of devices (swings, infant seats etc.) • Safe Sleep Auditing in the NICU of patient sleep environment and position for patients appropriate for safe sleep practice	4
Patient load per staff person social workers (F11.1): • 1 point for ≥ 15 patients • 2 points for < 15 patients	2
Tracking the proportion of infants discharged from NICU 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 lactation specialists with International Board Certified Lactation or Breastfeeding Counselor Certification (CBC) • 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 • Donor breast milk program with written institution-specific criteria for the initiation and discontinuation of donor breast milk	6
Employing the following risk-reduction practices (F10.4): • Bar coding system for correct breast milk identification • Dedicated breast milk technician who prepares milk for proper identification and distribution	2

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (94 points)	Points
Tracking breast milk administration error rate (F10.5)	1
Having a mandatory neonatal consult or a neonatologist co-managing care for surgical patients in the NICU (F16.1)	1
Having at least 75% of anesthesiologists with board-certification or are board-eligible in pediatric anesthesia (F16.2)	1
Engaging in the following interaction with hospital's CICU (F18): • All preterm cardiac patients <28 days of age receive a neonatology consult • All newborn cardiac patients <28 days of age (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 point for day shift • 2 points for 24/7 coverage	2
Mandating that core NICU staff participate in the following training protocols at least once every 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 **advanced practitioners** complete training in the following procedure protocols (F23.1): • Chest tube placement • Intubation • Neonatal resuscitation program	3
Tracking the percentage of current attending physicians in the Level IV NICU who have completed simulation or other training to refresh their skills with the following procedures: chest tube placement, pericardiocentesis, abdominal paracentesis, double volume exchange transfusion, and cardioversion (F23.2): • 1 point for tracking 1-3 procedures • 2 points for tracking 4 or 5 procedures	2

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (94 points)	Points
Number of standardized hand-off tools used by physicians and advanced practitioners to inform clinical staff during shift transitions (F29.1): • 1 point for 1-2 tools • 2 points for 3-4 tools	2
Number of standardized hand-off tools used by nurses to inform clinical staff during shift transitions (F30.1): • 1 point for 1 tool • 2 points for 2-3 tools	2
Tracking patients' first postoperative temperatures and using it as a quality metric (F31)	1
Percentage of first postoperative temperatures under 36°C (F31.1): • 1: >8% and ≤15% • 2: ≤8%	2
Tracking unintended extubation of NICU patients (F32)	1
Frequency of quality review process (F32.2): • 1 point for a retrospective multidisciplinary review weekly or monthly • 1 point for a prospective mini-root cause analysis review within 12 hours	2
Conducting multidisciplinary review of all unplanned 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
Having or being associated with a fetal diagnosis and counselling program either onsite or at another facility (F34.1)	1
Providing mandatory prenatal consultation when the postnatal patient management plan requires care in the Level IV NICU (F34.2)	1
Holding multidisciplinary patient management conferences to discuss plans for the delivery and early NICU management of fetuses with congenital abnormalities (F34.3): • 2 points for meeting weekly or monthly • 1 point for meeting less frequently than monthly	2
Offering family meetings or counseling that includes neonatologists, genetic counselors and relevant specialists when fetuses are expected to require care in the Level IV NICU (F34.4)	1
Offering a fetal MRI program for assessment of fetal neurologic, thoracic, and abdominal anomalies (F34.5)	1

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (94 points)	Points
Having a medication error reporting system/database (F35)	1
Having a formalized process for evaluating medication errors (F35.1)	1
Providing prescriber directed feedback for medication prescribing errors (F36)	1
Nephrology* (58 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review abnormal abdominal and pelvic ultrasounds test results (A10.4b)	1
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5

* Parenthetical references indicate related survey questions. (continued)

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

Nephrology, continued* (58 points)	Points
Percentage of school-age pediatric dialysis patients enrolled in a school or vocational rehabilitation program (G10): • 1 point for <50% • 2 points for ≥ 50%	2
At least 50% of native kidney biopsies were performed by a pediatric nephrologist or pediatric nephrology fellow using real-time ultrasound or ultrasound guidance (G14.1)	1
Participating in regular interdisciplinary clinical conferences to review and coordinate the care of patients in the following specialties (G17): • Urology/uroradiology • Renal pathology • Rheumatology • Fetal Health	4
Providing the following services in support of the pediatric dialysis unit (G19): • Designated medical director board-certified in pediatric nephrology with 0.25 or more FTE support for this position • 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 • At-home maintenance peritoneal dialysis program	6
Availability and prescription of plasmapheresis to patients (G19.1): • Available and prescribed by Pediatric Nephrology (2 points) • Available but NOT prescribed by Pediatric Nephrology (1 point)	2
Availability of ABPM to patients and report generated (G19.2): • Available and report generated by Pediatric Nephrology (2 points) • Available but report NOT generated by Pediatric Nephrology (1 point)	2
Ratio of catheters placed per patient for permanent hemodialysis vascular central venous catheters placed in children < 5 years of age (G22a): • 1 point for > 1.5 & ≤ 4 catheters per patient • 2 points 0 & ≤ 1.5 catheters per patient	2
Ratio of catheters placed per patient for permanent hemodialysis vascular central venous catheters placed in children, 5-19 years of age (G22b): • 1 point for > 1.5 & ≤ 4 catheters per patient • 2 points 0 & ≤ 1.5 catheters per patient	2
Ratio of catheters placed per patient for hemodialysis AV fistula/graft access placements in children, 10-19 years of age (G22c): • 1 point for > 1.25 & ≤ 4 catheters per patient • 2 points for > 0 & ≤ 1.25 catheters per patient	2

* Parenthetical references indicate related survey questions. (continued)

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

Nephrology, continued* (58 points)	Points
Ratio of catheters placed per patient for peritoneal dialysis catheters placed in children < 5 (G22d): • 1 point for > 1.25 & ≤ 4 catheters per patient • 2 points for > 0 & ≤ 1.25 catheters per patient	2
Ratio of catheters placed per patient for Peritoneal dialysis catheters placed in children and adolescents, 5-19 (G22e): • 1 point for > 1.25 & ≤ 4 catheters per patient • 2 points for > 0 & ≤ 1.25 catheters per patient	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
At least 50% of percutaneous kidney biopsies were performed by a pediatric nephrologist or pediatric nephrology fellow (G27.1)	1
Percentage of living donor nephrectomies conducted via laparoscopic procedure (G29): • 1 point for 70-79% • 2 points for 80-89% • 3 points for ≥ 90%	3
Percentage of kidney transplant patients <18 years of age that were preemptive (G31): • 1 point for 10-20% • 2 points for >20%	2
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
Maintaining a database of current kidney transplant patients with clinical data to allow for quality assessment and improvement of care (G38)	1

* Parenthetical references indicate related survey questions. (continued)

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

Neurology & Neurosurgery* (33 points)	Points
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review abnormal brain and pituitary MRIs (A10.4a)	1
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Having at least 50% of patients receiving a surgical resection for epilepsy have intraoperative electrocorticography and/or extraoperative monitoring (H8 and H8.1)	1

* Parenthetical references indicate related survey questions. (continued)

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

Neurology & Neurosurgery, continued* (33 points)	Points
Having ≥ 75% of EEG tests incorporated into the patients' medical chart within designated timeframes (H10): • Standard EEG medical evaluations interpreted and recorded within 36 hours of being conducted • Long-term vEEG evaluations interpreted and recorded within 5 days from discharge	2
Offering postoperative 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 • International Pediatric Stroke Study	2
Participating in community outreach programs to improve health in the community (H20.1)	1
Engaging in the following activities (H22): • Maintaining a surgical mortality database • Holding regular mortality and morbidity conferences • Interdisciplinary care conferences held monthly or more often	3
Having an epilepsy program designated Level IV by National Association of Epilepsy Centers (H32)	1
Orthopedics* (67 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering in the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1

* Parenthetical references indicate related survey questions.

(continued)

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

Orthopedics, continued* (67 points)	Points
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	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 training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of an action plan to address problems identified during the training or simulation	5
Percentage of nurse practitioners and physician assistants receiving pediatric orthopedic surgery-related continuing education credit or continuing medical credit (I3.1): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Percentage of RNs receiving pediatric orthopedic surgery-related continuing education credit or continuing medical credit (I4.1a): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Percentage of medical assistants receiving pediatric orthopedic surgery-related continuing education credit or continuing medical credit (I4.1b): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Number of pediatric orthopedic surgeons who are active or candidate members of the Pediatric Orthopaedic Society of North America (I5): • 1 point for 1-2 • 2 points for 3+	2
Having at least 75% of patient MRI and CT examinations read by pediatric radiologists with musculoskeletal imaging expertise (I9.1)	1

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics, continued* (67 points)	Points
Providing pediatric imaging center with the following services (I10): • Pediatric protocols to reduce radiation exposure • Digitally stored test results, images, and medical records accessible from locations offsite or away from the hospital • Intraoperative navigation system • Low-dose, three-dimensional upright body imaging for evaluating scoliosis • Pediatric anesthesia services to support sedation and general anesthesia for imaging in very young children • MR arthography	6
All musculoskeletal cancer patients discussed at a tumor board at least once a quarter (I17)	1
More than 75% of tumor boards attended by a musculoskeletal oncologist (I17.1a)	1
More than 75% of tumor boards attended by a musculoskeletal tumor surgeon (I17.1b)	1
Participating in regular multidisciplinary morbidity and mortality conferences (I18)	1
Having a designated trauma operating room that 100% 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 a preoperative coordinated care review process led by a nursing coordinator that meets at least monthly to evaluate high-risk patients and prepare them for surgery and hospitalization (I30)	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
Percentage of surgical spine patients 8 or older completing SRS-22,SRS-30 or other orthopaedic patient reported outcomes (I36): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Percentage compliance with written checklists/guidelines for patients with neurological injury associated with surgery for idiopathic scoliosis (I37a): • 1: ≥70 & <85% • 2: ≥ 85%	2
Percentage compliance with written checklists/guidelines for patients with neurovascular injuries associated with supracondylar fractures or dislocation of the knee (I37b): • 1: ≥70 & <85% • 2: ≥ 85%	2

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics, continued* (67 points)	Points
Percentage compliance with written checklists/guidelines for patients with spinal trauma resulting in acute spinal cord injury (I37c): • 1: ≥70 & <85% • 2: ≥ 85%	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
Having a fixed surgery support team that are dedicated to working with pediatric orthopedic surgeons (I41)	1
Having exactly the same fixed surgery support team working together during normal working hours (I41.1): • 4 points for > 75% of the time • 1 point for 50-75% of the time	4
Providing afterhours or weekend "on call" service for a fixed surgery support team (I42)	1
Having exactly the same fixed surgery support team working together after hours or on weekends (I42.1): • 4 points for > 75% of the time • 1 point for 50-75% of the time	4
Rate of single event multi-level surgery patients who received a Multimodal pain management (I46a/I45): • 1 point for ≥ 75% & < 90% • 2 points for ≥ 90%	2
Rate of single event multi-level surgery patients who received a postoperative assessment by anesthetic/pain team (I46b/I45): • 1 point for ≥ 75% & < 90% • 2 points for ≥ 90%	2
Hosting or being actively involved in organizing a cerebral palsy support group (I47)	1
Pulmonology* (42 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology guidelines • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1

* Parenthetical references indicate related survey questions. (continued)

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

Pulmonology, continued* (42 points)	Points
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training end with development of an action plan to address problems identified during the training or simulation	5
Screening all pulmonology patients for tobacco smoke exposure and actively counseling family members who smoke (J6)	1
Having access to a thorough onsite assessment of patients' home environment and offer guidance for reducing exposures that contribute to asthma (J9)	1
Having written consensus protocols for the following conditions (J6.1): • Asthma exacerbations • Bronchiolitis • Croup • Cystic fibrosis • Uncomplicated pneumonia • Complicated pneumonia • Initiation of tracheostomy of home ventilator support • Tracheostomy or ventilator-dependent patients • Pneumothorax care pathway • Acute chest syndrome	10
Having a formal plan to actively transition CF patients from pediatric care to adult care (J25)	1
Having a pediatric sleep disorders clinic that addresses the needs of patients with ventilation or other sleep disorders and manages the patient's positive airway pressure (J38)	1

* Parenthetical references indicate related survey questions. (continued)

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

Pulmonology, continued* (42 points)	Points
Having multidisciplinary care team to coordinate the care of long-term ventilator-dependent patients (J42)	1
Participating in formal programs for the outpatient management of pediatric patients with the following conditions (J50): • Sickle cell anemia • Aerodigestive disorders • Craniofacial disorders • Pulmonary hypertension	4
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" appointment time for new patients for an outpatient office visit (J55): • 1 point for >7 & ≤14 days • 2 points for ≤ 7 days	2
Interpreting exercise challenge and bronchoprovocation testing (J56)	1
Urology* (38 points)	**Points**
Having at least 1.0 FTE pediatric interventional radiologists (A4.1)	1
Offering the following to reduce radiation exposure to patients and staff (A10.1): • Provide a designated medical director of radiology to oversee quality and safe practices • Iterative reconstruction software on all computed tomography (CT) scanners • MRI safety program compliant with American College of Radiology • Participation in the ACR CT dose index registry OR use of dose monitoring software for tracking pediatric patients undergoing CT scans	4
Using computerized tomography (CT) protocols that adjust milliampere-seconds (mAs) and peak kilovolts (kVp) (A10.2)	1
Maintaining the following certifications (A10.3): • Accreditation in computerized tomography (CT) imaging from American College of Radiology (ACR) • Accreditation in nuclear medicine from American College of Radiology (ACR) • Pediatric sonographer accreditation by American Registry of Diagnostic Medical Sonographers (ARDMS) or ultrasound accreditation by American Registry of Radiologic Technologists (ARRT) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • American Registry of Radiologic Technologists certification for all x-ray technologists	6
Having patients undergoing MRI, CT or voiding cystourethrogram scans provided access to a certified child life specialist (A10.5)	1

* Parenthetical references indicate related survey questions. (continued)

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

Urology, continued* (38 points)	Points
Having regularly scheduled multidisciplinary case conferences with pediatric radiologists to review abnormal abdominal and pelvic ultrasounds test results (A10.4)	1
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team training • Team training includes clear instructions and demonstration of roles and lines of communication • Team training is videotaped to allow review of performance and needs for improvement • Team training includes critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team training ends with development of action plan to address problems identified during the training or simulation	5
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
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 • Hydronephrosis based on ultrasound or nuclear medicine testing • Continence • Absence of reflux • Stomal complications	5
Offering the following weekend, afterhours, and satellite outpatient clinics for elective care (K21): • Scheduled (non-emergency) weekday evening clinic appointments (after 5pm) • Scheduled (non-emergency) weekend surgical appointments • Scheduled (non-emergency) weekend clinic appointments • Satellite clinics in the community	4
Having the following protocols in place (K22): • 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	7
Making use of a patient portal to enable families to access electronic medical records and communicate with their physicians and medical staff (K23)	1

* Parenthetical references indicate related survey questions.

B. Ability to Prevent Infections

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 27 points, as shown in ***Table 10***. Specialty-specific measures in all specialties allowed an additional 2-30 points, depending on the specialty.

Table 10. Core Infection-Preventing Measures, All Specialties (30 points)

All Specialties* (30 points)	Points
Percentage of compliant hand hygiene observations for inpatient care in the past 12 months (F37.1 for Neonatology, A25 for all other specialties): • 1 point for ≥ 80% & < 90% • 2 points for ≥ 90%	2
Providing at least 0.1 FTE financial support per 100 beds for a pediatric infectious disease specialist to serve as the medical director of the infection prevention program (A26.1, A1.2)	1
Providing at least 1.0 FTE infection preventionists per 100 beds (A27, A1.2)	1
Having at least 1 infection preventionist certified by the Certification Board in Infection Control (A27.1)	1
Ensuring that at least 90% of the following staff received influenza vaccination (A28): • Physicians (including attending physicians, fellows, residents) • Nursing staff and mid-level providers	2
Ensuring that at least 90% of the following staff received Tdap vaccination (A29): • Physicians (including attending, fellows, residents) • Nursing staff and mid-level providers	2
Requiring all volunteers to receive or provide documentation of: • Influenza vaccination (A29.1) • Tdap vaccination (A29.2)	2
Offering an influenza vaccination program for families and primary caregivers (A29.3)	1
Offering an adult TDaP booster program for families and caregivers (A29.4)	1

* Parenthetical references indicate related survey questions. (continued)

Table 10. Core Infection-Preventing Measures, All Specialties (30 points)

All Specialties* (30 points)	Points
Having the following elements of antimicrobial stewardship program (A31, A32): • Actively reporting either AU (antibiotic use) or antimicrobial resistance (AR) to NHSN • Restriction or pre-authorization of selected antimicrobial agents to prevent potential resistance from overuse • Implementing prospective review and real time intervention regarding antimicrobial use or "handshake stewardship" • At least 0.5 FTE support for dedicated pharmacist to antimicrobial stewardship program (ASP) • At least 0.3 FTE support for the role of medical director of the pediatric ASP program • Use of clinical guidelines in prescribing antimicrobials • At least 0.2 FTE support for a dedicated analyst to support ASP program • IV to PO conversion program available to ensure correct dosage • Formal policy on the use of antimicrobials • Letter of support for the ASP by hospital administration • An ASP committee that meets at least quarterly • Regular tracking and reporting of ASP data to hospital clinicians • Annual and ongoing education to hospital staff regarding ASP	13
Using the following interventions to reduce indwelling urinary catheter utilization in ICU settings (A34.1) • Written indications for insertion and/or removal of indwelling urinary catheters • Routine removal of urinary catheters following surgery • Bladder scanning • Non-indwelling catheter (e.g., in and out or straight catheter) for urinary retention	4

* Parenthetical references indicate related survey questions.

Specialty-Specific Infection-Preventing Measures

Cancer (7 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). Hospitals received 1 point for actively tracking seasonal influenza vaccinations in cancer 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% or < 90%, and 3 points for ≥ 90%.

Cardiology & Heart Surgery (12 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). 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%, or 2 points if ≥ 90%. Hospitals received 1 point for formally monitoring surgical site infections (SSIs) for major cardiothoracic procedures (E34/E34.1).

Hospitals received up to 4 additional points for engaging in the following surgical site infection prevention procedures: pre-operative bath (E31a), no use of razor for hair removal (E31b), preparation of skin at surgical site with alcohol containing agent (E31c), and screening for and decolonizing Staph Aureus (E31d).

Diabetes & Endocrinology (7 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). 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%, or 3 points for ≥ 90%.

Gastroenterology & GI Surgery (13 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). 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 each were awarded based on the percentage of both chronic intestinal failure patients (D19) and liver-transplant patients (D24) vaccinated (6 points total): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, or 3 points for ≥ 90%. Hospitals received up to 2 additional points for implementing strategies for preventing central-line associated bloodstream infections for total parenteral nutrition patients (D37): 1 point for implementing one or two strategies, or 2 points for implementing 3 or more strategies.

Neonatology (8 additional points). Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). Hospitals received 1 point for auditing had hygiene compliance rates via electronic monitoring or direct observation (F37). Hospitals received 5 points for having written standardized guidelines for antibiotic use in the following situations (F38): surgical NEC repair or drain placement (F38a), small bowel atresia repair (F38b), gastroschisis abdominal closure (F38c), medical necrotizing enterocolitis (F38d), culture negative

sepsis (F38e). Hospitals also received 1 point for having a process to measure compliance with the standardized guidelines for perioperative antibiotic use (F39).

Nephrology (30 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). 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 up to date on their vaccinations (G12a, G12b, G13a, G13b, G34.1, G35.1): 1 point for ≥ 50% and < 75%, 2 points for ≥ 75% and < 90%, or 3 points for ≥ 90%.

Hospitals received up to 3 points for employing the following strategies to prevent pediatric outpatient hemodialysis catheter associated BSI events: focused patient and parent education about infection prevention (G36a), formal collaboration of Infection Prevention with dialysis providers delivering the care (G36b), and formal improvement project focused on reducing CLABSIs in these patients (G36c).

Neurology & Neurosurgery (11 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). Hospitals received 1 point for monitoring compliance with preoperative antibiotic prophylaxis for a sample of cases or 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%, or 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 prior year (H28). Points were awarded as follows: 1 point if > 6% and ≤ 10%, 2 points if > 3% and ≤ 6%, or 3 points if ≤ 3%.

Orthopedics (8 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). Hospitals received 1 point for monitoring compliance with preoperative antibiotic prophylaxis for a sample of cases or 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%, or 2 points if ≥ 90%. Hospitals received 1 point for actively tracking and reporting SSIs for spinal fusion surgeries (I23 and I23.1).

Pulmonology (20 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring. Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). 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%, or 3 points for ≥ 90%. Hospitals received 1 additional point for having at least 75% of vaccine-eligible patients treated between October 1 and December 31 receive a seasonal influenza vaccine (J27.1).

Urology (2 additional points). Hospitals receive up to 2 points for auditing hand hygiene compliance rates (A24): 1 point for monitoring via direct observation or a hybrid of direct observation and electronic monitoring, or 2 points for monitoring via electronic monitoring.

C. Expert Opinion with Pediatric Specialists

Expert opinion 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, expert opinion scores were based on responses to the physician surveys conducted in 2016, 2017 and 2018. Scores were calculated separately in each year, and averaged such that each year's scores are given equal weighting in the final expert opinion score, as shown in ***Table 11***.

Table 11. Expert Opinion Weight by Survey Year

Sample Source	Expert Opinion Weight	Overall Weight
2018 Physician Survey	33.3%	5.0%
2017 Physician Survey	33.3%	5.0%
2016 Physician Survey	33.3%	5.0%
Total	100.0%	15.0%§§§

§§§ In Cardiology & Heart Surgery, the overall weight for reputation in the 2018-19 rankings was reduced to 8.5%.

The sections below describe the approach used for the 2018 survey, which was similar to the 2016 and 2017 surveys. The approaches used for the 2016 and 2017 surveys are provided in the corresponding methodology reports for those years, available at www.rti.org/besthospitals.

2018 Survey Approach

Sample Selection

Starting with the 2015-16 rankings, the sample has been 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.

Table 12 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	
		Count	%	Count	%
Cancer	Pediatric Hematology-Oncology	1630	73.7%	581	26.3%
Cardiology & Heart Surgery****	Pediatric Cardiology, Pediatric Cardiac Surgery, and Pediatric Thoracic Surgery	1959	78.4%	539	21.6%
Diabetes & Endocrinology	Pediatric Endocrinology	820	68.2%	383	31.8%

**** To ensure both cardiologists and heart surgeons are represented in the nonmember sample, we sample 110 cardiologists and 40 heart surgeons. However, the actual total number of Doximity members in Pediatric Cardiac Surgery and Pediatric Thoracic Surgery was 179 and the total number of nonmembers was 14. To meet the subsample of 40 heart surgeons, 26 Doximity members with specialties in Pediatric Cardiac Surgery and Pediatric Thoracic Surgery were selected to receive the nonmember survey. These physicians' scores are included in the nonmember reputation values.

Best Children's Hospitals Specialty	Subspecialties	Doximity Members		Doximity Nonmembers	
		Count	%	Count	%
Gastroenterology & GI Surgery	Pediatric Gastroenterology and Pediatric Transplant Hepatology	916	76.3%	285	23.7%
Neonatology	Neonatal-Perinatal Medicine	2972	66.7%	1483	33.3%
Nephrology	Pediatric Nephrology	457	74.1%	160	25.9%
Neurology & Neurosurgery††††	Child Neurology and Pediatric Neurological Surgery*	1496	70.4%	628	29.6%
Orthopedics	Pediatric Orthopedic Surgery	717	78.5%	196	21.5%
Pulmonology	Pediatric Pulmonary	699	78.4%	193	21.6%
Urology‡‡‡‡	Pediatric Urology	181	54.7%	150	45.3%

* These specialists were drawn from the American Board of Pediatric Neurological Surgery (www.abpns.org).

Data Collection Procedures

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

Member survey. The Doximity member survey identified a total of 11,847 physicians eligible in one of the 10 pediatric specialties as of December 1, 2018. In February, 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 two follow-up email reminders with a link to the survey. In addition, survey-eligible Doximity members – i.e., those who were board certified in a relevant specialty – received alerts upon login to Doximity.com or use of the Doximity app inviting them to participate.

†††† To ensure both neurologists and neurosurgeons are represented in the nonmember sample, we sample 110 neurologists and 40 neurosurgeons. However, the actual total number of Doximity members in Pediatric Neurosurgery was 178 and the total number of nonmembers was 24. To meet the subsample of 40 neurosurgeons, 16 Doximity members with specialties in Pediatric Neurosurgery were selected to receive the nonmember survey. These physicians' scores are included in the nonmember reputation values.

‡‡‡‡ The actual total number of Doximity members in Urology was 263 and the total number of nonmembers was 67. However, 83 member urologists were randomly selected to be included in the mail survey so that at least 150 physicians received the mail survey. These physicians' scores are included in the nonmember reputation values.

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 (https://www2.census.gov/geo/pdfs/maps-data/maps/reference/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 expert opinion 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 but was conducted via mail instead of the web. It 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 C***.

Up to four mailings were sent to sampled Doximity nonmembers. Each mailing included a cover letter, questionnaire, and business reply envelope. The first survey mailing also included a $2 bill and ballpoint pen. The survey was conducted from January 20 through April 20, 2018.

Response Rates

The overall response rate for the 2016, 2017 and 2018 surveys was 29.6% using the American Association of Public Opinion Research (AAPOR) standard response rate 6[*****], which treats undeliverables as ineligibles. The 2018 combined response rate for the Doximity member and nonmember surveys was 32.1% using AAPOR standard response rate 6. Below we provide more detail on the response rates to the 2018 Doximity member and nonmember surveys.

Member survey. Of 11,847 Doximity members, 3,732 completed the web survey by March 22, 2018. The final response rate was 31.5% using AAPOR standard response rate 6. ***Table 13*** shows response rates by region and specialty.

[§§§§] A few specialties had nonmember populations smaller than the required sample size for the Doximity nonmember survey. To ensure equivalent sample sizes across all specialties, 26 Doximity members in Pediatric Thoracic Survey, 15 Doximity members in Pediatric Neurosurgery, and 83 Doximity members in Pediatric Urology were included in the nonmember sample. These physicians were treated as nonmembers for the purposes of weighting and scoring.

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

Table 13. Member Survey Response Rates (%) by Region and Specialty, 2018

Specialty	Midwest	Northeast	South	West	Total
Cancer	38.4	30.3	35.8	29.0	33.4
Cardiology & Heart Surgery	43.7	38.5	35.1	29.8	37.1
Diabetes & Endocrinology	44.9	32.3	31.7	25.3	33.5
Gastroenterology & GI Surgery	43.4	42.7	25.4	25.8	35.0
Neonatology	26.1	25.2	19.9	14.5	21.5
Nephrology	48.2	29.9	31.6	37.2	36.3
Neurology & Neurosurgery	41.2	33.3	24.4	28.9	31.9
Orthopedics	38.9	33.5	27.8	35.8	33.3
Pulmonology	47.3	33.0	26.0	33.6	35.1
Urology	64.7	48.9	56.1	42.3	54.7
Total	39.1	32.6	28.2	26.1	31.5

Nonmember survey. Of 1,500 nonmember physicians sampled for this year's report, 374 were deemed ineligible after determining that they were no longer actively practicing or because we were unable to verify their eligibility. Of the remaining 1,126 physicians, 433 returned the completed questionnaire. The final response rate was 38.5% 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, 2018

Specialty	Midwest	Northeast	South	West	Total
Cancer	31.8	46.2	21.6	25.9	30.4
Cardiology & Heart Surgery	55.0	60.0	47.8	40.7	50.0
Diabetes & Endocrinology	35.0	25.8	39.4	47.8	36.4
Gastroenterology & GI Surgery	33.3	51.4	44.4	31.8	42.3
Neonatology	45.5	35.0	33.3	35.0	36.6
Nephrology	46.9	29.2	23.3	21.7	31.2
Neurology & Neurosurgery	39.1	33.3	28.6	52.4	36.4
Orthopedics	40.9	30.8	20.0	24.1	27.0
Pulmonology	45.0	26.7	28.3	31.6	31.3
Urology	60.9	63.6	60.0	59.1	60.5
Total	43.7	40.0	34.4	38.4	38.5

Survey Response Weighting

For the Doximity member survey, we used post-stratification weights for age by 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.

Expert opinion scores were tabulated separately for Doximity members and nonmembers, and then combined to create the 2018 expert opinion score. The weight is based on the proportion of Doximity members and nonmembers in the population so the expert opinion score is representative of all physicians in the nation (see Table 12). Expert opinion scores for each of the past three years were then averaged to create the final, weighted expert opinion values that appear in the methodology report.

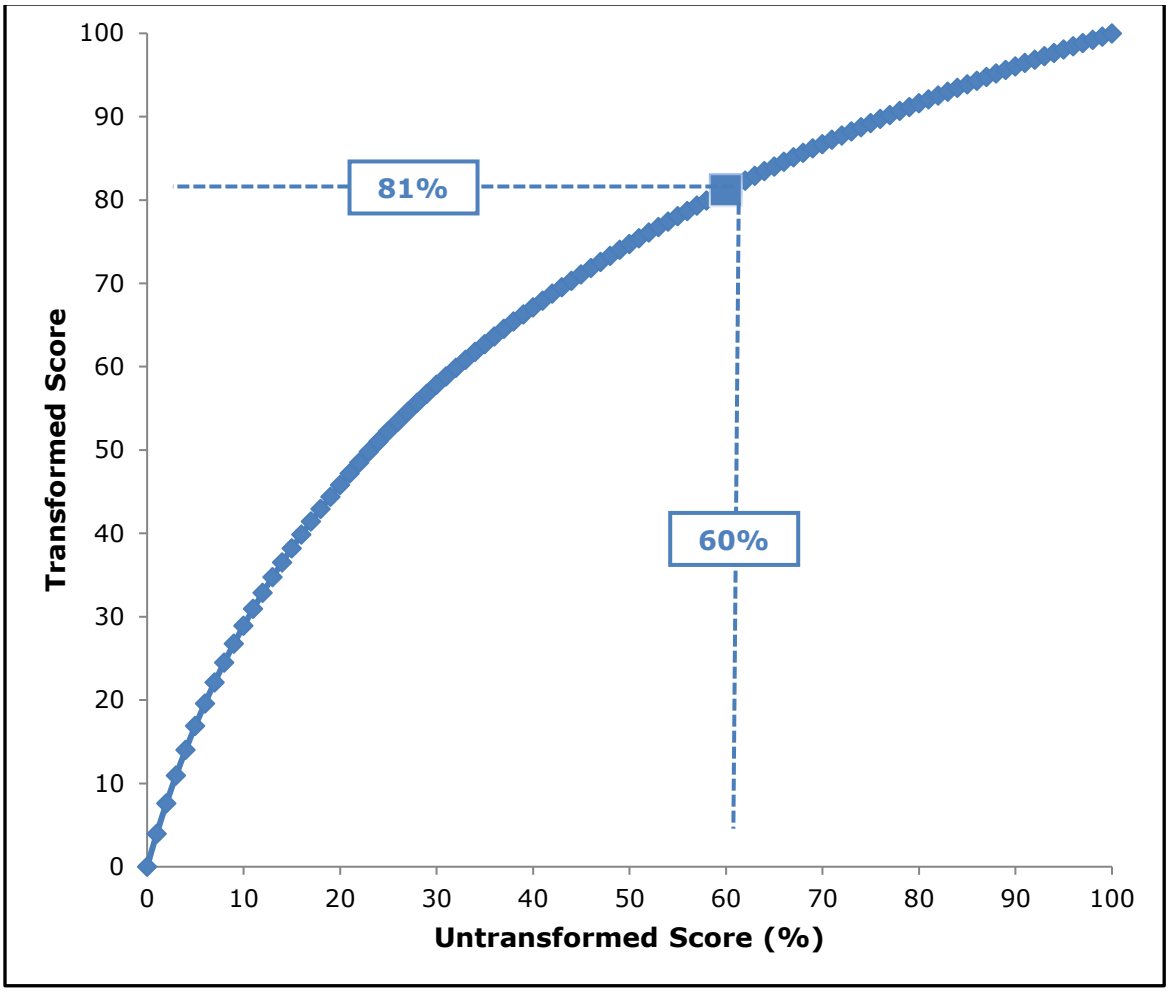
Log Transformation

Weighted three-year expert opinion values are displayed in the ranking tables. Before the expert opinion 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, expert opinion would have a greater impact on the final rankings than is warranted if left unadjusted.

Log transformation reshapes the distribution to more closely match expert opinion data to those of other components. The transformation is applied to the weighted expert opinion 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.

[†††††] Age categories were collapsed for females because there were too few female physicians over 55 in the sample.

Figure 1. Impact of Log Transformation on Expert Opinion



The transformed expert opinion 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 expert opinion 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 expert opinion on final standing in the rankings is slightly diminished.

D. Normalization and Weighting

The process component, which consists of commitment to best practices, infection-prevention program, and expert opinion, is worth one-third (33.3%) of the overall score in each specialty except for pediatric cardiology & heart surgery. The overall measure weight and the process component weight for all other specialties is provided in ***Table 15.***

Table 15. Weight of Individual Process Measures (All Specialties Except Pediatric Cardiology & Heart Surgery)

Process Measure	Overall Weight	Process Component Weight
Commitment to Best Practices	9.2%	27.5%
Ability to Prevent Infections	9.2%	27.5%
Expert Opinion with Pediatric Specialists	15.0%	45.0%
Total	33.3%*	100%

*Numbers do not add up to 33.3 percent due to rounding.

In pediatric cardiology and heart surgery only, the overall weight for expert opinion was 8.5% and the other two measures included in process (Commitment to Best Practices and Ability to Prevent Infections Throughout Hospital) are each 9.9% of the overall weight. The total weight given to the process component is 28.3%. The other 5 percentage points were added to the outcomes component (worth 38.3% in this specialty only).

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 expert opinion scores is from 0% (no nominations) to 100% (every surveyed physician nominated the hospital). Starting with the 2013-14 rankings, the normalized expert opinion score has determined the number of points hospitals received for expert opinion. After log transformation, if the highest expert opinion score in a given specialty is 80, for example, the hospital with that score receives a normalized score of 0.80. Because expert opinion is worth 15% of the overall score, the hospital receives 0.80 x 15, or 12 points, for expert opinion. In past years, hospitals with the highest expert opinion scores received the full point total.

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.[####]

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

[####] 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/.

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 2018-19 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

Ability to Prevent Infections in Intensive Care Units (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. Central line-associated blood-stream infection (CLABSI) rates were calculated as the number of BSIs per 1,000 central-line days during the previous 12 months.

CLABSI (A33) rates were tracked for all pediatric ICUSs and all oncology/stem cell transplant patients (B22). Hospitals were rewarded for lower rates of infections.

For pediatric ICU CLABSI 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 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, or 5 points for ≤ 0.5 infections per 1,000 days.

Finally, for oncology/stem cell transplant patients CLABSI rates, hospitals received up to 10 points per group: 2 points for > 4.0 and ≤ 6.0 infections per 1,000 days, 4 points for > 2.0 and ≤ 4.0 infections per 1,000 days, 6 points for > 1.0 and ≤ 2.0 infections per 1,000 days, 8 points for > 0.5 and ≤ 1.0 infections, or 10 points for ≤ 0.5 infections per 1,000 days.

Ability to Prevent Pressure Injuries (5 points). Hospitals received up to 3 points for lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure injuries (A38.1 and A38.2). For both Stage III and Stage IV, hospitals received 1 point for a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters. For unstageable pressure ulcers, hospitals received 1 point for a pressure ulcer rate of ≤ 0.2 per 100 patient admissions assessed over

the last four quarters. Hospitals also received up to 2 points for assessing a larger percentage of their total inpatients for pressure ulcers: 1 point for ≥ 50% or < 75% and 2 points for ≥ 75%.

Five-Year Cancer Survival (15 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) (B35a), acute myeloid leukemia (AML) (B35b), Stage L1 neuroblastoma (B35c), Stage L2/M neuroblastoma (B35d), and medulloblastoma (B35e) who were alive after 5 years of treatment in the pediatric cancer program. For each of the five 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, or 3 points for ≥ 95% survival. For AML and stage L2/M neuroblastoma, points were awarded as follows: 1 point for ≥ 35% and < 50% survival, 2 points for ≥ 50 and < 60% survival, or 3 points for ≥ 60% survival. For Stage L1 neuroblastoma, points were awarded as follows: 1 point for ≥ 60% and < 85% survival, 2 points for ≥ 85 and < 95% survival, or 3 points for ≥ 95% survival. For medulloblastoma, points were awarded as follows: 1 point for ≥ 70% and < 80% survival, 2 points for ≥ 80 and < 90% survival, or 3 points for ≥ 90% survival.

Survival After Bone Marrow Transplant (6 points). This measure assessed the percentage of pediatric patients aged 20 years or younger receiving allogeneic bone marrow (including cord blood and stem cell) transplants (BMTs) in the past 5 years who survived for at least 100 days following transplant (B20.1). Hospitals could receive up to 3 points for survival rates for sibling-matched (HLA-identical) allogeneic transplants (B20.1a, B20.1b): 1 point for ≥ 75% and < 90% survival, 2 points for ≥ 90% and < 95% survival, or 3 points for ≥ 95% survival. Hospitals could receive up to 3 points for survival rates for all other allogeneic transplants (B20.1c, B20.1d): 1 point for ≥ 75% and < 85% survival, 2 points for ≥ 85% and < 95% survival, or 3 points for ≥ 95% survival.

Cardiology & Heart Surgery

Ability to Prevent Infections in Intensive Care Units (5 points). The rate was calculated as the number of CLABSI (A33) infections per 1,000 central-line days in pediatric ICUs during the previous 12 months. Hospitals were rewarded for lower rates of infections. 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 infections, 4 points for > 0.5 and ≤ 1.0 infections, or 5 points for ≤ 0.5 infections.

Ability to Prevent Pressure Injuries (5 points). Hospitals received up to 3 points for lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure injuries (A38.1 and A38.2). For Stage III and IV, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per

100 patient admissions assessed over the last four quarters. For unstageable pressure ulcers, hospitals received 1 point for a pressure ulcer rate of ≤ 0.2 per 100 patient admissions assessed over the last four quarters. Hospitals also received up to 2 points for assessing a larger percentage of their total inpatients for pressure ulcers: 1 point for ≥ 50% and < 75% or 2 points for ≥ 75%.

Survival After Congenital Heart Surgery (10 points). Starting with the 2017-18 rankings, hospitals now receive points for risk-adjusted survival after heart surgery. The Society of Thoracic Surgeons (STS) Congenital Heart Surgery Database (CHSD) provides an adjusted mortality rate (AMR) using a mortality risk model that incorporates a hospital's patient mix to adjust scores based on known risk factors such as the patient's age, weight, procedure type, prior cardiothoracic operations, non-cardiac congenital anatomic abnormalities, chromosomal abnormalities, syndromes, and preoperative risk factors§§§§§.

The adjusted mortality rate (AMR) produced for each hospital estimates what the hospital's mortality rate would be if that hospital's case mix was the same as the overall case mix (across all hospitals). The AMR is calculated as the observed mortality rate divided by the expected mortality rate for that case mix, multiplied by the overall STS mortality rate for all hospitals. Operative mortality is defined in all STS databases as (a) all deaths occurring during the hospitalization in which the operation was performed, plus (b) all deaths, occurring after discharge from the hospital but before the end of the 30th postoperative day[7,8]. Lower scores indicate lower than expected mortality rates. The STS reports also include confidence intervals surrounding the AMR scores. Starting with the 2018-19 rankings, hospitals receive points based on both the AMR estimate as well as the upper limit of the confidence interval (CI).

Hospitals received up to 10 points for a lower 4-year combined AMR and upper CI bound (E43) as follows:

If AMR < 3.0%:

- 10 points if upper CI bound ≤ 2.5%
- 9 points if upper CI bound > 2.5% and ≤ 3.0%
- 8 points if upper CI bound > 3.0% and ≤ 3.5%
- 7 points if upper CI bound > 3.5% and ≤ 4.0%
- 6 points if upper CI bound > 4.0%

If AMR ≥ 3.0%:

- 5 points if upper CI bound ≤ 4.5%
- 4 points if upper CI bound > 4.5% and ≤ 5.5%

§§§§§ For more information, please see: http://www.sts.org/quality-research-patient-safety/sts-public-reporting-online/explanation-of-sts-chsd-mortality-risk-model

- 3 points if upper CI bound > 5.5% and ≤ 6.5%
- 2 points if upper CI bound > 6.5% and < 8.0%
- 1 points if upper CI bound ≥ 8.0%

Hospitals that do not receive a risk-adjusted mortality rate (AMR) from the STS can receive up to 5 points for the measure of patient survival after complex heart procedures. This measure represents the rate of operative mortality (patient deaths) following moderately complex to very difficult heart surgery procedures at pediatric hospitals in the four most recent reporting periods (E42). An overall survival rate was computed based on data from STAT levels 1-5 for the past 4 years. Points were assigned as follows: 1 point for operative mortality rates > 4.0% and ≤ 5.0%, 2 points for rates > 3.0% and ≤ 4.0%, 3 points for rates > 2.0% and ≤ 3.0%, 4 points for rates > 1.0% and ≤ 2.0%, or 5 points for rates ≤ 1.0%.

Survival After Certain Complex Heart Procedures (9 points). Hospitals received 9 points for lower rates of reoperation and support after initial surgeries for each of three types of surgeries: Tetralogy of Fallot (TOF) repair (E37.2), Arterial Switch Operations for Transposition of the Great Arteries with intact ventricular septum (TGA, IVS) (E37.3), and Ventricular Septal Defect (VSD) repair surgery (E37.4). For each type, hospitals received 1 point for > 4% and ≤ 8% reoperation or support after the initial surgery, 2 points for > 2% and ≤ 4% reoperation or support, or 3 points for ≤ 2% reoperation or support.

Survival After Heart Transplant (6 points). Hospitals received up to 3 points based on the ratio of observed[******] to expected survival rates for pediatric patients at 1 and 3 years following heart transplant (6 points total) (E23 and E24). The expected survival rate is calculated from statistical models that take into account various factors of both recipients and donors that affect success. A ratio of observed (unadjusted probability of survival) to expected (adjusted probability of survival) survival rates greater than 1.0 indicates that more patients survived than expected, and a ratio of less than 1.0 indicates that fewer patients survived than expected. Points were awarded for both 1-year and 3-year ratios as follows: 1 point for ratios ≥ 0.80 and < 0.90, 2 points for ratios ≥ 0.90 and < 1., or 3 points for ratios ≥ 1.

Survival After Norwood/Hybrid Surgery (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

[******] The SRTR now uses "estimated" rather than "observed" survival in its public reports. This report uses "observed" for consistency with other Best Children's Hospitals measures.

follows: 1 point for survival rates ≥ 25% and < 50%, 2 points for survival rates ≥ 50% and < 75%, or 3 points for survival rates ≥ 75%.

Diabetes & Endocrinology

Success in 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, or 3 points for ≥ 99% patients beginning therapy.

Success in Managing Diabetes (42 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) in Type 1 (C29a1 and C29a2) and Type 2 (C29b1 and C29b2) diabetes outpatients. 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 for hypoglycemic events: 1 point for > 1% and ≤ 5% of patients with hypoglycemic events, or 2 points for having ≤ 1% of patients with hypoglycemic events. Points were awarded as follows for morbidity and mortality events: 1 point for > 0.1% and ≤ 0.5% of patients with morbidity or mortality events, or 2 points for having ≤ 0.1% of patients with morbidity or mortality 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 13-17 years of age). Increases in A1c values increase the risk of microvascular complications in patients. Hospitals received up to 3 points in each of the six groups (18 points total) for maintaining lower median A1c values (C35). Points for private insurance patients were awarded as follows: 1 point for median hemoglobin A1c values > 8.0% and ≤ 9.5%, 2 points for values > 7.5% and ≤ 8.0%, or 3 points for values ≥ 4% and ≤ 7.5%. Points for Medicaid insurance patients were awarded as follows: 1 point for median hemoglobin A1c values > 8.5% and ≤ 9.5%, 2 points for values > 7.5% and ≤ 8.5%, or 3 points for values ≥ 4% and ≤ 7.5%.

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 lower incidence of inpatient admissions and visits to the ER/urgent care for diabetes-related causes for two types of payers (private insurance and Medicaid) (C29). For inpatient admissions, up to 2 points were awarded for

Type 1 primary care diabetes patients for both insured groups (4 points total) as follows: 1 point for > 5% and ≤ 10% of patients admitted for diabetes-related reasons, or 2 points for having ≤ 5% of patients admitted. Up to 2 points were awarded for Type 2 primary care diabetes patients for both insured groups (4 points total) as follows: 1 point for having > 8% and ≤ 16% of patients admitted for diabetes-related reasons, or 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 for both insured groups (8 points total) as follows: 1 point for having > 10% and ≤ 25% of patients come to ER/urgent care for diabetes-related reasons, or 2 points for having ≤ 10% of patients come to ER/urgent care.

Hospitals received up to 2 points for LDL cholesterol management (C41.1). Hospitals were rewarded according to the percentage of patients with LDL cholesterol values less than 130 at the most recent measurement. Points were awarded as follows: 1 point for > 75% and < 90% of patients with low LDL values or 2 points for ≥ 90% of patients with low LDL values.

Gastroenterology & GI Surgery

Ability to Prevent Infections in Intensive Care Units (5 points). The rate was calculated as the number of CLABSI (A33) infections per 1,000 central-line days in pediatric ICUs during the previous 12 months. Hospitals were rewarded for lower rates of infections. 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 infections, 4 points for > 0.5 and ≤ 1.0 infections, or 5 points for ≤ 0.5 infections.

Ability to Prevent Pressure Injuries (5 points). Hospitals received up to 3 points for lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure injuries (A38.1 and A38.2). For Stage III and IV, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters. For unstageable pressure ulcers, hospitals received 1 point for a pressure ulcer rate of ≤ 0.2 per 100 patient admissions assessed over the last four quarters. Hospitals also received up to 2 points for assessing a larger percentage of their total inpatients for pressure ulcers: 1 point for ≥ 50% and < 75% or 2 points for ≥ 75%.

Success of Certain GI-Related Treatments (9 points). This measure comprises of three items: percentage of patients receiving endoscopic procedures with severe complications (D29), 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) within 90 days of birth (D30.1) and percentage of patients treated for inflammatory bowel disease (IBD) experiencing prednisone-free remission (D32 and D33). Up to 3 points were awarded for each type of procedure. 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, or 3 points for ≤ 1% complications. For Kasai procedure success, points were awarded as follows: 1 point for ≥ 30% and <45%, 2 points for ≥ 45% and < 60%, or 3 points for ≥ 60%. For IBD prednisone-free remission at the most recent visit, points were awarded as follows: 1 point for ≥ 55% and < 70% success, 2 points for ≥ 70% and < 80% success, or 3 points for ≥ 80% success.

Survival After Liver Transplant (6 points). Hospitals received up to 3 points based on the ratio of observed†††††† to expected survival rates for pediatric patients at 1 and 3 years after isolated liver transplant (6 points total) (D21 and D22). The expected survival rate is calculated from statistical models that take into account various factors of both recipients and donors that affect success. A ratio of observed (unadjusted probability of survival) to expected (adjusted probability of survival) survival rates greater than 1.0 indicates more patients survived than expected, and a ratio of less than 1.0 indicates that fewer patients survived than expected. Points were awarded as follows: 1 point for ratios ≥ 0.80 and < 0.90, 2 points for ratios ≥ 0.90 and < 1, or 3 points for ratios ≥ 1.

Neonatology

Ability to Prevent Infections in Neonatal Intensive Care Unit (5 points). The rate was calculated as the number of BSIs per 1,000 central-line days during the previous 12 months (F26.1). In the 2017-18 rankings we attempted to address year-to-year variability in the measurement of BSIs, by incorporating data from the last three years of reporting in the Pediatric Hospital Survey. After discussions with hospitals and the working groups, we have returned to awarding points based on only the most recent year of data. Hospitals were rewarded for lower CLABSI rates, which is calculated as the number of BSI events divided by the number of central line days and multiplied by 1,000. 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, or 5 points for ≤ 0.5 infections.

Keeping Breathing Tube in Place (5 points). Hospitals were rewarded for having a lower rate of unintended extubations in infants without tracheostomy. 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, or 5 points for ≤ 0.5 extubations.

†††††† The SRTR now uses "estimated" rather than "observed" survival in its public reports. This report uses "observed" for consistency with other Best Children's Hospitals measures.

Matching Breast Milk With Correct Infants (5 points). Hospitals were rewarded for having a lower rate of breast milk administration errors, such as a newborn receiving the wrong breast milk. 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 > 0.5 and ≤ 1.0 errors, 4 points for > 0.25 and ≤ 0.5 errors, or 5 points for ≤ 0.25 errors.

Taking Breast Milk When Discharged (3 points). Hospitals were rewarded for having higher rates of infants admitted at less than 7 days of age being discharged home from the NICU (before 120 days) on partial or full breast milk (F10.1). Points were awarded as follows: 1 point for > 0% and < 50%, 2 points for ≥ 50% and < 80%, or 3 points for ≥80%.

Nephrology

Ability to Prevent Biopsy-Related 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 admission, 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%, or 3 points for complication rates ≤ 2%.

Ability to Prevent 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 (G24.1). 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, or 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, or 3 points for < 2.0 infections.

Ability to Prevent Infections in Intensive Care Units (5 points). The rate was calculated as the number of CLABSI (A33) infections per 1,000 central-line days in pediatric ICUs during the previous 12 months. Hospitals were rewarded for lower rates of infections. 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 infections, 4 points for > 0.5 and ≤ 1.0 infections, or 5 points for ≤ 0.5 infections.

Ability to Prevent Pressure Injuries (5 points). Hospitals received up to 3 points for lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure injuries (A38.1 and A38.2). For Stage III and IV, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters. For unstageable pressure ulcers, hospitals received 1 point for a pressure ulcer rate of ≤ 0.2 per 100 patient admissions assessed over the last four quarters. Hospitals also received up to 2 points for assessing a larger percentage of their total inpatients for pressure ulcers: 1 point for ≥ 50% and < 75% or 2 points for ≥ 75%.

Success in Managing Dialysis Patients (12 points). This measure evaluates outcomes for patients on maintenance dialysis during the past 2 calendar years (G23). Hospitals received up to 8 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, and percentage of total Kt/V values of ≥ 1.8 for patients receiving peritoneal dialysis. For both outcomes in each of the past 2 years points were awarded as follows: 1 point for desirable outcome rates ≥ 80% and < 90% or 2 points for desirable outcome rates ≥ 90%.

Hospitals received up to an additional 4 points based on the percentage of end-stage renal disease patients receiving hemodialysis and/or peritoneal dialysis for at least 3 consecutive months who survived (G20). Rates were divided into two submeasures based on age: infants and children under 5 years of age and children and adolescents aged 5-19. For children under 5 years of age, up to 2 points per item were awarded: 1 point for survival rates ≥ 80% and < 90% or 2 points for survival rates ≥ 90%. For children and adolescents aged 5-19, points were awarded as follows: 1 point for survival rates ≥ 85% and < 95% or 2 points for survival rates ≥ 95%.

Survival after Kidney Transplant (24 points). Hospitals received up to 24 points based on observed‡‡‡‡‡‡ survival rates at 1 and 3 years of the kidney and of the patient for deceased-donor and living-donor kidney transplants (24 points total) (G32.1b, G32.2b, G32.3b, and G32.4b). A total of eight observed survival 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), 1- and 3-year patient survival rates (deceased donor), and 1- and 3-year patient survival rates (living donor). Points were awarded in each of the eight groups based on the observed probability of survival (unadjusted probability of survival) as follows: 1 point for rates ≥ 0.50 and < 0.80, 2 points for rates ≥ 0.80 and < 0.90, or 3 points for rates ≥ 0.90.

‡‡‡‡‡‡ The SRTR now uses "estimated" rather than "observed" survival in its public reports. This report uses "observed" for consistency with other Best Children's Hospitals measures.

Neurology & Neurosurgery

Ability to Prevent Surgical Complications (22 points). This measure rewards hospitals for having lower readmission rates. Hospitals received up to 8 points total for having a lower percentage of patients readmitted within 30 days of the following four surgical procedures: craniotomy (H17a), spinal surgery for dysraphism (H17b), Chiari decompression (H17c), and shunt placement (H17d). Points were awarded in each group as follows: 1 point for > 5% and ≤ 15% readmission rate or 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 or 2 points for ≤ 5% readmission rate.

Hospitals received up to 3 points for having lower unplanned returns to the operating room within 30 days for patients receiving new/initial neurosurgical shunt placements (H29). Points were awarded as follows: 1 point for > 5% and ≤ 15% unplanned return rate, 2 points for > 3% and ≤ 5 unplanned return rate, or 3 points for ≤ 3% unplanned return rate.

Hospitals received up to 3 points for having a lower percentage of unplanned returns to the operating room within 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, or 3 points for ≤ 3% readmission rate.

Hospitals received up to 3 points for having a lower complication rate–returns to the OR for unplanned revision surgery within 12 months –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, or 3 points for ≤ 3% complication rate.

Hospitals received up to 3 points for having lower 30-day complication rates for epilepsy surgical resection in patients with convulsive disorders (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, or 3 points for ≤ 3% complication rate.

Success in Controlling Epilepsy (8 points). Hospitals received up to 6 points for the percentage of patients receiving three specific treatments for epilepsy (temporal lobe epilepsy surgery, extra-temporal lobe epilepsy surgery, and functional hemispherectomy) who achieved Engel Class 1 after 12 months. Hospitals were rewarded for higher rates of success. For temporal lobe epilepsy surgery (H31a): 1 point for seizure-free rates ≥ 50% and < 80% or 2 points for seizure-free rates ≥ 80%. For extra-temporal lobe epilepsy surgery (H31b): 1 point for seizure-free rates ≥ 30%

and < 60% or 2 points for seizure-free rates ≥ 60%. For functional hemispherectomy (H31c): 1 point for seizure-free rates ≥ 75% and < 90% or 2 points for seizure-free rates ≥ 90%.

Hospitals received up to 2 points for the percentage of unique 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 or 2 points for ≤ 3% of patients having an adverse event.

Survival After Surgery (12 points). Hospitals received up to 12 points for surgical survival rates for six significant neurological disorders or procedures, including brain tumors (H16a), craniosynostosis (H16b), hydrocephalus patient shunts (H16c), medically intractable epilepsy (H16d), spinal dysraphism (H16e), and Chiari I malformation/syringomyelia (H16f). 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% or 2 points for survival rates ≥ 99%.

Orthopedics

Ability to Prevent Surgical Complications (12 points). Hospitals received up to 12 points based on the rate of adverse outcomes for patients who received surgical correction for two types of scoliosis: idiopathic scoliosis (I31a) and non-idiopathic scoliosis (I31b and I31c). Two adverse outcomes were measured for both types of scoliosis: unplanned admissions within 30 days of procedure (for any reason) and reoperation (for any cause) within 90 days (I32). Hospitals received up to 3 points in each of the four 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% or 3 points for complication rate ≤ 3%.

Speed and Success in Treating 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 or 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 or 2 points for ≥ 80%.

Hospitals received up to 2 additional 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 or 2 points for ≥ 90%.

Pulmonology

Ability to Prevent Infections in Intensive Care Units (5 points). The rate was calculated as the number of CLABSI (A33) infections per 1,000 central-line days in pediatric ICUs during the previous 12 months. Hospitals were rewarded for lower rates of infections. 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 infections, 4 points for > 0.5 and ≤ 1.0 infections, or 5 points for ≤ 0.5 infections.

Ability to Prevent Pressure Injuries (5 points). Hospitals received up to 3 points for having lower rates of Stage III, Stage IV and unstageable hospital-acquired pressure injuries (A38.1 and A38.2). For Stage III and IV, hospitals received 1 point for having a pressure ulcer rate of ≤ 0.1 per 100 patient admissions assessed over the last four quarters. For unstageable pressure ulcers, hospitals received 1 point for a pressure ulcer rate of ≤ 0.2 per 100 patient admissions assessed over the last four quarters. Hospitals also received up to 2 points for assessing a larger percentage of their total inpatients for pressure ulcers: 1 point for ≥ 50% and < 75% or 2 points for ≥ 75%.

Success in Managing Cystic Fibrosis Patients (16 points). Hospitals received up to 14 points for representing better outcomes for patients with cystic fibrosis. 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) for patients 2-19 (J24b), median forced expiratory volume (FEV_1) for patients 6-17 (J24c), the percentage of children 7-17 who met treatment guidelines for CF patients (at least four outpatient visits, one culture, two spirometries) (J24d), and median weight-for-length percentile for CF patients 24 months of age or less (J24e). 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%, or 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%, or 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%, or 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%, or 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 or 2 points were awarded for ≥ 75% of patients completing the test.

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. Hospitals were awarded up to 3 points based on the percentage of asthma inpatients readmitted within 7 days for exacerbation of asthma-related symptoms (J11). Hospitals were rewarded for lower percentages of inpatient readmissions: 1 point for readmission rates > 3% and ≤ 5%, 2 points for rates > 1.5% and ≤ 3%, or 3 points for rates ≤ 1.5%. Up to 2 additional points are awarded for shorter lengths of stay for asthma inpatients (J12): 1 point for an average stay > 2 days and ≤ 4 days or 2 points for a stay ≤ 2 days.

Survival After Lung Transplant (6 points). Hospitals received up to 6 points based on the observed[§§§§§§] survival rates at 1-year and 3-year for pediatric lung transplant patients (J47 and J48). Points were awarded in each group based on the observed probability of survival (unadjusted probability of survival) as follows: 1 point for rates ≥ 50% and < 80%, 2 points for rates ≥ 80% and < 90%, or 3 points for rates ≥ 90%.

Survival of Patients on Ventilators (6 points). Hospitals received up to 6 points for lower rates of inpatient deaths or cardiorespiratory arrests and at-home deaths or cardiorespiratory arrests over the last 3 years for ventilator-dependent patients due to accidental obstruction, decannulation or tracheostomy (J41). 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%, or 3 points for survival ≥ 99%.

Urology

Ability to Prevent Surgical Complications (18 points). This measure evaluated a number of complications and adverse outcomes in patients who received urologic surgical procedures in the

[§§§§§§] The SRTR now uses "estimated" rather than "observed" survival in its public reports. This report uses "observed" for consistency with other Best Children's Hospitals measures.

last 3 years. Complications for the following surgical procedures were tracked: distal hypospadias (K15a), proximal hypospadias (K15b), and pyeloplasty (K15c). Hospitals received up to 9 points total for the three measures, with more points awarded for better performance (i.e., lower complication rates). For distal hypospadias and pyeloplasty the points were awarded as follows: 1 point for rates > 3% and ≤ 5%, 2 points for rates > 1% and ≤ 3%, or 3 points for rates ≤ 1%. For proximal hypospadias: 1 point for rates > 10% and ≤ 15%, 2 points for rates > 5% and ≤ 10%, or 3 points for rates ≤ 5%.

Adverse events included unplanned hospital admissions for urologic issue within 30 days of inpatient surgery (K16a), unplanned hospital admission within 30 days following an ambulatory procedure (K16b), and unplanned reoperation for a urologic issue within 48 days of surgery (K16c). Hospitals received up to 3 points for each of the three measures (9 points total), with more points awarded for better performance (i.e., lower adverse event rates) as follows: 1 point for rates > 5% and ≤ 10%, 2 points for rates > 1% and ≤ 5%, or 3 points for rates ≤ 1%.

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

B. Normalization and Weighting

As with structural and process measures, individual outcomes measures were normalized to have a distribution between 0 and 1. ***Table 16*** shows the relative weight of each measure on the total outcomes score for that specialty. The outcome measures combined are worth 33.3% of the overall score in all specialties except for pediatric Cardiology & Heart Surgery, for which outcomes are worth 38.3%. 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 (38.3 in Cardiology & Heart Surgery).

Table 16. Relative Weights of Outcomes Measures by Specialty

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Ability to prevent biopsy-related complications						1				
Ability to prevent dialysis-related infections						1				
Ability to prevent infections in intensive-care units	1	1		0.75	2	0.75			1	
Ability to prevent pressure injuries	0.5	0.5		0.5		0.5			0.5	
Ability to prevent surgical complications							1.25	1		1.75
Five-year cancer survival	1									
Keeping breathing tube in place					1					
Matching breast milk with correct infants					1					
Speed and success in treating complex fractures								1		
Speed in treating testicular torsion										1
Success in controlling epilepsy							1			
Success in hypothyroid management			1							
Success in managing cystic fibrosis patients									2	

(Continued)

Table 16. Relative Weights of Outcomes Measures, by Specialty (continued)

Measure	Cancer	Cardiology & Heart Surgery	Diabetes & Endocrinology	Gastroenterology & GI Surgery	Neonatology	Nephrology	Neurology & Neurosurgery	Orthopedics	Pulmonology	Urology
Success in managing diabetes			2							
Success in managing dialysis patients						1				
Success of certain GI-related treatments				2						
Success with asthma inpatients									1.5	
Survival after (bone marrow/heart/kidney/liver/lung) transplant	1	1		1		1			1	
Survival after certain complex heart procedures		2								
Survival after congenital heart surgery		6								
Survival after Norwood/hybrid surgery		1								
Survival after surgery							1			
Survival of patients on ventilators									1	
Taking breast milk when discharged					1					
Total	**3.5**	**11.5**	**3.0**	**4.25**	**5.0**	**5.25**	**3.25**	**2**	**7**	**2.75**

VII. Calculation of the U.S. News Score

The U.S. News ranking score reflects the followings weights for each of the major components and the individual process measures as shown in ***Table 17***. Starting with the 2017-18 rankings, individual component weights differ for Cardiology & Heart Surgery when compared with the other specialties. The differences can be seen in ***Table 17***. This shift in scoring is due to the inclusion of risk-adjusted mortality measures, which are more reliable than the observed outcome measures used in the other specialties.

Relative structural measure weights can be found in Table 8, and the relative outcomes measure weights are shown in Table 17.

Table 17. Component Weighting

Component	All Specialties Except Pediatric Cardiology & Heart Surgery	Pediatric Cardiology & Heart Surgery
Structure	33.3%	33.3%
Process: Commitment to Best Practices	9.2%	9.9%
Process: Infection-preventing measures	9.2%	9.9%
Process: Expert opinion	15.0%	8.5%
Outcomes*	33.3%	38.3%

*Numbers do not add up to total due to rounding.

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 D***. Starting with the 2012-13 rankings, hospitals with the same U.S. News rounded score have been considered to be 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 (expert opinion) 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, 86 different hospitals were ranked in at least one pediatric specialty in the 2018-19 rankings. The Best Children's Hospitals Honor Roll, established in 2009, recognizes excellence across a broad range of pediatric specialties.

In each specialty, the No. 1-ranked hospital received 25 Honor Roll points and lower-ranked hospitals received progressively fewer points – the No 2 hospital receiving 24 points, the No. 3 hospital 23 points, and so on – with all hospitals ranked 21-50 receiving 5 points. A hospital ranked No. 1 in all 10 specialties would therefore have received 250 points. The 2018-19 Honor Roll recognizes the 10 hospitals that earned the most points out of 250 across the 10 specialties. The Honor Roll is ordered 1 through 10 based on total points (see Appendix E).

IX. 2018-19 Changes

- **Maintaining Survey Stability.** This year, U.S. News chose to make very few changes in response to feedback from the working groups and hospitals. This was done to minimize burden to hospitals responding to the survey who must update their reporting each year in response to changes.
- **ICD-10 and CPT Coding.** All codes were reviewed by the working groups and updates were made to improve clarity to the scope of the questions being asked. While most questions retained the same code set as in 2017, a few questions received more extensive changes to their codes; the scoring for these questions was reviewed and updated as needed to reflect data provided by hospitals on the survey this year.
- **Structure.** In Neonatology, the transport questions previously included in the ECMO measure were removed and included in a new measure focused on neonatal transport.
- **Outcomes.**
    - A new version of the Survival After Congenital Heart Surgery measure was created for the Cardiology and Heart Surgery specialty that is exclusively based on the Adjusted Mortality Rate (AMR) and its confidence interval for all hospitals where such risk-adjusted data were available from the Society for Thoracic Surgeons (STS). Hospitals for which risk-adjusted data were not available were eligible to receive up to half of the points available based on their non-risk-adjusted mortality rate.

- In Neonatology, the readmissions measure was removed from the rankings and other outcomes were re-weighted to adjust for the missing score. While readmission following NICU discharge is an important outcome, concerns about whether all hospitals could reliably identify readmissions to non-index hospitals led to the measure's removal.

- **Weighting.** The weights for individual measures were adjusted based on changes to a few measures in the rankings. However, the overall structure of the weights remains the same as in 2017-18.

X. Future Improvements

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

- **Consider further weighting changes.** We plan to review the survey with the working groups to consider additional changes to the weights used in the rankings to assess hospitals.

- **Expand outcome measures.** We plan, for example, 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 CHA, Children's Hospital Neonatal Consortium and Society of 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.

- **Identify opportunities for data validation and auditing.** To ensure the integrity of the data used, the project team plans to continue to explore opportunities for

employ data validation and possible auditing techniques to evaluate data submitted by hospitals for consideration in the rankings.

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.

XI. 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.

XII. References

1. Donabedian A. Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly.* 1966; 44:166-203.

2. Donabedian A. Promoting quality through evaluating the process of patient care. *Medical Care.* 1968; 6:181.

3. Donabedian A. The quality of care: How can it be assessed? *Journal of the American Medical Association.* 1988; 260:1743-1748.

4. Donabedian A. The seven pillars of quality. *Archives of Pathology and Laboratory Medicine.* 1990; 114:1115-1118.

5. Donabedian A. The role of outcomes in quality assessment and assurance. *Quality Review Bulletin.* 1992; 18(11):356-360.

6. National Center for Health Statistics. *The international classification of diseases, ninth revision, clinical modification (ICD-9-CM)*. Hyattsville, MD: National Center for Health Statistics. Available at http://www.cdc.gov/nchs/icd/icd9.htm. Accessed on April 21, 2006.

7. Jacobs JP, Mavroudis C, Jacobs ML, et al. What is operative mortality? Defining death in a surgical registry database: a report from the STS Congenital Database Task Force and the Joint EACTS-STS Congenital Database Committee. *Ann Thorac Surg 2006*;81:1937–41.

8. Overman D, Jacobs JP, Prager RL, et al. Report from The Society of Thoracic Surgeons National Database Work Force: clarifying the definition of operative mortality. *World J Pediatr Congenit Heart Surg 2013*;4:10–2.

Appendix A

2018-19 Best Children's Hospitals

Working Groups and Members

The Pediatric Hospital Survey is informed, updated and enhanced every year with the help of more than 120 volunteer advisers in 12 working groups – one group for each of the 10 Best Children's Hospitals specialties, plus infection control and radiology. Two senior advisers provide overarching expertise.

The working groups' input is invaluable. However, U.S. News and RTI International make all final decisions concerning the content and wording of the survey and the analysis of the data it generates. Working group members do not have access to the data provided by participating hospitals and are not asked to endorse the decisions made by U.S. News.

The working group members and their institutions are listed below.

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Appendix B

Glossary of Terms

Continuous video EEG monitoring with pediatric neurology support (F12a). EEG (electroencephalography) 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 (B8f, E14b). This process uses cooled, thermally conductive gases and fluids circulated through hollow needles (cryoprobes) that are placed in contact with or inserted into diseased tissue to kill it.

EEG source localization (H5b). Source localization is the process of identifying the origin or site of seizure activity within the brain. The most common methods of doing this are the use of magnetoencephalography or EEG testing techniques.

Fast magnetic resonance imaging (MRI) shunt for hydrocephalus (F10i). Fast MRI shunt scans are exams performed in under 10 minutes as an alternative to CT scans to assess ventricular size when shunt tube malfunction is suspected.

Functional magnetic resonance (fMR) (B8b). fMR is a specialized type of MRI scan that measures changes in blood flow related to neural activity.

Genetic testing/counseling (A7d). 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) (A10e). 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) (A10f). 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) (A10c). 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) (D7a). MRCP is a noninvasive approach for imaging the biliary and pancreatic ducts using MRI.

Multidisciplinary pediatric acute pain/sedation service available onsite 24 hours a day (A8d). 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) (A7a). A 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 (H5a). This uses electrophysiological methods, including electroencephalography and electromyography, to monitor parts of the brain, spinal cord and peripheral nerves during surgery.

Palliative care program (A7e). 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.

Patient care rooms with protective environment (A7c). The Protective Environment incorporates the following: air exchanges $\geq$ 12 per hour; central or point-of-use high-efficiency particulate (HEPA) filters, consistent positive air pressure differentials between the patient's room and hallway and continuous monitoring of pressure differentials.

Pediatric anesthesia program available onsite 24 hours a day (A8a). 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) (A7b). 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 (A8c). 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 (A10b). 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.

Portable CT scanning unit (A10g). CT scanning unit that can be moved to where patient care is being provided rather than having a fixed unit in a single location. The portable unit is particularly helpful in delivering care in the ICU, emergency department, and in operating room environments.

Positron emission tomography (PET) (A10a). 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 (B8f, E14c). 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 (A8a). 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."

Rehabilitation program and consultation service (A7f). This program provides either a rehabilitation unit and/or a consultation service within the pediatric program for patients requiring rehabilitation. The program must include a pediatric physiatrist (board certified/board eligible pediatric rehabilitation physician) as the director.

Therapeutic meta-iodine-benzyl-guanidine with I-131 radionuclide (I-131 MIBG) (B8a). I-131MIBG is a functional imaging and treatment agent used to help locate, diagnose and treat tumors of adrenergic tissues, such as neuroblastoma and pheochromocytoma. For this question, we are only interested in therapeutic use of I-131 MIBG to treat cancer.

Three-dimensional mapping (E14a). This includes the use of three-dimensional imaging systems such as MRI or ultrasound to guide ablation probes.

Vascular tumor program (A35). This program brings together a multidisciplinary team of specialists to diagnose and ensure the most effective treatment for optimal functioning and quality of life for children with vascular anomalies (tumors or malformations). To be eligible, a program must have at least one of each of the following as part of the team: pediatric surgeon, pediatric hematologist/oncologist, diagnostic radiologist with expertise in vascular anomalies, interventional radiologist with expertise in vascular anomalies, vascular pathologist, and support from physical or occupational therapy for rehabilitation following vascular surgery.

Virology laboratory with weekday 24-hour availability (F12b). This is a diagnostic laboratory that supports the NICU by conducting culture and tissue studies to determine patients' virological conditions. Laboratory should be able to complete one or more of the following tests: HSV PCR from CSF, HSV PCR from blood, or direct HSV antigen testing for skin lesions.

3-Tesla magnetic resonance imaging (3T MRI) (A10d). 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 C

2018-19 Sample Physician Questionnaire

Best Children's Hospitals

Your nominations will be reflected in the 2018-19 U.S. News *& World Report* «specialty» rankings.

Please name up to 10 U.S. hospitals that in your opinion 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. For a hospital that is part of a health system or medical school, please name the individual hospital.*

	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 D

2018-19 Best Children's Hospitals Rankings by Specialty

Rank	Best Children's Hospital 2018-19: Cancer Hospital	Overall Score	Five-year cancer survival	Survival after bone marrow transplant	Ability to prevent infections throughout hospital	Ability to prevent infections in intensive-care units	Ability to prevent pressure injuries	Number of patients	Number of new patients	Number of surgeries	Nurse staffing	Bone marrow transplant services	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Accredited by FACT	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care	Provides advanced palliative care
1	Cincinnati Children's Hospital Medical Center	100	15	4	36	13	4	21	3	18.0	4.5	14	25	11	14	5	15	1	1.0	50	42	14	13	11	12	8	7	8
2	Children's Hospital of Philadelphia	99.7	14	5	34	10	5	20	3	14.0	3.7	15	25	11	14	5	15	1	1.0	63	40	14	13	11	12	8	7	8
3	Dana-Farber/Boston Children's Cancer and Blood Disorders Center	97.8	14	5	33	8	5	21	3	18.0	4.3	12	25	11	14	5	15	1	1.0	60	42	14	12	11	12	8	7	8
4	St. Jude Children's Research Hospital	96.9	14	5	34	10	5	21	3	16.0	4.6	15	24	11	13	5	14	1	1.0	43	42	14	13	9	12	8	7	8
5	Nationwide Children's Hospital	93.6	14	6	35	12	5	21	3	16.0	3.4	15	25	11	13	5	15	1	1.0	13	42	14	13	11	12	8	7	8
6	Texas Children's Hospital	92.8	11	5	36	8	5	21	3	18.0	3.9	15	25	11	14	5	15	1	1.0	39	42	14	13	11	12	8	7	8
7	Children's National Medical Center	91.4	13	5	35	13	5	21	3	17.0	3.5	14	23	11	13	5	15	1	1.0	15	42	14	13	11	12	8	7	8
8	Children's Hospital Colorado	90.9	12	5	33	14	4	21	3	18.0	3.3	15	25	11	14	5	15	1	1.0	20	41	14	13	10	12	8	7	8
9	Children's Hospital Los Angeles	90.5	13	5	34	10	4	19	3	18.0	3.7	15	24	11	13	5	15	1	1.0	29	40	14	13	10	12	8	7	8
10	Johns Hopkins Children's Center	88.7	15	6	35	8	3	18	3	17.0	3.2	15	25	11	13	5	15	1	1.0	18	42	14	13	11	12	8	7	8
11	Children's Healthcare of Atlanta	86.5	12	6	35	9	5	21	3	18.0	4.6	15	25	11	14	5	15	0	1.0	18	41	14	13	11	12	8	7	8
12	Memorial Sloan Kettering Cancer Center	84.8	12	4	33	12	4	19	3	13.0	4.4	15	25	11	14	5	15	1	1.0	16	42	13	13	11	12	8	7	8
13	UCSF Benioff Children's Hospitals, San Francisco and Oakland	83.2	13	5	34	9	5	18	3	12.0	3.9	15	24	11	14	5	15	1	1.0	12	37	14	12	11	12	8	7	7
14	Monroe Carell Jr. Children's Hospital at Vanderbilt	81.6	15	5	33	11	5	21	3	18.0	3.2	13	24	11	13	5	15	1	1.0	1.3	41	14	13	10	12	8	7	8
15	Seattle Children's Hospital	80.8	11	5	32	7	3	20	3	18.0	3.3	15	21	11	13	4	15	1	1.0	35	33	14	13	11	12	8	7	8
16	Nemours Alfred I. duPont Hospital for Children	78.5	14	6	34	10	4	14	2	10.0	4.2	12	25	11	12	5	15	1	1.0	0.8	42	14	12	9	12	8	7	8
17	Duke Children's Hospital and Health Center	78.2	13	5	36	11	4	19	3	10.0	3.2	13	24	10	14	5	14	1	1.0	5	40	14	13	8	8	7	7	8
18	Ann and Robert H. Lurie Children's Hospital of Chicago	77.4	11	4	33	9	3	21	3	18.0	3.3	13	23	11	12	5	15	1	1.0	16	39	14	12	11	12	8	7	8
19	Children's Hospital of Wisconsin	76.6	11	4	28	14	5	18	2	13.0	4.2	15	24	11	13	5	15	1	1.0	3	42	14	12	10	11	8	7	8
20	Phoenix Children's Hospital	76.3	14	4	34	14	4	21	3	15.0	3	14	22	11	13	5	15	0	1.0	2.9	41	14	13	11	12	8	7	8
21	Lucile Packard Children's Hospital Stanford	76.2	13	6	34	7	4	21	3	18.0	3.7	14	24	11	14	5	15	0	1.0	7.4	40	14	13	11	11	8	7	6
22	Rainbow Babies and Children's Hospital	75.8	10	5	29	13	5	13	3	14.0	2.7	13	24	11	14	5	14	1	1.0	4.2	41	14	13	6	11	8	7	8
23	Cleveland Clinic Children's Hospital	75.7	8	6	34	11	5	15	3	16.0	3.4	11	24	11	14	5	15	1	1.0	0.9	40	14	12	11	12	8	7	8
24	C.S. Mott Children's Hospital-Michigan Medicine	75.0	12	4	34	12	4	12	2	11.0	3.7	13	24	11	14	5	15	1	1.0	3.8	38	14	13	11	12	8	7	8
25	MUSC Health-Children's Hospital	74.7	13	6	34	13	4	9	2	12.0	3	12	23	10	12	5	14	1	1.0	0.4	40	14	13	5	5	8	7	8
26	Mayo Clinic Children's Center	74.4	11	6	32	10	4	9	3	12.0	4	11	24	11	13	5	15	1	1.0	1	41	14	13	7	12	8	7	8
27	Primary Children's Hospital	73.7	13	6	35	7	4	18	3	18.0	4.2	14	22	11	14	5	15	0	1.0	1.4	42	14	12	11	12	8	7	8
28	Children's Medical Center Dallas	73.6	9	3	34	12	5	21	3	18.0	3.1	15	24	11	13	5	15	1	1.0	6.2	36	14	12	11	12	8	7	8
29	Children's Cancer Hosp.-University of Texas M.D. Anderson Cancer Center	73.2	6	5	31	15	5	17	3	10.0	2.9	13	24	11	12	5	12	1	1.0	6.7	36	14	12	5	11	7	7	8
30	Rady Children's Hospital	73.0	12	6	30	10	3	11	3	13.0	3.1	11	24	11	13	5	15	1	1.0	2.4	39	14	13	8	12	8	7	8
31	Levine Children's Hospital	72.6	13	6	34	12	4	7	2	7.0	3.1	10	21	11	13	5	15	1	1.0	0.3	41	14	13	0	8	8	7	8
32	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	72.0	12	4	33	13	4	21	2	11.0	3.2	12	25	11	14	5	15	0	1.0	4.9	39	13	13	10	12	8	7	8
33	Children's Mercy Kansas City	71.9	11	5	36	8	4	20	2	17.0	4.4	15	25	11	12	5	15	1	1.0	2.8	37	14	13	8	9	8	7	7
34	Children's Hospital at Montefiore	71.7	13	4	36	14	3	7	2	9.0	3.7	15	25	11	14	5	15	0	1.0	1.6	42	14	13	11	11	8	7	8
35	North Carolina Children's Hospital at UNC	71.5	10	6	35	10	3	19	2	14.0	4.9	11	24	11	13	4	14	1	1.0	0.9	40	14	13	9	7	8	7	8
36	UCLA Mattel Children's Hospital	71.3	13	5	28	8	5	15	2	10.0	3.6	14	24	10	13	5	13	1	1.0	2.8	38	13	13	10	10	8	7	8
36	University of Iowa Stead Family Children's Hospital	71.3	15	6	27	10	4	16	2	12.0	3.1	10	25	11	12	4	14	1	1.0	0.8	37	12	13	7	8	8	7	8
38	Children's Hospital of Pittsburgh of UPMC	71.0	11	4	32	11	3	21	2	7.0	3.4	14	23	11	13	5	15	1	1.0	5.4	38	14	13	11	10	8	7	8
39	American Family Children's Hospital	70.4	13	5	31	11	5	7	2	6.0	4	12	21	11	14	5	14	1	1.0	0.7	38	13	12	8	12	8	5	5
39	Children's Hospital of Alabama at UAB	70.4	12	5	30	11	5	19	2	18.0	3.6	13	24	11	11	5	15	0	1.0	1.7	41	13	9	9	11	8	7	8
41	Doernbecher Children's Hospital at Oregon Health and Science University	69.7	13	3	32	11	4	11	2	16.0	3.8	14	25	11	14	4	15	1	1.0	2.4	39	14	13	6	12	8	7	8
42	Spectrum Health Helen DeVos Children's Hospital	69.5	9	6	30	11	5	8	3	8.0	3.7	9	25	11	13	5	14	1	1.0	1.4	38	12	13	3	10	7	7	8
43	Yale New Haven Children's Hospital	69.3	11	6	29	9	5	16	2	8.0	2.2	9	25	10	14	5	14	1	1.0	0.9	40	14	13	8	8	8	7	8
44	Riley Hospital for Children at IU Health	69.2	12	4	32	5	5	19	3	18.0	4.1	13	23	11	13	5	15	1	1.0	1.6	42	13	13	9	12	8	6	8
45	Penn State Children's Hospital	68.7	11	6	27	9	4	14	2	7.0	3.5	13	23	11	12	5	14	1	1.0	1.4	38	14	13	8	10	8	7	8
45	St. Louis Children's Hospital-Washington University	68.7	9	4	35	10	3	7	3	9.0	3.6	12	24	10	14	5	14	1	1.0	5.2	38	14	13	11	12	8	7	8
47	Cook Children's Medical Center	68.6	14	3	30	12	5	21	3	10.0	3.9	9	22	11	12	5	15	1	1.0	1.8	40	13	12	0	4	8	7	8
48	Wolfson Children's Hospital	67.4	12	4	30	13	4	11	3	9.0	2.4	11	21	11	12	5	15	1	1.0	0.4	38	14	13	8	8	8	7	8
49	UF Health Shands Children's Hospital	67.1	12	6	28	10	3	9	2	7.0	2.7	15	23	11	13	5	14	1	1.0	0.8	36	14	13	8	11	8	6	8
50	CHOC Children's Hospital	67.0	13	4	35	8	3	9	3	8.0	3.7	14	23	11	12	5	14	1	1.0	1.9	41	13	13	4	10	8	7	8

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Cardiology & Heart Surgery	Overall Score	Survival after congenital heart surgery	Survival after certain complex heart procedures	Survival after Norwood/hybrid surgery	Survival after heart transplant	Ability to prevent infections throughout hospital	Ability to prevent infections in intensive-care units	Ability to prevent pressure injuries	Number of surgeries	Number of the high complexity heart surgeries	Number of catheter procedures	Number of Norwood or hybrid surgeries	Nurse staffing	Congenital heart program	Adult congenital heart program	Heart transplant program	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Texas Children's Hospital	100	10	8	9	5	41	2	5	10.0	768	33	12	3.9	23	11	11	15	9.0	8	13	19	1	51.3	51	14	13	9	11	8	7
2	Boston Children's Hospital	94.4	8	9	8	4	38	2	5	12.0	983	33	12	4.3	23	11	11	15	9.0	8	13	20	1	75	51	14	12	9	11	8	7
3	Ann and Robert H. Lurie Children's Hospital of Chicago	87.8	9	9	10	6	38	3	3	6.0	281	19	7	3.3	23	10	11	15	9.0	7	12	19	1	16.3	51	14	12	9	11	8	7
4	C.S. Mott Children's Hospital-Michigan Medicine	87.4	8	5	9	5	39	4	4	11.0	602	30	12	3.7	23	11	10	15	9.0	8	13	18	1	40.3	48	14	13	9	11	8	7
5	Children's Hospital Los Angeles	87.0	8	7	12	6	39	2	4	11.0	745	31	12	3.7	23	10	10	15	9.0	8	13	20	1	17.2	50	14	13	9	11	8	7
6	Children's Hospital of Pittsburgh of UPMC	84.3	10	6	11	5	37	3	3	6.0	302	21	7	3.4	23	10	10	15	9.0	8	12	20	1	10.7	47	14	13	9	11	8	7
7	Children's Medical Center Dallas	83.7	8	9	11	6	39	2	5	8.0	413	27	12	3.1	23	11	11	15	9.0	7	13	20	1	4	50	14	12	9	11	8	7
8	Cincinnati Children's Hospital Medical Center	83.2	5	9	11	6	41	3	4	9.0	392	30	11	4.5	23	11	10	15	9.0	8	13	19	1	31.8	51	14	13	9	11	8	7
9	Phoenix Children's Hospital	81.2	10	7	8	5	39	4	4	9.0	398	27	10	3	23	9	11	15	9.0	8	13	19	0	1.9	47	14	13	9	11	8	7
10	Le Bonheur Children's Hospital	80.7	10	9	10	3	39	2	5	6.0	257	21	6	3.1	22	9	6	15	9.0	8	13	19	1	2.4	47	14	13	8	10	8	7
11	MUSC Children's Heart Network of South Carolina	80.6	9	4	11	5	39	5	4	7.0	320	23	9	3	23	11	10	15	8.0	8	13	19	1	8.1	51	14	13	2	11	8	7
12	Children's Hospital of Philadelphia	78.2	5	5	10	3	39	2	5	12.0	624	33	12	3.7	23	10	11	15	9.0	8	13	20	1	67	51	14	13	9	11	8	7
13	Children's Mercy Kansas City	77.1	8	8	10	3	41	2	4	8.0	363	27	10	4.4	23	10	5	15	9.0	8	13	17	1	3.4	50	14	13	7	11	8	7
14	Children's Hospital of Wisconsin	76.6	9	2	11	3	33	4	5	7.0	338	17	9	4.2	23	11	11	15	9.0	8	13	19	1	10.3	51	14	12	7	11	8	7
15	Children's Hospital and Medical Center	76.5	8	7	10	6	40	4	4	7.0	257	23	6	4.3	23	11	10	14	7.0	8	13	16	1	1.2	46	14	13	4	11	8	7
16	Seattle Children's Hospital	76.3	7	6	9	6	39	1	3	9.0	465	27	11	3.3	23	11	11	15	9.0	8	13	20	1	14.2	47	14	13	9	11	8	7
17	Lucile Packard Children's Hospital Stanford	76.0	5	9	9	4	41	1	4	11.0	853	30	11	3.7	23	11	11	15	9.0	8	13	19	0	43.4	50	14	13	9	11	8	7
18	Children's Hospital Colorado	75.9	5	9	9	4	38	4	4	9.0	399	29	11	3.3	23	11	11	15	9.0	8	13	20	1	12.3	51	14	13	9	11	8	7
19	UF Health Shands Children's Hospital	75.1	9	9	12	4	34	4	3	5.0	232	13	5	2.7	23	9	11	14	9.0	8	13	16	1	0.9	45	14	13	7	9	8	6
20	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	74.2	5	8	11	6	38	3	4	10.0	570	32	12	3.2	23	10	11	15	9.0	8	13	19	0	18.9	51	13	13	9	11	8	7
21	Riley Hospital for Children at IU Health	72.8	8	6	9	6	36	1	5	8.0	359	23	10	4.1	23	9	9	15	9.0	8	13	20	1	2.6	48	13	13	5	11	8	6
22	Levine Children's Hospital	72.4	8	5	11	4	39	4	4	6.0	276	20	10	3.1	23	8	10	14	9.0	8	13	20	1	2.4	51	14	13	0	11	8	7
23	Advocate Childrens Heart Institute	72.0	9	8	11	NA	36	2	5	8.0	297	25	10	4	21	10	NA	13	8.0	7	13	17	1	2	50	13	13	6	9	8	7
24	Penn State Children's Hospital	70.9	10	9	12	NA	31	3	4	4.0	111	15	6	3.5	16	11	NA	12	9.0	8	13	15	1	1	46	14	13	7	9	8	7
25	Rady Children's Hospital	70.4	7	8	12	3	36	4	3	7.0	338	30	8	3.1	22	10	5	15	9.0	8	13	19	1	4.7	45	14	13	5	9	8	7
26	Cleveland Clinic Children's Hospital	69.7	6	7	11	5	39	3	5	4.0	144	22	5	3.4	20	10	9	15	9.0	8	13	19	1	2.2	50	14	12	9	11	8	7
27	Mayo Clinic Children's Center	69.3	7	6	10	5	39	0	4	7.0	426	19	5	4	20	11	9	15	9.0	7	13	19	1	6.1	50	14	13	6	10	8	7
28	Cook Children's Medical Center	68.9	8	9	10	NA	36	4	5	8.0	349	23	12	3.9	21	9	NA	14	9.0	8	13	19	1	0.7	49	13	12	0	8	8	7
29	Nationwide Children's Hospital	68.8	4	8	9	4	40	2	5	8.0	403	28	12	3.4	23	11	9	15	9.0	7	13	20	1	17.4	48	14	13	7	11	8	7
30	Primary Children's Hospital	67.6	5	7	11	6	41	1	4	9.0	476	31	10	4.2	23	9	11	15	9.0	8	13	19	0	6.5	49	14	12	9	11	8	7
31	St. Louis Children's Hospital-Washington University	67.0	4	9	8	5	40	4	3	6.0	258	31	9	3.6	23	11	11	15	8.0	8	13	18	1	4.3	47	14	13	7	11	8	7
32	Children's Healthcare of Atlanta	66.5	4	5	7	5	40	3	5	12.0	819	33	12	4.6	23	10	11	15	9.0	8	13	19	0	27.4	44	14	13	9	11	8	7
33	Johns Hopkins Children's Center	65.7	6	6	10	4	40	2	3	6.0	190	23	4	3.2	23	9	8	15	9.0	7	13	20	1	2.5	51	14	13	9	11	8	7
34	UCSF Benioff Children's Hospitals, San Francisco and Oakland	65.2	7	5	9	NR	40	3	5	6.0	243	28	6	3.9	20	9	3	14	9.0	8	13	19	1	8.6	45	14	12	7	11	8	7
35	Children's National Medical Center	64.3	3	8	9	1	40	5	5	6.0	272	28	7	3.5	23	10	9	15	9.0	8	13	20	1	11.6	50	14	13	9	11	8	7
36	Arnold Palmer Hospital for Children	63.8	9	5	12	NA	33	5	4	4.0	116	17	7	3.7	17	10	NA	13	8.0	7	13	17	1	0.6	49	12	13	0	10	8	7
36	Duke Children's Hospital and Health Center	63.8	3	9	10	4	41	5	4	6.0	231	26	7	3.2	23	11	10	15	8.0	8	13	18	1	3.7	51	14	13	5	10	7	7
38	SSM Health Cardinal Glennon Children's Hospital-St. Louis University	62.5	7	7	11	5	39	1	5	6.0	207	14	7	3.1	21	9	8	15	9.0	7	13	17	0	0.6	48	13	13	4	10	8	7
39	Spectrum Health Helen DeVos Children's Hospital	62.1	9	6	12	NA	34	3	5	4.0	142	16	6	3.7	18	10	NA	10	9.0	8	13	17	1	0.5	47	12	13	1	7	7	7
40	Children's Hospital of Alabama at UAB	61.9	5	9	10	5	35	3	5	6.0	294	24	9	3.6	23	8	11	14	9.0	7	13	19	0	1.8	48	13	9	6	11	8	7
41	University of Maryland Children's Hospital	61.3	8	6	8	6	32	3	5	4.0	103	13	4	3	19	11	5	15	9.0	6	13	16	1	0.4	45	12	12	2	8	7	6
42	Monroe Carell Jr. Children's Hospital at Vanderbilt	61.0	4	5	9	5	38	3	5	9.0	451	30	10	3.2	23	9	11	15	9.0	8	13	18	1	5.4	45	14	13	6	10	8	7
43	University of Virginia Children's Hospital	59.9	4	9	10	5	38	3	4	4.0	187	19	8	2.8	19	9	11	15	9.0	7	13	17	1	1.3	48	14	13	5	9	7	7
44	Johns Hopkins All Children's Hospital	58.8	5	7	9	4	39	2	5	6.0	228	23	10	3.3	22	8	11	15	9.0	7	13	19	0	1.6	50	14	13	3	11	8	7
45	Children's Memorial Hermann Hospital	58.1	7	9	10	NA	35	2	3	5.0	227	23	8	3.2	19	8	NA	12	9.0	8	13	19	1	0.5	47	13	12	5	6	7	7
46	American Family Children's Hospital	56.7	6	9	12	NA	37	3	5	4.0	82	19	4	4	15	10	NA	13	9.0	8	13	17	1	0.7	45	13	12	3	7	8	5
47	UCLA Mattel Children's Hospital	56.4	4	4	8	5	33	4	5	5.0	242	30	5	3.6	21	11	11	14	8.0	8	13	16	1	4.9	47	13	13	6	10	8	7
48	Nicklaus Children's Hospital	56.2	4	9	9	NA	36	4	4	6.0	230	28	9	3	17	9	NA	14	9.0	8	13	19	1	3.1	51	14	13	5	10	8	7
49	Yale-New Haven/Connecticut Children's Medical Centers	53.9	6	9	8	NA	33	3	5	4.0	84	17	3	2.2	16	11	NA	11	8.0	8	13	15	1	1.5	47	14	13	6	8	8	7
50	Arkansas Children's Hospital	53.6	4	5	9	2	37	4	4	5.0	279	23	8	3.3	23	9	11	15	9.0	8	13	18	1	1	44	13	12	6	11	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Diabetes & Endocrinology Hospital	Overall Score	Success in managing diabetes	Success in hypothyroid management	Ability to prevent infections throughout hospital	Number of patients	Number of procedures	Nurse staffing	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's Hospital of Philadelphia	100	35	3	34	30	26	3.7	20	9.0	12	22	14	1	61	106	15	13	7.0	3	8	7
2	Boston Children's Hospital	93.2	30	3	32	30	26	4.3	20	9.0	12	22	14	1	57	102	15	12	7.0	2	8	7
3	Cincinnati Children's Hospital Medical Center	91.0	29	3	35	30	23	4.5	20	9.0	12	22	14	1	33	106	15	13	7.0	3	8	7
4	Children's Hospital of Pittsburgh of UPMC	90.1	34	3	30	30	23	3.4	20	9.0	12	19	14	1	27	104	15	13	7.0	3	8	7
5	Children's Hospital Los Angeles	89.8	35	3	33	30	20	3.7	20	9.0	11	22	14	1	25	98	15	13	7.0	2	8	7
6	Texas Children's Hospital	86.5	29	3	35	30	25	3.9	20	9.0	12	22	14	1	22	102	15	13	7.0	2	8	7
7	Children's Hospital Colorado	85.2	27	3	31	30	25	3.3	20	9.0	12	22	14	1	31	98	15	13	6.0	3	8	7
8	Yale New Haven Children's Hospital	83.2	35	3	29	29	26	2.2	20	8.0	12	22	13	1	15	103	15	13	5.0	2	8	7
9	Seattle Children's Hospital	83.0	30	3	33	30	26	3.3	20	9.0	12	22	14	1	13	103	15	13	7.0	2	8	7
10	Children's National Medical Center	82.0	32	3	35	30	26	3.5	20	9.0	12	22	14	1	4.9	107	15	13	7.0	2	8	7
10	UCSF Benioff Children's Hospitals, San Francisco and Oakland	82.0	29	3	33	30	21	3.9	20	9.0	11	20	14	1	17	92	15	12	7.0	2	8	7
12	North Carolina Children's Hospital at UNC	79.8	35	3	35	27	22	4.9	18	9.0	11	18	12	1	2.7	103	15	13	7.0	1	8	7
13	Lucile Packard Children's Hospital Stanford	79.2	33	3	34	29	15	3.7	20	9.0	11	17	14	0	16	88	15	13	7.0	2	8	7
14	Johns Hopkins Children's Center	78.9	30	3	35	22	13	3.2	19	9.0	11	18	14	1	14	102	15	13	6.0	1	8	7
15	Mayo Clinic Children's Center	77.9	33	3	32	27	23	4	19	9.0	11	20	13	1	4.1	99	15	13	4.0	2	8	7
16	Riley Hospital for Children at IU Health	77.1	28	3	31	30	21	4.1	20	9.0	12	21	13	1	11	94	14	13	5.0	2	8	6
17	St. Louis Children's Hospital-Washington University	76.3	29	3	33	28	20	3.6	20	8.0	12	20	13	1	3.9	95	15	13	7.0	3	8	7
18	Nationwide Children's Hospital	76.2	24	3	34	30	25	3.4	20	9.0	11	22	14	1	8.7	101	15	13	7.0	2	8	7
19	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	75.3	31	3	33	30	21	3.2	19	9.0	12	21	14	0	8	106	14	13	7.0	1	8	7
20	Children's Mercy Kansas City	74.3	26	3	34	30	22	4.4	20	9.0	12	19	14	1	3.8	97	15	13	6.0	2	8	7
21	Rainbow Babies and Children's Hospital	74.0	28	3	31	28	20	2.7	20	9.0	12	22	12	1	5.2	105	15	13	5.0	2	8	7
22	Children's Medical Center Dallas	73.3	25	3	32	29	26	3.1	20	9.0	11	16	14	1	8.8	88	15	12	7.0	2	8	7
23	C.S. Mott Children's Hospital-Michigan Medicine	73.2	29	3	33	28	21	3.7	20	9.0	12	17	12	1	2.5	96	15	13	7.0	1	8	7
24	MassGeneral Hospital for Children	72.6	29	3	25	27	23	3.9	19	9.0	12	18	12	1	5.3	100	15	13	4.0	2	8	7
25	Mount Sinai Kravis Children's Hospital	72.5	29	3	32	29	26	3.8	19	9.0	10	20	12	1	2.7	106	14	13	3.0	1	8	7
26	Rady Children's Hospital	72.4	29	3	29	30	26	3.1	20	9.0	12	19	14	1	2.3	97	15	13	5.0	2	8	7
27	Children's Hospital of Wisconsin	71.9	31	3	28	26	21	4.2	19	9.0	12	17	14	1	1.6	91	15	12	7.0	1	8	7
27	UF Health Shands Children's Hospital	71.9	28	3	27	24	15	2.7	20	9.0	12	21	13	1	9	95	15	13	5.0	2	8	6
29	Ann and Robert H. Lurie Children's Hospital of Chicago	71.8	26	3	31	29	25	3.3	19	9.0	11	16	13	1	6.5	93	15	12	7.0	1	8	7
30	Nemours Alfred I. duPont Hospital for Children	71.0	29	3	33	27	21	4.2	19	9.0	12	16	14	1	0.9	91	15	12	6.0	1	8	7
31	Monroe Carell Jr. Children's Hospital at Vanderbilt	70.9	23	3	31	30	24	3.2	20	9.0	12	21	14	1	5.2	95	15	13	6.0	2	8	7
32	Duke Children's Hospital and Health Center	70.0	26	3	33	27	17	3.2	20	8.0	12	20	12	1	2.3	98	15	13	6.0	2	7	7
33	University of Virginia Children's Hospital	69.9	30	3	31	21	14	2.8	19	9.0	10	21	13	1	2.2	93	15	13	5.0	2	7	7
34	Arnold Palmer Hospital for Children	69.8	34	3	28	27	23	3.7	17	8.0	11	22	10	1	0.3	104	13	13	0.0	1	8	7
35	Doernbecher Children's Hospital at Oregon Health and Science University	68.8	27	3	30	27	20	3.8	19	9.0	12	16	11	1	3.9	86	15	13	3.0	2	8	7
35	Phoenix Children's Hospital	68.8	27	3	33	30	26	3	20	9.0	12	21	14	0	1.4	103	15	13	6.0	2	8	7
37	Connecticut Children's Medical Center	68.5	32	3	32	30	21	3.1	20	9.0	12	17	14	0	1.2	93	15	13	3.0	2	8	7
38	Primary Children's Hospital	68.1	30	3	34	28	22	4.2	19	9.0	12	22	14	0	0.5	87	15	12	6.0	1	8	7
39	Cleveland Clinic Children's Hospital	68.0	24	3	32	29	20	3.4	18	9.0	12	21	13	1	2	97	15	12	4.0	2	8	7
40	Cohen Children's Medical Center	67.7	23	3	34	28	24	3.4	20	9.0	12	17	14	1	1.8	97	15	13	5.0	1	8	7
41	NYU Winthrop Hospital Children's Medical Center	67.6	31	3	33	24	8	2.1	20	8.0	9	17	13	1	1.1	103	15	11	2.0	2	7	7
42	Children's Hospitals and Clinics of Minnesota	67.4	31	3	30	29	22	3.3	18	9.0	11	16	14	1	1	86	15	12	1.0	1	8	7
43	Holtz Children's Hospital at UM-Jackson Memorial Medical Center	67.1	39	3	18	25	24	2.3	20	9.0	12	21	11	0	2.3	101	10	12	4.0	1	8	7
44	Children's Healthcare of Atlanta	67.0	24	3	32	30	26	4.6	20	9.0	12	17	14	0	2.7	92	15	13	7.0	2	8	7
44	Valley Children's Healthcare and Hospital	67.0	31	3	34	27	19	3	16	9.0	10	8	13	1	0.8	92	15	13	1.0	1	8	7
46	Cook Children's Medical Center	66.7	26	3	29	25	19	3.9	20	9.0	11	17	14	1	3.8	100	14	12	0.0	1	8	7
47	University of Minnesota Masonic Children's Hospital	66.5	27	3	28	27	19	3.7	19	9.0	12	20	12	0	2.3	100	15	13	6.0	2	8	7
48	Children's Hospital of Alabama at UAB	66.4	27	3	30	30	25	3.6	20	9.0	11	18	14	0	2.1	97	14	9	6.0	2	8	7
49	Children's Hospital and Medical Center	65.7	26	3	35	27	20	4.3	20	7.0	12	20	12	1	0	90	15	13	1.0	1	8	7
49	Norton Children's Hospital	65.7	29	3	33	29	22	2.9	20	9.0	11	15	14	0	1.6	90	15	13	3.0	2	8	7
49	University of Chicago Comer Children's Hospital	65.7	29	3	31	19	18	3.4	18	9.0	12	20	14	0	2.4	91	14	13	6.0	1	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Gastroenterology & GI Surgery Hospital	Overall Score	Success of certain GI-related treatments	Survival after liver transplant	Ability to prevent pressure injuries	Ability to prevent infections throughout hospital	Ability to prevent infections in intensive-care units	Number of patients	Number of surgeries	Number of tests and noninvasive procedures	Nurse staffing	Liver transplant program	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Cincinnati Children's Hospital Medical Center	100	8	5	4	42	3	24	14	16.0	4.5	5	7	10	17	12	10	1	58.3	33	16	13	10	7	8	7
2	Boston Children's Hospital	95.6	7	5	5	39	2	24	13	16.0	4.3	5	7	10	17	12	10	1	62.1	34	16	12	10	7	8	7
3	Children's Hospital of Philadelphia	95.1	7	5	5	40	2	24	13	16.0	3.7	5	7	10	17	12	10	1	57.5	34	16	13	10	7	8	7
4	Texas Children's Hospital	90.2	8	4	5	38	2	24	12	16.0	3.9	5	7	10	17	12	10	1	35.5	33	16	13	10	7	8	7
5	Children's Hospital Los Angeles	89.1	9	6	4	40	2	22	12	16.0	3.7	5	7	10	17	12	10	1	14.4	33	16	13	8	7	8	7
6	Children's Medical Center Dallas	86.3	9	6	5	39	2	23	14	16.0	3.1	5	7	10	16	12	10	1	9.1	34	16	12	6	7	8	7
7	Children's Hospital Colorado	86.0	6	4	4	39	4	23	14	16.0	3.3	5	7	10	17	12	10	1	33.1	34	16	13	9	7	8	7
8	Ann and Robert H. Lurie Children's Hospital of Chicago	84.9	7	6	3	39	3	23	14	16.0	3.3	5	7	10	15	12	10	1	18.9	34	16	12	8	7	8	7
9	Children's Hospital of Pittsburgh of UPMC	84.3	8	5	3	38	3	24	12	12.0	3.4	5	7	10	15	12	10	1	20.5	33	16	13	7	7	8	7
10	Children's Healthcare of Atlanta	84.1	8	6	5	41	3	23	13	16.0	4.6	5	7	10	17	12	10	0	8.2	34	16	13	10	7	8	7
11	Nationwide Children's Hospital	81.9	9	NR	5	40	2	23	13	15.0	3.4	2	7	10	16	12	10	1	42.2	33	15	13	7	7	8	7
12	Children's National Medical Center	81.4	7	5	5	41	5	23	13	15.0	3.5	5	7	10	16	12	10	1	3.7	34	16	13	6	7	8	7
13	Seattle Children's Hospital	80.0	7	6	3	39	1	21	10	14.0	3.3	5	7	10	17	12	10	1	22.1	32	16	13	8	7	8	7
14	Children's Hospital of Wisconsin	79.9	7	6	5	34	4	18	9	16.0	4.2	5	7	10	16	12	10	1	6.2	33	16	12	8	6	8	7
15	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	79.7	9	5	4	39	3	21	12	15.0	3.2	5	7	10	17	12	10	0	7.5	34	15	13	9	7	8	7
16	Children's Hospital at Montefiore	78.3	9	6	3	42	4	16	9	11.0	3.7	5	7	10	16	11	10	0	3.0	34	16	13	7	7	8	7
17	Johns Hopkins Children's Center	78.0	9	3	3	41	2	24	14	15.0	3.2	5	7	10	16	12	10	1	7.5	34	16	13	10	7	8	7
18	UCSF Benioff Children's Hospitals, San Francisco and Oakland	77.6	7	5	5	39	3	22	10	11.0	3.9	5	7	10	16	12	10	1	8.8	30	16	12	8	7	8	7
19	C.S. Mott Children's Hospital-Michigan Medicine	77.0	7	5	4	40	4	23	13	14.0	3.7	5	7	10	17	12	10	1	4.0	31	16	13	7	7	8	7
20	St. Louis Children's Hospital-Washington University	76.7	7	6	3	40	4	17	10	11.0	3.6	5	7	9	16	10	9	1	5.1	33	16	13	8	7	8	7
21	Riley Hospital for Children at IU Health	75.9	8	6	5	35	1	20	12	15.0	4.1	4	7	10	17	12	10	1	4.7	34	15	13	6	7	8	6
22	Rady Children's Hospital	74.8	8	6	3	35	4	22	9	13.0	3.1	4	7	10	17	12	10	1	2.9	31	16	13	5	7	8	7
23	Cleveland Clinic Children's Hospital	73.0	6	5	5	38	3	22	13	16.0	3.4	5	7	10	17	12	10	1	4.0	34	16	12	6	7	8	7
24	Monroe Carell Jr. Children's Hospital at Vanderbilt	72.4	8	3	5	39	3	22	11	16.0	3.2	2	7	10	17	12	10	1	4.1	34	16	13	5	7	8	7
25	Children's Mercy Kansas City	72.2	8	3	4	41	2	22	12	14.0	4.4	5	7	10	17	12	10	1	4.6	32	16	13	6	7	8	7
26	Phoenix Children's Hospital	71.3	8	5	4	38	4	24	11	13.0	3	4	7	10	16	12	10	0	2.2	34	16	13	4	7	8	7
27	Lucile Packard Children's Hospital Stanford	70.0	6	6	4	41	1	21	12	11.0	3.7	5	7	10	16	12	10	0	11.6	33	16	13	6	7	8	7
28	Duke Children's Hospital and Health Center	69.5	7	5	4	42	5	15	11	8.0	3.2	5	6	9	12	11	9	1	2.0	32	16	13	3	4	7	7
29	MassGeneral Hospital for Children	68.3	6	6	5	32	2	19	8	12.0	3.9	3	7	10	17	12	9	1	4.9	33	16	13	6	7	8	7
30	Le Bonheur Children's Hospital	67.9	8	4	5	41	2	13	12	8.0	3.1	4	7	10	14	10	9	1	1.6	33	16	13	5	7	8	7
31	Levine Children's Hospital	67.1	7	4	4	39	4	17	13	13.0	3.1	4	7	10	17	11	10	1	1.0	34	16	13	0	6	8	7
32	Children's Hospital of Michigan	66.9	9	6	5	31	3	21	5	10.0	3	3	7	10	13	12	10	0	0.1	31	15	13	6	7	8	7
33	Nemours Alfred I. duPont Hospital for Children	66.3	7	4	4	40	2	14	10	9.0	4.2	5	6	10	16	12	10	1	1.0	34	16	12	9	6	8	7
34	UCLA Mattel Children's Hospital	66.1	6	3	5	34	4	18	6	11.0	3.6	5	7	9	17	11	8	1	6.7	32	15	13	6	7	8	7
35	SSM Health Cardinal Glennon Children's Hospital-St. Louis University	62.9	8	6	5	40	1	12	6	8.0	3.1	3	7	10	16	12	10	0	0.4	34	15	13	3	7	8	7
36	Mount Sinai Kravis Children's Hospital	62.7	8	3	4	36	1	15	6	11.0	3.8	4	7	10	17	12	9	1	3.3	34	15	13	3	7	8	7
37	University of Minnesota Masonic Children's Hospital	62.0	6	6	5	35	2	19	10	12.0	3.7	5	7	10	16	11	9	0	0.4	34	16	13	5	7	8	7
38	Children's Hospital and Medical Center	61.5	9	NA	4	37	4	13	12	13.0	4.3	NA	7	8	16	12	9	1	1.0	31	16	13	5	7	8	7
39	Primary Children's Hospital	60.7	6	5	4	40	1	22	12	13.0	4.2	5	7	10	16	12	10	0	1.3	33	16	12	6	7	8	7
40	Children's Hospital of Alabama at UAB	59.8	8	2	5	34	3	19	10	10.0	3.6	5	7	10	14	12	10	0	2.3	33	15	9	5	6	8	7
41	American Family Children's Hospital	59.6	6	6	5	37	3	8	5	10.0	4	3	7	10	16	9	9	1	0.2	31	13	12	3	5	8	5
42	Cohen Children's Medical Center	59.2	8	NA	5	40	3	13	9	14.0	3.4	NA	7	10	17	12	10	1	1.4	33	15	13	4	7	8	7
43	Yale New Haven Children's Hospital	58.8	6	4	5	33	3	14	10	6.0	2.2	5	7	9	16	8	9	1	2.5	33	15	13	5	6	8	7
44	Rainbow Babies and Children's Hospital	58.6	9	NA	5	37	3	17	6	12.0	2.7	NA	6	10	16	10	9	1	1.8	34	15	13	4	6	8	7
45	MUSC Health-Children's Hospital	58.4	4	4	4	37	5	17	10	15.0	3	5	5	9	17	11	9	1	0.8	33	16	13	2	7	8	7
46	Valley Children's Healthcare and Hospital	57.9	9	NA	5	41	3	17	9	16.0	3	NA	7	10	13	12	10	1	1.0	32	16	13	1	2	8	7
47	Ochsner Hospital for Children	56.6	6	5	5	33	5	10	4	12.0	2.7	4	5	9	16	6	9	1	0.4	26	15	13	5	4	7	7
48	University of Virginia Children's Hospital	55.6	6	6	4	34	3	10	7	7.0	2.8	2	6	10	15	10	8	1	1.0	29	15	13	5	4	7	7
49	North Carolina Children's Hospital at UNC	53.9	6	3	3	41	0	14	11	11.0	4.9	2	7	10	16	12	9	1	1.3	33	16	13	6	7	8	7
50	University of Chicago Comer Children's Hospital	52.6	3	4	5	37	5	16	12	11.0	3.4	4	7	10	15	10	10	0	2.3	29	14	13	5	7	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Neonatology	Overall Score	Taking breast milk when discharged	Ability to prevent infections throughout hospital	Ability to prevent infections in neonatal intensive-care unit	Keeping breathing tube in place	Matching breast milk with correct infants	Tracking of growth metrics for treated patients	Number of patients	Nurse staffing	ECMO availability	Neonatal transport	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's National Medical Center	100	3	37	5	5	5	7	30	3.1	2	11	4	8	10	17	17	1	14.8	94	17	13	14	4	15	8
2	Children's Hospital of Philadelphia	98.2	3	36	3	5	5	7	30	3.8	2	7	4	8	10	17	17	1	48.3	88	17	13	14	4	15	8
3	Boston Children's Hospital	94.4	3	35	3	4	5	7	26	4.0	2	10	4	8	10	17	17	1	40.9	94	17	12	14	4	15	8
4	Children's Hospital Colorado	94.3	3	35	5	4	5	7	26	3.4	2	11	4	8	10	17	17	1	13.8	91	17	13	13	4	15	8
5	Cincinnati Children's Hospital Medical Center	89.8	2	38	5	3	3	7	29	3.8	2	9	4	8	10	17	17	1	28.3	92	17	13	14	4	15	8
6	Rainbow Babies and Children's Hospital	87.4	2	33	5	4	5	7	19	3.8	2	6	4	8	10	17	16	1	17.6	92	17	13	11	4	15	8
7	UCSF Benioff Children's Hospitals, San Francisco and Oakland	85.4	2	37	4	5	5	7	25	3.3	2	11	4	8	10	17	17	1	11.9	90	17	12	13	4	15	8
8	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	82.2	3	35	4	5	5	6	29	3.0	2	8	4	8	10	16	17	0	11.8	89	16	13	14	4	15	8
9	St. Louis Children's Hospital-Washington University	80.8	2	37	4	4	5	7	26	3.3	2	11	4	7	10	17	16	1	8.9	93	17	13	13	4	15	8
10	C.S. Mott Children's Hospital-Michigan Medicine	80.3	3	36	5	3	5	7	21	2.6	2	10	4	8	10	15	17	1	4.4	83	17	13	14	4	15	8
11	Ann and Robert H. Lurie Children's Hospital-Prentice Women's Hospital	78.1	3	35	4	3	5	7	24	2.5	2	9	4	8	9	17	17	1	9.3	89	17	12	14	4	14	7
12	Rady Children's Hospital	77.7	3	33	4	4	5	7	23	2.9	2	11	4	8	10	17	17	1	5.1	87	17	13	10	4	15	8
13	Mayo Clinic Children's Center	77.2	2	35	5	5	5	7	11	4.5	2	11	3	8	9	17	17	1	1.9	88	17	13	11	3	15	8
14	Children's Hospital Los Angeles	76.1	2	36	3	5	4	7	28	3.7	2	10	4	8	9	17	17	1	10.0	91	17	13	14	4	15	8
15	Nationwide Children's Hospital	75.7	2	37	4	2	5	7	26	2.6	2	7	4	8	9	17	17	1	15.1	89	17	13	13	4	15	8
16	Johns Hopkins Children's Center	74.4	2	37	3	4	5	7	26	2.9	2	11	4	8	9	17	17	1	11.9	86	17	13	14	4	14	7
17	Duke Children's Hospital and Health Center	73.3	2	38	4	4	5	5	18	2.5	2	10	4	7	10	17	16	1	6.5	89	17	13	11	4	14	8
18	Monroe Carell Jr. Children's Hospital at Vanderbilt	72.8	2	35	4	3	5	7	25	2.8	2	9	4	8	9	17	17	1	7.1	90	17	13	12	4	15	8
19	University of Virginia Children's Hospital	72.6	2	35	5	4	5	7	17	2.3	2	10	4	8	9	17	16	1	1.7	87	17	13	11	4	12	8
20	Seattle Children's Hospital	72.5	3	36	1	5	5	7	24	3.5	2	10	4	8	10	17	17	1	14.9	83	17	13	14	4	14	8
21	CHOC Children's Hospital	72.3	3	37	3	5	5	7	18	3.5	2	10	4	8	10	17	16	1	3.0	90	15	13	4	4	15	8
21	Texas Children's Hospital	72.3	2	38	2	3	5	7	28	2.9	2	10	4	8	9	17	17	1	19.0	93	17	13	14	4	15	8
23	Children's Healthcare of Atlanta	71.8	2	37	4	4	5	7	27	3.3	2	11	4	8	10	17	17	0	4.4	89	17	13	14	4	15	8
24	Children's Medical Center Dallas-Parkland Memorial Hospital	70.8	2	35	4	4	5	7	21	2.6	2	6	4	8	9	17	17	1	4.2	87	17	12	14	4	15	8
25	Connecticut Children's Medical Center	70.5	3	34	5	5	5	7	20	2.4	1	8	4	8	8	15	17	0	0.8	90	17	13	5	4	15	8
26	University of California Davis Children's Hospital	70.4	2	36	4	5	5	7	17	3.3	2	11	4	8	8	16	17	1	1.0	92	17	12	4	4	15	8
27	Children's Hospital at Montefiore	70.3	3	38	4	4	5	7	10	3.0	2	11	4	8	10	16	17	0	1.2	93	17	13	13	4	15	8
28	Children's Hospital of Alabama at UAB	69.6	3	33	3	5	5	7	29	3.4	2	11	4	8	9	17	17	0	4.0	91	16	9	12	4	15	8
29	Doernbecher Children's Hospital at Oregon Health and Science University	69.2	1	34	5	5	5	7	16	2.7	2	10	4	8	10	17	17	1	0.6	87	17	13	7	4	15	8
30	Lucile Packard Children's Hospital Stanford	69.1	3	37	1	4	5	7	18	4.4	2	11	4	8	10	17	17	0	20.2	90	17	13	14	4	15	8
31	Johns Hopkins All Children's Hospital	67.3	2	36	5	4	5	7	19	2.5	2	10	4	8	7	17	17	0	1.3	90	17	13	7	4	15	8
32	Cohen Children's Medical Center	66.8	3	36	3	3	5	7	21	2.8	2	10	4	8	10	17	17	1	1.7	93	17	13	9	4	15	8
33	Valley Children's Healthcare and Hospital	66.5	2	37	5	3	5	7	20	2.9	1	10	4	8	8	16	17	1	0.8	89	17	13	3	3	15	8
34	Phoenix Children's Hospital	66.3	3	36	3	5	5	7	28	2.9	2	10	4	8	8	17	17	0	0.7	88	17	13	11	4	15	8
35	Nicklaus Children's Hospital	66.2	3	33	4	5	3	7	11	2.8	2	9	4	8	10	17	17	1	2.0	84	17	13	6	4	15	8
36	Yale New Haven Children's Hospital	66.1	2	30	4	5	5	6	15	2.4	2	10	4	7	8	14	16	1	2.6	87	17	13	10	4	15	8
37	Primary Children's Hospital	65.2	2	38	3	4	5	7	30	3.9	2	11	4	8	10	17	17	0	2.2	89	17	12	13	4	15	8
38	Advocate Children's Hospital-Park Ridge	64.9	3	27	5	4	5	7	11	2.4	2	6	4	7	7	14	15	1	0.9	84	16	13	3	4	14	8
39	UF Health Shands Children's Hospital	64.3	2	28	4	5	5	7	17	2.8	1	11	4	8	9	17	16	1	0.8	87	17	13	12	4	14	7
40	Inova Children's Hospital	64.0	3	36	5	2	5	7	20	2.7	1	9	4	8	10	17	16	0	2.0	87	16	13	6	3	15	8
41	Children's Mercy Kansas City	63.9	2	37	3	3	3	7	26	4.1	2	8	4	8	10	17	17	1	6.0	93	17	13	11	4	15	8
42	Florida Hospital for Children	63.8	2	31	5	5	5	6	14	2.2	1	10	4	7	9	17	16	1	0.5	83	15	13	0	4	15	8
43	Children's Hospital of Pittsburgh of UPMC	63.3	3	34	1	3	5	7	23	3.0	2	10	4	8	10	17	17	1	9.3	93	17	13	14	4	15	8
44	Akron Children's Hospital	62.2	2	31	5	3	5	7	16	3.2	1	9	4	8	6	14	17	1	1.3	89	17	13	0	4	15	8
45	Le Bonheur Children's Hospital	61.8	2	37	3	3	5	7	18	2.7	2	11	4	8	9	17	16	1	1.2	92	17	13	13	4	15	8
45	University of Minnesota Masonic Children's Hospital	61.8	3	30	3	5	5	7	17	3.1	2	9	4	8	9	17	16	0	1.2	88	17	13	11	4	15	8
47	SSM Health Cardinal Glennon Children's Hospital-St. Louis University	61.6	2	36	4	4	5	7	17	3.0	2	10	4	8	9	15	17	0	1.6	86	16	13	7	4	15	8
48	UCLA Mattel Children's Hospital	61.4	3	30	2	5	5	6	11	4.3	1	7	3	7	10	17	15	1	4.9	88	16	13	11	4	15	8
49	University of Iowa Stead Family Children's Hospital	61.3	2	30	5	5	1	7	21	2.9	2	7	4	8	7	17	16	1	4.3	78	15	13	9	4	15	8
50	Cleveland Clinic Children's Hospital	60.4	2	36	3	3	5	7	12	2.9	2	10	4	8	10	17	17	1	1.5	90	17	12	13	4	15	8

Rankings are based on all of the above measures.
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Rank	Best Children's Hospital 2018-19: Nephrology Hospital	Overall Score	Survival after kidney transplant	Success in managing dialysis patients	Ability to prevent biopsy-related complications	Ability to prevent infections throughout hospital	Ability to prevent infections in intensive-care units	Ability to prevent dialysis-related infections	Ability to prevent pressure injuries	Number of patients	Number of dialysis patients	Number of kidney biopsies	Number of kidney transplants	Percent of dialysis patients who had transplants	Nurse staffing	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	23	12	6	56	2	8	5	19.0	10	5	6	5	4.3	9	9	1	9.0	1	57	58	14	12	7	8	13	7
2	Cincinnati Children's Hospital Medical Center	99.7	23	12	6	58	3	9	4	19.0	11	6	6	1	4.5	8	9	1	9.0	1	57	56	14	13	7	8	13	7
3	Texas Children's Hospital	96.0	23	12	6	59	2	9	5	19.0	12	6	6	3	3.9	9	9	1	9.0	1	35	53	14	13	7	8	13	7
4	Children's Hospital of Philadelphia	95.8	24	12	6	57	2	7	5	17.0	10	4	6	4	3.7	9	9	1	9.0	1	49	54	14	13	7	8	13	7
5	Children's Mercy Kansas City	92.9	24	12	6	59	2	9	4	20.0	12	6	6	2	4.4	9	9	1	9.0	1	25	57	14	13	6	8	13	7
6	Children's National Medical Center	90.3	23	12	6	58	5	8	5	19.0	12	6	6	4	3.5	9	9	1	9.0	1	9.1	56	14	13	7	6	13	7
7	Children's Healthcare of Atlanta	90.1	23	12	6	58	3	8	5	19.0	11	6	6	4	4.6	9	9	1	9.0	0	26	55	14	13	7	7	13	7
8	Seattle Children's Hospital	89.1	23	12	6	57	1	5	3	20.0	12	6	6	3	3.3	8	9	1	9.0	1	49	54	14	13	7	8	13	7
9	Lucile Packard Children's Hospital Stanford	86.6	24	12	6	59	1	8	4	18.0	12	6	6	3	3.7	9	9	1	9.0	0	31	53	14	13	7	8	13	7
10	Johns Hopkins Children's Center	86.4	23	12	6	58	2	8	3	13.0	9	4	5	4	3.2	9	9	1	9.0	1	19	58	14	13	7	8	13	7
11	Nationwide Children's Hospital	85.0	22	11	5	58	2	8	5	17.0	10	4	5	2	3.4	9	9	1	8.0	1	23	55	14	13	7	7	13	7
12	Ann and Robert H. Lurie Children's Hospital of Chicago	83.7	20	12	6	56	3	8	3	20.0	12	5	6	3	3.3	9	9	1	9.0	1	13	55	14	12	7	7	13	7
12	UCLA Mattel Children's Hospital	83.7	20	10	6	49	4	9	5	13.0	12	5	6	2	3.6	8	8	1	6.0	1	17	54	13	13	6	8	13	7
14	UCSF Benioff Children's Hospitals, San Francisco and Oakland	82.7	22	11	6	57	3	9	5	14.0	7	5	6	4	3.9	8	9	1	9.0	1	7.4	52	14	12	7	5	13	7
15	Children's Hospital of Pittsburgh of UPMC	81.1	24	12	6	55	3	6	3	15.0	8	5	6	5	3.4	8	9	1	8.0	1	9.6	55	14	13	7	7	13	7
16	Children's Medical Center Dallas	80.3	24	10	6	53	2	9	5	17.0	12	6	6	1	3.1	8	9	1	9.0	1	8.3	54	14	12	7	7	13	7
17	Duke Children's Hospital and Health Center	80.0	24	12	6	59	5	8	4	15.0	6	5	3	1	3.2	8	8	1	8.0	1	4.4	53	14	13	6	8	12	7
18	Children's Hospital Los Angeles	78.9	24	12	6	57	2	8	4	18.0	12	6	6	2	3.7	9	9	1	9.0	1	4.6	57	14	13	5	3	13	7
19	C.S. Mott Children's Hospital-Michigan Medicine	78.5	23	12	4	55	4	6	4	12.0	11	5	6	3	3.7	6	9	1	9.0	1	12	50	14	13	7	7	13	7
20	Levine Children's Hospital	76.2	24	11	6	57	4	9	4	15.0	9	5	5	1	3.1	8	9	1	9.0	1	2.9	56	14	13	0	7	13	7
21	St. Louis Children's Hospital-Washington University	76.0	23	12	5	58	4	7	3	14.0	10	5	5	1	3.6	7	8	1	8.0	1	4.8	52	14	13	7	8	13	7
22	Children's Hospital of Wisconsin	75.9	24	9	6	49	4	7	5	18.0	6	4	4	3	4.2	9	9	1	9.0	1	2.8	53	14	12	7	7	13	7
23	Phoenix Children's Hospital	75.8	24	11	6	56	4	9	4	18.0	11	6	6	4	3	9	9	1	9.0	0	1.4	54	14	13	5	7	13	7
24	Riley Hospital for Children at IU Health	74.8	23	12	6	54	1	8	5	14.0	10	4	6	2	4.1	8	9	1	9.0	1	3.8	53	13	13	5	7	13	6
25	Doernbecher Children's Hospital at Oregon Health and Science University	74.7	24	12	6	55	3	8	4	16.0	6	6	5	4	3.8	8	9	1	9.0	1	1.1	54	14	13	1	6	13	7
26	Children's Hospital Colorado	74.5	23	8	6	54	4	8	4	17.0	8	6	5	3	3.3	7	9	1	9.0	1	5.1	51	14	13	4	5	13	7
27	Children's Hospital at Montefiore	73.9	22	12	6	59	4	3	3	14.0	9	4	4	5	3.7	9	9	1	9.0	0	6.3	57	14	13	7	8	13	7
28	University of Iowa Stead Family Children's Hospital	72.6	24	8	6	51	4	6	4	13.0	10	4	4	2	3.1	9	9	1	8.0	1	6.4	53	12	13	5	8	13	7
29	MUSC Health-Children's Hospital	72.5	24	11	6	57	5	7	4	16.0	7	5	6	4	3	7	8	1	8.0	1	1.1	49	14	13	1	5	12	7
30	Spectrum Health Helen DeVos Children's Hospital	72.0	24	12	6	53	3	8	5	15.0	10	4	4	3	3.7	8	9	1	8.0	1	0.8	52	12	13	1	6	12	7
31	Nemours Alfred I. duPont Hospital for Children	71.8	24	8	5	55	2	8	4	16.0	6	5	2	6	4.2	7	9	1	9.0	1	1.7	55	14	12	6	8	13	7
31	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	71.8	23	12	6	56	3	7	4	20.0	9	6	4	1	3.2	7	9	1	9.0	0	3.2	58	13	13	7	5	13	7
33	University of Minnesota Masonic Children's Hospital-Children's Minnesota	70.7	22	12	6	52	2	6	5	14.0	11	6	6	4	3.7	5	9	1	8.0	0	5.3	52	14	13	6	6	13	7
34	Rady Children's Hospital	70.5	24	10	4	53	4	9	3	17.0	8	6	5	2	3.1	7	9	1	9.0	1	4.2	53	14	13	2	4	13	7
35	University of California Davis Children's Hospital	70.2	20	11	6	57	3	6	5	11.0	7	5	5	4	5.4	8	9	1	9.0	1	1.5	55	14	12	1	3	13	7
36	North Carolina Children's Hospital at UNC	69.8	24	12	6	56	0	8	3	12.0	5	5	3	3	4.9	9	9	1	7.0	1	1.9	54	14	13	7	3	13	7
37	Children's Hospital of Michigan	69.7	24	12	6	51	3	8	5	18.0	8	5	4	1	3	7	9	1	8.0	0	1.9	53	14	13	7	5	13	7
38	Monroe Carell Jr. Children's Hospital at Vanderbilt	68.6	21	8	4	52	3	9	5	12.0	7	3	5	5	3.2	8	9	1	9.0	1	2.8	51	14	13	6	3	13	7
39	Children's Hospital of Alabama at UAB	68.0	24	8	6	53	3	5	5	20.0	11	6	5	2	3.6	9	9	1	9.0	0	3.6	54	13	9	6	8	13	7
40	Le Bonheur Children's Hospital	67.3	22	8	5	57	2	7	5	15.0	6	4	4	0	3.1	8	9	1	8.0	1	4.7	53	14	13	6	5	13	7
41	Children's Hospital of Richmond at VCU	67.1	16	12	6	46	4	8	3	14.0	4	3	3	6	2.2	9	9	1	8.0	1	0.9	50	14	12	5	7	13	7
42	Arkansas Children's Hospital	67.0	21	11	6	54	4	9	4	9.0	7	3	4	2	3.3	8	9	1	8.0	1	0.9	43	13	12	3	3	13	7
43	Rainbow Babies and Children's Hospital	66.3	19	12	6	54	3	7	5	18.0	6	5	4	2	2.7	8	9	1	7.0	1	0.7	51	14	13	4	0	13	7
44	American Family Children's Hospital	66.1	22	12	6	55	3	5	5	13.0	4	5	3	4	4	4	9	1	8.0	1	0.7	49	13	12	4	5	12	5
45	Yale New Haven Children's Hospital	65.7	16	12	6	52	3	8	5	11.0	6	4	3	1	2.2	4	8	1	7.0	1	1.1	53	14	13	6	8	11	7
46	Mount Sinai Kravis Children's Hospital	65.3	22	8	6	54	1	8	4	9.0	5	3	6	3	3.8	8	9	1	8.0	1	3	53	13	13	3	3	13	7
46	Penn State Children's Hospital	65.3	24	9	6	48	3	9	4	8.0	6	4	5	2	3.5	8	9	1	7.0	1	0.5	48	14	13	4	1	13	7
48	Cohen Children's Medical Center	64.9	NR	12	6	57	3	8	5	13.0	5	3	0	5	3.4	9	9	1	9.0	1	0.6	57	14	13	5	5	13	7
49	Cleveland Clinic Children's Hospital	64.7	10	10	6	57	3	8	5	13.0	6	3	1	2	3.4	8	9	1	9.0	1	1.8	48	14	12	5	6	13	7
50	Johns Hopkins All Children's Hospital	64.2	23	10	6	57	2	8	5	11.0	9	4	6	3	3.3	6	9	1	9.0	0	0.3	57	14	13	0	4	13	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Neurology & Neurosurgery	Overall Score	Ability to prevent infections throughout hospital	Survival after surgery	Ability to prevent surgical complications	Success in controlling epilepsy	Number of surgeries	Number of epilepsy workups and treatments	Nurse staffing	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	37	12	22	8	39	14	4.3	20.0	9	11	19	12	1	61	33	14	12.0	9	4	8	7
2	Cincinnati Children's Hospital Medical Center	95.0	40	12	21	8	37	15	4.5	19.0	9	11	19	12	1	30	33	14	13.0	9	4	8	7
3	Texas Children's Hospital	94.9	40	12	20	8	39	15	3.9	20.0	9	11	19	12	1	35	32	14	13.0	9	4	8	7
4	Johns Hopkins Children's Center	91.8	39	12	21	8	37	9	3.2	20.0	9	10	19	12	1	27	33	14	13.0	9	4	8	7
5	Children's National Medical Center	91.6	39	12	22	8	36	14	3.5	20.0	9	11	19	12	1	18	33	14	13.0	9	4	8	7
6	Children's Hospital of Philadelphia	91.0	38	12	22	4	35	15	3.7	19.0	9	11	19	12	1	52	32	14	13.0	9	4	8	7
7	Nationwide Children's Hospital	90.4	39	12	22	8	31	15	3.4	20.0	9	10	19	12	1	17	32	14	13.0	9	4	8	7
8	St. Louis Children's Hospital-Washington University	87.5	39	12	19	7	36	12	3.6	20.0	8	11	19	11	1	23	32	14	13.0	9	4	8	7
9	Children's Hospital Los Angeles	86.8	38	11	21	8	41	15	3.7	20.0	9	10	19	12	1	12	31	14	13.0	9	4	8	7
10	Seattle Children's Hospital	85.9	38	12	20	7	28	11	3.3	12.0	9	10	19	12	1	23	31	14	13.0	9	4	8	7
11	Nicklaus Children's Hospital	85.2	35	12	22	8	33	13	3	20.0	9	11	17	12	1	11	33	14	13.0	6	4	8	7
12	Ann and Robert H. Lurie Children's Hospital of Chicago	84.9	36	12	22	6	39	9	3.3	20.0	9	9	18	12	1	17	33	14	12.0	9	4	8	7
13	Children's Hospital Colorado	83.6	37	10	16	8	37	15	3.3	19.0	9	11	19	12	1	21	32	14	13.0	8	4	8	7
14	Children's Medical Center Dallas	82.6	38	12	22	7	40	14	3.1	17.0	9	10	18	12	1	4.7	33	14	12.0	9	4	8	7
15	C.S. Mott Children's Hospital-Michigan Medicine	81.2	38	12	21	8	27	7	3.7	18.0	9	11	14	11	1	5.9	29	14	13.0	9	4	8	7
16	Children's Hospital of Pittsburgh of UPMC	81.1	35	12	19	6	35	12	3.4	18.0	9	11	19	12	1	12	33	14	13.0	9	4	8	7
17	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	80.8	37	12	22	8	27	11	3.2	17.0	9	11	19	12	0	7.7	33	13	13.0	9	4	8	7
18	Primary Children's Hospital	80.7	40	12	20	7	31	14	4.2	20.0	9	11	19	12	0	8.9	32	14	12.0	9	4	8	7
19	UCSF Benioff Children's Hospitals, San Francisco and Oakland	80.6	39	11	16	6	35	14	3.9	20.0	9	11	19	12	1	16	31	14	12.0	9	4	8	7
20	Lucile Packard Children's Hospital Stanford	80.4	40	12	19	8	33	8	3.7	15.0	9	11	19	12	0	11	31	14	13.0	9	4	8	7
21	Mayo Clinic Children's Center	79.8	37	12	16	8	28	10	4	20.0	9	10	19	12	1	6.5	33	14	13.0	7	4	8	7
22	Rady Children's Hospital	79.4	35	12	22	8	42	11	3.1	18.0	9	11	19	12	1	2.4	31	14	13.0	6	3	8	7
23	UCLA Mattel Children's Hospital	79.0	32	12	22	8	22	9	3.6	17.0	8	10	5	9	1	7.4	32	13	13.0	8	4	8	7
24	Cleveland Clinic Children's Hospital	77.8	38	12	19	5	21	10	3.4	12.0	9	11	19	11	1	14	31	14	12.0	9	4	8	7
25	Le Bonheur Children's Hospital	76.9	39	12	15	7	28	12	3.1	17.0	9	11	18	11	1	6.6	33	14	13.0	8	4	8	7
26	Children's Hospital at Montefiore	76.6	40	12	21	6	27	12	3.7	16.0	9	11	19	12	0	4.8	33	14	13.0	9	4	8	7
27	Cohen Children's Medical Center	76.5	38	12	22	6	31	13	3.4	19.0	9	11	19	12	1	2.4	31	14	13.0	7	2	8	7
28	Phoenix Children's Hospital	76.0	37	12	19	7	40	14	3	20.0	9	11	19	12	0	3.6	33	14	13.0	9	4	8	7
29	Cook Children's Medical Center	75.8	35	12	21	8	31	13	3.9	13.0	9	11	17	12	1	2.1	32	13	12.0	0	3	8	7
30	Monroe Carell Jr. Children's Hospital at Vanderbilt	75.5	35	11	16	8	33	14	3.2	17.0	9	10	19	12	1	3.1	32	14	13.0	8	4	8	7
31	Children's Mercy Kansas City	75.0	39	10	16	8	28	12	4.4	19.0	9	10	13	12	1	2.6	32	14	13.0	8	4	8	7
31	Riley Hospital for Children at IU Health	75.0	36	12	18	6	38	12	4.1	19.0	9	11	17	12	1	2.9	32	13	13.0	7	4	8	6
33	Mount Sinai Kravis Children's Hospital	74.9	36	12	22	8	21	11	3.8	8.0	9	11	19	11	1	0.1	32	13	13.0	3	3	8	7
34	Children's Hospital of Alabama at UAB	74.5	34	12	16	8	40	14	3.6	19.0	9	9	16	12	0	7.1	33	13	9.0	8	4	8	7
35	Duke Children's Hospital and Health Center	72.9	40	11	13	8	32	13	3.2	9.0	8	11	19	10	1	3.2	33	14	13.0	8	4	7	7
36	Doernbecher Children's Hospital at Oregon Health and Science University	71.7	36	12	19	5	27	9	3.8	20.0	9	11	19	11	1	2	31	14	13.0	5	4	8	7
37	Johns Hopkins All Children's Hospital	70.2	38	12	21	7	29	12	3.3	17.0	9	9	15	12	0	0.8	31	14	13.0	4	3	8	7
38	Children's Hospital of Wisconsin	69.4	33	12	11	7	25	11	4.2	18.0	9	11	18	12	1	3.7	32	14	12.0	7	3	8	7
39	CHOC Children's Hospital	68.8	39	11	14	7	32	13	3.7	14.0	9	10	17	11	1	2.3	31	13	13.0	3	3	8	7
39	Levine Children's Hospital	68.8	38	11	20	6	26	10	3.1	20.0	9	11	14	12	1	0.8	31	14	13.0	0	3	8	7
41	Children's Memorial Hermann Hospital	68.4	35	12	20	6	24	4	3.2	16.0	9	10	18	12	1	0.8	28	13	12.0	7	3	7	7
41	University of Virginia Children's Hospital	68.4	37	11	20	5	18	6	2.8	15.0	9	10	18	11	1	1.8	30	14	13.0	8	4	7	7
43	Nemours Alfred I. duPont Hospital for Children	68.3	38	12	11	8	18	11	4.2	18.0	9	10	17	12	1	0.4	30	14	12.0	8	2	8	7
44	Akron Children's Hospital	67.1	34	10	20	6	21	8	3.4	15.0	9	10	19	12	1	1.2	31	14	13.0	0	4	8	7
45	Arkansas Children's Hospital	67.0	34	12	17	6	23	9	3.3	17.0	9	10	18	11	1	0.9	28	13	12.0	5	4	8	7
46	Children's Healthcare of Atlanta	66.5	39	11	13	5	36	13	4.6	19.0	9	11	17	12	0	3.2	32	14	13.0	9	4	8	7
47	Wolfson Children's Hospital	66.3	35	11	16	6	21	8	2.4	19.0	9	10	16	12	1	0.8	30	14	13.0	8	4	8	7
48	Children's Hospital of Michigan	65.9	31	12	13	8	23	12	3	20.0	9	9	19	12	0	0.5	31	14	13.0	9	4	8	7
48	Yale New Haven Children's Hospital	65.9	33	12	20	5	19	5	2.2	17.0	8	11	19	11	1	1	32	14	13.0	4	3	8	7
50	UF Health Shands Children's Hospital	65.4	33	12	17	6	16	6	2.7	19.0	9	11	19	10	1	0.6	27	14	13.0	7	4	8	6

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Orthopedics Hospital	Overall Score	Speed and success in treating complex fractures	Ability to prevent surgical complications	Ability to prevent infections throughout hospital	Number of patients	Number of procedures and surgeries	Nurse staffing	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	6	12	34	21	23	4.3	15	9.0	4	12	20	1	61	64	14	12	9.0	1	8	7
2	Children's Hospital of Philadelphia	98.4	6	12	35	21	23	3.7	15	9.0	4	12	20	1	54	59	14	13	9.0	1	8	7
3	Children's Medical Center Dallas-Texas Scottish Rite Hospital for Children	96.8	6	12	35	20	22	3.1	14	9.0	3	12	20	1	51	63	14	12	9.0	1	8	7
4	Cincinnati Children's Hospital Medical Center	93.5	6	12	37	18	20	4.5	14	9.0	4	12	20	1	26	60	14	13	9.0	1	8	7
5	Children's Hospital Los Angeles	92.1	6	12	35	19	20	3.7	15	9.0	4	12	20	1	23	67	14	13	5.0	1	8	7
6	Nemours Alfred I. duPont Hospital for Children	88.3	6	10	35	21	17	4.2	15	9.0	4	12	20	1	21	64	14	12	8.0	1	8	7
7	Rady Children's Hospital	87.9	5	11	32	19	18	3.1	15	9.0	4	12	20	1	45	65	14	13	3.0	1	8	7
8	Children's National Medical Center	85.6	6	12	36	19	19	3.5	14	9.0	4	12	20	1	4.5	67	14	13	7.0	1	8	7
9	Nationwide Children's Hospital	84.9	6	11	36	20	18	3.4	13	9.0	3	12	20	1	7	67	14	13	9.0	1	8	7
10	Johns Hopkins Children's Center	84.8	6	12	36	15	19	3.2	15	9.0	3	12	20	1	7	65	14	13	6.0	1	8	7
11	St. Louis Children's Hospital-Washington University/Shriners Hospital	84.7	6	10	36	21	23	3.6	14	8.0	4	12	19	1	10	63	14	13	7.0	1	8	7
12	Children's Mercy Kansas City	83.7	6	11	37	18	19	4.4	14	9.0	4	12	20	1	4.5	64	14	13	6.0	1	8	7
13	Children's Healthcare of Atlanta	83.6	5	12	36	20	22	4.6	15	9.0	4	11	20	0	14	63	14	13	9.0	1	8	7
14	C.S. Mott Children's Hospital-Michigan Medicine	82.8	6	12	35	11	16	3.7	15	9.0	4	12	20	1	3.3	61	14	13	9.0	1	8	7
15	Texas Children's Hospital	81.6	6	8	37	21	19	3.9	14	9.0	4	12	20	1	7.5	67	14	13	9.0	1	8	7
16	Monroe Carell Jr. Children's Hospital at Vanderbilt	81.4	6	11	34	18	18	3.2	13	9.0	4	11	20	1	5.3	66	14	13	4.0	1	8	7
17	UCLA Mattel Children's Hospital	81.1	6	12	29	18	14	3.6	14	8.0	4	11	18	1	3.3	66	13	13	8.0	1	8	7
18	Le Bonheur Children's Hospital	80.6	6	10	36	16	18	3.1	14	9.0	4	11	19	1	5.1	66	14	13	7.0	1	8	7
19	Primary Children's Hospital-Shriners Hospitals for Children	80.2	6	10	37	20	20	4.2	15	9.0	4	12	20	0	7.2	61	14	12	8.0	1	8	7
20	Cohen Children's Medical Center	79.9	6	12	35	15	15	3.4	15	9.0	4	12	20	1	0.5	67	14	13	3.0	1	8	7
21	Hospital for Special Surgery, New York	79.6	6	12	35	15	18	4.9	11	7.0	4	8	19	1	4.1	53	14	13	6.0	1	8	6
22	Rainbow Babies and Children's Hospital	79.3	5	12	32	19	20	2.7	13	9.0	4	12	19	1	6.5	63	14	13	5.0	1	8	7
23	North Carolina Children's Hospital at UNC	78.3	6	11	36	10	13	4.9	15	9.0	4	10	19	1	0.5	64	14	13	7.0	1	8	7
24	Phoenix Children's Hospital	78.0	6	11	35	21	21	3	14	9.0	4	12	20	0	1.2	66	14	13	8.0	1	8	7
25	Ann and Robert H. Lurie Children's Hospital of Chicago	77.8	5	11	34	12	19	3.3	14	9.0	3	11	20	1	6.7	65	14	12	7.0	1	8	7
25	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	77.8	6	11	34	9	14	3.2	15	9.0	4	12	19	0	7.3	62	13	13	9.0	1	8	7
27	Children's Hospital Colorado	77.7	4	10	34	21	18	3.3	15	9.0	4	11	20	1	17	58	14	13	8.0	1	8	7
28	Seattle Children's Hospital	77.3	6	7	35	18	20	3.3	5	9.0	4	12	20	1	12	60	14	13	9.0	1	8	7
29	Children's Hospital of Wisconsin	77.1	6	11	30	14	17	4.2	14	9.0	4	12	20	1	0.9	62	14	12	5.0	1	8	7
30	Nicklaus Children's Hospital	76.7	6	11	32	11	12	3	13	9.0	4	11	20	1	2.9	61	14	13	6.0	1	8	7
31	Mayo Clinic Children's Center	76.4	5	12	35	10	14	4	15	9.0	3	12	20	1	3.8	58	14	13	4.0	1	8	7
32	Johns Hopkins All Children's Hospital	76.3	6	12	35	18	12	3.3	15	9.0	3	12	20	0	2.7	67	14	13	0.0	1	8	7
33	Valley Children's Healthcare and Hospital	75.4	6	12	36	15	15	3	10	9.0	2	8	19	1	0.3	63	14	13	1.0	1	8	7
34	Arnold Palmer Hospital for Children	75.3	6	12	29	17	9	3.7	13	8.0	3	7	16	1	4.3	58	12	13	2.0	1	8	7
35	Joe DiMaggio Children's Hospital at Memorial	75.1	6	12	32	18	22	3.4	10	9.0	3	12	17	0	1.8	66	14	13	0.0	1	8	7
36	Duke Children's Hospital and Health Center	74.9	6	12	37	9	13	3.2	5	8.0	4	10	19	1	0.8	56	14	13	4.0	1	7	7
37	Cook Children's Medical Center	74.8	6	12	32	14	16	3.9	10	9.0	4	6	20	1	0.4	60	13	12	0.0	1	8	7
37	UC Davis Children's Hosp./Shriners Hosps. for Children-Northern California	74.8	4	12	35	15	14	5.4	14	9.0	4	11	20	1	7	61	14	12	1.0	1	8	7
39	Children's Hospital at Montefiore	74.5	5	12	37	14	13	3.7	11	9.0	4	12	20	0	0.9	65	14	13	9.0	1	8	7
40	Levine Children's Hospital	73.6	6	10	35	16	17	3.1	14	9.0	4	10	20	1	0.9	59	14	13	0.0	1	8	7
41	Spectrum Health Helen DeVos Children's Hospital	73.5	6	11	31	11	13	3.7	14	9.0	4	12	19	1	1.4	58	12	13	1.0	1	7	7
42	Children's Hospital and Medical Center	73.1	6	10	36	11	13	4.3	10	7.0	4	8	18	1	0.9	64	14	13	1.0	1	8	7
43	MUSC Health-Children's Hospital	72.6	6	12	35	10	7	3	15	8.0	4	4	18	1	0.3	56	14	13	1.0	1	8	7
44	Akron Children's Hospital	72.1	5	12	31	15	12	3.4	9	9.0	3	12	20	1	2.6	59	14	13	0.0	1	8	7
45	CHOC Children's Hospital	71.8	6	10	36	10	11	3.7	9	9.0	4	10	19	1	1.3	57	13	13	1.0	1	8	7
46	University of Iowa Stead Family Children's Hospital	71.6	5	12	29	15	12	3.1	15	9.0	3	12	19	1	2.2	58	12	13	2.0	1	8	7
47	UCSF Benioff Children's Hospitals, San Francisco and Oakland	71.5	5	9	36	16	14	3.9	14	9.0	4	11	20	1	2.5	58	14	12	5.0	1	8	7
48	University of Chicago Comer Children's Hospital	71.4	6	12	32	10	10	3.4	15	9.0	3	12	20	0	0.7	56	13	13	4.0	1	8	7
49	Lucile Packard Children's Hospital Stanford	70.7	4	12	37	15	18	3.7	14	9.0	4	11	20	0	3.8	54	14	13	5.0	1	8	7
50	Cleveland Clinic Children's Hospital	70.5	5	11	35	10	12	3.4	5	9.0	4	10	20	1	2	57	14	12	4.0	1	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Pulmonology Hospital	Overall Score	Success with asthma inpatients	Success in helping patients manage their asthma	Success in managing cystic fibrosis patients	Success in managing neuromuscular weakness disorder	Survival of patients on ventilators	Ability to prevent infections throughout hospital	Ability to prevent infections in intensive-care units	Ability to prevent pressure injuries	Survival after lung transplant	Number of patients	Number of tests and noninvasive procedures	Nurse staffing	Lung transplant program	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Texas Children's Hospital	100	5	12	12	3	6	48	2	5.0	4	17	12	3.9	5	27	9	3	11.0	1	43	41	14	13	6	3	8	7
2	Children's Hospital of Philadelphia	99.6	5	10	13	3	6	46	2	5.0	3	17	12	3.7	5	27	9	3	11.0	1	61	40	14	13	6	2	8	7
3	Cincinnati Children's Hospital Medical Center	96.7	5	13	14	3	5	47	3	4.0	1	14	12	4.5	3	27	9	3	11.0	1	56	41	14	13	6	2	8	7
4	Boston Children's Hospital	95.1	5	12	9	3	6	46	2	5.0	2	16	11	4.3	5	27	9	3	11.0	1	52	42	14	12	6	3	8	7
5	St. Louis Children's Hospital-Washington University	90.7	5	11	13	3	6	45	4	3.0	3	11	9	3.6	5	26	8	3	10.0	1	19	41	14	13	6	3	8	7
6	Nationwide Children's Hospital	89.2	4	13	13	3	6	48	2	5.0	4	15	12	3.4	5	27	9	2	11.0	1	19	42	14	13	6	2	8	7
7	Children's Hospital Colorado	85.0	4	11	10	3	5	45	4	4.0	NA	12	11	3.3	NA	27	9	3	11.0	1	45	42	14	13	6	3	8	7
8	Children's Hospital of Pittsburgh of UPMC	84.5	4	10	12	2	5	44	3	3.0	2	16	10	3.4	5	27	9	3	11.0	1	24	42	14	13	6	3	8	7
9	Children's National Medical Center	83.5	5	13	13	3	6	48	5	5.0	NA	12	12	3.5	NA	27	9	3	11.0	1	6.8	42	14	13	6	3	8	7
10	Monroe Carell Jr. Children's Hospital at Vanderbilt	82.6	5	10	14	3	6	44	3	5.0	3	12	11	3.2	2	27	9	3	10.0	1	9.2	40	14	13	5	2	8	7
11	Lucile Packard Children's Hospital Stanford	82.4	5	13	11	3	6	49	1	4.0	3	15	12	3.7	5	27	9	3	11.0	0	15	41	14	13	6	3	8	7
12	Johns Hopkins Children's Center	82.1	5	13	12	3	6	48	2	3.0	NA	15	11	3.2	NA	27	9	2	11.0	1	23	42	14	13	6	3	8	7
13	Seattle Children's Hospital	79.3	5	11	11	3	6	46	1	3.0	NA	12	9	3.3	NA	19	9	3	11.0	1	37	40	14	13	6	2	8	7
14	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	78.9	5	13	11	3	6	46	3	4.0	6	13	8	3.2	4	27	9	3	11.0	0	5.2	40	13	13	6	2	8	7
15	Riley Hospital for Children at IU Health	78.2	4	13	11	3	5	45	1	5.0	3	13	11	4.1	3	27	9	3	11.0	1	17	41	13	13	4	2	8	6
16	Children's Hospital Los Angeles	77.1	5	11	11	3	6	47	2	4.0	NA	14	9	3.7	NA	27	9	3	11.0	1	14	41	14	13	6	2	8	7
17	North Carolina Children's Hospital at UNC	75.1	4	10	10	3	6	47	0	3.0	3	10	8	4.9	2	27	9	3	9.0	1	19	40	14	13	6	2	8	7
18	UCSF Benioff Children's Hospitals, San Francisco and Oakland	73.3	4	9	10	3	6	47	3	5.0	3	9	8	3.9	2	26	9	3	11.0	1	4.4	39	14	12	6	2	8	7
19	Children's Hospital of Wisconsin	72.4	4	13	14	3	5	42	4	5.0	NA	12	12	4.2	NA	27	9	3	11.0	1	2.7	40	14	12	6	2	8	7
20	Rainbow Babies and Children's Hospital	72.0	5	11	9	3	5	41	3	5.0	NR	11	10	2.7	1	26	9	3	10.0	1	13	41	14	13	4	3	8	7
21	Duke Children's Hospital and Health Center	71.7	5	11	11	3	6	47	5	4.0	0	8	9	3.2	3	17	8	3	10.0	1	1.4	42	14	13	5	2	7	7
22	UF Health Shands Children's Hospital	70.6	5	13	10	3	6	42	4	3.0	4	9	7	2.7	5	27	9	3	10.0	1	0.3	37	14	13	4	2	8	6
23	C.S. Mott Children's Hospital-Michigan Medicine	69.7	4	12	12	3	6	44	4	4.0	NA	12	7	3.7	NA	27	9	3	11.0	1	3.5	38	14	13	6	2	8	7
24	Le Bonheur Children's Hospital	68.9	5	13	11	3	6	45	2	5.0	NA	8	7	3.1	NA	27	9	3	10.0	1	4.2	42	14	13	5	2	8	7
25	Rady Children's Hospital	68.7	5	12	12	3	5	43	4	3.0	NA	12	9	3.1	NA	26	9	3	11.0	1	4.1	39	14	13	4	2	8	7
26	Ann and Robert H. Lurie Children's Hospital of Chicago	68.0	4	11	10	2	6	42	3	3.0	NA	10	11	3.3	NA	27	9	2	11.0	1	9.8	39	14	12	6	3	8	7
27	Children's Hospital of Alabama at UAB	67.8	5	12	12	3	6	41	3	5.0	NA	14	11	3.6	NA	24	9	2	11.0	0	7.4	40	13	9	5	2	8	7
28	Nicklaus Children's Hospital	67.4	4	13	14	3	6	44	4	4.0	NA	9	5	3	NA	27	9	3	11.0	1	1.7	42	14	13	2	2	8	7
29	Cohen Children's Medical Center	67.1	5	13	11	3	6	47	3	5.0	NA	9	8	3.4	NA	27	9	3	11.0	1	0.8	42	14	13	2	2	8	7
30	Children's Healthcare of Atlanta	66.4	5	11	10	3	6	43	3	5.0	NA	15	12	4.6	NA	27	9	3	11.0	0	2.4	40	14	13	6	2	8	7
31	University of Minnesota Masonic Children's Hospital	66.0	4	13	12	2	6	39	2	5.0	6	7	6	3.7	3	18	9	3	8.0	0	0.5	41	14	13	5	2	8	7
32	Cleveland Clinic Children's Hospital	64.6	3	12	14	1	6	45	3	5.0	NA	11	10	3.4	NA	19	9	3	11.0	1	2.3	42	14	12	4	2	8	7
33	Children's Hospitals and Clinics of Minnesota	63.8	4	10	12	3	6	42	4	4.0	NA	13	11	3.3	NA	27	9	2	10.0	1	1.8	37	14	12	3	2	8	7
34	Children's Mercy Kansas City	63.4	4	10	9	2	6	46	2	4.0	NA	11	9	4.4	NA	27	9	3	11.0	1	2.3	42	14	13	6	2	8	7
35	Arkansas Children's Hospital	62.8	5	12	11	2	5	42	4	4.0	NA	7	8	3.3	NA	26	9	3	11.0	1	1.3	36	13	12	5	2	8	7
36	Spectrum Health Helen DeVos Children's Hospital	62.7	5	10	13	3	6	36	3	5.0	NA	10	9	3.7	NA	27	9	3	10.0	1	0.9	39	12	13	1	2	7	7
37	Children's Hospital and Medical Center	62.6	4	13	11	3	5	48	4	4.0	NA	9	9	4.3	NA	22	7	3	10.0	1	0.5	37	14	13	3	2	8	7
38	Arnold Palmer Hospital for Children	62.5	5	13	12	3	6	41	5	4.0	NA	8	7	3.7	NA	23	8	2	9.0	1	0.8	40	12	13	0	1	8	7
39	Phoenix Children's Hospital	62.3	5	10	10	3	6	43	4	4.0	NA	12	9	3	NA	27	9	3	11.0	0	0.8	42	14	13	6	1	8	7
40	American Family Children's Hospital	62.1	4	7	11	3	6	44	3	5.0	NA	8	6	4	NA	27	9	3	10.0	1	0.8	37	13	12	5	3	8	5
41	Doernbecher Children's Hospital at Oregon Health and Science University	61.5	5	9	11	3	6	45	3	4.0	NA	7	6	3.8	NA	24	9	3	11.0	1	1.3	36	14	13	1	2	8	7
42	CHOC Children's Hospital	61.2	5	11	11	3	5	48	2	3.0	NA	10	10	3.7	NA	23	9	3	10.0	1	1.6	39	13	13	1	2	8	7
43	Children's Hospital of Richmond at VCU	60.5	5	11	13	3	6	32	4	3.0	NA	7	4	2.2	NA	27	9	2	10.0	1	1.5	39	14	12	4	2	8	7
44	University of California Davis Children's Hospital	60.4	5	9	11	3	6	37	3	5.0	NA	7	4	5.4	NA	25	9	3	10.0	1	0.1	42	14	12	1	2	8	7
45	MassGeneral Hospital for Children	60.0	4	9	9	3	6	39	2	5.0	NA	6	8	3.9	NA	27	9	3	9.0	1	2.6	42	14	13	4	2	8	7
46	Primary Children's Hospital	59.9	5	10	13	2	6	46	1	4.0	NA	13	8	4.2	NA	27	9	3	11.0	0	0.2	40	14	12	4	2	8	7
47	Children's Medical Center Dallas	59.2	5	9	9	3	4	44	2	5.0	NA	12	10	3.1	NA	26	9	2	11.0	1	1.6	36	14	12	6	2	8	7
48	University of Chicago Comer Children's Hospital	59.0	4	12	11	3	6	43	5	5.0	NA	6	4	3.4	NA	26	9	3	10.0	0	0.5	34	13	13	5	2	8	7
49	Yale New Haven Children's Hospital	58.8	5	10	12	3	2	42	3	5.0	NA	7	8	2.2	NA	26	8	3	9.0	1	2.2	37	14	13	5	2	8	7
50	Dayton Children's Hospital	58.1	5	9	11	3	5	45	2	5.0	NA	10	9	5.3	NA	22	9	1	11.0	1	1	36	13	13	1	2	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Rank	Best Children's Hospital 2018-19: Urology Hospital	Overall Score	Ability to prevent surgical complications	Speed in treating testicular torsion	Ability to prevent infections throughout hospital	Number of patients	Number of surgeries	Number of minimally invasive procedures	Nurse staffing	Advanced clinical services offered	Clinical support services offered	Advanced technologies available	Specialized clinics and programs available	Has fulltime subspecialists available	Recognized as Nurse Magnet hospital	Reputation with physicians in specialty	Commitment to best practices	Commitment to quality improvement	Adoption of health information technology	Active fellowship program	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's Hospital of Philadelphia	100	16	2	29	30	22	9	3.7	3.0	9	5	9	13	1	74	38	14	13.0	6	3	8	7
2	Cincinnati Children's Hospital Medical Center	99.1	18	2	31	27	20	8	4.5	2.0	9	5	9	13	1	45	38	14	13.0	6	3	8	7
3	Boston Children's Hospital	96.8	15	2	28	28	22	9	4.3	3.0	9	5	9	13	1	71	36	14	12.0	6	3	8	7
4	Texas Children's Hospital	93.6	15	2	31	29	20	9	3.9	3.0	9	5	9	13	1	36	38	14	13.0	6	3	8	7
5	Ann and Robert H. Lurie Children's Hospital of Chicago	91.4	15	2	28	28	20	9	3.3	3.0	9	4	9	13	1	40	38	14	12.0	6	3	8	7
6	Monroe Carell Jr. Children's Hospital at Vanderbilt	91.1	16	2	28	28	20	8	3.2	3.0	9	5	9	13	1	36	38	14	13.0	5	2	8	7
7	Johns Hopkins Children's Center	90.9	18	2	30	21	18	7	3.2	3.0	9	4	9	13	1	20	36	14	13.0	6	3	8	7
8	Seattle Children's Hospital	89.7	15	2	29	21	18	8	3.3	3.0	9	5	9	13	1	34	36	14	13.0	6	3	8	7
9	Riley Hospital for Children at IU Health	88.7	13	2	27	26	21	9	4.1	3.0	9	5	9	13	1	49	37	13	13.0	4	3	8	6
10	Nationwide Children's Hospital	87.3	15	2	30	27	20	9	3.4	3.0	9	4	9	13	1	19	37	14	13.0	6	3	8	7
11	Children's Hospital Los Angeles	87.1	16	2	29	29	22	9	3.7	3.0	9	5	9	13	1	13	38	14	13.0	4	3	8	7
12	Cohen Children's Medical Center	85.7	18	2	29	26	20	9	3.4	3.0	9	5	9	13	1	5.6	37	14	13.0	4	3	8	7
13	Children's Medical Center Dallas	82.7	14	2	29	23	18	9	3.1	3.0	9	4	9	13	1	14	38	14	12.0	6	3	8	7
14	Le Bonheur Children's Hospital	78.8	15	2	30	22	17	8	3.1	3.0	9	5	9	12	1	4.7	35	14	13.0	5	3	8	7
15	Children's Mercy Kansas City	78.7	15	2	31	23	14	8	4.4	3.0	9	5	9	13	1	1.6	38	14	13.0	4	3	8	7
16	Children's National Medical Center	78.4	10	2	30	25	15	9	3.5	3.0	9	5	9	13	1	17	38	14	13.0	6	3	8	7
17	Children's Hospital of Pittsburgh of UPMC	77.8	12	2	27	22	19	7	3.4	3.0	9	5	9	13	1	11	38	14	13.0	6	3	8	7
18	Rady Children's Hospital	77.5	15	2	26	27	13	6	3.1	3.0	9	5	9	13	1	8.7	36	14	13.0	4	2	8	7
19	St. Louis Children's Hospital-Washington University	77.0	14	2	30	20	17	7	3.6	3.0	8	5	8	12	1	4.5	35	14	13.0	6	3	8	7
20	CHOC Children's Hospital	76.6	14	2	30	21	21	8	3.7	3.0	9	5	9	12	1	4.8	34	13	13.0	3	3	8	7
21	Children's Hospital Colorado	75.7	11	2	28	22	20	7	3.3	3.0	9	5	9	13	1	12	35	14	13.0	6	3	8	7
22	North Carolina Children's Hospital at UNC	75.0	14	2	30	16	16	6	4.9	3.0	9	5	9	11	1	1.8	37	14	13.0	4	3	8	7
23	Children's Healthcare of Atlanta	74.2	11	2	30	28	22	9	4.6	3.0	9	5	9	13	0	9.2	36	14	13.0	6	3	8	7
24	Rainbow Babies and Children's Hospital	74.1	18	2	26	12	11	3	2.7	3.0	9	4	9	11	1	1.9	37	14	13.0	2	2	8	7
25	UCSF Benioff Children's Hospitals, San Francisco and Oakland	73.9	15	1	30	26	20	8	3.9	3.0	9	5	9	12	1	8.9	34	14	12.0	6	3	8	7
26	C.S. Mott Children's Hospital-Michigan Medicine	73.8	12	2	29	19	19	7	3.7	3.0	9	5	9	13	1	4.2	34	14	13.0	6	3	8	7
27	Nemours Alfred I. duPont Hospital for Children	73.7	13	2	29	21	17	8	4.2	3.0	9	5	9	13	1	1.8	37	14	12.0	3	3	8	7
28	Doernbecher Children's Hospital at Oregon Health and Science University	73.6	15	2	27	17	13	7	3.8	3.0	9	5	9	13	1	2.7	34	14	13.0	1	3	8	7
28	Phoenix Children's Hospital	73.6	15	2	29	28	19	6	3	3.0	9	5	9	13	0	2.3	38	14	13.0	6	2	8	7
30	Yale-New Haven/Connecticut Children's Medical Centers	73.3	15	2	24	19	15	5	2.2	3.0	8	5	9	12	1	4.9	37	14	13.0	3	3	8	7
31	Mayo Clinic Children's Center	73.2	12	2	29	24	12	5	4	3.0	9	4	9	12	1	6.6	38	14	13.0	2	3	8	7
31	OSF HealthCare Children's Hospital of Illinois	73.2	17	2	31	12	13	5	4.6	3.0	8	3	9	12	1	0.6	35	13	13.0	0	2	8	7
33	Mount Sinai Kravis Children's Hospital	73.0	17	2	27	10	9	3	3.8	3.0	9	5	6	10	1	1.1	37	13	13.0	1	3	8	7
34	Lucile Packard Children's Hospital Stanford	72.6	13	2	31	24	13	5	3.7	3.0	9	5	9	13	0	4	37	14	13.0	6	3	8	7
35	Primary Children's Hospital	72.3	11	2	31	29	20	9	4.2	3.0	9	5	9	13	0	7.7	36	14	12.0	6	2	8	7
36	Nicklaus Children's Hospital	71.9	13	2	26	16	19	9	3	3.0	9	5	8	13	1	4.4	36	14	13.0	4	2	8	7
37	New York-Presbyterian Morgan Stanley-Komansky Children's Hospital	71.5	14	2	28	16	20	7	3.2	3.0	9	5	9	13	0	3	38	13	13.0	4	3	8	7
38	Spectrum Health Helen DeVos Children's Hospital	69.8	16	2	25	15	12	5	3.7	3.0	9	5	9	12	1	0.8	34	12	13.0	1	2	7	7
38	University of Virginia Children's Hospital	69.8	15	2	28	12	10	4	2.8	3.0	9	4	6	12	1	2.3	33	14	13.0	3	3	7	7
40	UCLA Mattel Children's Hospital	69.4	13	2	23	11	10	3	3.6	3.0	8	5	9	11	1	4.4	36	13	13.0	5	3	8	7
41	Akron Children's Hospital	69.3	15	2	25	21	9	5	3.4	3.0	9	4	8	13	1	2.4	35	14	13.0	0	2	8	7
42	Cleveland Clinic Children's Hospital	69.1	12	2	29	12	13	6	3.4	3.0	9	5	9	13	1	1	37	14	12.0	6	2	8	7
42	West Virginia University Children's Hospital	69.1	15	2	31	14	10	3	4.1	3.0	8	4	8	10	1	0.2	33	13	13.0	0	3	8	7
44	Arnold Palmer Hospital for Children	68.7	18	2	23	14	13	4	3.7	3.0	8	4	8	10	1	0.2	34	12	13.0	0	1	8	7
45	American Family Children's Hospital	68.6	13	2	28	14	11	4	4	3.0	9	5	9	12	1	1.5	35	13	12.0	3	3	8	5
46	MassGeneral Hospital for Children	68.5	15	2	21	13	8	3	3.9	3.0	9	5	9	11	1	0.6	36	14	13.0	2	3	8	7
47	Brenner Children's Hospital	68.2	18	2	22	11	13	3	2.4	3.0	8	4	6	12	1	0.8	32	14	12.0	0	3	8	6
48	Children's Hospital at Montefiore	68.1	14	2	31	15	11	4	3.7	3.0	9	5	8	13	0	0	36	14	13.0	6	2	8	7
49	UC Davis Children's Hosp./Shriners Hosps. for Children-Northern California	67.5	13	2	29	17	9	5	5.4	3.0	9	5	9	13	1	1.2	37	14	12.0	1	1	8	7
50	MUSC Health-Children's Hospital	66.7	13	2	29	16	13	3	3	3.0	8	5	9	12	1	0.7	35	14	13.0	0	3	8	7

Rankings are based on all of the above measures.
NA: Service not provided by hospital. NR: Data not reported or unavailable.

Appendix E

2018-19 Best Children's Hospitals Honor Roll

2018-19 Best Children's Hospitals Honor Roll

Rank	Name	Points
1	Boston Children's Hospital	238
2	Cincinnati Children's Hospital Medical Center	229
3	Children's Hospital of Philadelphia	225
4	Texas Children's Hospital, Houston	196
5	Children's National Medical Center, Washington, D.C.	165
6	Children's Hospital Los Angeles	163
7	Nationwide Children's Hospital, Columbus, Ohio	147
8	Johns Hopkins Children's Center, Baltimore	139
9	Children's Hospital Colorado, Aurora	133
10	Ann and Robert H. Lurie Children's Hospital of Chicago	128