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Methodology:
U.S. News & World Report
Best Children's Hospitals 2021-22

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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 & Lung Surgery 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 193 facilities surveyed for the 2021-22 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 2021-22 rankings, 89 of the 193 surveyed hospitals were ranked among the top 50 in at least one specialty. The 2021-22 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 & Lung Surgery
- 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 2021-22 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 2021-22 pediatric rankings, hospitals had to provide extensive data about their services and capabilities through the 2020-21 Pediatric Hospital Survey (https://usnewspediatricsurvey.rti.org/PaperSurvey.aspx) and they had to participate in the 2021 Novel Hospital Survey, which featured topics on Pediatric and Adolescent Behavioral and Mental Health and Health Equity/Disparities. Because of the impact of Covid-19 on children's hospitals, the Pediatric Hospital Survey was not conducted for the 2021-22 rankings; consequently, participation in the prior year's survey was required for eligibility.

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 118 hospitals that qualified by submitting sufficient data through the 2020 Pediatric Hospital survey, 110, or 93.2 percent, submitted the Novel Hospital Survey in 2021 to be considered for ranking in the 2021-22 rankings. 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).

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 advanced imaging specialist (cardiologist or 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 evolve by providing new findings and perspectives that can be incorporated before the survey is finalized and sent to hospitals.

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

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. Due to the impacts of the pandemic, the standard advisory panels were not fully convened for the 2021-22 rankings. Instead an impact of COVID-19 advisory panel was established that included infection-control experts, pediatric physicians, nurses, and hospital quality experts. The names and institutions of all individual working group members for the 2020-21 Pediatric Hospital Survey and the 2021-22 COVID-19 panel are provided, with their permission, in ***Appendix A***.

Through conference calls, ad hoc phone discussions and emails during the summer and fall of 2019, 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 2019 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 2020 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 COVID-19 panel met throughout the late summer and fall of 2020, providing valuable commentary on the challenges hospitals were facing because of the pandemic. Potential issues and considerations for future Pediatric Hospital Surveys were raised, and the U.S. News and RTI project teams ultimately decided to postpone the Pediatric Hospital Survey for the 2021-22 year. Instead data from the 2020-21 Pediatric Hospital Survey was used in the 2021-22 rankings. 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, the evolving discipline of quality improvement, and changes in services and volume based on the COVID-19 pandemic.

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, 2021, 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://accredited.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 (or other advanced fellowship programs) 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 & Lung Surgery	Urology
Child neurology (A6a)					1		2			
Congenital cardiac surgery (A6b)		2			1					
Neonatal-perinatal medicine (A6c)					2					
Pediatric Neurosurgery (A6d)	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				
Pediatric neuroradiology (A6j)	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, including POSNA fellows (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
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 & Lung Surgery	Urology
Pediatric interventional radiology (A6u)	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	**10**	**9**	**7**	**10**	**10**	**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 14 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 8 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 5 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), ability to send and receive electronic messages with medical providers (A23.3d), and patients have online access to radiology reports (A23.3e).

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 & Lung Surgery. 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 (27 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
	• On-site inpatient pediatric rehabilitation unit with individualized dedicated cancer rehabilitation programming
	• Having direct clinical care RNs with a national oncology certification (certified pediatric hematology-oncology nurse (CPHON) or certified pediatric oncology nurse (CPON)) or certified bone marrow transplant nurse (BMTCN)
	  ○ 1 point for 25% or more of direct clinical care RNs with these certificates
	  ○ 2 points for 50% or more of direct clinical care RNs with these certificates
	• Having 50% or more of chemotherapy patients with a formal initial psychosocial assessment before or within 4 weeks of therapy
		17

* Parenthetical references indicate related survey questions (continued)

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

Cancer, continued (27 points)		
Service	**Description***	**Points**
Chemotherapy support services	Offers the following: • Dedicated pediatric chemotherapy pharmacy (B15a) • Pediatric oncology pharmacist (B15b) • Pharmacists assigned to participate in daily inpatient rounds with the pediatric cancer treatment team (B15c) • 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 and formal multiple co-signatures/review required (B16)	3
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 certified by Intersocietal Commission for the Accreditation of Echocardiography Laboratories (ICAEL) or the American Institute of Ultrasound in Medicine (AIUM) (E5) in: • Transthoracic echocardiographic testing • Transesophageal echocardiographic testing • Fetal echocardiographic testing	3
Cardiovascular services	Offers these diagnostic and treatment services (E6a-i, E6k): • 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

* Parenthetical references indicate related survey questions (continued)

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

Diabetes & Endocrinology (18 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) • Certified exercise physiologist or Physical therapist (C5d)	2
	Having at least 1.0 FTE of the following staff dedicated to pediatric endocrinology patients: • Social workers (C6a) • Psychologists (C6b) • Genetic counselors (C7a) • Psychiatrists (C7b) • Pharmacists (C7c)	6
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

* Parenthetical references indicate related survey questions (continued)

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

Gastroenterology & GI Surgery (9 points)		
Service	**Description***	**Points**
Gastro-intestinal (GI) specialists	Has following specialists available for consultation 7 days a week (D8): • Pediatric gastroenterology/liver-specialized pathologists • Interventional radiologists with pediatric gastroenterology experience • Pediatric anesthesiologists for endoscopy sedation/anesthesia	3
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 • Congenital colorectal malformation	6
Neonatology (11 points)		
Service	**Description***	**Points**
NICU support staff	NICU-dedicated staff in these units: • NICU-dedicated respiratory therapy team who attends weekday work rounds daily with clinical team (F7a) • NICU-designated dietician who attends weekday work rounds daily with clinical team (F7b) • NICU-dedicated social workers (F11)	3
Pediatric Subspecialists	Has following subspecialists on-call and available to be on-site 24/7 (F11.2): • Gastroenterologist • Nephrologist • Pediatric Ophthalmologist • Pulmonologist • Urologist • Echocardiographer • Geneticist • Infectious Disease Specialist	8

* Parenthetical references indicate related survey questions

(continued)

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

Nephrology (8 points)		
Service	**Description***	**Points**
Maintenance dialysis staff	Has at least 1 FTE of clinical nurses dedicated to maintenance dialysis (G5a)	1
	Has at least 0.5 FTE of the following staff dedicated to maintenance dialysis: • Social workers (G5b) • Dieticians (G5c) • Psychologists/Psychiatrists (G5d)	3
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
Neurology & Neurosurgery (21 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) • A dedicated multidisciplinary neurocritical care team (H24) • Multidisciplinary neonatal neurocritical care (H24.1) • 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)	9
Epilepsy treatment	Offers the following: • Electroencephalography (EEG) lab accredited by ABRET (H7) • In-house EEG technologists available 24/7 on 300 or more days per year to place electrodes (H7.1) • In-house EEG technologists available to review EEG continuously 24/7 on 300 or more days per year (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 (16 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) • 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)	6
Gait Laboratory	Provides an Advanced Motion Analyses Laboratory to patients (I19): • 2 points if the lab is on-site • 1 point if the lab is available through a formal contractual relationship with another hospital/institution	2
Pulmonology & Lung Surgery (38 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 • Genetic Counselor • Child Life Specialist • Pharmacist • Speech and language pathologists	9

* Parenthetical references indicate related survey questions

(continued)

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

Pulmonology & Lung Surgery, continued (35 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 bronchopulmonary dysplasia (J28): • Gastroenterologist • Cardiologist • Neurologist or Neurodevelopmental Specialist • Social worker • Occupational Therapist Following staff who support patients with neuromuscular weakness disorders (J32): • Pulmonologist • Physiatrist • Orthopedist • Cardiologist • Neurologist • Physical therapist • Psychiatrist or psychologist • Dietician • Social worker • Pediatric radiologist	18
Support services	Offers following: • Cystic fibrosis center accredited by Cystic Fibrosis Foundation (J16) • Program accredited by the Primary Ciliary Dyskinesia (PCD) foundation (J31) • Sleep center accredited by American Academy of Sleep Medicine (J35)	3
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 (17 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) • Fast shunt MRI for hydrocephalus offered onsite (A10h) • Nuclear medicine SPECT/CT (A10j) • Contrast-enhanced ultrasound (A10k) • 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) • Proton Beam Therapy with Pencil-Beam Scanning (PBS) capability (B8g) • Pediatric interventional radiology equipment and room (B9)

* Parenthetical references indicate related survey questions (continued)

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Cardiology & Heart Surgery (8)	• Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (A10j) • Intraoperative transesophageal echocardiographic testing (E6j) • 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)
Diabetes & Endocrinology (11)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (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) • Intraoperative PTH assay (C51f) • Intravenous bisphosphonate therapy (C51g) • Endocrine testing and infusion studies (with endocrinology providers on site) (C55)
Gastroenterology & GI Surgery (19)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • 24/7 in house availability of ultrasound for emergency cases (A10g) • Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (A10j) • Contrast-enhanced ultrasound (A10k) • Magnetic resonance cholangiopancreatography (D7a) • Magnetic resonance enterography (D7b) • Ultrasound elastography (USE) for assessing liver fibrosis (D7c) • Magnetic resonance elastography (MRE) for assessing liver fibrosis (D7d) • Ultrasound contrast for liver lesion characterization (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 Hemostasis Therapies(Electrocautery, Hemo-Clip application, and Argon plasma coagulation) (D11g) • Deep enteroscopy-single or double balloon (D11h) • Endoscopic ultrasound (D11i)

* 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) • Fast shunt MRI for hydrocephalus offered onsite (A10h) • Dedicated interventional radiology team offered onsite (A10i) • Continuous video electroencephalography (EEG) monitoring and reading with telemetry capability and with interpretation and consult by a pediatric neurologist (F12a) • Less than 24-hour turnaround time for HSV PCR for cerebrospinal fluid (F12b) • Formal mechanism to order and send samples for genomic analysis and then provide interpretation and counseling of the results within 10-days (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) • Rapid blood culture (within 24 hours) identification system for differentiation of MSSA from MRSA (F12g)
Nephrology (1)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b)
Neurology & Neurosurgery (13)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • 3T MRI offered onsite (A10d) • Fast shunt MRI for hydrocephalus offered onsite (A10h) • Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (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 or brain PET scanning (H5h) • Functional mapping capability and/or diffusion tensor imaging (DTI) evaluation (H5i) • Stereotactic EEG capabilities (H5j) • Transcranial magnetic stimulation (H5k)
Orthopedics (3)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (A10j)
Pulmonology & Lung Surgery (2)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Dedicated interventional radiology team offered onsite (A10i)

* Parenthetical references indicate related survey questions

Table 4. Advanced Technologies, by Specialty (continued)

Specialty	Technologies*
Urology (8)	• PET/MRI or PET/CT scanning offered onsite (A10a or A10b) • Dedicated interventional radiology team offered onsite (A10i) • Nuclear medicine SPECT/CT (A10j) • Contrast-enhanced ultrasound (A10k) • Dedicated laparoscopic skills lab for faculty and trainees (K7a) • Video pediatric urodynamic fluoroscopy (K7b) • Magnetic resonance urography (MRU) (K7c) • Nuclear Medicine functional assessment of upper urinary tract function and scarring (K7d)

* 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 2021-22. 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 & Lung Surgery	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)	●	●	●	●	●	●	●	●	●	●
Maternal fetal medicine or fetal treatment program (A7g)					●		●			
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**	**9**	**9**	**10**	**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 only (B26a), solid tumors only (B26b), CNS tumors only (B26c), transplants only (B26d), and trials that are not disease-specific (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 (4 points). Hospitals received points for participating in externally audited, national quality-improvement research networks. Hospitals received up to 2 points for participating and contributing data organizations. Hospitals were awarded 1 point for participating in 1, 2 or 3 of the following organizations, or 2 points for participating in 4 or more of 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)
- Cardiac Neurodevelopmental Outcome Collaborative (CNOC) (E29i)
- Pediatric Acute Care Cardiology Collaborative (PAC3) (E29j)

- Pedimacs Registry (FDA Database for Ventricular Assist Devices) "and/or" ACTION (E29k)
- ACC QNET program (E29l)
- Congenital Cardiac Catheterization Project (C3PO) (E29m)
- 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 (9 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 8 additional points for participation in the following research collaboratives:

- Midwest Pediatric Nephrology Consortium or Pediatric Nephrology Research Consortium (G40a)
- International Pediatric Dialysis Network (G40b)
- North American Pediatric Renal Trials and Collaborative Studies (G40c)
- Nephrotic Syndrome Study Network (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).
- Neonatal Kidney Collaborative (G40h)

Neurology & Neurosurgery (7 points). Hospitals received 1 point for belonging to the Pediatric Brain Tumor Consortium, Children's Oncology Group, or the Pediatric Neuro-Oncology Consortium (H21) and up to 6 additional points for actively enrolling or studying patients in unique, IRB-approved pediatric clinical studies, trials, registries, or databases (H6). Hospitals receive up to 3 points for each NIH funded and non-NIH funded activities as follows: 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 & Lung Surgery (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 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 (ICAC), American Lung Association (ALA) Airways Clinical Research (ACRC), or the Precision Interventions for Severe Asthma (PrecISE) (J52c); and PCD Foundation Clinical and Research Centers Network (J52d).

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 15 to 18 points. In all specialties, hospitals could receive up to 7 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 3 points for sponsoring quality improvement activities that provide credit to physicians for maintenance of certification (MOC) Part IV:
    - 2 points 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 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 7 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 for clinical quality, tracking and reporting patient data and other supporting information to leadership at least quarterly, presenting results of clinical quality performance metrics to clinical staff at least quarterly, engaging in one or more quality improvement initiatives specific to each specialty, demonstrating how the improvement initiative improved the quality of care, and reporting quality improvement/performance metrics to hospital leadership at least quarterly.

In all specialties except for Gastroenterology & GI Surgery, hospitals received 1 point for participating in national quality and safety collaboratives such as the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) or Children's Hospital Solutions for Patient Safety learning network (A30a-d, A30.1).

In Cancer, hospitals received an additional 2 points (17 points total): 1 point for participating in pediatric cancer-related organized quality improvement network (B23.2) and 1 point for having a pediatric cancer quality committee with an identified medical leader/director that meets at least monthly (B23.3)

In Diabetes & Endocrinology, hospitals received an additional 1 point (16 points total) for supporting development of a physician-led innovation to improve health care delivery for Pediatric Endocrinology patients (C66).

In Gastroenterology & GI Surgery, hospitals received up to 2 additional points (16 points total) for participating in national quality and safety collaboratives or formal initiatives. Hospitals received 1 point for participating in national quality and safety collaboratives such as the Children's Hospital Solutions for Patient Safety learning network (A30b-d, A30.1). Hospitals received 1 point for participating in any formal, multicenter (3 or more institutions) initiatives targeted to GI or liver disorders (D14 and D14.1).

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

Congenital Heart Program (Cardiology & Heart Surgery)

In Cardiology & Heart Surgery, hospitals received up to 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* (17 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) • Radiologist specializing in pediatric neuroradiology (A4h)	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) • Pediatric ophthalmology surgeon (A5e) • Pediatric orthopedic surgeon (A5f) • Pediatric urology surgeon (A5g) • Pediatric vascular surgeon (A5j)	7
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* (22 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 vascular surgeon (A5j)	1
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) • Cardiologist with subspecialty certification in adults with congenital heart disease (E2i) • Clinical nurse, advanced registered nurse practitioner, advanced practice registered nurse, or physician assistant (E4a, E4b, and E4c)	4

* Parenthetical references indicate related survey questions (continued)

Table 6. Subspecialists by Specialty (continued)

Cardiology & Heart Surgery, continued* (21 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* (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 gastroenterologist (D2a) • Pediatric surgeon available 7 days a week (D2.2) • Nurse practitioner and/or physician assistant (D3) • Dedicated social workers (D3.1a), dedicated psychologists (D3.1b), dedicated dieticians (D3.1c), or patient care coordinators (D3.1d)	4
Neonatology* (18 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) • Radiologist specializing in pediatric neuroradiology (A4h)	7
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)	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* (15 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) • Radiologist specializing in pediatric neuroradiology (A4h)	7
Having at least one of each of the following pediatric surgeons: • Pediatric general surgeon (A5c) • Pediatric neurosurgeon (A5d) • Pediatric vascular surgeon (A5j)	3
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
Having at least 1.0 FTE of staff who support Ketogenic Diet planning and implementation with patients (H5.1)	1
Orthopedics* (22 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

* Parenthetical references indicate related survey questions

(continued)

Table 6. Subspecialists by Specialty (continued)

Orthopedics*, continued (22 points)	Points
Having at least one of each of the following pediatric surgeons: • Pediatric general surgeon (A5c) • Pediatric orthopedic surgeon (A5f) • Pediatric plastic surgeon (A5h) • Pediatric hand surgeon (A5i) • Pediatric vascular surgeon (A5j) • Pediatric orthopedic surgery resident (I6.1b)	6
Having at least one of each of the following specialists: • Hand surgery (I6a) • Spinal surgery (I6b) • Musculoskeletal oncologist (I6c) • Orthopaedic sports surgeons (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) • Dedicated clinical registered nurses or medical assistants (I4)	3
Pulmonology & Lung Surgery* (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 vascular surgeon (A5j)	2
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 sub-measures 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), 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). Hospitals could also receive 1 additional point for having direct access to interpreter services*** either through having access to in-person interpreters, interpreters through electronic means, or both (A12.1).

In Neonatology, hospitals could receive up to 8 additional points (for a total of 16 points). Hospitals received points for offering the following patient and family services: 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), NCIU-dedicated multidisciplinary developmental care team (F8g), and complex discharge coordinator (F8h).

In Nephrology, hospitals could receive up to 6 additional points (for a total of 14 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), quality of life assessment (G9d), and Child Life specialists (G9e).

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 & Lung Surgery)

In Pulmonology & Lung Surgery, 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 2014 and June 2016 or 2 points for performing two or more lung transplants between January 2014 and June 2016 (J48a). Hospitals received 1 point for performing one lung transplant between July 2016 and December 2018 or 2 points for performing two or more lung transplants between July 2016 and December 2018 (J47a).

*** For in-person interpreter services having at least 50% certified through the National Board of Certification for Medical Interpreters or the Certification Commission for Healthcare Interpreters.

Neonatal Transport (Neonatology)

In neonatology, hospitals received up to 12 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 moderate to severe hypoxic ischemic encephalopathy (F13e).

Hospitals received 1 point for tracking temperature at admission for infants actively cooled during transport for the management of moderate to severe hypoxic ischemic encephalopathy (F13.1). Hospitals received an additional 1 point if data on active cooling was systematically collected and reported to a benchmarking registry (e.g., CHNC) or for internal process improvement work (F13.3).

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 (F13.4).

Hospitals received 1 point for tracking time to vehicular dispatch for neonatal transport (F13.5). Hospitals received 2 additional points for having ≥ 80% of neonatal transports dispatched within 30 minutes of the call being logged as received or 1 point for having ≥ 40 and < 80% dispatched within 30 minutes (F13.6). Hospitals received an additional 1 point if data on emergent neonatal transport was systematically collected and reported to a benchmarking registry (e.g., CHNC) or for internal process improvement work (F13.7).

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.

††† Hospital are directed to calculate FTEs based on total paid hours for the period of review divided by 2080.

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 who were over 10 kg (G20.1) 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%.

‡‡‡ This includes inpatient days divided by the number of days that the hospital was open (e.g. 365); hospitals are directed to include all patients admitted to the hospital, including short stays and observation stays.

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 re-designation status. Hospitals received credit based on their Magnet Recognition status as of January 2, 2021. The current list of Magnet-recognized organizations is shown at https://www.nursingworld.org/organizational-programs/magnet/find-a-magnet-organization/.

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.

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

Cancer (6 points). Hospitals received 1 point for each of the following specialized treatment programs: clinical brain tumor program (B10a), solid tumor program (B10b), clinical leukemia/lymphoma program (B10c), comprehensive longer-term survivors program (B10d), histiocytosis program (B10e), and molecular oncology/targeted therapy program (B10f).

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 onsite 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).

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

[§§§] 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.

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), diagnostic 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 (10 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), comprehensive stone program (K10b), prenatal program (K10c), differences in sex development program (K10d), exstrophy/cloaca/GU sinus program (K10e), end stage renal disease program for patients who require a kidney transplant (K10f), and fertility preservation/oncofertility program (K10g). Hospitals also received 1 point for offering a Transitional Care Program for patients transitioning to adult urology with congenital conditions affecting the genitourinary (GU) system (K10.1). Hospitals received an additional 1 point for being an integrated member of the pediatric oncology treatment program (K10.3). Hospitals received an additional 1 point for providing a voiding dysfunction program that treated at least 120 patients in the last calendar year (K17).

Success in Helping Patients Manage Their Asthma (Pulmonology & Lung Surgery)

In Pulmonology & Lung Surgery, 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 patients with a primary diagnosis of asthma 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 90 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%.

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

Success in Managing Neuromuscular Weakness Disorder (Pulmonology & Lung Surgery)

In Pulmonology & Lung Surgery, 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 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 = 30)			
• 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+
• Retinoblastoma (B27h1)	1-5	6-11	12+
• Germ cell tumors (B27i1)	1-7	8-15	16+
• Lymphoma (B27j1)	1-29	30-59	60+
Number of surgeries** ** **(B27), (max points = 16)			
• Brain tumors (B27b2)	1-29	30+	NA
• Neuroblastoma (B27c2)	1-4	5+	NA
• Bone tumors (B27d2)	1-9	10+	NA
• Soft tissue sarcomas (B27e2)	1-9	10+	NA
• Wilms' tumor (B27f2)	1-4	5+	NA
• Liver tumors (B27g2)	1-3	4+	NA
• Retinoblastoma (B27h2)	1-2	3+	NA
• Germ cell tumors (B27i2)	1-3	4+	NA

* 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 = 18)			
• Diagnostic catheterization only (hemodynamic and/or angiographic evaluation) (E11b, E12b)	1-99	100-199	200+
• Endomyocardial biopsy (with or without a diagnostic procedure and without an additional intervention) (E11c, E12c)	1-59	60-119	120+
• Catheter ablation procedures (E11d, E12d)	1-4	5-9	10+
• Interventional procedure (with or without a diagnostic procedure or biopsy) (E11e, E12e)	1-199	200-399	400+
• Transcatheter pulmonary valve replacements (E11f, E12f)	1-4	5-9	10+
• 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. For the first five metrics (E11a-f, E12a-f), volumes from NCDR report are used if available for all quarters in the most recent year.
*** 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 = 36)			
• 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
• Patients with a genetically confirmed form of genetic diabetes MODY or NDM on private insurance (C28.2a)	1-9	10+	NA
• Patients with a genetically confirmed form of genetic diabetes MODY or NDM on Medicaid insurance (C28.2b)	1-9	10+	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
• Bone disease (including metabolic and genetic conditions) (C47i)	1-24	25+	NA
• Non-diabetes related hypoglycemia (C47j)	1-99	100+	NA
• Polycystic ovarian syndrome (C47k)	1-79	80+	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 patients undergoing procedures* (max points = 14)			
• Ratio of patients with growth hormone deficiency who received a brain or pituitary MRI (2 years) (C49a/C48)	50%-74.9%	75%+	NA
• Ratio of patients with growth hormone deficiency who received a growth hormone therapy (C49b/C48)	50%-74.9%	75%+	NA
• Ratio of patients with growth hormone deficiency who received a serum IGF-1 measurement (C49c/C48)	50%-74.9%	75%+	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 = 18)			
• 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
• Endoscopic ultrasound (D11i)	1-3	4+	NA

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

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 = 27)			
• 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+
• Congenital anorectal or colorectal disorders (such as Hirschsprung disease, Imperforate anus, and Cloaca) (D13i)	1-49	50-99	100+
Number of patients undergoing surgeries (max points = 12)			
• Hepatoportoenterostomy or Kasai procedure on a patient with biliary atresia (D17a)	1	2+	NA
• Laparoscopic gastrointestinal, hepatic, and pancreatic surgery (D17b)	1-24	25+	NA
• Bariatric surgery (D17c)	1-4	5+	NA
• Posterior sagittal anorectoplasties (D17d)	1-9	10+	NA
• Open and laparoscopic abdominal surgeries for inflammatory bowel disease (IBD) (D17e and D17f)	1-11	12+	NA
• Esophageal atresia repair (D17g)	1-7	8+	NA

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

Table 7. Volume Measures by Specialty (continued)

Neonatology Volume Measures*	Low Volume (1 point)	Medium Volume (2 points)	High Volume (3 points)
Number of patients (max points = 33)			
• Congenital diaphragmatic hernia (F16a)	1-14	15-29	30+
• Hirschsprung's disease (F16b)	1-11	12-23	24+
• Hypothermia treatment and either hypoxic ischemic encephalopathy or severe birth asphyxia (F16c)	1-49	50-99	100+
• Open neural tube defect treatment (F16d)	1-14	15-29	30+
• Gastroschisis (F16e)	1-17	18-35	36+
• Tracheoesophageal fistula (F16f)	1-15	16-31	32+
• Omphalocele (F16g)	1-9	10-19	20+
• Duodenal atresia (F16h)	1-11	12-23	24+
• Anorectal malformation (F16i)	1-19	20-39	40+
• Extracorporeal life support therapy (F16j)	1-14	15-29	30+
• Jejunal atresia or ileal atresia (F16k)	1-9	10-19	20+
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. Volume Measures by Specialty (continued)

Nephrology, continued Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of patients, 2 years (max points = 14)			
• Acute kidney injury (G6)	1-199	200-399	400+
• Systemic lupus erythematosus with renal involvement (G16a)	1-8	9-16	17+
• Focal segmental glomerulosclerosis (G16b)	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 patients undergoing epilepsy workups and treatments* (max points = 12)			
• 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+
Number of patients undergoing surgeries (max points = 42)			
• Surgical resection or laser ablation 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 (H16f)	1-14	15-29	30+
• Endoscopic treatment of hydrocephalus (H16g)	1-29	30-59	60+
• Brachial plexus exploration/reconstruction (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. Volume Measures by Specialty (continued)

Neurology and Neurosurgery, continued Volume Measures *	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
***Number of patients undergoing surgeries*, continued**			
• Vascular cases including endovascular procedures, excluding diagnostic angiograms conducted onsite at the children's hospital or an adjoining facility with pediatric anesthesia assisting with the case (H16j)	1-9	10-19	20+
• Deep brain stimulation for primary dystonia (H16k)	1-4	5-9	10+
• Responsive neurostimulation (RNS) for medically intractable epilepsy (H16l)	1-2	3-5	6+
• Craniofacial procedures performed by pediatric neurosurgeons (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 = 24)			
• 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 inpatients with fractures or musculoskeletal injuries (I14a)	1-999	1,000-1,999	2,000+
• Pediatric trauma outpatients with fractures or musculoskeletal injuries (I14b)	1-1,999	2,000-3,999	4,000+
• Scoliosis correction patients (I31a-b)	1-149	150-299	300+
• Single event multi-level surgery (I45)	1-19	20-39	40+

* Parenthetical references indicate related survey questions. (continued)

** Volume represents procedures, not patients.

Table 7. Volume Measures by Specialty (continued)

Orthopedics Volume Measures*	**Low Volume (1 point)**	**Medium Volume (2 points)**	**High Volume (3 points)**
Number of procedures and surgeries* (max points = 26)			
• Motion laboratory diagnostic clinical evaluations (I20a)	1-24	25-49	50+
• Motion laboratory diagnostic research evaluations (I20b)	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)	1-7	8-15	16+
• 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
Pulmonology & Lung Surgery 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+
• Patients receiving home nocturnal PAP or bilevel therapy (J37)	1-89	90-179	180+
• Patients receiving 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, 3 years (J46.1)	1	2+	NA

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

Table 7. Volume Measures by Specialty (continued)

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 (or open surgery) orchiopexy/orchidectomy (K11b)	1-13	14-27	28+
• Laparoscopic cyst ablation, pyeloplasty, nephrectomy, partial nephrectomy, heminephrectomy, ureteral reimplantation, or ureteroureterostomy (K11c)	1-13	14-27	28+
Number of patients (max points = 27)			
• 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+
• Comprehensive stone program (K10b)	1-74	75-149	150+
• Prenatal program (K10c)	1-49	50-99	100+
• Disorders of sexual differentiation program (K10d)	1-49	50-99	100+
• Exstrophy/cloaca/GU sinus program (K10e)	1-39	40-79	80+
• End stage renal disease program (K10f)	1-14	15-29	30+
• Oncofertility program (K10g)	6-9	10-19	20+
Number of surgeries (max points = 20)			
• Radical or partial nephrectomy for malignancies** (K12a)	1-2	3+	NA
• Open pyeloplasty, nephrectomy and partial nephrectomy, heminephrectomy, ureteral reimplantation, ureteroureterostomy for benign disease** (K12b)	1-19	20+	NA
• Radical prostatectomy for rhabdomyosarcoma, partial/total cystectomy or retroperitoneal lymph node dissection for cancer diagnoses	1-19	20+	NA
• Patients receiving exstrophy closures (K13a)	1-2	3+	NA
• Patients receiving reconstructive open procedures for incontinence or hostile bladder - open (K13b)	1-19	20+	NA
• Patients receiving posterior urethral valve ablation (K13c)	1-5	6+	NA
• Patients receiving proximal urethroplasty or complex revision for hypospadias (K13d)	1-44	45+	NA
• Distal hypospadias – primary repairs and not re-operative cases** (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.

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 & Lung Surgery	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
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 & Lung Surgery	Urology
Success in managing neuro-muscular weakness disorder									1.25	
Tracking growth metrics for treated patients					1					
Transplant program (heart, liver, lung)		0.33		0.28					0.30	
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						0.27				
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**	**21.08**	**17.75**	**19.03**	**20.25**	**18.03**	**17.75**	**18.75**	**20.05**	**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* (47 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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* (47 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
Patients have thyroidectomies performed by a high-volume thyroid surgeon (>25 thyroid resections per year) (B27.1)	1
Percentage of patients receiving radical nephrectomy for Wilms tumor underwent lymph node sampling during the procedure (B27.2): • 1 point for ≥ 50% & < 80% • 2 points for ≥ 80%	2

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cancer, continued* (47 points)	Points
Percentage of patients 3-5 years post-completion of therapy seen in a formally structured late effects or off-therapy clinic from over the past 3 years (B28): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75%	2
Percentage of patients with certain cancer diagnoses, 1-3 years post-treatment, who had documentation of a formal neuropsychological evaluation conducted since the completion of therapy (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
≥ 75% of pediatric brain tumor patients (from B27b) were enrolled in a formal, comprehensive neuro-oncology clinic for their care coordination (B28.3)	1
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* (57 points)	**Points**
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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

Cardiology & Heart Surgery, continued* (57 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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
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) or certification from foreign organizations (e.g., the Fellowship of the Royal Colleges of Surgeons (FRCS)), practice exclusively or primarily (greater than 90%) in congenital heart surgery and are not eligible for Subspecialty-Certification in Congenital Heart Surgery from the ABTS (E2.2): • 1 point for 1 surgeon • 2 points for 2+ surgeons	2
Having IMPACT Registry data available in the NCDR database for each of the following quarters (E9): • 2018 Quarter 3 • 2018 Quarter 4 • 2019 Quarter 1 • 2019 Quarter 2	4
Having at least one of the following types of data submitted to the NCDR database in 2019 (E10): • Diagnostic catheterizations • Interventional catheterizations • Myocardial biopsies • Catheter ablations	1

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cardiology & Heart Surgery, continued* (57 points)	Points
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
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

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Cardiology & Heart Surgery, continued* (57 points)	Points
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 (E41): • 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* (119 points)	**Points**
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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 the American College of Radiology (ACR) • Accreditation in nuclear medicine from the American College of Radiology (ACR) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from the ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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

Diabetes & Endocrinology, continued* (119 points)	Points
Engaging in activities designed to ensure high reliability (A39): • All clinical staff are trained in code response using simulations or other team trainings • Team trainings include clear instructions and demonstration of roles and lines of communication • Team trainings are videotaped to allow review of performance and needs for improvement • Team trainings include critical event debriefing or team discussions that focus on identifying what worked well and where improvement is needed • All team trainings end with the development of an action plan to address problems identified during the training or simulation	5
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
Percent of diabetes patients on insulin therapy admitted as inpatients to other services, were 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

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (119 points)	Points
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 and/or percent of time "in range" (70 – 180 mg/dl) from at least 1 weeks of CGM data • 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): • 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	5
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
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
Asking about the number of hospital admissions, emergency visits or urgent care visits since the last diabetes outpatient visit (C29)	1
Tracking the number of hospital admissions, emergency visits or urgent care visits since the last diabetes outpatient visit in EMR (C29.1)	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

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (119 points)	Points
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 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 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 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
Percentage of Type 2 primary care diabetes patients who had a lipid profile performed in the past year (C31e): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75% & < 90% • 3 points for ≥ 90%	3
Percentage of Type 2 primary care diabetes patients who received a microalbuminuria screening in the past year (C31f): • 1 point for ≥ 40% & < 60% • 2 points for ≥ 60% & < 80% • 3 points for ≥ 80%	3

* Parenthetical references indicate related survey questions. (continued)

Table 9. Commitment to Best Practices by Specialty, continued

Diabetes & Endocrinology, continued* (119 points)	Points
Percentage of Type 2 primary care diabetes patients who received a dilated retinal or non-mydriatic camera examination in the past 2 calendar years (C31g): • 1 point for ≥ 40% & < 60% • 2 points for ≥ 60% & < 80% • 3 points for ≥ 80%	3
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
Average number of documented interpretations of continuous glucose monitoring (CGM) readings associated with ambulatory visits for primary Type 1 diabetes care pediatric patients that are < 18 years of age for private and Medicaid insurance in the past year (C32.1, C32.2): Private insurance • 1 point for >.5 and <1 CGM per patient • 2 points for ≥1 CGM per patient Medicaid insurance • 1 point for >.25 and <.75 CGM per patient • 2 points for ≥.75 CGM per patient	4
Percentage of Type 1 primary care diabetes patients that are < 18 years of age on an insulin pump in the past calendar year for private and Medicaid insurance (C33): Private insurance • 1 point ≥ 20% & < 60% • 2 points ≥ 60% Medicaid insurance • 1 point ≥ 20% & < 40% • 2 points ≥ 40%	4
Percentage of Type 1 and Type 2 primary diabetes care patients aged 13 to < 18 screened for depression in the past calendar year (C34): • 1 point for ≥ 25% & < 50% • 2 points for ≥ 50%	2

* Parenthetical references indicate related survey questions. (continued)

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

Diabetes & Endocrinology, continued* (119 points)	Points
Percentage of Type 1 and Type 2 primary diabetes care patients who had an abnormal score on their depression screen (see C34) were either referred for assessment by a mental health professional (social worker, licensed counselor, psychologist, or psychiatrist) or are already under the care of a mental health professional (C34.1): • 1 point for ≥ 50% & < 75% • 2 points for ≥ 75%	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
Providing a dedicated team of Type 2 diabetes providers (C40)	1
Distributing patient education materials that address the details of their conditions to patients with the following conditions (C44): • Adrenal insufficiency • Congenital hypothyroidism • Diabetes insipidus	3
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 have an admission or consultation note written by a physician in the pediatric endocrinology program (C58): • 1 point for <50% • 2 points for ≥50%	2

* Parenthetical references indicate related survey questions. (continued)

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

Diabetes & Endocrinology, continued* (119 points)	Points
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
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* (35 points)	**Points**
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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)

Gastroenterology & GI Surgery, continued* (35 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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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
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

* Parenthetical references indicate related survey questions. (continued)

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

Gastroenterology & GI Surgery, continued* (35 points)	Points
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
Having the Pediatric GI program serve as a referral center for inflammatory bowel disease (IBD) patients for second or subsequent evaluations (D33.1)	1
Neonatology* (99 points)	**Points**
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (99 points)	Points
Having patients undergoing imaging studies (e.g., 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
Having at least 50% of NICU staff who support the lactation program FTEs with IBCLC and/or CBC certification (F4c/F4b)	1
Percentage of eligible direct clinical care RNs who are nationally certified in neonatal intensive care (F4.1): • 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

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (99 points)	Points
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.) • NICU-based written criteria for Safe Sleep within NICS • Safe Sleep policy includes a minimum length of time prior to discharge to implement safe sleep practices if no contraindications exist • Safe Sleep policy indicates that infants greater than 32 weeks post-conceptual gestational age should be placed in supine position if no contraindications exist	6
Engaging in Safe Sleep auditing to ensure that patient sleep environment and position is appropriate for safe sleep practice (F8.2)	1
Monitoring compliance with NICU-based Safe Sleep policy at least weekly or at least bi-weekly (F8.3)	1
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 partial or full mother's own 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): • Cohort of NICU RNs specially trained in lactation counseling • NICU-specific breast milk committee that meets at least monthly • Process to facilitate obtaining a breast pump (within 48 hours of identified need) for home use • 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	5
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
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

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (99 points)	Points
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 • ECMO emergency simulation training • Exchange transfusion simulation or just in time training • Other training	6
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 current attending physicians in the Level IV NICU who have completed simulation or other training to refresh their skills with each of the following procedures (F23.2): • chest tube placement • pericardiocentesis • abdominal paracentesis • double volume exchange transfusion • cardioversion	5
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
Tracking unintended extubation of NICU patients (F32)	1

* Parenthetical references indicate related survey questions. (continued)

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

Neonatology, continued* (99 points)	Points
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)	1
Having a formal program for reviewing neonatal transfer cases received from other hospitals that includes a formal feedback mechanism to the referring facility (F33.1)	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 • Dedicated team of bedside RNs with additional training in the care of preterm infants that care for VLBW infants in your NICU • Respiratory support weaning protocol	5
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 at least weekly or at least 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
Having a medication error reporting system/database (F35)	1
Offering the following to evaluate and reduce medication errors (F35.1): • NICU-specific multidisciplinary committee, including a residency trained NICU clinical pharmacist • Residency trained NICU clinical pharmacist who participates in multidisciplinary rounds • Access to an up-to-date electronic version of a neonatal-specific drug information reference which includes the ability to check IV compatibility • Utilize medication administration technology including barcode administration and smart pumps with a dedicated neonatal drug library • Formalized process for discharge medication counseling	5

* Parenthetical references indicate related survey questions. (continued)

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

Nephrology* (59 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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
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

* Parenthetical references indicate related survey questions. (continued)

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

Nephrology, continued* (59 points)	Points
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
Have access to an interventional radiologist to perform image guided renal biopsies, nephrostomies, and AV fistula/graft management (G16.1)	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 (maintained more than 3 months consecutively at home) that is either standalone or conducted in conjunction with an adult program • At-home maintenance peritoneal dialysis program	6
Availability and prescription of therapeutic plasma exchange 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 accesses received in the last 2 years per patient for permanent hemodialysis vascular central venous catheters placed in children < 5 years of age (G22a): • 1 point for > 1.5 & ≤ 4 accesses per patient • 2 points ≥ 1 & ≤ 1.5 accesses per patient	2
Ratio of accesses received in the last 2 years per patient for permanent hemodialysis vascular central venous catheters placed in children, 5-19 years of age (G22b): • 1 point for > 1.5 & ≤ 4 accesses per patient • 2 points ≥ 1 & ≤ 1.5 accesses per patient	2

* Parenthetical references indicate related survey questions. (continued)

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

Nephrology, continued* (59 points)	Points
Ratio of accesses received in the last 2 years per patient for hemodialysis AV fistula/graft access placements in children, 10-19 years of age on maintenance dialysis (G22c): • 1 point for > 1.25 & ≤ 4 accesses per patient • 2 points for ≥ 1 & ≤ 1.25 accesses per patient	2
Ratio of accesses received in the last 2 years per patient for peritoneal dialysis catheters placed in children < 5 (G22d): • 1 point for > 1.25 & ≤ 4 accesses per patient • 2 points for ≥ 1 & ≤ 1.25 accesses 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 ≥ 1 & ≤ 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 using real-time ultrasound or ultrasound guidance (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* (37 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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 or laser ablation 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* (37 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 completion of the study	2
Offering neuropsychological evaluations for surgical patients with the following diagnoses (H15): • Benign or malignant brain tumors postoperative • Traumatic brain injury/concussion postoperative • Medically intractable epilepsy postoperative • Craniofacial disorders postoperative • Congenital heart disease postoperative • Stroke • Demyelinating diseases	7
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
Providing a transition of care program that helps patients prepare for and then move from pediatric to adult care providers (H20.2)	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

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics* (82 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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
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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics, continued* (82 points)	Points
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
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 idiopathic scoliosis • Pediatric anesthesia services to support sedation and general anesthesia for imaging in very young children • MR arthography • Image guided thermal ablation of bone tumors • Interventional radiology image guided bone biopsies • Medical director for musculoskeletal imaging	9
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 pediatric (medical) oncologist (I17.1a)	1
More than 75% of tumor boards attended by an orthopaedic (surgical) oncologist (I17.1b)	1
Participating in regular multidisciplinary morbidity and mortality conferences (I18)	1
Having a designated inpatient trauma operating room that 100% guarantees orthopedics a "first case of the day start" (I28)	1

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics, continued* (82 points)	Points
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 surgeons who perform surgical correct for scoliosis participate in the "Surgeon Performance Program" provided by the Setting Scoliosis Straight Foundation (SSSF) (I32.1)	1
Having access to at least 1 of the following types of anesthesiologists (I34): • Pediatric anesthesiologist • Pediatric spine anesthesiologist	1
Having at least 1 surgical correction for scoliosis case that was staffed by either a pediatric anesthesiologist or a pediatric spine anesthesiologist (I35)	1
Having at least 50% of pediatric spine anesthesiologists who were the anesthesiologist of record for 20 or more surgical corrections for scoliosis cases in the past 2 years (I35.1)	1
Percentage of surgical spine patients 8 or older completing SRS-22 or SRS-30 (I36a): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Percentage of surgical spine patients 8 or older completing CPCHILD (I36b): • 1 point for ≥50% & <75% • 2 points for ≥75%	2
Percentage of surgical spine patients 8 or older completing another orthopedic patient reported outcomes questionnaire (I36c): • 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
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

* Parenthetical references indicate related survey questions. (continued)

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

Orthopedics, continued* (82 points)	Points
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
Having the following elements of a Narcotic Stewardship program (I48): • A non-narcotic pathway in place for patients being admitted for orthopedic surgery • 'Right Size' opioid prescribing recommendations based on patient age and procedure for orthopedic surgical patients • Narcotic safety education provided to families of orthopedic surgical patients with instructions on how to safely dispose of unused narcotics • Plan to ensure tracking of potential pain medication seeking or opioid addition in orthopedic surgical patients • A system to automatically limit the number of narcotic tablets prescribed to orthopedic surgical patients following treatment for supracondylar fracture of the humerus or isolated femoral shaft fractures	5

* Parenthetical references indicate related survey questions. (continued)

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

Pulmonology & Lung Surgery* (48 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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

* Parenthetical references indicate related survey questions. (continued)

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

Pulmonology & Lung Surgery, continued* (48 points)	Points
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 • Other care pathways including airway emergencies such as foreign body, epiglottitis/tracheitis, or inhalation injury	11
Having a formal plan to actively transition CF patients from pediatric care to adult care (J25)	1
Provide bronchial artery embolization for CF patients (J25.1)	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
Having multidisciplinary care team to coordinate the care of long-term ventilator-dependent patients with the following members (J42): • ENT or critical care physician • Pulmonologist • Physiatrist • Respiratory therapist • Social worker • Dietician	6
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
Interpreting exercise challenge and bronchoprovocation testing (J56)	1

* Parenthetical references indicate related survey questions.

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

Urology* (42 points)	Points
Having at least 2.0 FTE pediatric interventional radiologists or at least 2 pediatric interventional radiologists that spent ≥ 0.5 FTE doing pediatric interventional radiology (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) or the Intersocietal Accreditation Commission (IAC) • All sonographers have an ultrasound certificate from the American Registry of Diagnostic Medical Sonographers (ARDMS) the American Registry of Radiologic Technologists (ARRT) • One or more pediatric sonographers have a pediatric ultrasound certificate from the American Registry for Diagnostic Medical Sonographers (ARDMS) • Program accreditation in ultrasound from ACR or AIUM • Accreditation in MRI from ACR • At least one full-time Medical Physicist on-site to monitor and optimize pediatric imaging	7
Having patients undergoing imaging studies (e.g., 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 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

* Parenthetical references indicate related survey questions.

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

Urology, continued* (42 points)	Points
Having regular multi-specialty case review and/or process review conferences for all surgical services (K6c)	1
Having the following elements of a Narcotic Stewardship program (K10.2): • A non-narcotic pathway in place for patients being admitted for genitourinary (GU) surgery • 'Right Size' opioid prescribing recommendations based on patient age and procedure • Narcotic safety education provided to families with instructions on how to safely dispose of unused narcotics • Plan to ensure tracking of potential pain medication seeking or opioid addition patients	4
Monitoring reconstructive procedure for incontinence or hostile bladder for the following operative complications (K13.1): • Monitor the renal function of patients with reconstructed GU tracts with eGFR at least once during the 12-month reporting period • Hydronephrosis based on ultrasound or nuclear medicine testing • Continence • Stomal complications	4
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 31 points, as shown in ***Table 10***. Specialty-specific measures in all specialties allowed an additional 1-29 points, depending on the specialty.

Table 10. Core Infection-Preventing Measures, All Specialties (31 points)

All Specialties* (31 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 0.2 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): • 2 points for ≥ 1.45 FTE per 100 beds • 1 point for ≥ 1.0 FTE per 100 beds and < 1.45 FTE per 100 beds	2
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 95% 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)

‡‡‡‡ "Eligible" healthcare providers, as defined by NHSN, includes all providers who have worked at the facility for at least 1 working day between October 1 and December 31 during the reporting period, regardless of clinical responsibility or patient contact. This includes healthcare providers who joined after October 1 or left before December 31, or who were on extended leave during part of the reporting period. Working for any number of hours a day counts as one working day. Providers should be counted as individuals rather than full-time equivalents. Licensed practitioners who receive a direct paycheck from the reporting facility, or who are owners of the reporting facility, should be counted as employees. Due to the timing of the Hospital Survey, please submit data for October 1 through December 31 only. Include staff who refuse immunizations for personal reasons as eligible healthcare providers. For more information see NHSN guidelines: https://www.cdc.gov/nhsn/pdfs/hps-manual/vaccination/hps-flu-vaccine-protocol.pdf

Table 10. Core Infection-Preventing Measures, All Specialties, continued (31 points)

All Specialties*, continued (31 points)	Points

Having the following elements of antimicrobial stewardship program:
• Actively monitoring internal days of therapy (DOT) of antibiotic use per 1,000 patients (A31a)
• Restriction or pre-authorization of selected antimicrobial agents to prevent potential resistance from overuse (A31b)
• Implementing prospective review and real time intervention regarding antimicrobial use or "handshake stewardship" (A31c)
• Use of clinical guidelines in prescribing antimicrobials (A31d)
• IV to PO conversion program available to ensure correct dosage (A31e)
• Dedicated pharmacist to antimicrobial stewardship program (ASP) (A31.1a):
  o At least 1.0 FTE support for hospitals with at least 250 beds
  o At least 0.5 FTE support for hospitals with less than 250 beds
• At least 0.3 FTE support for the role of medical director of the pediatric ASP program (A31.1b)
• At least 0.2 FTE support for a dedicated analyst to support ASP program (A31.1c)
• Formal policy on the use of antimicrobials (A32a)
• Letter of support for the ASP by hospital administration (A32b)
• An ASP committee that meets at least quarterly (A32c)
• Regular tracking and reporting of ASP data to hospital clinicians (A32d)
• Annual and ongoing education to hospital staff regarding ASP (A32e)
	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 (6 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 (10 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 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 appropriately decolonizing Staph Aureus utilizing a nasal antiseptic OR perform universal decolonization on all patient undergoing a cardiac surgical procedure (E31d).

Diabetes & Endocrinology (6 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 (12 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 (12 additional points). Hospitals received 1 point for having a formal program to prevent hospital-acquired pressure injuries (A36). Hospitals received 1 point for auditing hand hygiene compliance rates via electronic monitoring and/or direct observation (F37). Hospitals received 1 point for having written standardized guidelines and 1 point for monitoring compliance with the guidelines for antibiotic use in each the following situations (up to 10 additional points): surgical NEC repair or drain placement (F38a), small bowel atresia repair (F38b), gastroschisis abdominal closure (F38c), medical necrotizing enterocolitis (F38d), culture negative sepsis (F38e).

Nephrology (29 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 between infection prevention and dialysis providers (G36b), and formal improvement project focused on reducing CLABSIs in these patients (G36c).

Neurology & Neurosurgery (10 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 (7 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 monitoring SSIs for spinal fusion surgeries using an established standard program (I23 and I23.1).

Pulmonology & Lung Surgery (19 additional points). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 (1 additional point). Hospitals receive 1 point for auditing hand hygiene compliance rates (A24) via direct observation, a hybrid of direct observation and electronic monitoring, or 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 2019, 2020 and 2021. 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
2021 Physician Survey	33.3%	5.0%
2020 Physician Survey	33.3%	5.0%
2019 Physician Survey	33.3%	5.0%
Total	100.0%	15.0%[§§§§]

[§§§§] In Cardiology & Heart Surgery, the overall weight for reputation was reduced to 8.5% starting in the 2017-18 rankings.

The sections below describe the approach used for the 2021 survey, which was similar to the 2019 and 2020 surveys. The approaches used for the 2019 and 2020 surveys are provided in the corresponding methodology reports for those years, available at www.rti.org/besthospitals.

2021 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, the American Board of Surgery, and the American Osteopathic Association) and state medical boards. Doximity's proprietary database is augmented by more than 750,000 registered and verified physician members who review and update their profiles to provide another set of primary data. U.S. News & World Report holds an equity interest in Doximity.

In the 2021-22 rankings, physicians who were board certified in eligible specialties by the American Osteopathic Association were eligible to participate in the survey. ***Table 12*** lists all eligible board certifications and 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 (ABMS)	2567	84.9%	456	15.1%
Cardiology & Heart Surgery*****	Pediatric Cardiology, Pediatric Cardiac Surgery, and Pediatric Thoracic Surgery (ABMS)	2859	89.7%	329	10.3%
Diabetes & Endocrinology	Pediatric Endocrinology (ABMS and AOA)	1524	87.0%	227	13.0%
Gastroenterology & GI Surgery	Pediatric Gastroenterology and Pediatric Transplant Hepatology (ABMS)	1735	90.8%	175	9.2%
Neonatology	Neonatal-Perinatal Medicine and Neonatology (ABMS and AOA)	4644	79.6%	1188	20.4%
Nephrology†††††	Pediatric Nephrology (ABMS)	692	82.2%	150	17.8%
Neurology & Neurosurgery‡‡‡‡‡	Child Neurology, Child and Adolescent Neurology, and Pediatric Neurological Surgery* (ABMS, ABPNS, and AOA)	2578	86.1%	416	13.9%
Orthopedics§§§§§	Pediatric Orthopedic Surgery and Sports Medicine (ABMS and AOA)	977	86.7%	150	13.3%
Pulmonology & Lung Surgery	Pediatric Pulmonary (ABMS and AOA)	1145	88.4%	150	11.6%
Urology******	Pediatric Urology (ABMS)	269	64.2%	150	35.8%

***** To ensure both cardiologists and heart surgeons are represented in the nonmember sample, we selected all non-member heart surgeons (11) and filled the remainder of the 150 sample members with cardiologists.

††††† The actual total number of Doximity members in Nephrology was 719 and the total number of nonmembers was 123. However, 27 member nephrologists 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.

‡‡‡‡‡ To ensure both neurologists and neurosurgeons are represented in the nonmember sample, we selected all non-member neurosurgeons (31) and filled the remainder of the 150 sample members with neurologists.

§§§§§ The actual total number of Doximity members in Orthopedics was 1012 and the total number of nonmembers was 115. However, 35 member nephrologists 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.

****** The actual total number of Doximity members in Urology was 387 and the total number of nonmembers was 32. However, 118 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.

Data Collection Procedures

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

Member survey. The Doximity member survey identified a total of 18,990 physicians eligible in one of the 10 pediatric specialties as of November 1, 2020. 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, physicians received alerts upon login to Doximity.com or use of the Doximity app inviting them to participate.

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 small token incentive. The survey was conducted from January 5 through March 19, 2021.

†††††† 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, 27 Doximity members in Pediatric Nephrology, 35 Doximity members in Pediatric Orthopedics, and 118 Doximity members in Pediatric Urology were included in the nonmember sample. These physicians were treated as nonmembers for the purposes of weighting and scoring.

Response Rates

The overall response rate for the 2019, 2020 and 2021 surveys was 29.2%. using the American Association of Public Opinion Research (AAPOR) standard response rate 6[‡‡‡‡‡‡], which treats undeliverables as ineligibles. The 2021 combined response rate for the Doximity member and nonmember surveys was 29.1% using AAPOR standard response rate 6. Below we provide more detail on the response rates to the 2021 Doximity member and nonmember surveys.

Member survey. Of 18,990 Doximity members, 5,606 completed the web survey by March 26, 2021. The final response rate was 29.5% using AAPOR standard response rate 6. ***Table 13*** shows response rates by region and specialty.

Table 13. Member Survey Response Rates (%) by Region and Specialty, 2021

Specialty	Midwest	Northeast	South	West	Total
Cancer	38.0	27.3	36.0	27.6	32.6
Cardiology & Heart Surgery	38.7	34.9	40.3	31.3	36.9
Diabetes & Endocrinology	30.5	23.8	32.2	27.3	28.6
Gastroenterology & GI Surgery	39.9	28.9	26.4	27.7	30.4
Neonatology	23.5	18.7	19.4	16.3	19.4
Nephrology	49.3	30.0	38.1	31.2	37.3
Neurology & Neurosurgery	36.2	25.0	25.5	30.8	28.7
Orthopedics	42.0	44.6	31.6	31.8	36.2
Pulmonology & Lung Surgery	39.2	28.1	31.7	28.3	32.1
Urology	54.8	51.7	46.2	30.2	47.2
Total	**35.0**	**27.1**	**29.8**	**26.1**	**29.5**

Nonmember survey. Of 1,500 nonmember physicians sampled for this year's report, 336 were deemed ineligible after determining that they were no longer actively practicing or because we were unable to verify their eligibility. Of the remaining 1,164 physicians, 252 returned the completed questionnaire. The final response rate was 21.6% using the AAPOR standard response rate 6. ***Table 14*** shows response rates by region and specialty.

‡‡‡‡‡‡ Definitions available at https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf

Table 14. Nonmember Survey Response Rates (%) by Region and Specialty, 2021

Specialty	Midwest	Northeast	South	West	Total
Cancer	10.0	9.5	17.9	3.4	11.0
Cardiology & Heart Surgery	36.8	8.3	13.0	32.3	20.8
Diabetes & Endocrinology	21.7	14.3	12.2	20.0	16.2
Gastroenterology & GI Surgery	8.7	3.8	33.3	21.2	18.6
Neonatology	3.8	10.0	0.0	4.0	3.6
Nephrology	32.4	0.0	26.5	22.7	22.3
Neurology & Neurosurgery	11.5	8.3	13.8	7.4	10.4
Orthopedics	40.0	44.8	25.0	16.2	29.4
Pulmonology & Lung Surgery	5.6	31.8	15.6	14.8	17.0
Urology	70.6	60.0	60.4	51.0	58.2
Total	**23.0**	**19.1**	**22.4**	**21.6**	**21.6**

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 2021 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.

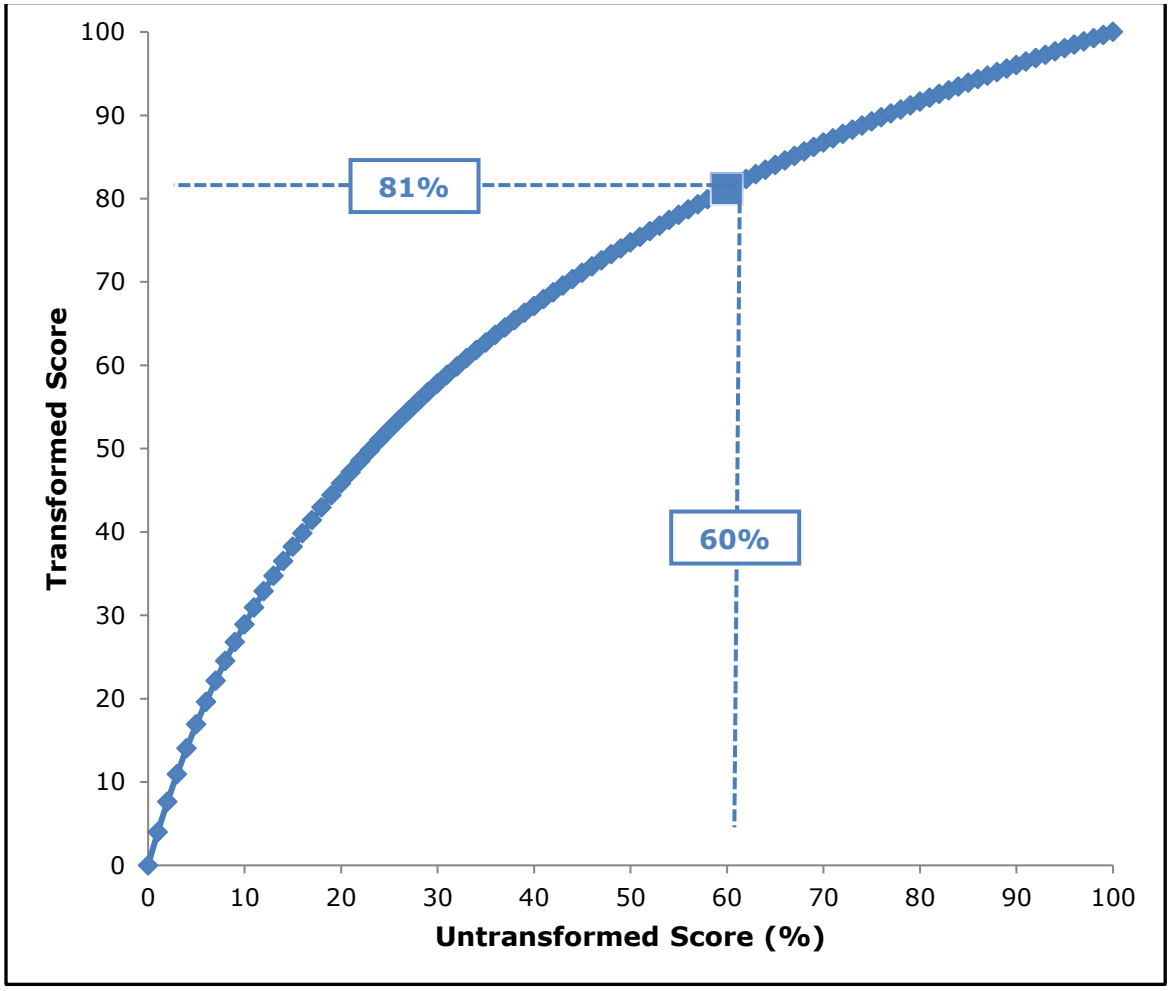
[§§§§§§] Age categories were collapsed for females because there were too few female physicians over 55 in the sample.

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.

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 Standard Analytical File (SAF) data used in the adult rankings, outcomes-related data are obtained directly from pediatric hospitals through the Pediatric Hospital Survey. Such data include BSI rates, transplant survival rates, mitigation of adverse events, and surgical outcomes. Other data will be added over time to address the need for relevant outcomes measures and to provide a more complete picture of pediatric hospital care. Measures for the 2021-22 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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their pediatric ICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the

[*******] 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/.

95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on their unadjusted CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient days, 2 points for > 1.5 and ≤ 2.0 infections per 1,000 patient days, 3 points for > 1.0 and ≤ 1.5 infections, per 1,000 patient days, 4 points for > 0.5 and ≤ 1.0 infections per 1,000 patient days, or 5 points for ≤ 0.5 infections per 1,000 patient days.

Finally, for oncology/stem cell transplant patients CLABSI rates, hospitals received up to 10 points per group. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their oncology/stem cell transplant unit are scored based on their SIR value and upper bound as follows: 10 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 8 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 6 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on CLABSI rates: 2 points for > 4.0 and ≤ 6.0 infections per 1,000 patient days, 4 points for > 2.0 and ≤ 4.0 infections per 1,000 patient days, 6 points for > 1.0 and ≤ 2.0 infections per 1,000 patient days, 8 points for > 0.5 and ≤ 1.0 infections per 1,000 patient days, or 10 points for ≤ 0.5 infections per 1,000 patient 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 matched unrelated 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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their pediatric ICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient 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%.

Median Post-Operative Length of Stay (9 points). Hospitals can receive up to 9 points for success in reducing the time that congenital heart patients spend in the hospital related to their heart condition for simple to moderately complex cases. For STAT Level 1 (E45a), hospitals received 3 points for having a median post-operative length of stay of ≤ 3 days, 2 points for a median post-operative length of stay > 3 and ≤ 5 days, and 1 point for a median post-operative length of stay > 5 and ≤ 8 days. For each STAT Level 2 and Level 3 (E45b, E45c), hospitals received 3 points each for a median post-operative length of stay of ≤ 7 days, 2 points each for a median post-operative length of stay > 7 and ≤ 14 days, and 1 point each for a median post-operative length of stay > 14 and ≤ 21 days.

Survival After Congenital Heart Surgery (5 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[ŧŧŧŧŧŧ].

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.

In an effort to account for the uncertainty in the AMR measure, the upper limit of the confidence interval was incorporated into the points starting with the 2018-19 rankings. However, the measure in the 2018-19 rankings had a distinct cut point at the national average. This meant that a hospital who had a 4-year combined AMR just higher than the national average, and a confidence interval similar to a hospital with an AMR estimate just lower than the national average received different scores. For the 2019-20 rankings, a new method of handling the data was utilized to eliminate this difference in performance scores for hospitals near the national average. To accomplish this, we calculated values of 1 and 2 standard errors from the national average dependent on total patient volume across the 4-years using a funnel plot methodology (see ***Figure 2***). The

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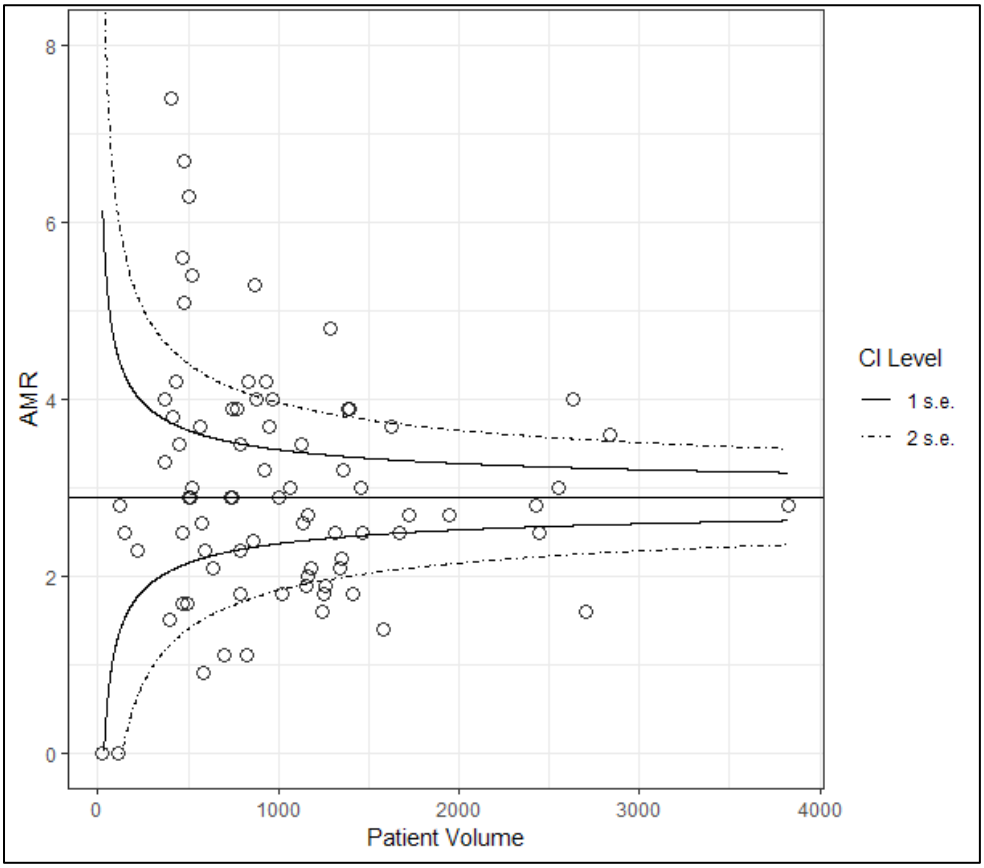
standard errors were calculated using the standard statistical formula of $\sqrt{\frac{p*(1-p)}{n}}$, where n represents total patient volume, and p represents the national AMR value.

Figure 2. Example funnel plot of AMR and patient volume with 1 and 2 standard error lines used for point boundaries



After establishing the ranges for scoring of the AMR using the funnel plot methodology, points were awarded based on the comparison of the hospital's 4-year combined AMR and CI bounds (E43) in the following manner:

- 5 points were awarded to hospitals who had a 4-year combined AMR lower than 2 standard errors from the national average, or who had an upper CI bound less than the national average;
- 4 points were awarded to hospitals who had a 4-year combined AMR between 1 and 2 standard errors lower than the national average;
- 3 points were awarded to hospitals who had a 4-year combined AMR within 1 standard error of the national average;
- 2 points were awarded to hospitals who had a 4-year combined AMR between 1 and 2 standard errors higher than the national average, or who had a 4-year combined AMR higher

than 2 stand errors from the national average but also had a lower CI bound less than the national average; and

- 1 point was awarded to hospitals who had a 4-year combined AMR higher than 2 standard errors from the national average.

Hospitals that do not receive a risk-adjusted mortality rate (AMR) from the STS can receive up to 2.5 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: 0.5 points for operative mortality rates > 4.0% and ≤ 5.0%, 1 point for rates > 3.0% and ≤ 4.0%, 1.5 points for rates > 2.0% and ≤ 3.0%, 2 points for rates > 1.0% and ≤ 2.0%, or 2.5 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 (24 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); the denominator for

‡‡‡‡‡‡‡ 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.

this calculation includes all patients who received the hybrid or Norwood Stage 1 procedure at each heart center and patients who were in the program but died prior to surgical intervention. Up to 3 points were awarded for each of the four reporting years for 1-year survival rates. Points were awarded as follows: 1 point for survival rates ≥ 25% and < 50%, 2 points for survival rates ≥ 50% and < 75%, or 3 points for survival rates ≥ 75%. 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 regardless of whether they had a heart transplant or not at 1 year of age (E40.2); the denominator for this calculation includes all patients who received the hybrid or Norwood Stage 1 procedure at each heart center and patients who were in the program but died prior to surgical intervention. Up to 3 points were awarded for each of the four reporting years for 1-year survival rates. Points were awarded as follows: 1 point for survival rates ≥ 25% and < 50%, 2 points for survival rates ≥ 50% and < 75%, or 3 points for survival rates ≥ 75%.

Diabetes & Endocrinology

Success in Hypothyroid Management (6 points). Hospitals received up to 6 points for hypothyroid management (C59, C59.1). 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.

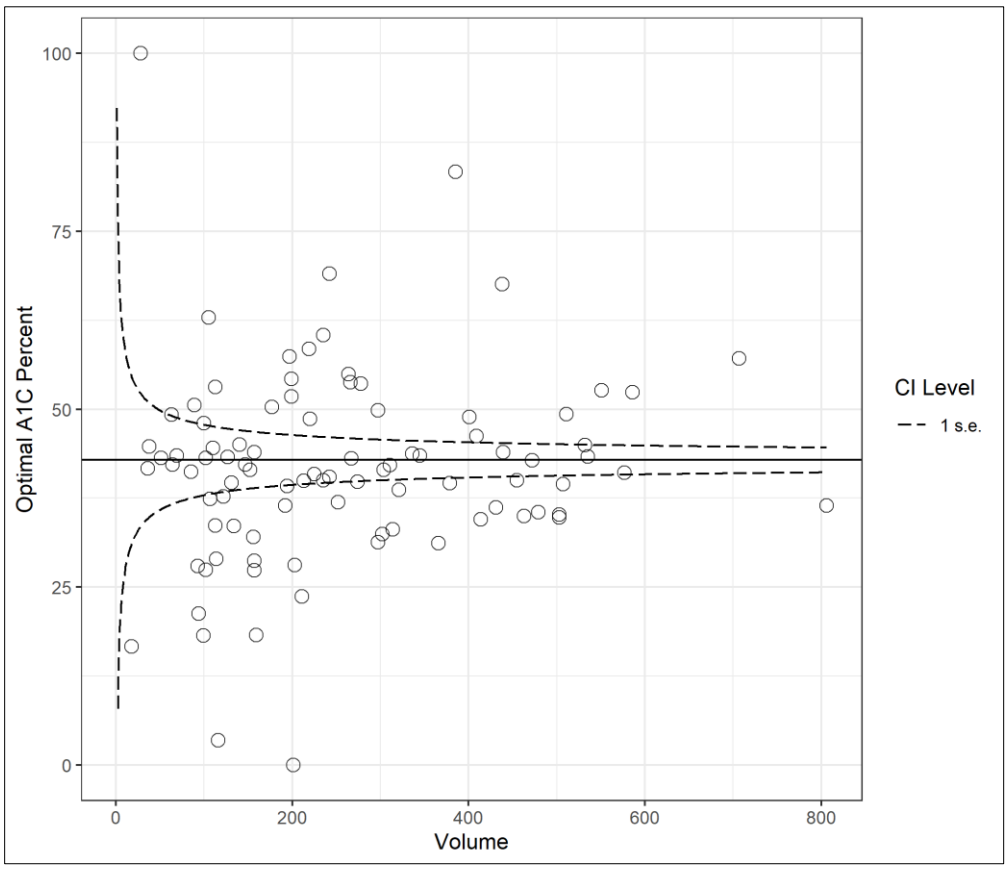
Hospitals received up to 3 additional points for having a higher percentage of congenital hypothyroidism patients <3 years of age at the time of their visit with at least 2 TSH values within normal ranges (C59.1). Points were awarded as follows: 1 point for ≥ 75% and < 90% of patients with at least 2 TSH values in normal ranges, 2 points for ≥ 90% and < 95% of patients with at least 2 TSH values in normal ranges, or 3 points for ≥ 95% of patients with at least 2 TSH values in normal ranges.

Success in Managing Diabetes (48 points). This measure evaluated adverse events in Type 1 and Type 2 diabetes outpatients, rate of optimal hemoglobin A1c levels in primary care Type 1 diabetes outpatients, and inpatient admissions for Type 1 and Type 2 primary care diabetes patients.

To increase the statistical reliability of hospitals' scores on this measure, a funnel plot methodology was first implemented in the 2020-21 rankings to assign points to hospitals for each element of the Success in Managing Diabetes measure. To accomplish this, we calculated value of 1 standard error from the national average dependent on patient volume across the 4-years (see

Figure 3). The standard errors were calculated using the standard statistical formula of $\sqrt{\frac{p*(1-p)}{n}}$, where n represents patient volume, and p represents the national ratio value of each metric. After establishing the ranges for scoring of using the funnel plot methodology, points were awarded based on the comparison of the hospital's metric to the national average.

Figure 3. Example funnel plot of optimal A1C values for patients 13-17 years of age on private insurance with Type 1 diabetes and patient volume with 1 standard error lines used for point boundaries



Type 1 diabetes patients < 18 years of age, were evaluated to determine the percentage that achieved optimal control (i.e., at or below 7.5%) for two types of payers (private insurance and Medicaid) and three age groups (0-5 years of age—National average: private insurance = 51.1%, Medicaid = 30.5%; 6-12 years of age—National average: private insurance = 48.2%, Medicaid = 28.0%; and 13-17 years of age—National average: private insurance = 43.0%, Medicaid = 26.7%) in the last calendar year. 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 higher percentages of patients with optimal A1c values (C35.1). Points were awarded as follows:

- 3 points were awarded to hospitals who had a percentage of patients with optimal A1c values greater than or equal to the 1 standard error upper bound from the national average;
- 2 points were awarded to hospitals who had a percentage of patients with optimal A1c values greater than or equal to the 1 standard error lower bound and less than the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a percentage of patients with optimal A1c values less than the 1 standard error lower bound from the national average.

Hospitals that had missing data in one of the six populations, but otherwise had data for all other elements, received a score based on their overall average for that population. For example, if a hospital did not have any patients 0-5 years of age in the private insurance group, their score for that population, is based on their overall percentage of patients with optimal A1c values across the other five populations. Hospitals who did not have any patients in two or more of the six populations, received 0 points for that population.

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) (C29.2). For inpatient admissions for Type 1 (C29.2c—National average: private insurance = 4.1%, Medicaid = 10.1%) and Type 2 (C29.2d—National average: private insurance = 2.6%, Medicaid = 4.7%) primary care diabetes patients for each insured group, and for ER/urgent care visits for Type 1 (C29.2e—National average: private insurance = 3.4%, Medicaid = 7.6%) and Type 2 (C29.2f—National average: private insurance = 2.7%, Medicaid = 5.5%) primary care diabetes patients, hospitals were awarded up to 3 points for each insured group (private insurance and Medicaid) for up to a total of 24 points. Points were awarded as follows:

- 3 points were awarded to hospitals who had a ratio of inpatient admissions or ER/urgent care visits less than or equal to the 1 standard error lower bound from the national average;
- 2 points were awarded to hospitals who had a ratio of inpatient admissions or ER/urgent care visits greater than the 1 standard error lower bound and less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a ratio of inpatient admissions or ER/urgent care visits greater than the 1 standard error upper bound from the national average.

Hospitals received up to 3 points for LDL cholesterol management (C41.1) for each insured group (private insurance—National average = 92.0% and Medicaid—National average = 85.7%) for up to a total of 6 additional points. 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:

- 3 points were awarded to hospitals who had a percentage of patients with LDL cholesterol values less than 130 at the most recent measurement greater than or equal to the 1 standard error upper bound from the national average;
- 2 points were awarded to hospitals who had a percentage of patients with LDL cholesterol values less than 130 at the most recent measurement greater than or equal to the 1 standard error lower bound and less than the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a percentage of patients with LDL cholesterol values less than 130 at the most recent measurement less than the 1 standard error lower bound from the national average.

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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) are for their pediatric ICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on their unadjusted CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient 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). 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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their NICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and

§§§§§§§ 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.

******** 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.

the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on their unadjusted CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient 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.

Matching Breast Milk With Correct Infants (4 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 4 points as follows: 1 point for > 1.0 and ≤ 3.0 errors per 1,000 breast milk feeding patient days, 2 points for > 0.5 and ≤ 1.0 errors, 3 points for > 0.25 and ≤ 0.5 errors, or 4 points for ≤ 0.25 errors.

NICU Temperature Management (12 points). Hospitals were rewarded for having success in managing temperature at the time of admission and post-operatively for patients in the NICU. Hospitals received up to 3 points for having a lower percentage of patients with a first recorded NICU temperature of < 36.0 degrees centigrade in two patient populations: infants with an admission weight of ≤ 1500 grams; and infants with an admission weight of > 1500 (6 points total). For each of these two categories, hospitals were awarded 3 points for having ≤ 10% of infants with a temperature of < 36.0 degrees centigrade, 2 points for > 10% and ≤ 20% of infants with a temperature of < 36.0 degrees centigrade, or 1 point for > 20% and ≤ 40% of infants with a temperature of < 36.0 degrees centigrade. Because temperature management success rates did not differ significantly between inborn infants (i.e., infants delivered in the hospital where the Level IV NICU is located or at a hospital physically connected to it) and outborn infants (i.e., infants born at another facility and requiring vehicle transfer to hospital or infants previously at home), these populations were pooled within each weight category.

Hospitals could receive an additional 3 points based on the admission temperature of infants who were actively cooled during transport for the management of moderate to severe hypoxic ischemic encephalopathy in the past 3 years (F13.2). Hospitals received 3 points if ≤10% of infants had an admission temperature < 33.0 degrees centigrade, 2 points if > 10% and ≤ 20% of infants

had an admission temperature < 33.0 degrees centigrade, or 1 point if > 20% and ≤ 30% of infants had that temperature upon admission. Since this temperature represents overcooling, the goal is to reduce the percentage of patients with admission temperatures of 33.0 centigrade or less.

Hospitals received up to 3 points based the first postoperative temperature within 60 minutes of return to the NICU after surgery (F31.1). Hospitals received points based on the percent of infants with the first postoperative temperature < 36.0 degrees centigrade. Points were awarded as follows: 3 points if ≤ 5% of infants had the first postoperative temperature < 36.0 degrees centigrade, 2 points if > 5% and ≤ 10% of infants had the first postoperative temperature < 36.0 degrees centigrade, or 1 point if > 10% and ≤ 15% of infants had the first postoperative temperature < 36.0 degrees centigrade.

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 to home, foster care, or a chronic care facility from the NICU (before 120 days) on partial or full mother's own milk (F10.1). Points were awarded as follows: 1 point for > 0% and < 60%, 2 points for ≥ 60% 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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their pediatric ICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on their unadjusted CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient 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.

Neurology & Neurosurgery

Ability to Prevent Surgical Complications (22 points). This measure rewards hospitals for having lower readmission rates. Hospitals received up to 10 points total for having a lower percentage of patients readmitted for any cause within 30 days of the following four surgical procedures: craniotomy (H17a), spinal surgery for dysraphism (H17b), Chiari decompression (H17c), shunt placement (H17d), and intrathecal baclofen pump insertion (H17e). 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 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.

[††††††††] 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.

Hospitals received up to 3 points for having lower 30-day complication rates for epilepsy surgical resection or laser ablation 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.

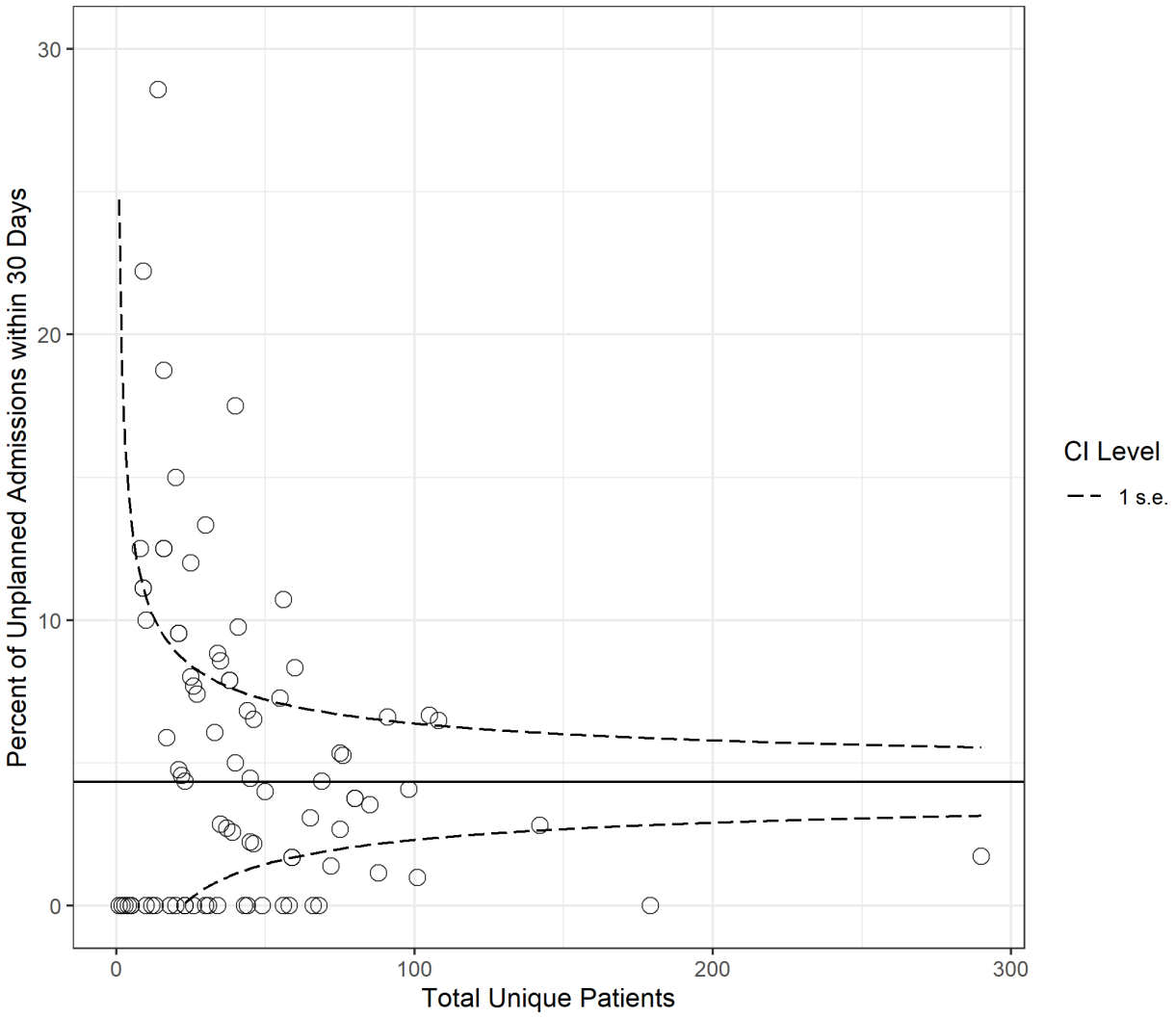
Success in Controlling Epilepsy (6 points). Hospitals received up to 6 points for the percentage of patients receiving three specific treatments for epilepsy (temporal lobe epilepsy surgery, extra-temporal lobe epilepsy surgery, and functional hemispherectomy) who achieved Engel Class 1 after 12 months.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

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 (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 (13 points). In an effort to create more statistically reliable scores, the 2021-22 rankings implemented a funnel plot scoring methodology to assign points to hospitals for each element of the Ability to Prevent Surgical Complications score. To accomplish this, we calculated a value of 1 standard error from the national average dependent on patient volume across the 4-years (see ***Figure 4***). The national average is the average rate of all hospitals who submitted the orthopedic section of the survey. The standard errors were calculated using the standard statistical formula of $\sqrt{\frac{p*(1-p)}{n}}$, where n represents patient volume, and p represents the national ratio value of each metric. After establishing the ranges for scoring of using the funnel plot methodology, points were awarded based on the comparison of the hospital's metric to the national average. Some metrics are assessed with a 3-point scale and some are assessed with a 2-point scale (see below). The decision for choosing a maximum of 2 points for some metrics is based on the rarity of outcome rates and overall distribution of hospital volume and outcomes. Metrics where a 2-point maximum is used, combine two sections of the funnel plot (e.g., between the standard error bounds and below the lower standard error bound).

Figure 4. Example funnel plot of unplanned hospital admissions (for any reason) within 30 days for patients with neuromuscular scoliosis with 1 standard error lines used for point boundaries



For surgical correction of idiopathic scoliosis (I31a), hospitals could receive up to 2 points for each of two adverse outcomes (4 points total): unplanned admissions (for any reason) within 30 days of procedure (I32a—National average: 1.3%) and reoperation (for any cause) within 90 days (I32a—National average: 1.2%). More points were awarded for better performance (i.e., lower adverse event rates) as follows:

- 2 points were awarded to hospitals who had an adverse event rate greater than the 1 standard error lower bound and less than or equal to the 1 standard error upper bound from the national average;

- 1 point was awarded to hospitals who had an adverse event rate greater than 1 standard error upper bound from the national average.

For surgical correction of neuromuscular scoliosis in patients with Cerebral Palsy who have a Gross Motor Function Classification System (GMFCS) function level IV or V (I31b), hospitals could receive up to 3 points for each of two adverse outcomes (6 points total): unplanned admissions (for any reason) within 30 days of procedure (I32b—National average: 4.3%) and reoperation (for any cause) within 90 days (I32b—National average: 4.0%). More points were awarded for better performance (i.e., lower adverse event rates) as follows:

- 3 points were awarded to hospitals who had an adverse event rate less than or equal to the 1 standard error lower bound from the national average;
- 2 points were awarded to hospitals who had an adverse event rate less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had an adverse event rate greater than the 1 standard error upper bound from the national average.

Hospitals received an additional 3 points for rates of allogenic blood transfusions for adolescent patients with idiopathic scoliosis with major Cobb angle of 45-70 degrees who received posterior spinal fusion and instrumentation (I32.3—National average: 6.7%). More points were awarded for fewer patients who received allogenic blood transfusions as follows:

- 3 points were awarded to hospitals who had a rate of allogenic blood transfusions less than or equal to the 1 standard error lower bound from the national average;
- 2 points were awarded to hospitals who had a rate of allogenic blood transfusions less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a rate of allogenic blood transfusions greater than the 1 standard error upper bound from the national average.

Speed and Success in Treating Complex Fractures (8 points). Hospitals received up to 4 points for having a higher percentage of patients with an operating room start time within 18 hours of check-in with the Emergency Department for two conditions: operative reduction and fixation of supracondylar fracture (I25) of the humerus and femoral shaft fracture (I26). Hospitals received points for supracondylar fractures as follows: 1 point for ≥ 75% and <90% of patients with operating room start times within 18 hours or 2 points for ≥ 90%. Hospitals received points for femoral shaft fractures as follows: 1 point for ≥ 60% and <80% of patients with operating room start times within 18 hours or 2 points for ≥ 80%. Hospitals received an additional 2 points for

fewer procedures performed on patients with supracondylar fractures using a formal open procedure (I25.1/I25): 2 points for ≤ 5%, or 1 point for > 5% and ≤ 10%.

Hospitals received up to 2 additional points for conducing radiographically-assisted reductions (without requiring hospital admission) of displaced forearm fractures in patients under 14 years of age (I27). Hospitals received points as follows: 1 point for ≥ 70% and <90% of patients without requiring hospital admission or 2 points for ≥ 90%.

Pulmonology & Lung 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. Hospitals that report to NHSN and receive a Standardized Infection Ratio (SIR) for their pediatric ICU are scored based on their SIR value and upper bound as follows: 5 points if SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is ≤ 1.5, 4 points if the SIR value is ≤ 0.75 and the upper bound of the 95% confidence interval is > 1.5, 3 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is ≤ 1.5, 2 points if the SIR value is ≤ 1.25 and the upper bound of the 95% confidence interval is > 1.5, or 1 point if the SIR value is > 1.25. Hospitals that do not participate in the NHSN SIR program receive points based on unadjusted CLABSI rates as follows: 1 point for > 2.0 and ≤ 3.0 infections per 1,000 patient 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 (19 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 6-12 (J24c), median forced expiratory volume (FEV) for patients 13-17(J24d), the percentage of children 7-17 who met treatment guidelines for CF patients (at least four outpatient visits, one culture, two spirometries or PFTs) (J24e), and median weight-for-length percentile for CF

patients 24 months of age or less (J24f). 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 ≥ 10 and < 25%, 2 points for ≥ 25% and < 50%, or 3 points for median ≥ 50%.

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 (6 weeks-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 (8 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 6 points total based on the percentage of asthma inpatients readmitted within 7 days and 30 days for exacerbation of asthma-related symptoms (J13). Hospitals were rewarded for lower percentages of inpatient readmissions: 1 point each for readmission rates > 3% and ≤ 5%, 2 points each for rates > 1.5% and ≤ 3%, or 3 points each 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 (5 points). Hospitals received up to 5 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). For 1-year survival rates, hospitals received 1 point for rates ≥ 50% and <

‡‡‡‡‡‡‡ 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.

65%, 2 points for rates ≥ 65% and < 80%, or 3 points for rates ≥ 80%. For 3-year survival rates, hospitals received 1 point for rates ≥ 50% and < 60%, or 2 points for rates ≥ 60%.

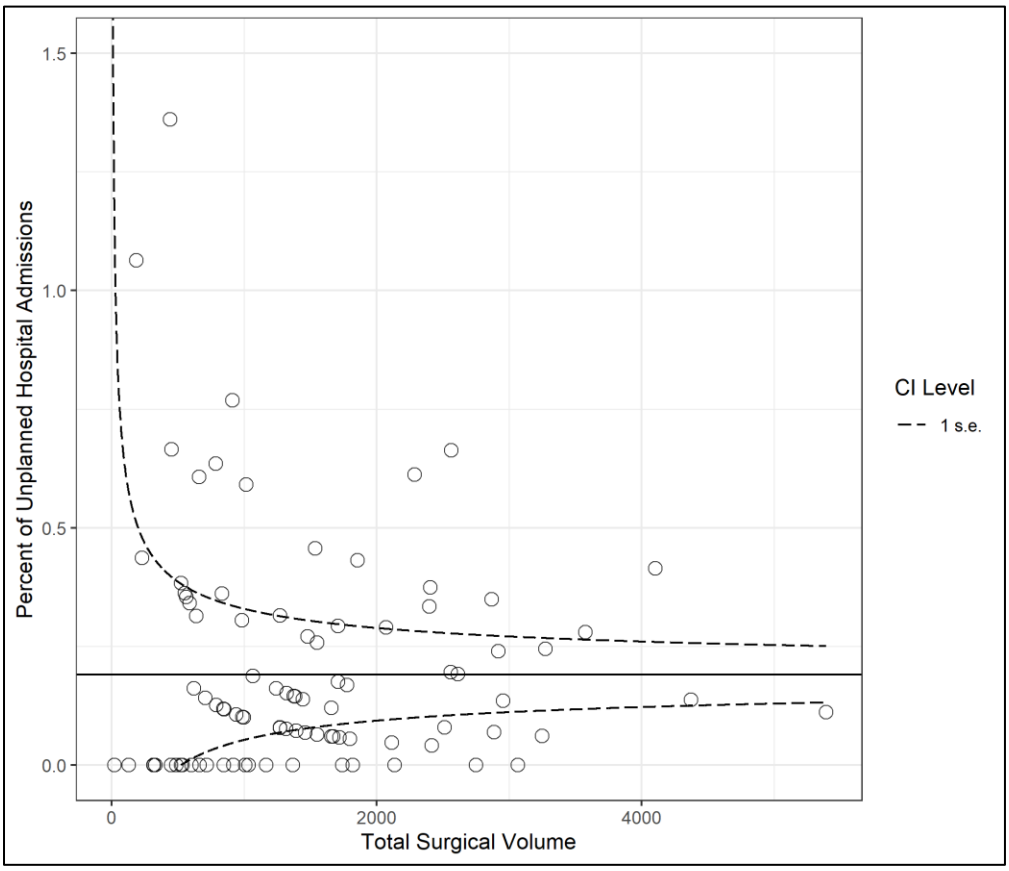
Survival of Patients on Ventilators (3 points). Hospitals received up to 3 points for lower rates of inpatient deaths or cardiorespiratory arrests over the last 3 years for ventilator-dependent patients due to accidental obstruction, decannulation or tracheostomy (J41). Higher survival rates indicate 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 (15 points). This measure evaluated a number of complications and adverse outcomes in patients who received urologic surgical procedures in the last 3 years.

In an effort to create more statistically reliable scores, a funnel plot scoring methodology was first implemented in the 2020-21 rankings to assign points to hospitals for each element of the Ability to Prevent Surgical Complications score. To accomplish this, we calculated a value of 1 standard error from the national average dependent on surgical volume across the 4-years (see ***Figure 5***). The national average is the average rate of all hospitals who submitted the urology section of the survey. The standard errors were calculated using the standard statistical formula of $\sqrt{\frac{p*(1-p)}{n}}$, where n represents surgical volume, and p represents the national ratio value of each metric. After establishing the ranges for scoring of using the funnel plot methodology, points were awarded based on the comparison of the hospital's metric to the national average. Some metrics are assessed with a 3-point scale and some are assessed with a 2-point scale (see below). The decision for choosing a maximum of 2 points for some metrics is based on the rarity of outcome rates and overall distribution of hospital volume and outcomes. Metrics where a 2-point maximum is used, combine two sections of the funnel plot (e.g., between the standard error bounds and below the lower standard error bound).

Figure 5. Example funnel plot unplanned hospital admissions for urologic issue within 30 days of inpatient urological surgery and surgical volume with 1 standard error lines used for point boundaries



Hospitals received up to 3 points for complications for distal hypospadias (K15a—National average: 4.3%) surgical procedures. More points were awarded for better performance (i.e., lower complication rates), as follows:

- 3 points were awarded to hospitals who had a complication rate less than or equal to the 1 standard error lower bound from the national average;
- 2 points were awarded to hospitals who had a complication rate greater than the 1 standard error lower bound and less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a complication rate greater than 1 standard error upper bound from the national average.

Hospitals received up to 2 points for the rate of complications for each of the following surgical procedures (4 points total): pyeloplasty (K15b—National average: 3.3%) and ureteral

reimplantation, primary or revision surgery (K15c—National average: 0.76%). More points were awarded for better performance (i.e., lower complication rates), as follows:

- 2 points were awarded to hospitals who had a complication rate less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had a complication rate greater than 1 standard error upper bound from the national average.

For adverse events of unplanned hospital admissions for urologic issue within 30 days of inpatient urological surgery (K16.1a—National average: 0.19%) following a scheduled ambulatory urological surgical procedure (K16.1b—National average: 0.20%), hospitals received up to 3 points for each of the three measures (6 points total), with more points awarded for better performance (i.e., lower adverse event rates) as follows:

- 3 points were awarded to hospitals who had an adverse event rate less than or equal to the 1 standard error lower bound from the national average;
- 2 points were awarded to hospitals who had an adverse event rate greater than the 1 standard error lower bound and less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had an adverse event rate greater than 1 standard error upper bound from the national average.

For adverse events of unplanned reoperation for a urologic issue within 48 days of urological surgery (K16.1c—National average: 0.06%), hospitals received up to 2 points with more points awarded for better performance (i.e., lower adverse event rates) as follows:

- 2 points were awarded to hospitals who had an adverse event rate less than or equal to the 1 standard error upper bound from the national average;
- 1 point was awarded to hospitals who had an adverse event rate greater than the 1 standard error upper bound from the national average.

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 & Lung Surgery	Urology
Ability to prevent biopsy-related complications						1				
Ability to prevent dialysis-related infections						1				
Ability to prevent infections in intensive-care units	0.38	0.98		0.56	2	0.74			1	
Ability to prevent pressure injuries	0.11	0.29		0.17		0.22			0.30	
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					
Median post-operative length of stay		1								
NICU temperature management					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	
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			0.5	
Survival after certain complex heart procedures		2								
Survival after congenital heart surgery		5								
Survival after Norwood/hybrid surgery		1								
Survival after surgery							1			
Survival of patients on ventilators									1	
Taking breast milk when discharged					1					
Total	**2.49**	**11.27**	**3.00**	**3.73**	**6.00**	**4.96**	**3.25**	**2.00**	**6.30**	**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, 89 different hospitals were ranked in at least one pediatric specialty in the 2021-22 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 2021-22 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. 2021-22 Changes

- **Addressing the Impact of the Pandemic.** This year, U.S. News chose to suspend the typical Pediatric Hospital Survey data collection to minimize burden to hospitals responding to the COVID-19 pandemic. To allow for comparability in year-to-year data reporting, hospital's external certifications, expert opinion scores, and data collected in the 2020-21 survey data were updated.
- **Ability to Prevent Surgical Complications in Orthopedics.** Starting in the 2019-20 rankings, funnel plot scoring methodology was introduced in Cardiology and Heart Surgery, Diabetes and Endocrinology, and Urology. For the 2021-22 rankings, this funnel plot methodology was expanded to Orthopedics. The funnel plot methodology utilizes the available data to determine how well hospitals performed in avoiding negative outcomes such as death and complications. Both the rate of these events occurring as well as the volume of cases are taken into consideration when assigning points.
- **Ability to Prevent Surgical Complications in Urology.** We also made minor changes to the funnel plot scoring for two sub-items within the Urology outcome to collapse the three-point scales to two points due to the rare nature of the complications being measured.

X. Future Improvements

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

- **Addressing the impact of COVID-19 on hospital care.** Future data collection and analysis will take consideration of the impact of the novel coronavirus pandemic on patients and hospital operations. The Best Children's Hospitals project will seek input from pediatric clinicians, hospital leaders and measurement experts prior to determining necessary modifications to data collection and analysis. The other specialty working groups will also be asked to provide input on the survey measures and scoring values in preparation for the 2022 survey.
- **Adding questions focused on behavioral/mental health and health disparities/equity/inclusion.** The project team conducted the U.S. News Novel Hospital Survey in 2021 to collect information on issues related to behavioral/mental health and health disparities/equity/inclusion for measures that are being considered for the 2022 Pediatric Hospital Survey. While decisions about when these questions may be used in the rankings are still to be determined, the project does plan to ask some of the questions asked in the Novel Hospital Survey next year.
- **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. As more pediatric-specific databases are developed or 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

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Appendix A

2020-21 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 177 volunteer advisers in 13 working groups – one group for each of the 10 Best Children's Hospitals specialties, plus infection control, radiology, and for 2021-22, a group focused on the impact of COVID-19. 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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Dr. Brian Coley, Cincinnati Children's Hospital Medical Center
Dr. Matthew Cooper, Riley Hospital for Children at Indiana University Health
Dr. Kassa Darge, Children's Hospital of Philadelphia
Dr. Jim Donaldson, Ann & Robert H. Lurie Children's Hospital of Chicago
Dr. Azam Eghbal, CHOC Children's Hospital
Dr. Sheila Moore, Children's Hospital of Pittsburgh, UPMC
Dr. Douglas Rivard, Children's Mercy Hospitals and Clinics
Dr. Michael Rubin, Akron Children's Hospital
Dr. Victor Seghers, Texas Children's Hospital
Dr. Stephen Simoneaux, Children's Healthcare of Atlanta

Urology
Dr. Glenn Cannon, Children's Hospital of Pittsburgh, UPMC
Dr. Patrick Cartwright, Primary Children's Hospital
Dr. Pasquale Casale, AdventHealth for Children
Ms. Kimberley Giles, Le Bonheur Children's Hospital
Dr. Nicholas Holmes, Rady Children's Hospital-San Diego
Dr. Micah Jacobs, University of Texas Southwestern Medical Center/Children's Health
Dr. Paul Merguerian, Seattle Children's Hospital
Dr. Natalie Plachter, Children's Hospital of Philadelphia
Dr. Pramod Reddy, Cincinnati Children's Hospital Medical Center
Dr. Jonathan Routh, Duke Children's Hospital and Health Center
Dr. Stacey Tanaka, Monroe Carell Jr Children's Hospital at Vanderbilt
Dr. Thomas Vates, K. Hovnanian Children's Hospital at Jersey Shore University Hospital
Dr. Vijaya Vemulakonda, Children's Hospital Colorado

COVID-19
Dr. Ann-Christine Nyquist, Children's Hospital Colorado
Ms. Callie Dobbins, Atrium Health Levine Children's Hospital
Dr. Chris Glover, Texas Children's Hospitals
Dr. Gina Weddle, Children's Mercy Hospital
Dr. Jason Newland, St. Louis Children's Hospital
Dr. Lisa Saiman, NYP/Morgan Stanley Children's/Columbia
Dr. Michelle Macy, Ann & Robert H. Lurie Children's Hospital of Chicago
Dr. Rahul Shah, Children's National Hospital
Dr. Rajesh Aneja, UPMC Children's Hospital of Pittsburgh
Dr. Ruth McDonald, Seattle Children's Hospital
Dr. Steve Davis, Cincinnati Children's Hospital Medical Center
Dr. Theodore Ruel, UCSF Benioff Children's Hospitals
Ms. Vickie Simpson, Dell Children's Medical Center of Central Texas
Dr. Vincent Chiang, Boston Children's Hospital

Senior Advisors
Dr. Elaine Cox, Riley Hospital for Children at IU Health
Dr. Phil Saul, WVU Healthcare Children's Hospital

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

2021-22 Sample Physician Questionnaire

Best Children's Hospitals

Your nominations will be reflected in the 2021-22 *U.S. News & World Report* <<print_specialty>> rankings.

Please name up to 10 U.S. hospitals that in your opinion provide the best care in <<print_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.			

Thank you for your participation in this important study!

Please respond by returning your survey in the included postpaid envelope, or by faxing your response to (800) 476-9721.

Conducted by:

RTI International
3040 Cornwallis Rd, PO Box 12194,
Research Triangle Park, NC 27709-2194

<<id>>
PPS01

Appendix D

2021-22 Best Children's Hospitals Rankings by Specialty

Rank	Best Children's Hospital 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care	Provides advanced palliative care
1	Children's Hospital of Philadelphia	100	14	6	36	9	5	30	3	16	4.3	15	26	11	17	6	17	1	1	47.0	45	17	14	10	12	8	7	8
2	Dana-Farber/Boston Children's Cancer and Blood Disorders Center	99.6	14	5	35	15	5	30	3	16	3.9	14	26	11	16	6	17	1	1	48.9	46	17	14	10	12	8	7	8
3	Cincinnati Children's Hospital Medical Center	99.0	15	5	36	13	5	30	3	16	4.1	15	27	11	17	6	17	1	1	37.3	47	17	14	10	12	8	7	8
4	Texas Children's Hospital	97.1	13	6	37	9	5	30	3	16	4.6	15	26	11	17	6	17	1	1	36.0	45	17	14	10	12	8	7	8
5	Children's National Hospital	94.8	15	5	37	15	5	30	3	16	4.1	15	27	11	16	6	17	1	1	16.0	47	17	14	10	12	8	7	8
6	Children's Healthcare of Atlanta	94.6	14	5	36	15	5	30	3	16	4.8	15	27	11	17	6	17	1	1	22.0	45	17	14	10	12	8	7	8
7	Children's Hospital Los Angeles	94.2	15	5	34	15	4	29	3	16	3.8	15	27	11	14	6	17	1	1	22.5	46	17	14	9	12	8	7	8
8	Nationwide Children's Hospital	93.4	13	6	35	15	5	30	3	16	3.3	15	26	11	17	6	17	1	1	14.2	47	17	14	10	12	8	7	8
9	Children's Hospital Colorado	92.9	14	5	36	14	5	30	3	16	4.3	15	26	11	16	6	17	1	1	17.8	46	17	14	10	12	8	7	8
10	St. Jude Children's Research Hospital	90.9	13	5	34	8	5	30	3	16	6.0	15	27	11	17	6	16	1	1	32.3	45	17	13	8	12	8	7	8
11	Seattle Children's Hospital	88.8	13	5	35	11	4	20	3	16	3.4	14	24	11	16	6	16	1	1	28.0	41	17	14	10	11	8	7	8
12	Johns Hopkins Children's Center	87.9	14	6	35	3	5	30	3	16	3.3	15	27	11	17	6	17	1	1	11.8	47	17	14	10	12	8	7	8
13	Memorial Sloan Kettering Children's Cancer Center	85.3	12	6	33	5	5	21	3	13	5.1	15	26	11	17	6	17	1	1	13.0	46	16	14	10	12	8	7	8
14	UCSF Benioff Children's Hospitals, San Francisco and Oakland	84.6	12	5	35	13	5	25	3	13	4.1	15	25	11	16	6	17	1	1	10.9	42	17	14	10	12	8	7	7
15	Ann and Robert H. Lurie Children's Hospital of Chicago	83.3	13	5	33	9	4	30	3	16	3.0	15	26	11	15	6	17	1	1	9.3	46	17	14	10	12	8	7	8
16	Lucile Packard Children's Hospital Stanford	82.6	13	5	37	15	4	13	2	8	3.9	15	24	11	16	6	17	1	1	6.9	42	17	14	10	12	8	7	6
17	Children's Hospital at Montefiore	80.7	14	6	35	15	5	11	2	10	4.6	11	27	11	17	6	16	0	1	1.2	47	17	14	9	11	8	7	8
18	Cleveland Clinic Children's Hospital	80.6	11	6	34	14	4	25	3	14	3.7	9	25	11	16	6	17	1	1	0.9	45	17	14	10	12	8	7	8
19	UPMC Children's Hospital of Pittsburgh	80.3	12	5	32	15	2	27	3	13	3.5	12	25	11	16	6	17	1	1	4.2	46	17	14	10	11	8	7	8
20	Riley Hospital for Children at IU Health	80.1	13	5	32	11	5	27	3	16	4.3	14	24	11	15	6	16	1	1	2.0	45	17	14	10	12	8	7	8
21	Monroe Carell Jr. Children's Hospital at Vanderbilt	80.0	15	5	35	6	5	30	3	16	3.1	14	24	11	15	6	16	1	1	2.2	46	17	14	7	11	8	7	8
22	Children's Medical Center Dallas	79.9	10	5	36	15	5	30	3	16	3.2	13	26	11	17	6	16	1	1	4.0	44	17	14	8	12	8	7	8
23	Intermountain Primary Children's Hospital-University of Utah	78.8	14	6	35	10	4	27	3	14	3.4	14	25	11	16	6	17	0	1	1.7	45	17	13	8	11	7	7	8
24	CHOC Children's Hospital	78.5	11	6	35	9	5	20	3	11	3.6	15	26	9	13	5	17	1	1	3.8	46	17	14	6	9	8	7	8
25	St. Louis Children's Hospital-Washington University	78.4	11	5	34	15	3	11	3	12	3.8	15	25	11	16	6	17	1	1	2.8	44	17	14	10	12	8	7	8
26	C.S. Mott Children's Hospital-Michigan Medicine	78.1	12	4	36	15	3	30	2	16	3.7	13	25	11	17	6	17	1	1	3.8	42	17	14	10	12	8	7	8
27	Children's Hospital of Alabama at UAB	77.9	12	6	35	12	4	24	2	16	3.4	13	25	11	13	6	17	0	1	2.4	46	17	14	9	12	8	7	8
28	Children's Mercy Kansas City	77.7	12	6	36	5	5	20	3	16	4.6	15	27	11	14	6	16	1	1	3.1	40	17	14	6	8	8	7	8
28	Rainbow Babies and Children's Hospital	77.7	12	6	34	9	4	18	3	10	3.3	13	25	11	17	6	16	1	1	0.9	46	17	14	5	12	8	7	8
30	Cohen Children's Medical Center	76.8	14	5	35	8	5	10	3	10	3.9	13	25	11	17	6	17	1	1	1.1	45	17	14	7	8	8	7	8
30	UCLA Mattel Children's Hospital	76.8	14	5	30	11	5	12	2	4	4.2	14	25	10	14	6	16	1	1	2.1	47	16	14	8	10	8	7	8
32	Duke Children's Hospital and Health Center	76.6	12	5	34	15	3	16	3	11	3.5	14	24	11	16	5	16	1	1	3.2	44	17	14	6	9	7	7	7
32	Rady Children's Hospital	76.6	11	5	35	9	3	22	3	15	3.2	12	27	11	16	6	17	1	1	2.8	47	17	14	9	12	8	7	8
34	Levine Children's Hospital	76.2	14	5	37	12	5	9	2	10	3.0	10	24	11	16	6	17	1	1	1.2	45	17	14	0	10	8	7	8
35	Mayo Clinic Children's Center	75.6	12	6	32	8	5	13	3	11	4.1	13	23	11	17	4	16	1	1	0.9	45	17	14	3	12	8	7	8
36	Phoenix Children's Hospital	75.3	14	4	36	15	2	30	3	16	3.0	15	23	11	16	6	17	0	1	1.8	44	17	14	10	12	8	7	8
37	Children's Hospital of Wisconsin	74.5	12	4	31	15	5	15	3	13	4.3	15	25	11	14	6	17	1	1	1.7	45	17	12	6	11	8	7	8
38	Penn State Children's Hospital	74.2	14	6	32	6	4	9	2	7	3.5	11	23	11	14	6	16	1	1	0.9	42	16	14	7	9	8	7	8
39	Nemours Alfred I. duPont Hospital for Children	74.0	13	6	30	2	5	10	2	11	3.5	14	27	11	15	6	17	1	1	1.9	44	17	14	5	12	8	7	8
40	Doernbecher Children's Hosp. at Oregon Health and Science Univ.	73.9	15	4	29	9	5	24	2	13	3.9	14	26	11	17	4	16	1	1	1.2	44	16	14	7	12	8	7	8
41	Children's Cancer Hosp.-Univ. of Texas M.D. Anderson Cancer Ctr.	73.5	8	5	34	11	5	28	3	16	3.4	15	25	10	17	6	15	1	1	4.2	42	16	14	7	11	8	7	8
42	Hackensack Meridian Health Sanzari and Hovnanian Children's Hosps.	73.2	12	6	34	12	5	8	2	7	2.5	12	23	9	14	6	15	1	1	0.8	46	16	13	0	8	8	7	8
43	Johns Hopkins All Children's Hospital	73.1	10	5	35	13	5	11	3	11	3.8	15	24	11	13	6	17	1	1	1.0	43	17	14	4	10	8	7	8
44	MUSC Shawn Jenkins Children's Hospital	73.0	13	5	32	15	5	12	2	8	2.5	13	24	10	14	6	17	1	1	0.7	43	17	14	5	5	8	7	8
45	North Carolina Children's Hospital at UNC	72.8	9	6	36	9	4	26	2	14	4.7	12	24	11	15	5	17	1	1	1.0	42	14	13	8	8	8	7	8
45	UF Health Shands Children's Hospital	72.8	14	5	36	6	5	9	2	6	2.9	12	24	11	16	6	16	1	1	0.9	42	17	14	7	9	8	7	8
47	New York-Presbyterian Hospital-Columbia and Cornell	72.7	12	4	33	9	2	30	3	12	3.0	14	25	11	16	6	17	1	1	3.4	44	17	14	8	11	8	7	8
48	Spectrum Health Helen DeVos Children's Hospital	72.0	11	6	29	13	4	12	3	9	2.7	11	25	11	14	6	16	1	1	0.8	43	17	14	3	8	8	7	7
49	SSM Health Cardinal Glennon Children's Hospital-St. Louis Univ.	70.7	13	6	33	13	4	9	1	6	3.0	9	22	11	14	5	17	1	1	0.5	38	16	14	2	3	8	7	8
50	Children's Hospital of Richmond at VCU	70.4	10	6	34	15	3	10	2	7	2.4	10	23	10	14	6	15	1	1	0.3	45	17	14	4	3	7	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 2021-22: Cardiology & Heart Surgery	Overall Score	Survival after congenital heart surgery	Prevention of complications following certain heart procedures	Survival after Norwood/hybrid surgery	Survival after heart transplant	Median post-operative length of stay for patients in STAT categories 1-3	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	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	Texas Children's Hospital	100	5	8	22	6	6	41	3	5	10	811	18	12	4.6	23	11	11	15	9	8	21	1	46.4	57	15	14	9	4	8	7
2	UPMC Children's Hospital of Pittsburgh	91.5	5	7	24	5	9	36	5	2	6	308	12	8	3.5	23	10	11	15	9	8	21	1	13.3	57	15	14	9	4	8	7
3	Children's Hospital Los Angeles	90.7	4	7	22	6	8	38	5	4	11	797	12	12	3.8	23	10	9	15	9	8	22	1	17.3	57	15	14	8	4	8	7
4	Boston Children's Hospital	89.9	3	6	19	5	7	39	5	5	12	1000	18	12	3.9	23	11	10	15	9	8	22	1	60.8	56	15	14	9	4	8	7
5	Riley Hospital for Children at IU Health	89.7	5	9	22	4	7	36	5	5	9	388	13	11	4.3	22	10	8	13	9	8	20	1	3.1	57	15	14	6	4	8	7
6	Children's Hospital Colorado	88.0	3	9	22	6	8	40	4	5	9	441	16	12	4.3	23	11	11	15	9	8	21	1	13.6	57	15	14	9	4	8	7
7	UF Health Shands Children's Hospital	87.4	5	9	24	5	7	40	5	5	5	253	5	6	2.9	23	9	11	15	9	8	19	1	1.5	54	15	14	8	4	8	7
8	Children's Hospital of Philadelphia	87.1	3	6	24	3	7	40	3	5	12	630	18	12	4.3	23	11	10	15	9	8	22	1	50.0	57	15	14	9	4	8	7
9	Ann and Robert H. Lurie Children's Hospital of Chicago	86.9	4	9	21	6	7	37	3	4	6	316	11	10	3.0	23	10	11	15	9	7	20	1	17.7	56	15	14	9	4	8	7
10	Children's Medical Center Dallas	85.6	4	8	24	4	7	40	5	5	7	427	13	10	3.2	23	11	11	15	9	8	20	1	4.5	57	15	14	7	4	8	7
11	New York-Presbyterian Hospital-Columbia and Cornell	84.9	4	7	24	5	7	37	3	2	10	633	12	12	3.0	23	11	11	15	9	8	21	1	16.6	53	15	14	8	4	8	7
12	MUSC Children's Heart Network of South Carolina	84.8	5	7	22	4	8	36	5	5	6	295	16	8	2.5	23	11	10	15	8	8	21	1	7.8	51	15	14	2	4	8	7
13	Le Bonheur Children's Hospital	84.1	5	9	23	2	8	38	2	4	5	296	12	7	3.0	23	10	10	15	9	8	20	1	3.7	55	15	14	8	4	8	7
14	Seattle Children's Hospital	83.5	3	7	22	6	7	40	5	4	9	480	13	11	3.4	23	11	11	15	9	8	20	1	11.0	55	15	14	9	4	8	7
15	Cincinnati Children's and Kentucky Children's Hosp. Joint Heart Program	82.6	2	8	24	4	8	40	3	5	9	447	18	12	4.1	23	11	11	15	9	8	22	1	27.6	57	15	14	9	4	8	7
16	Cleveland Clinic Children's Hospital	81.7	4	7	18	5	8	38	4	4	6	243	13	7	3.7	22	11	10	15	9	8	22	1	1.6	56	15	14	9	4	8	7
17	Penn State Children's Hospital	80.5	5	9	24	NA	8	36	5	4	4	112	5	6	3.5	16	11	NA	13	9	8	20	1	0.9	54	14	14	7	4	8	7
17	St. Louis Children's Hospital-Washington University	80.5	3	9	17	5	7	39	5	3	6	308	16	9	3.8	23	11	11	15	9	8	21	1	3.3	57	15	14	7	4	8	7
19	Children's Healthcare of Atlanta	80.4	2	5	18	6	9	40	5	5	12	771	16	11	4.8	23	11	11	15	9	8	22	1	16.5	55	15	14	9	4	8	7
20	Children's Hospital of Wisconsin	79.9	4	4	21	4	8	35	5	5	7	303	13	8	4.3	23	11	11	15	9	8	22	1	6.4	56	15	12	6	4	8	7
21	Lucile Packard Children's Hospital Stanford	79.5	1	9	17	5	7	41	5	4	11	825	17	9	3.9	23	11	11	15	9	8	20	1	34.1	55	15	14	9	4	8	7
22	Rady Children's Hospital	79.2	3	8	24	5	6	39	5	3	7	327	14	7	3.2	22	11	10	15	9	8	22	1	3.8	55	15	14	8	4	8	7
23	Children's Memorial Hermann Hospital	79.0	5	8	22	NA	7	35	5	3	5	274	8	9	3.4	21	9	NA	13	9	8	21	1	1.8	52	15	14	7	4	7	7
24	Children's Mercy Kansas City	78.5	3	9	20	6	7	40	1	5	7	340	12	10	4.6	23	9	9	15	9	8	19	1	2.8	56	15	14	9	4	8	7
25	Advocate Children's Heart Institute	78.4	4	8	22	NA	9	36	4	5	8	273	12	10	4.3	22	10	NA	14	8	8	19	1	2.1	56	14	14	6	4	8	7
26	C.S. Mott Children's Hospital-Michigan Medicine	78.1	2	5	18	5	6	40	5	3	11	586	16	12	3.7	23	11	10	15	9	8	22	1	27.9	53	15	14	9	4	8	7
27	UCSF Benioff Children's Hospitals, San Francisco and Oakland	77.1	3	9	18	3	6	40	3	5	8	401	14	7	4.1	21	9	5	14	9	8	21	1	6.9	55	15	14	7	4	8	7
28	Phoenix Children's Hospital	76.9	4	6	16	4	8	40	5	2	9	402	15	10	3.0	23	10	11	15	9	8	20	0	3.4	53	15	14	7	4	8	7
29	Children's Hospital of Alabama at UAB	76.5	4	9	22	5	7	39	2	4	6	304	12	8	3.4	23	9	10	14	9	7	21	0	2.0	52	15	14	7	4	8	7
30	Johns Hopkins Children's Center	76.1	3	9	22	6	7	38	2	5	6	173	7	4	3.3	21	9	8	15	9	8	21	1	2.0	57	15	14	9	4	8	7
31	Duke Children's Hospital and Health Center	75.3	3	7	20	3	6	39	5	3	6	266	15	8	3.5	23	11	10	15	9	8	20	1	2.6	57	15	14	7	4	7	7
32	Levine Children's Hospital	74.2	3	5	23	5	8	41	4	5	6	272	12	10	3.0	23	10	11	15	9	8	21	1	2.2	56	15	14	1	4	8	7
33	Spectrum Health Helen DeVos Children's Hospital	73.8	5	5	22	NA	8	33	5	4	5	189	9	6	2.7	21	11	NA	13	9	8	20	1	0.4	56	15	14	1	4	8	7
34	Monroe Carell Jr. Children's Hospital at Vanderbilt	73.7	3	5	19	5	7	39	2	5	9	447	17	10	3.1	23	10	11	15	9	8	20	1	4.7	54	15	14	6	4	8	7
34	Nationwide Children's Hospital	73.7	1	9	18	5	7	39	5	5	7	378	14	11	3.3	23	11	9	15	9	8	21	1	10.2	56	15	14	9	4	8	7
36	American Family Children's Hospital	72.7	5	9	22	NA	7	34	2	4	4	106	8	4	2.9	19	11	NA	11	9	8	19	1	0.8	50	15	13	3	4	8	6
37	University of Virginia Children's Hospital	71.6	3	9	22	5	7	38	2	4	5	252	12	9	3.1	19	9	11	15	8	8	20	1	1.6	49	15	14	3	4	8	7
38	Children's National Hospital	70.7	1	8	14	3	6	41	5	5	6	279	14	8	4.1	23	11	8	15	9	8	22	1	10.6	57	15	14	9	4	8	7
39	Children's Hospital and Medical Center	70.6	3	6	18	3	8	39	2	5	6	258	11	7	4.5	23	11	10	15	8	8	21	1	1.5	53	15	14	5	4	8	7
40	Arnold Palmer Hospital for Children	70.5	4	9	22	NA	6	39	4	4	4	120	7	5	3.0	17	8	NA	13	8	7	19	1	1.0	54	15	14	1	4	7	7
41	University of Maryland Children's Hospital	69.6	4	5	18	3	8	35	4	5	4	118	8	4	3.1	19	10	5	15	9	6	19	1	0.8	54	14	14	3	4	7	7
42	Ochsner Hospital for Children	69.4	3	9	16	6	7	32	2	5	4	96	9	4	2.3	17	10	5	15	8	8	20	1	1.4	55	14	14	9	4	7	7
43	Mayo Clinic Children's Minnesota Cardiovascular Collaborative	69.3	2	6	20	5	8	36	2	5	8	524	12	5	4.1	21	11	9	15	9	8	20	1	5.0	56	15	14	6	4	8	7
44	Intermountain Primary Children's Hospital-University of Utah	69.1	2	7	24	6	8	39	2	4	9	428	12	11	3.4	23	10	11	15	9	8	21	0	5.1	53	15	13	6	4	7	7
45	SSM Health Cardinal Glennon Children's Hosp.-St. Louis Univ.	67.6	3	3	20	6	8	37	5	4	5	186	8	5	3.0	19	9	6	15	9	8	18	1	0.5	53	14	14	4	4	8	7
46	Nicklaus Children's Hospital	67.0	3	9	18	NA	6	31	5	4	6	214	12	8	2.7	21	9	NA	14	6	7	21	1	1.9	55	15	14	5	4	7	7
47	Loma Linda University Children's Hospital	66.3	3	5	18	5	9	31	5	4	5	222	10	6	2.5	20	8	11	14	8	8	19	1	0.8	53	14	14	4	4	6	7
48	Children's Hospital of Michigan	66.0	3	8	16	3	6	36	5	5	5	204	13	4	3.1	20	9	9	13	9	8	21	0	1.4	49	13	13	7	4	8	7
49	Joe DiMaggio Children's Hospital at Memorial	65.7	3	4	17	6	7	37	5	4	4	175	11	5	3.5	20	11	10	15	9	8	21	0	1.2	56	15	14	0	4	7	7
50	Arkansas Children's Hospital	65.1	3	4	19	2	6	30	5	4	5	243	14	6	3.2	23	9	10	15	9	8	21	1	1.1	54	14	14	6	4	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's Hospital of Philadelphia	100	44	5	36	36	13	4.3	17	9	11	22	14	1	48.2	119	16	14	7	3	8	7
2	Boston Children's Hospital	95.0	39	6	34	35	9	3.9	17	9	11	21	14	1	42.2	103	16	14	7	3	8	7
3	Cincinnati Children's Hospital Medical Center	90.9	38	5	35	35	14	4.1	17	9	11	22	14	1	23.6	118	16	14	7	3	8	7
4	Children's Hospital Colorado	89.8	42	4	34	36	14	4.3	17	9	11	22	14	1	25.3	106	16	14	7	3	8	7
5	Texas Children's Hospital	88.0	40	4	36	36	14	4.6	17	9	11	22	14	1	17.9	114	16	14	7	3	8	7
6	Yale New Haven Children's Hospital	86.8	39	6	32	30	10	5.3	17	8	11	22	13	1	12.0	117	16	14	5	3	8	7
7	UPMC Children's Hospital of Pittsburgh	85.2	38	5	30	36	12	3.5	17	9	11	19	14	1	15.9	114	16	14	7	3	8	7
8	Children's Hospital Los Angeles	83.5	38	4	32	36	10	3.8	16	9	11	22	14	1	18.1	112	16	14	6	3	8	7
9	Lucile Packard Children's Hospital Stanford	82.1	42	3	35	32	13	3.9	17	9	11	18	14	1	14.8	95	16	14	7	3	8	7
10	Children's National Hospital	78.5	34	3	37	35	14	4.1	17	9	10	22	14	1	10.3	112	16	14	7	3	8	7
11	Nationwide Children's Hospital	77.1	31	5	34	36	9	3.3	17	9	11	20	14	1	7.3	108	16	14	7	3	8	7
12	UF Health Shands Children's Hospital	76.7	38	4	34	28	5	2.9	17	9	11	22	13	1	6.6	111	16	14	6	3	8	7
13	Johns Hopkins Children's Center	76.2	36	4	34	26	11	3.3	16	9	11	18	14	1	8.0	108	16	14	7	2	8	7
14	CHOC Children's Hospital	75.7	43	4	34	34	12	3.6	17	7	11	18	14	1	2.1	108	16	14	2	2	8	7
14	Rady Children's Hospital	75.7	44	3	33	34	13	3.2	17	9	11	19	14	1	3.2	101	16	14	6	2	8	7
16	North Carolina Children's Hospital at UNC	75.6	41	4	34	32	12	4.7	17	9	11	20	13	1	2.2	110	15	13	5	1	8	7
17	UCSF Benioff Children's Hospitals, San Francisco and Oakland	75.5	30	4	34	34	12	4.1	17	9	11	20	14	1	12.9	98	16	14	7	2	8	7
18	Norton Children's Hospital	75.3	45	4	35	34	14	3.1	17	9	11	19	14	0	1.6	106	16	14	4	3	8	7
19	Seattle Children's Hospital	75.1	33	3	35	35	13	3.4	17	9	11	22	14	1	10.2	111	16	14	7	2	8	7
20	Mount Sinai Kravis Children's Hospital	75.0	35	6	30	29	14	3.7	17	8	11	20	12	1	3.3	112	15	14	3	1	8	7
21	C.S. Mott Children's Hospital-Michigan Medicine	74.9	31	6	35	30	9	3.7	17	9	11	17	12	1	3.1	100	16	14	7	2	8	7
22	Children's Medical Center Dallas	74.8	36	4	34	34	14	3.2	17	9	11	17	13	1	4.9	102	16	14	7	2	8	7
23	Rainbow Babies and Children's Hospital	73.6	30	5	34	31	12	3.3	18	9	11	22	12	1	3.8	111	16	14	4	3	8	7
23	St. Louis Children's Hospital-Washington University	73.6	31	4	33	34	14	3.8	17	9	11	20	14	1	5.0	101	16	14	7	3	8	7
25	New York-Presbyterian Hospital-Columbia and Cornell	73.2	35	4	30	29	13	3.0	16	9	11	20	13	1	9.0	97	16	14	6	2	8	7
26	Riley Hospital for Children at IU Health	72.2	33	3	31	35	11	4.3	17	9	11	21	14	1	8.5	95	16	14	6	3	8	7
27	Cohen Children's Medical Center	71.6	35	4	34	33	13	3.9	16	9	11	15	14	1	2.4	108	16	14	5	1	8	7
28	MassGeneral Hospital for Children	71.4	27	5	31	28	14	3.5	15	9	11	20	11	1	5.3	111	16	14	5	3	8	7
29	Arnold Palmer Hospital for Children	70.6	37	6	32	31	12	3.0	14	8	8	21	12	1	0.4	103	16	14	1	1	7	7
30	Doernbecher Children's Hospital at Oregon Health and Science University	69.9	32	6	27	32	11	3.9	15	9	11	14	11	1	3.0	86	16	14	4	2	8	7
30	Johns Hopkins All Children's Hospital	69.9	32	6	34	32	8	3.8	17	9	11	12	14	1	0.8	99	16	14	2	1	8	7
32	Monroe Carell Jr. Children's Hospital at Vanderbilt	69.4	34	3	33	33	9	3.1	17	9	11	22	14	1	4.6	101	16	14	6	2	8	7
33	Ann and Robert H. Lurie Children's Hospital of Chicago	69.0	32	4	31	33	10	3.0	17	9	10	16	14	1	7.3	96	16	14	6	1	8	7
34	M Health Fairview University of Minnesota Masonic Children's Hospital	68.4	40	4	30	31	9	4.0	15	9	11	17	13	0	1.2	102	15	14	6	2	8	7
35	Intermountain Primary Children's Hospital-University of Utah	68.2	39	5	33	32	9	3.4	16	9	11	22	13	0	1.6	96	16	13	3	1	7	7
36	Connecticut Children's Medical Center	67.3	34	4	33	32	11	3.1	17	8	11	21	14	1	1.7	104	16	14	2	1	8	7
37	Phoenix Children's Hospital	67.1	26	6	34	36	14	3.0	17	9	11	22	14	0	0.9	104	16	14	6	2	8	7
38	Children's Mercy Kansas City	66.9	28	3	34	33	7	4.6	17	9	11	19	14	1	5.6	101	16	14	6	2	8	7
38	Duke Children's Hospital and Health Center	66.9	27	5	33	29	5	3.5	17	9	11	20	14	1	1.4	102	16	14	6	2	7	7
38	Mayo Clinic Children's Center	66.9	32	3	30	30	14	4.1	16	9	11	20	12	1	2.5	110	16	14	4	2	8	7
41	University of Iowa Stead Family Children's Hospital	66.6	39	3	30	29	7	3.4	16	9	11	22	13	1	1.4	94	14	14	4	2	8	7
42	University of Virginia Children's Hospital	66.4	30	4	32	26	10	3.1	17	8	11	22	12	1	1.8	106	16	14	3	3	8	7
43	Cleveland Clinic Children's Hospital	66.3	29	4	33	34	12	3.7	15	9	11	21	14	1	1.1	110	16	14	4	1	8	7
44	Wolfson Children's Hospital	66.2	32	4	32	32	11	2.6	17	9	10	19	14	1	2.1	98	16	14	4	2	7	7
45	Children's Healthcare of Atlanta	66.1	24	4	34	36	8	4.8	17	9	11	19	14	1	2.5	103	16	14	7	2	8	7
46	University of Chicago Comer Children's Hospital	65.8	32	4	30	23	12	2.8	15	9	11	21	11	1	1.7	98	16	14	6	2	8	7
47	Holtz Children's Hospital at UM-Jackson Memorial Medical Center	65.7	42	5	26	27	10	2.2	17	9	9	21	11	0	1.6	114	15	12	4	1	8	3
48	Valley Children's Healthcare and Hospital	65.6	40	3	34	33	11	3.4	16	9	7	11	14	1	0.6	101	16	13	1	1	8	7
49	Cook Children's Medical Center	65.4	38	3	25	34	10	3.4	16	9	11	18	14	1	3.5	102	14	14	0	2	8	7
49	Nicklaus Children's Hospital	65.3	32	6	25	34	8	2.7	17	6	9	19	13	1	1.7	105	14	14	2	1	7	7
50	Children's Minnesota	65.1	35	4	27	30	10	3.6	16	9	11	17	13	1	1.8	92	16	14	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's Hospital Colorado	100	9	5	5	42	4	27	11	18	4.3	5	9	10	19	12	11	1	30.5	35	16	14	10	7	8	7
2	Boston Children's Hospital	99.0	7	5	5	41	5	27	12	18	3.9	5	9	10	19	12	11	1	51.8	34	16	14	10	7	8	7
3	Children's Hospital of Philadelphia	98.6	8	5	5	42	3	27	12	18	4.3	5	9	10	19	12	11	1	47.0	35	16	14	9	7	8	7
4	Texas Children's Hospital	97.8	9	5	5	43	3	27	11	18	4.6	5	9	10	19	12	11	1	27.6	34	16	14	10	7	8	7
5	Cincinnati Children's Hospital Medical Center	96.2	8	4	5	42	3	27	12	18	4.1	5	9	10	19	12	11	1	45.9	34	16	14	10	7	8	7
6	Children's Hospital Los Angeles	93.9	8	6	4	40	5	26	10	18	3.8	5	9	10	19	12	11	1	14.1	35	16	14	9	7	8	7
7	Children's Medical Center Dallas	91.3	8	6	5	42	5	27	10	18	3.2	5	9	10	19	12	11	1	8.3	35	16	14	7	7	8	7
8	Children's Healthcare of Atlanta	90.8	7	6	5	42	5	27	12	18	4.8	5	8	10	19	12	11	1	10.7	34	16	14	9	7	8	7
9	UPMC Children's Hospital of Pittsburgh	88.7	7	6	2	37	5	27	10	13	3.5	5	9	10	19	12	11	1	16.2	35	16	14	8	7	8	7
10	St. Louis Children's Hospital-Washington University	88.4	9	5	3	41	5	21	10	15	3.8	5	8	10	18	12	11	1	4.7	35	16	14	8	7	8	7
11	Nationwide Children's Hospital	87.9	9	NR	5	41	5	26	12	16	3.3	2	9	10	19	12	11	1	29.9	35	16	14	8	7	8	7
12	Seattle Children's Hospital	86.0	7	5	4	40	5	24	10	14	3.4	5	9	10	18	12	11	1	13.3	33	16	14	8	7	8	7
13	Cleveland Clinic Children's Hospital	85.9	9	5	4	40	4	25	9	18	3.7	5	9	10	19	12	11	1	2.7	35	16	14	6	7	8	7
14	Lucile Packard Children's Hospital Stanford	85.6	6	6	4	43	5	27	10	17	3.9	5	9	10	19	12	11	1	8.2	35	16	14	6	7	8	7
15	Ann and Robert H. Lurie Children's Hospital of Chicago	84.7	7	5	4	39	3	26	10	18	3.0	5	9	10	18	12	11	1	15.5	35	16	14	8	7	8	7
16	Children's Hospital of Wisconsin	83.5	7	6	5	38	5	23	11	15	4.3	5	7	10	17	12	11	1	4.8	34	16	12	6	7	8	7
17	Children's Hospital at Montefiore	83.4	9	5	5	41	5	19	9	14	4.6	5	9	10	18	11	11	0	2.6	35	16	14	7	7	8	7
18	Monroe Carell Jr. Children's Hospital at Vanderbilt	82.8	8	6	5	41	2	26	11	18	3.1	5	9	10	19	12	11	1	3.3	34	16	14	6	7	8	7
19	Johns Hopkins Children's Center	82.7	9	3	5	41	2	27	11	15	3.3	4	9	10	19	12	11	1	6.9	35	16	14	10	7	8	7
20	Children's National Hospital	81.5	6	5	5	43	5	25	11	15	4.1	5	9	10	19	12	11	1	4.9	34	16	14	6	7	8	7
21	New York-Presbyterian Hospital-Columbia and Cornell	81.1	9	4	2	35	3	26	12	18	3.0	5	7	10	19	12	11	1	6.6	35	16	14	5	7	8	7
21	Riley Hospital for Children at IU Health	81.1	6	6	5	37	5	26	9	16	4.3	5	9	10	19	12	10	1	3.0	35	16	14	8	7	8	7
23	Levine Children's Hospital	80.7	8	6	5	43	4	23	9	15	3.0	4	9	10	18	12	11	1	1.3	34	16	14	1	5	8	7
24	Mount Sinai Kravis Children's Hospital	80.1	8	5	3	36	5	21	10	15	3.7	5	9	9	19	12	10	1	2.3	35	15	14	3	7	8	7
25	UCLA Mattel Children's Hospital	79.5	9	5	5	36	1	18	9	12	4.2	5	9	9	18	12	10	1	5.1	34	15	14	5	7	8	7
26	MassGeneral Hospital for Children	79.2	6	6	4	39	5	20	10	14	3.5	2	9	10	19	12	10	1	3.6	34	16	14	7	7	8	7
27	Children's Hospital of Michigan	79.0	9	6	5	34	5	26	9	11	3.1	4	9	10	16	12	11	0	0.6	32	16	13	6	7	8	7
28	C.S. Mott Children's Hospital-Michigan Medicine	78.6	8	4	3	40	5	27	9	15	3.7	5	9	10	19	12	11	1	2.6	29	16	14	6	6	8	7
29	Duke Children's Hospital and Health Center	78.5	7	6	3	40	5	20	9	16	3.5	5	8	10	18	11	11	1	1.6	34	16	14	3	6	7	7
30	UCSF Benioff Children's Hospitals, San Francisco and Oakland	76.1	5	5	5	41	3	25	10	15	4.1	5	9	10	18	12	11	1	6.4	34	16	14	8	7	8	7
31	Rady Children's Hospital	76.0	7	3	3	40	5	27	7	17	3.2	3	9	10	19	12	11	1	2.7	35	16	14	8	7	8	7
32	Children's Mercy Kansas City	75.5	7	4	5	42	1	24	11	14	4.6	5	9	10	18	11	11	1	5.1	34	16	14	6	7	8	7
33	Nemours Alfred I. duPont Hospital for Children	74.0	9	4	5	35	1	20	9	7	3.5	5	9	10	15	12	11	1	2.6	34	16	14	5	6	8	7
34	Le Bonheur Children's Hospital	73.7	9	4	4	41	2	17	8	10	3.0	4	8	10	15	10	10	1	0.8	33	16	14	5	7	8	7
34	University of Chicago Comer Children's Hospital	73.7	7	6	4	38	4	14	6	11	2.8	4	8	10	17	12	10	1	1.3	32	16	14	5	6	8	7
36	Phoenix Children's Hospital	73.6	7	5	2	40	5	26	10	12	3.0	5	9	10	18	12	11	0	2.1	34	16	14	4	7	8	7
37	Yale New Haven Children's Hospital	73.2	6	5	5	38	4	19	7	13	5.3	5	9	9	17	12	10	1	2.0	33	16	14	5	7	8	7
38	Rainbow Babies and Children's Hospital	69.8	9	NA	4	40	5	16	6	12	3.3	NA	7	10	19	10	10	1	1.9	33	16	14	5	7	8	7
39	Cohen Children's Medical Center	69.3	8	NA	5	41	4	16	9	15	3.9	NA	9	10	19	12	11	1	1.1	35	16	14	5	7	8	7
40	SSM Health Cardinal Glennon Children's Hosp.-St. Louis Univ.	69.2	7	3	4	39	5	15	8	9	3.0	3	9	10	17	12	11	1	0.5	33	15	14	3	7	8	7
41	Children's Hospital of Alabama at UAB	69.1	8	3	4	41	2	25	9	15	3.4	5	9	10	15	12	11	0	2.1	32	16	14	6	7	8	7
42	MUSC Shawn Jenkins Children's Hospital	68.0	6	4	5	38	5	14	9	17	2.5	5	7	9	18	7	11	1	0.5	34	16	14	2	7	8	7
43	Valley Children's Healthcare and Hospital	67.8	9	NA	5	40	5	20	10	14	3.4	NA	9	10	17	12	11	1	0.2	32	16	13	1	3	8	7
44	Intermountain Primary Children's Hospital-University of Utah	67.4	6	5	4	39	2	26	9	17	3.4	5	9	10	19	12	11	0	2.6	32	16	13	5	7	7	7
45	Mayo Clinic Children's Center	67.3	5	5	5	38	2	19	5	15	4.1	5	7	10	19	11	11	1	2.2	33	16	14	5	7	8	7
45	North Carolina Children's Hospital at UNC	67.3	5	6	4	42	1	17	6	12	4.7	2	9	10	19	12	11	1	1.5	33	15	13	5	6	8	7
47	Children's Hospital and Medical Center	66.5	9	NA	5	37	2	13	7	14	4.5	NA	9	9	17	12	11	1	1.6	33	16	14	5	7	8	7
48	Connecticut Children's Medical Center	66.2	9	NA	5	41	1	22	10	9	3.1	NA	9	9	18	12	11	1	2.0	35	16	14	2	7	8	7
49	M Health Fairview Univ. of Minnesota Masonic Children's Hosp.	65.8	6	6	4	37	1	25	9	13	4.0	5	9	10	18	11	11	0	1.4	33	15	14	3	6	8	7
50	Akron Children's Hospital	64.9	9	NA	5	36	4	19	7	9	3.5	NA	9	10	16	8	11	1	1.0	32	16	14	1	6	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 2021-22: 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	NICU temperature management	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 Hospital	100	3	43	5	5	12	4	7	32	4.0	2	12	11	9	10	17	18	1	20.0	98	18	14	10	4	16	8
2	Children's Hospital Los Angeles	94.8	3	40	5	5	12	4	7	31	3.5	2	12	11	9	9	17	18	1	10.1	97	18	14	10	4	15	8
3	Lucile Packard Children's Hospital Stanford	94.7	3	43	5	3	12	4	7	22	4.4	2	11	11	9	10	17	18	1	15.9	98	18	14	10	4	16	8
4	UCSF Benioff Children's Hospitals, San Francisco and Oakland	93.3	3	42	5	3	12	4	7	28	3.4	2	12	11	9	10	17	18	1	13.7	96	18	14	9	4	16	8
5	Rady Children's Hospital	92.4	3	42	5	5	10	4	7	26	4.0	2	12	11	9	10	17	18	1	6.0	98	18	14	9	4	16	8
6	Children's Hospital of Philadelphia	91.9	3	42	2	5	9	4	7	32	4.3	2	10	11	9	10	17	18	1	38.2	93	18	14	10	4	15	8
7	Boston Children's Hospital	91.3	3	41	2	5	11	4	7	25	3.6	2	12	11	9	10	17	18	1	30.4	97	18	14	10	4	16	8
8	Cincinnati Children's Hospital Medical Center	91.2	2	42	3	4	12	4	7	32	3.6	2	11	11	9	10	17	18	1	28.2	97	18	14	10	4	16	8
9	Ann and Robert H. Lurie Children's Hosp.-Prentice Women's Hosp.	90.5	3	40	5	4	11	4	7	24	3.0	2	11	11	9	10	17	18	1	9.7	93	18	14	10	4	15	7
10	New York-Presbyterian Hospital-Columbia and Cornell	90.2	3	39	5	3	11	4	7	31	2.3	2	11	11	9	10	17	18	1	12.1	97	17	14	9	4	16	8
11	Texas Children's Hospital	89.8	3	43	2	5	12	4	7	29	2.9	2	12	11	9	10	17	18	1	19.8	99	18	14	10	4	16	8
12	Children's Healthcare of Atlanta	89.3	3	42	5	5	12	2	7	31	3.2	2	12	11	9	10	17	18	1	6.4	91	18	14	10	4	16	8
13	Children's Hospital of Alabama at UAB	87.1	3	41	5	3	12	4	7	31	3.1	2	12	11	9	10	17	18	0	7.5	95	18	14	9	4	16	8
14	Cleveland Clinic Children's Hospital	86.5	3	40	5	4	11	4	7	13	2.5	2	12	11	9	10	17	18	1	3.3	97	18	14	9	4	16	8
15	UPMC Children's Hospital of Pittsburgh	86.4	2	38	5	4	10	4	7	25	3.1	2	12	11	9	10	17	18	1	5.9	97	18	14	10	4	16	8
16	Riley Hospital for Children at IU Health	85.9	2	38	5	5	10	4	7	30	3.1	2	10	11	9	10	17	18	1	3.2	94	18	14	9	4	16	8
17	Monroe Carell Jr. Children's Hospital at Vanderbilt	83.8	2	34	5	4	12	4	7	14	2.5	2	11	11	9	9	17	18	1	6.8	91	18	14	9	4	16	8
18	Johns Hopkins Children's Center	83.7	2	41	5	4	7	4	7	22	3.0	2	10	11	9	10	17	18	1	6.6	86	18	14	10	4	15	8
19	Children's Hospital at Montefiore	83.2	3	41	4	5	12	4	7	11	4.2	2	12	11	9	10	17	17	0	1.9	98	18	14	9	4	16	8
20	Phoenix Children's Hospital	83.0	3	41	5	5	11	4	7	25	2.8	2	12	11	9	8	17	18	0	0.6	96	18	14	6	4	15	8
21	St. Louis Children's Hospital-Washington University	82.5	2	41	2	4	11	4	7	26	4.2	2	12	11	9	10	17	18	1	11.3	98	18	14	9	4	16	8
21	UCLA Mattel Children's Hospital	82.5	3	36	4	5	5	4	7	12	4.1	2	10	11	8	10	17	17	1	7.2	95	17	14	8	4	16	8
21	University of Rochester-Golisano Children's Hospital	82.5	2	38	5	4	11	4	7	14	2.9	2	12	11	9	10	17	17	1	2.0	97	18	14	7	4	16	8
24	Children's Hospital Colorado	82.2	3	42	1	4	11	4	7	27	3.1	2	12	11	9	10	17	18	1	13.1	97	18	14	10	4	16	8
25	Duke Children's Hospital and Health Center	82.1	1	41	5	5	11	4	7	19	2.6	2	11	11	9	10	17	18	1	2.7	89	18	14	8	4	15	8
25	University of Iowa Stead Family Children's Hospital	82.1	3	32	5	5	7	4	7	18	2.3	2	9	11	9	10	17	17	1	5.7	87	16	14	7	4	16	8
27	Seattle Children's Hospital	81.9	3	36	2	5	12	2	7	29	3.8	2	10	11	9	10	17	18	1	13.3	92	18	14	10	4	16	8
27	Yale New Haven Children's Hospital	81.9	2	37	5	5	10	4	7	15	2.3	2	11	11	8	10	15	17	1	2.2	94	18	14	8	4	16	8
29	UC Davis Children's Hospital	81.8	2	42	5	5	9	4	7	17	3.5	2	10	11	9	8	17	18	1	1.3	93	18	14	2	4	16	8
30	SSM Health Cardinal Glennon Children's Hosp.-St. Louis Univ.	81.6	2	39	5	3	11	4	7	18	3.8	2	12	11	9	10	16	18	1	1.3	95	17	14	6	4	16	8
31	Valley Children's Healthcare and Hospital	81.5	2	40	5	4	12	4	7	21	3.3	2	12	11	9	9	17	18	1	1.2	91	18	13	3	3	16	8
32	CHOC Children's Hospital	81.0	3	41	2	5	12	4	7	30	3.4	2	12	11	7	10	17	18	1	3.1	96	18	14	5	4	16	8
32	Cohen Children's Medical Center	81.0	3	41	5	3	6	4	7	20	2.5	2	11	11	9	10	16	18	1	1.3	95	18	14	9	4	16	8
34	Doernbecher Children's Hosp. at Oregon Health and Science Univ.	80.8	3	35	5	5	9	3	6	18	2.6	2	10	11	9	10	17	18	1	1.1	94	18	14	6	4	16	8
35	AdventHealth for Children	80.6	2	36	5	5	12	4	7	14	2.3	2	12	11	8	10	17	17	1	1.5	95	18	14	0	4	16	8
36	University of Virginia Children's Hospital	80.4	2	36	5	5	10	4	7	14	2.7	2	11	11	8	10	17	16	1	1.4	93	18	14	6	4	13	8
37	Connecticut Children's Medical Center	79.8	2	40	5	4	11	4	7	11	2.2	2	10	11	8	8	16	18	1	1.8	95	18	14	4	4	16	8
38	Levine Children's Hospital	79.6	2	42	5	3	11	4	7	22	2.5	2	12	11	9	10	17	18	1	2.2	92	18	14	0	3	16	8
38	Mayo Clinic Children's Center	79.6	2	38	4	5	12	4	7	12	3.9	2	12	11	9	10	17	18	1	0.6	87	18	14	7	3	15	8
40	Children's Medical Center Dallas	79.4	2	42	5	4	9	2	7	24	2.3	2	8	11	9	10	17	18	1	3.6	92	18	14	9	4	16	8
40	Inova Children's Hospital	79.4	3	40	5	4	5	4	7	17	2.9	2	8	11	9	10	17	16	1	0.9	96	17	14	4	4	16	8
42	Penn State Children's Hospital	79.1	2	39	5	4	9	4	7	15	3.3	1	12	11	9	8	16	17	1	0.9	89	17	14	9	4	16	8
43	Nationwide Children's Hospital	79.0	2	41	2	3	6	4	7	30	3.3	2	9	11	9	10	17	18	1	17.6	95	18	14	10	4	16	8
44	MassGeneral Hospital for Children	78.9	3	37	5	3	8	4	6	15	3.2	2	7	11	9	9	15	17	1	1.4	91	18	14	7	4	16	8
45	Johns Hopkins All Children's Hospital	78.7	1	37	5	5	10	4	7	22	2.8	2	11	11	9	8	16	18	1	0.9	92	18	14	5	4	16	8
46	C.S. Mott Children's Hospital-Michigan Medicine	78.6	2	42	5	3	10	2	6	27	2.6	2	10	11	9	10	17	18	1	3.4	87	18	14	10	4	14	8
47	Children's Hospital at St. Peter's University Hospital	78.5	3	41	4	5	9	4	7	10	3.6	1	12	11	9	9	17	18	1	0.0	98	16	14	2	3	16	8
47	Rainbow Babies and Children's Hospital	78.5	2	40	2	4	9	4	7	11	4.5	2	11	11	9	10	17	17	1	12.0	96	18	14	9	3	16	8
47	UF Health Shands Children's Hospital	78.5	1	41	4	5	10	4	7	15	3.0	2	12	11	9	8	17	17	1	2.2	92	18	14	9	4	15	8
50	Arnold Palmer Hospital for Children	78.2	2	40	5	4	10	4	7	23	2.5	2	11	11	8	6	17	16	1	0.3	93	18	14	2	4	14	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	24	12	6	58	5	9	5	14	11	5	6	5	3.9	8	9	1	9	1	47.2	57	15	14	7	8	14	7
2	Seattle Children's Hospital	93.7	23	12	6	57	5	6	4	14	12	6	6	6	3.4	8	9	1	9	1	42.5	53	15	14	7	9	14	7
3	Texas Children's Hospital	92.6	23	12	6	60	3	9	5	14	12	6	6	6	4.6	8	9	1	9	1	28.3	54	15	14	7	7	14	7
4	Lucile Packard Children's Hospital Stanford	92.5	24	11	6	60	5	9	4	14	12	6	6	2	3.9	7	9	1	9	1	24.5	58	15	14	7	9	14	7
5	Cincinnati Children's Hospital Medical Center	92.3	22	12	6	59	3	8	5	12	12	6	6	3	4.1	7	9	1	8	1	43.4	56	15	14	7	9	14	7
6	Children's Hospital of Philadelphia	90.7	24	9	6	59	3	8	5	13	12	5	6	3	4.3	8	9	1	9	1	39.7	58	15	14	7	9	14	7
6	Children's National Hospital	90.7	24	12	6	60	5	9	5	14	12	6	6	6	4.1	8	9	1	9	1	10.0	57	15	14	7	8	14	7
8	Children's Healthcare of Atlanta	89.7	22	12	6	59	5	8	5	14	12	6	6	2	4.8	7	9	1	9	1	22.2	56	15	14	7	7	14	7
9	Nationwide Children's Hospital	88.2	23	11	6	58	5	9	5	13	9	5	4	3	3.3	8	9	1	8	1	18.7	57	15	14	7	9	14	7
10	Children's Mercy Kansas City	87.0	24	12	6	59	1	9	5	14	11	6	6	4	4.6	8	9	1	9	1	20.6	59	15	14	6	9	14	7
11	Ann and Robert H. Lurie Children's Hospital of Chicago	82.4	23	12	6	56	3	8	4	14	12	5	6	5	3.0	8	9	1	9	1	12.7	55	15	14	7	8	14	7
12	UPMC Children's Hospital of Pittsburgh	82.2	24	12	6	55	5	9	2	10	8	5	6	4	3.5	8	9	1	9	1	8.8	53	15	14	7	7	14	7
13	Johns Hopkins Children's Center	82.1	24	11	6	58	2	8	5	10	10	4	5	5	3.3	8	9	1	9	1	14.6	59	15	14	7	8	14	7
14	Riley Hospital for Children at IU Health	80.7	22	11	6	55	5	9	5	12	10	4	6	3	4.3	7	9	1	9	1	7.1	55	15	14	6	7	14	7
15	Children's Hospital Los Angeles	79.7	23	12	6	57	5	9	4	13	12	5	5	2	3.8	8	9	1	9	1	5.5	56	15	14	4	5	14	7
16	Children's Hospital Colorado	79.3	24	10	6	59	4	7	5	13	12	6	6	6	4.3	8	9	1	9	1	6.3	55	15	14	5	5	14	7
17	C.S. Mott Children's Hospital-Michigan Medicine	77.4	24	12	6	57	5	5	3	13	11	6	6	4	3.7	7	9	1	9	1	6.8	49	15	14	7	8	14	7
18	Rady Children's Hospital	77.1	24	12	5	58	5	9	3	12	8	6	5	5	3.2	7	9	1	9	1	2.7	57	15	14	6	4	14	7
19	UCSF Benioff Children's Hospitals, San Francisco and Oakland	76.9	24	10	6	57	3	9	5	10	7	5	6	2	4.1	7	9	1	9	1	6.8	57	15	14	7	5	14	7
20	St. Louis Children's Hospital-Washington University	76.3	22	12	5	57	5	7	3	11	10	5	5	4	3.8	7	9	1	9	1	4.1	57	15	14	7	7	14	7
21	Children's Hospital at Montefiore	75.2	23	12	6	58	5	6	5	12	5	3	5	5	4.6	8	9	1	9	0	4.7	58	15	14	7	9	14	7
21	Duke Children's Hospital and Health Center	75.2	24	11	6	58	5	8	3	12	10	6	4	1	3.5	8	9	1	9	1	5.2	50	15	14	5	6	13	7
23	Children's Medical Center Dallas	74.9	24	10	5	55	5	7	5	12	12	6	6	2	3.2	7	9	1	9	1	6.0	55	15	14	6	7	14	7
24	Levine Children's Hospital	73.5	24	11	6	60	4	9	5	12	10	5	5	2	3.0	8	9	1	9	1	2.4	55	15	14	1	7	14	7
25	UC Davis Children's Hospital	72.6	21	12	6	59	4	8	5	9	8	5	5	4	6.9	8	9	1	9	1	1.6	58	15	14	1	4	14	7
26	Univ. of Minnesota Masonic Children's Hosp.-Children's Minnesota	72.5	23	12	6	54	1	8	4	13	9	6	6	5	4.0	7	9	1	9	1	6.2	54	14	14	4	6	13	7
27	UCLA Mattel Children's Hospital	71.6	23	10	5	53	1	8	5	9	11	4	6	4	4.2	8	8	1	7	1	11.8	54	14	14	6	7	14	7
27	Yale New Haven Children's Hospital	71.6	24	12	6	55	4	9	5	9	4	4	4	2	5.3	4	8	1	7	1	2.0	56	15	14	5	7	11	7
29	New York-Presbyterian Hospital-Columbia and Cornell	71.2	23	11	6	56	3	8	2	11	9	5	4	2	3.0	7	9	1	9	1	4.4	58	15	14	6	5	14	7
30	MUSC Shawn Jenkins Children's Hospital	70.1	24	10	6	55	5	8	5	14	8	5	5	4	2.5	8	8	1	9	1	0.9	56	15	14	1	6	13	7
31	Doernbecher Children's Hosp. at Oregon Health and Science Univ.	68.8	24	12	6	51	1	9	5	10	9	6	5	3	3.9	8	9	1	9	1	2.5	53	15	14	2	6	14	7
32	Cohen Children's Medical Center	68.7	12	12	5	58	4	8	5	12	6	5	2	6	3.9	8	9	1	9	1	0.9	56	15	14	5	6	14	7
33	Cleveland Clinic Children's Hospital	68.2	17	12	6	56	4	8	4	10	5	5	4	2	3.7	7	9	1	9	1	2.1	49	15	14	5	7	14	7
33	Rainbow Babies and Children's Hospital	68.2	22	12	6	57	5	8	4	7	4	4	3	5	3.3	7	9	1	7	1	1.6	48	15	14	2	3	14	7
35	North Carolina Children's Hospital at UNC	68.1	24	10	6	59	1	8	4	11	7	5	5	2	4.7	8	9	1	9	1	1.8	55	14	13	6	7	14	7
35	Phoenix Children's Hospital	68.1	22	12	6	59	5	8	2	14	11	6	5	3	3.0	7	9	1	9	0	1.8	51	15	14	5	4	14	7
37	Spectrum Health Helen DeVos Children's Hospital	67.9	22	12	6	52	5	7	4	11	10	5	4	4	2.7	7	9	1	8	1	1.2	54	15	14	1	5	14	7
38	Children's Hospital of Alabama at UAB	67.8	24	8	6	56	2	7	4	14	12	6	6	2	3.4	8	9	1	9	0	6.7	57	15	14	7	8	14	7
39	Johns Hopkins All Children's Hospital	67.0	23	10	6	59	5	9	5	8	7	3	6	0	3.8	7	9	1	9	1	0.7	54	15	14	0	1	14	7
40	Mount Sinai Kravis Children's Hospital	66.4	24	10	6	53	5	7	3	8	5	3	6	2	3.7	7	8	1	8	1	3.2	55	14	14	3	2	13	7
41	Intermountain Primary Children's Hospital-University of Utah	65.4	24	12	6	58	2	7	4	12	9	5	6	5	3.4	8	9	1	9	0	2.2	57	15	13	3	4	13	7
42	Children's Hospital of Richmond at VCU	65.2	18	11	6	56	5	6	3	13	4	3	3	3	2.4	8	8	1	7	1	1.7	56	15	14	4	9	13	7
42	Monroe Carell Jr. Children's Hospital at Vanderbilt	65.2	23	9	6	58	2	9	5	10	7	4	5	4	3.1	7	9	1	9	1	1.4	52	15	14	3	3	14	7
42	University of Iowa Stead Family Children's Hospital	65.2	24	9	5	54	4	5	5	10	10	4	4	3	3.4	7	9	1	8	1	4.2	52	13	14	4	9	14	7
45	Children's Hospital of Michigan	64.1	22	10	6	53	5	7	5	12	7	4	5	2	3.1	7	9	1	8	0	1.4	55	15	13	7	5	13	7
45	Le Bonheur Children's Hospital	64.1	23	8	6	57	2	8	4	12	6	5	5	3	3.0	7	9	1	8	1	2.9	49	15	14	6	4	14	7
47	OSF HealthCare Children's Hospital of Illinois	63.4	18	12	6	59	5	8	4	9	4	3	3	3	3.8	7	8	1	7	1	0.1	51	14	14	1	1	13	7
48	UF Health Shands Children's Hospital	63.2	19	11	6	58	5	8	5	10	9	4	4	1	2.9	4	9	1	7	1	1.1	46	15	14	6	0	11	7
49	Penn State Children's Hospital	63.1	24	8	6	55	5	6	4	6	6	5	4	6	3.5	5	9	1	7	1	0.8	48	14	14	4	3	14	7
50	Arkansas Children's Hospital	63.0	22	10	6	49	5	8	4	11	7	4	4	3	3.2	7	9	1	8	1	0.1	49	14	14	3	2	14	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	39	12	22	6	39	12	3.9	21	10	13	19	15	1	46.4	36	15	14	9	7	8	7
2	Texas Children's Hospital	97.0	41	12	22	6	41	12	4.6	21	10	13	19	15	1	26.6	37	15	14	9	6	8	7
3	Children's National Hospital	95.7	41	12	22	6	39	12	4.1	21	10	13	19	15	1	20.5	37	15	14	9	7	8	7
4	Children's Hospital of Philadelphia	94.1	40	12	19	5	35	12	4.3	20	10	13	18	15	1	38.3	37	15	14	9	7	8	7
5	Cincinnati Children's Hospital Medical Center	92.1	40	12	21	5	40	12	4.1	21	10	13	18	15	1	21.9	37	15	14	9	6	8	7
6	Nationwide Children's Hospital	91.3	39	12	21	6	34	12	3.3	21	10	13	19	15	1	14.6	37	15	14	9	7	8	7
7	St. Louis Children's Hospital-Washington University	89.1	39	12	16	6	38	12	3.8	21	10	13	19	15	1	18.9	37	15	14	9	6	8	7
8	Lucile Packard Children's Hospital Stanford	88.7	41	12	21	6	34	7	3.9	17	10	13	19	15	1	8.7	37	15	14	9	7	8	7
9	Children's Hospital Los Angeles	88.6	38	12	22	6	42	12	3.8	21	10	13	19	15	1	7.5	37	15	14	8	5	8	7
10	Children's Hospital Colorado	87.6	40	12	16	6	38	12	4.3	20	10	13	19	15	1	15.4	36	15	14	9	5	8	7
11	Ann and Robert H. Lurie Children's Hospital of Chicago	86.7	36	12	20	6	38	9	3.0	20	10	11	18	15	1	14.0	36	15	14	9	5	8	7
12	UCSF Benioff Children's Hospitals, San Francisco and Oakland	85.8	39	11	16	6	33	11	4.1	20	10	13	19	15	1	12.5	37	15	14	9	7	8	7
13	Children's Healthcare of Atlanta	85.7	40	12	21	6	34	10	4.8	21	10	13	19	15	1	3.6	36	15	14	9	5	8	7
14	UPMC Children's Hospital of Pittsburgh	85.2	35	11	20	6	27	10	3.5	20	10	12	19	15	1	9.5	37	15	14	9	7	8	7
15	Seattle Children's Hospital	85.0	40	11	17	6	32	9	3.4	13	10	12	19	14	1	18.7	34	15	14	9	6	8	7
16	Johns Hopkins Children's Center	84.5	39	12	21	4	32	7	3.3	20	10	13	19	15	1	15.2	37	15	14	9	5	8	7
17	Rady Children's Hospital	84.2	39	12	21	6	42	10	3.2	19	10	13	19	15	1	3.1	37	15	14	8	5	8	7
18	Children's Medical Center Dallas	83.4	40	12	22	5	41	12	3.2	20	10	12	19	14	1	3.5	37	15	14	8	5	8	7
19	New York-Presbyterian Hospital-Columbia and Cornell	83.3	36	12	21	6	31	9	3.0	19	10	13	17	15	1	6.9	36	15	14	8	4	8	7
20	C.S. Mott Children's Hospital-Michigan Medicine	82.9	40	12	20	6	31	7	3.7	19	10	12	15	14	1	5.1	32	15	14	9	7	8	7
21	Cohen Children's Medical Center	82.8	39	12	22	6	34	10	3.9	19	10	13	19	15	1	2.3	37	15	14	5	3	8	7
22	Intermountain Primary Children's Hospital-University of Utah	82.7	38	12	22	6	39	12	3.4	21	10	13	19	15	0	7.7	34	15	13	7	6	7	7
23	Riley Hospital for Children at IU Health	81.7	36	11	22	6	40	8	4.3	20	10	12	18	14	1	1.8	37	15	14	8	4	8	7
24	Nicklaus Children's Hospital	80.8	31	12	22	6	28	12	2.7	18	7	12	17	14	1	6.7	36	15	14	6	5	7	7
25	Children's Mercy Kansas City	79.2	40	12	18	6	32	7	4.6	20	10	13	14	14	1	1.9	37	15	14	6	4	8	7
25	Johns Hopkins All Children's Hospital	79.2	40	12	21	6	30	7	3.8	17	10	13	17	15	1	1.2	34	15	14	4	4	8	7
27	Cleveland Clinic Children's Hospital	79.0	38	12	20	4	26	11	3.7	13	10	13	19	15	1	6.1	35	15	14	9	5	8	7
28	Monroe Carell Jr. Children's Hospital at Vanderbilt	78.9	39	12	16	6	37	10	3.1	19	10	12	19	14	1	4.4	36	15	14	5	5	8	7
29	Cook Children's Medical Center	77.6	31	12	21	6	29	12	3.4	15	10	13	19	15	1	3.9	35	13	14	0	5	8	7
30	Phoenix Children's Hospital	77.1	40	11	16	6	36	12	3.0	21	10	13	19	15	0	4.4	37	15	14	9	6	8	7
31	CHOC Children's Hospital	77.0	39	12	15	6	25	12	3.6	14	8	12	18	15	1	2.9	37	15	14	6	5	8	7
32	Children's Memorial Hermann Hospital	76.7	36	12	20	6	26	6	3.4	19	10	12	16	15	1	1.4	33	15	14	6	5	7	7
33	Children's Hospital of Alabama at UAB	76.3	39	12	21	4	40	10	3.4	20	10	11	16	15	0	5.5	35	15	14	9	5	8	7
34	Duke Children's Hospital and Health Center	75.7	38	12	15	6	31	11	3.5	10	10	13	17	13	1	2.9	37	15	14	5	5	7	7
35	Le Bonheur Children's Hospital	74.9	39	11	14	6	25	9	3.0	18	10	13	11	14	1	4.8	35	15	14	8	5	8	7
36	Doernbecher Children's Hosp. at Oregon Health and Science University	74.5	33	12	18	5	26	5	3.9	18	10	12	19	13	1	2.0	36	15	14	6	6	8	7
37	Valley Children's Healthcare and Hospital	73.8	38	12	22	6	20	8	3.4	15	10	11	7	14	1	0.8	34	15	13	1	2	8	7
38	Mount Sinai Kravis Children's Hospital	73.2	33	12	20	6	19	12	3.7	9	9	13	19	13	1	0.7	36	14	14	1	2	8	7
39	Mayo Clinic Children's Center	73.1	36	12	12	5	22	9	4.1	21	10	13	19	13	1	5.2	37	15	14	4	5	8	7
40	Spectrum Health Helen DeVos Children's Hospital	72.9	32	12	18	6	23	11	2.7	21	10	13	18	14	1	0.6	36	15	14	1	4	8	7
40	UCLA Mattel Children's Hospital	72.9	33	12	17	4	17	7	4.2	18	9	13	4	14	1	6.2	36	14	14	8	7	8	7
42	Children's Hospital of Wisconsin	72.7	36	12	13	6	25	10	4.3	19	10	13	18	15	1	1.9	33	15	12	5	4	8	7
43	Children's Hospital of Michigan	72.4	35	11	19	6	26	10	3.1	20	10	13	13	15	0	0.6	34	15	13	9	6	8	7
43	Levine Children's Hospital	72.4	41	12	19	5	26	7	3.0	21	10	13	15	14	1	0.7	34	15	14	1	3	8	7
45	UF Health Shands Children's Hospital	71.7	39	12	19	4	17	5	2.9	20	10	13	19	13	1	1.4	34	15	14	6	5	8	7
46	Nemours Alfred I. duPont Hospital for Children	71.5	33	11	19	6	15	9	3.5	18	10	11	14	14	1	1.0	32	15	14	5	3	8	7
47	Yale New Haven Children's Hospital	71.4	35	12	19	4	19	7	5.3	17	9	13	19	14	1	1.0	36	15	14	3	5	8	7
48	Children's Hospital at Montefiore	70.4	38	12	22	2	17	10	4.6	15	10	13	19	14	0	3.2	36	15	14	9	5	8	7
49	Akron Children's Hospital	70.1	34	12	15	6	23	5	3.5	17	10	13	18	14	1	1.0	33	15	14	1	5	8	7
50	University of Iowa Stead Family Children's Hospital	69.9	35	12	16	5	25	5	3.4	18	10	13	19	14	1	1.3	33	13	14	4	5	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Children's Hospital of Philadelphia	100	8	12	37	24	23	4.3	15	9	3	12	22	1	41.2	82	15	14	9	1	8	7
2	Boston Children's Hospital	97.5	8	11	36	22	26	3.9	14	9	3	12	22	1	47.0	77	15	14	9	1	8	7
3	Children's Medical Center Dallas-Texas Scottish Rite Hospital for Children	91.7	8	9	37	21	26	3.2	16	9	3	12	21	1	38.4	82	15	14	9	1	8	7
4	Children's Hospital Los Angeles	90.3	8	12	35	20	23	3.8	16	9	3	12	22	1	17.7	77	15	14	8	1	8	7
5	Cincinnati Children's Hospital Medical Center	87.7	8	10	37	19	24	4.1	16	9	3	12	22	1	18.2	77	15	14	9	1	8	7
6	Children's National Hospital	86.2	8	13	38	21	15	4.1	14	9	3	12	22	1	6.5	71	15	14	9	1	8	7
7	St. Louis Children's Hospital-Washington University/Shriners Hospital	85.9	8	11	36	21	25	3.8	15	9	3	12	22	1	9.3	79	15	14	9	1	8	7
8	Rady Children's Hospital	85.8	8	8	36	22	20	3.2	14	9	3	12	22	1	33.5	79	15	14	8	1	8	7
9	Nationwide Children's Hospital	83.7	8	11	36	19	23	3.3	15	9	3	12	22	1	8.9	77	15	14	9	1	8	7
10	Children's Healthcare of Atlanta	80.9	7	10	37	23	22	4.8	14	9	3	12	22	1	11.2	76	15	14	9	1	8	7
11	Texas Children's Hospital	79.6	7	9	38	20	25	4.6	16	9	3	12	22	1	11.2	77	15	14	9	1	8	7
12	Mayo Clinic Children's Center	78.5	8	13	33	8	13	4.1	16	9	3	12	21	1	3.3	74	15	14	6	1	8	7
13	UPMC Children's Hospital of Pittsburgh-Shriners Hospitals for Children Erie	77.3	8	12	33	20	16	3.5	15	9	3	10	22	1	2.2	69	15	14	9	1	8	7
14	Nemours Alfred I. duPont Hospital for Children	77.0	7	9	31	21	22	3.5	16	9	2	12	22	1	16.1	80	15	14	8	1	8	7
15	Children's Hospital Colorado	76.0	6	9	37	20	24	4.3	16	9	3	11	22	1	14.0	74	15	14	9	1	8	7
16	Lerner Children's Pavilion-Hospital for Special Surgery	75.4	8	9	38	14	23	4.1	12	8	3	12	22	1	4.4	78	15	14	6	1	8	7
17	UCLA Mattel Children's Hospital	75.2	8	10	31	19	16	4.2	15	8	3	11	21	1	3.8	81	14	14	8	1	8	7
18	Seattle Children's Hospital	74.8	8	9	37	21	18	3.4	5	9	3	12	20	1	8.5	66	15	14	9	1	8	7
19	Rainbow Babies and Children's Hospital	74.5	8	9	35	19	19	3.3	14	9	3	12	21	1	6.4	78	15	14	4	1	8	7
20	CHOC Children's Hospital	74.3	8	13	36	14	15	3.6	10	7	3	10	22	1	1.3	70	15	14	2	1	8	7
21	Johns Hopkins Children's Center	73.3	8	9	36	12	12	3.3	13	9	3	12	22	1	5.1	77	15	14	9	1	8	7
22	UC Davis Children's Hosp./Shriners Hosps. for Children-Northern California	72.9	8	7	37	19	24	6.9	15	9	3	12	22	1	6.5	76	15	14	4	1	8	7
23	C.S. Mott Children's Hospital-Michigan Medicine	72.2	7	10	37	18	15	3.7	14	9	3	12	22	1	2.7	73	15	14	9	1	8	7
24	Le Bonheur Children's Hospital	71.4	8	9	36	15	16	3.0	14	9	3	11	21	1	3.7	74	15	14	7	1	8	7
24	Valley Children's Healthcare and Hospital	71.4	8	12	35	18	18	3.4	9	9	2	11	21	1	0.3	74	15	13	1	1	8	7
26	Cohen Children's Medical Center	71.0	7	11	36	17	18	3.9	14	9	3	12	22	1	0.7	77	15	14	3	1	8	7
27	Levine Children's Hospital	70.5	8	11	38	14	12	3.0	14	9	3	10	22	1	1.2	67	15	14	3	1	8	7
28	Intermountain Primary Children's Hosp.-Shriners Hosps. for Children-Univ. of Utah	70.4	7	10	36	21	24	3.4	16	9	3	11	22	0	7.5	70	15	13	7	1	7	7
29	Cleveland Clinic Children's Hospital	69.4	8	11	35	12	10	3.7	7	9	3	9	22	1	1.6	70	15	14	4	1	8	7
30	Lucile Packard Children's Hospital Stanford	69.2	6	11	38	11	17	3.9	15	9	3	10	22	1	3.1	66	15	14	9	1	8	7
31	Children's Mercy Kansas City	68.1	8	6	37	22	21	4.6	15	9	3	11	20	1	3.4	77	15	14	4	1	8	7
32	Joe DiMaggio Children's Hospital at Memorial	67.6	8	11	34	19	22	3.5	11	9	3	12	20	0	1.4	76	15	14	0	1	7	7
33	Phoenix Children's Hospital	67.4	8	9	37	15	23	3.0	15	9	3	12	22	0	0.8	77	15	14	8	1	8	7
34	Ann and Robert H. Lurie Children's Hospital of Chicago	67.3	7	10	34	16	23	3.0	14	9	2	8	22	1	4.8	67	15	14	4	1	8	7
35	University of Iowa Stead Family Children's Hospital	67.0	6	13	32	19	13	3.4	15	9	3	12	21	1	1.3	65	13	14	4	1	8	7
36	North Carolina Children's Hospital at UNC	66.9	7	11	37	11	12	4.7	15	9	3	6	22	1	1.0	68	14	13	5	1	8	7
37	Dayton Children's Hospital	66.6	8	8	37	18	17	4.1	15	9	2	12	21	1	1.3	73	15	14	1	1	8	7
38	Children's Hospital of Wisconsin	66.4	7	10	33	15	17	4.3	15	9	3	12	22	1	1.0	71	15	12	4	1	8	7
39	Monroe Carell Jr. Children's Hospital at Vanderbilt	66.0	7	7	36	16	18	3.1	13	9	3	12	21	1	5.3	75	15	14	8	1	8	7
40	Nicklaus Children's Hospital	64.3	8	8	28	22	17	2.7	15	6	2	11	21	1	2.4	79	15	14	6	1	7	7
41	Kentucky Children's Hospital-Shriners Hospitals for Children	63.7	6	12	33	10	14	3.1	15	8	3	6	19	1	4.7	71	14	14	0	1	8	7
42	University of Virginia Children's Hospital	62.6	8	8	35	8	9	3.1	15	8	3	10	20	1	0.7	80	15	14	3	1	8	7
43	Spectrum Health Helen DeVos Children's Hospital	62.0	8	10	30	10	6	2.7	14	9	3	12	20	1	0.5	70	15	14	1	1	8	7
44	Children's Hospital of Michigan	61.4	7	10	33	20	12	3.1	13	9	3	11	22	0	0.2	75	15	13	7	1	8	7
45	Connecticut Children's Medical Center	60.8	7	8	36	12	13	3.1	16	8	3	10	21	1	0.7	75	15	14	4	1	8	7
45	Johns Hopkins All Children's Hospital	60.8	8	6	37	11	11	3.8	14	9	3	12	22	1	1.7	75	15	14	0	1	8	7
45	Wolfson Children's Hospital	60.8	6	12	33	11	11	2.6	14	9	2	5	21	1	2.1	73	15	14	2	1	7	7
48	Arnold Palmer Hospital for Children	60.3	7	10	36	14	10	3.0	12	8	2	10	19	1	1.6	57	15	14	5	1	7	7
49	Children's Hospital of Alabama at UAB	60.1	7	9	36	19	16	3.4	15	9	2	10	22	0	0.9	72	15	14	5	1	8	7
50	UCSF Benioff Children's Hospitals, San Francisco and Oakland	60.0	5	8	37	16	15	4.1	15	9	3	10	22	1	3.2	73	15	14	7	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 2021-22: Pulmonology & Lung Surgery 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	8	12	15	3	3	48	5	5	2	17	12	3.9	5	38	9	2	12	1	45.2	47	15	14	6	3	8	7
2	Children's Hospital of Philadelphia	99.5	7	12	17	3	3	49	3	5	5	17	12	4.3	5	38	9	2	12	1	49.2	48	15	14	6	2	8	7
3	Texas Children's Hospital	97.8	8	13	14	3	3	49	3	5	5	17	12	4.6	5	38	9	2	12	1	36.9	48	15	14	6	3	8	7
4	Cincinnati Children's Hospital Medical Center	95.3	7	13	16	3	3	48	3	5	2	17	12	4.1	5	37	9	2	12	1	43.2	48	15	14	6	2	8	7
5	Children's Hospital Colorado	93.2	6	13	15	3	3	48	4	5	NA	15	12	4.3	NA	38	9	2	12	1	42.1	48	15	14	6	3	8	7
6	Lucile Packard Children's Hospital Stanford	92.1	8	12	13	3	3	49	5	4	4	16	12	3.9	5	37	9	2	12	1	14.2	47	15	14	6	3	8	7
7	Nationwide Children's Hospital	91.8	7	13	15	3	3	48	5	5	3	17	12	3.3	4	37	9	2	12	1	18.7	48	15	14	6	2	8	7
8	Children's National Hospital	91.0	8	13	17	3	3	50	5	5	NA	14	12	4.1	NA	38	9	2	12	1	10.2	48	15	14	6	3	8	7
9	St. Louis Children's Hospital-Washington University	89.9	7	11	17	3	3	43	5	3	3	12	10	3.8	5	38	9	2	12	1	13.5	48	15	14	6	3	8	7
10	Seattle Children's Hospital	88.1	8	11	14	3	3	48	5	4	NA	13	10	3.4	NA	30	9	2	11	1	23.8	46	15	14	6	2	8	7
11	UPMC Children's Hospital of Pittsburgh	86.9	6	8	15	3	3	44	5	2	5	15	10	3.5	5	33	9	2	12	1	15.9	48	15	14	6	2	8	7
12	Children's Hospital Los Angeles	85.4	8	13	13	3	3	47	5	4	NA	14	11	3.8	NA	37	9	2	12	1	13.0	48	15	14	5	2	8	7
13	Rainbow Babies and Children's Hospital	83.6	8	11	16	3	3	47	5	4	NA	12	10	3.3	NA	37	9	2	11	1	7.3	46	15	14	4	3	8	7
14	Riley Hospital for Children at IU Health	83.1	6	12	14	3	2	42	5	5	2	15	10	4.3	2	37	9	2	11	1	13.8	48	15	14	5	3	8	7
15	Children's Hospital of Wisconsin	81.1	7	13	18	3	3	44	5	5	NA	14	11	4.3	NA	37	9	2	12	1	1.4	47	15	12	5	2	8	7
16	Children's Healthcare of Atlanta	80.6	7	13	14	3	3	45	5	5	NR	15	12	4.8	1	37	9	2	12	1	2.8	47	15	14	6	2	8	7
17	C.S. Mott Children's Hospital-Michigan Medicine	79.7	7	11	15	3	3	47	5	3	NA	13	11	3.7	NA	38	9	2	12	1	2.9	43	15	14	6	3	8	7
17	Monroe Carell Jr. Children's Hospital at Vanderbilt	79.7	7	12	17	3	3	46	2	5	NR	13	12	3.1	1	38	9	2	11	1	8.4	47	15	14	5	2	8	7
19	Rady Children's Hospital	79.5	7	13	15	3	3	46	5	3	NA	12	8	3.2	NA	36	9	2	12	1	3.3	48	15	14	5	3	8	7
20	Ann and Robert H. Lurie Children's Hospital of Chicago	79.0	6	12	15	3	3	43	3	4	NA	11	11	3.0	NA	38	9	2	12	1	10.2	47	15	14	6	3	8	7
21	UF Health Shands Children's Hospital	78.3	8	13	11	3	3	48	5	5	4	12	7	2.9	5	34	9	2	10	1	1.2	45	15	14	5	2	8	7
22	MassGeneral Hospital for Children	78.2	7	12	15	3	3	46	5	4	NA	8	11	3.5	NA	37	9	2	9	1	3.4	47	15	14	5	2	8	7
23	Johns Hopkins Children's Center	77.8	5	13	14	3	3	48	2	5	NR	15	10	3.3	1	37	9	2	12	1	12.0	48	15	14	6	2	8	7
24	Cohen Children's Medical Center	76.9	8	13	15	3	3	48	4	5	NA	8	7	3.9	NA	35	9	2	12	1	0.8	47	15	14	4	2	8	7
24	North Carolina Children's Hospital at UNC	76.9	7	11	14	3	2	49	1	4	3	11	7	4.7	3	33	9	2	11	1	13.1	47	14	13	5	2	8	7
26	Children's Medical Center Dallas	76.6	7	12	15	3	2	47	5	5	NA	14	10	3.2	NA	35	9	2	11	1	2.6	45	15	14	6	2	8	7
27	CHOC Children's Hospital	76.0	7	13	14	3	3	48	5	5	NA	12	11	3.6	NA	31	7	2	12	1	1.7	47	15	14	2	2	8	7
28	New York-Presbyterian Hospital-Columbia and Cornell	75.3	7	7	11	3	3	40	3	2	5	14	10	3.0	4	37	9	2	12	1	6.1	48	15	14	5	2	8	7
29	UCSF Benioff Children's Hosps., San Francisco and Oakland	74.7	6	11	14	3	3	48	3	5	NA	8	8	4.1	NA	37	9	2	11	1	3.3	47	15	14	6	2	8	7
30	Children's Hospital of Richmond at VCU	74.5	8	13	17	3	2	47	5	3	NA	10	6	2.4	NA	37	8	2	11	1	1.3	47	15	14	4	2	7	7
31	Valley Children's Healthcare and Hospital	74.4	8	13	15	3	3	47	5	5	NA	9	9	3.4	NA	32	9	1	11	1	0.1	44	15	13	3	2	8	7
32	Children's Hospital of Alabama at UAB	74.0	8	13	16	3	3	44	2	4	NA	14	11	3.4	NA	34	9	2	12	0	3.6	47	15	14	6	2	8	7
33	Duke Children's Hospital and Health Center	73.8	7	11	14	3	3	46	5	3	NR	10	7	3.5	1	29	9	2	11	1	1.7	48	15	14	3	2	7	7
34	Arkansas Children's Hospital	73.6	8	13	15	3	3	34	5	4	NA	9	7	3.2	NA	35	9	2	12	1	1.3	44	14	14	5	2	8	7
35	Cleveland Clinic Children's Hospital	73.4	4	13	18	3	3	43	4	4	NA	11	11	3.7	NA	29	9	2	12	1	1.5	48	15	14	4	2	8	7
36	Nicklaus Children's Hospital	73.2	8	13	17	3	3	40	5	4	NA	11	5	2.7	NA	36	6	2	11	1	0.4	46	15	14	2	2	7	7
37	Children's Mercy Kansas City	73.1	7	12	15	3	3	46	1	5	NA	10	9	4.6	NA	33	9	2	11	1	3.1	45	15	14	6	2	8	7
37	Levine Children's Hospital	73.1	7	13	14	3	3	49	4	5	NA	11	7	3.0	NA	37	9	2	12	1	1.3	47	15	14	1	2	8	7
39	Penn State Children's Hospital	72.8	7	12	15	2	3	40	5	4	NA	10	8	3.5	NA	33	9	2	11	1	0.5	46	14	14	5	2	8	7
40	Phoenix Children's Hospital	72.4	8	13	14	3	3	44	5	2	NA	14	10	3.0	NA	35	9	2	12	0	0.9	48	15	14	6	1	8	7
41	Dayton Children's Hospital	71.3	8	12	12	3	3	48	4	4	NA	10	11	4.1	NA	37	9	1	11	1	0.9	44	15	14	1	2	8	7
42	Children's Minnesota	70.6	7	13	16	3	3	38	3	3	NA	13	11	3.6	NA	38	9	2	12	1	1.4	40	15	14	3	2	8	7
43	Spectrum Health Helen DeVos Children's Hospital	70.5	6	10	17	3	3	35	5	4	NA	11	9	2.7	NA	37	9	2	11	1	1.2	47	15	14	1	2	8	7
43	Yale New Haven Children's Hospital	70.5	6	8	15	1	3	45	4	5	NA	8	7	5.3	NA	36	8	2	11	1	1.2	46	15	14	5	2	8	7
45	Le Bonheur Children's Hospital	70.3	8	13	13	3	3	46	2	4	NA	10	5	3.0	NA	32	9	2	11	1	2.5	42	15	14	5	2	8	7
46	Johns Hopkins All Children's Hospital	70.1	3	13	16	3	3	48	5	5	NA	8	8	3.8	NA	25	9	2	12	1	0.7	46	15	14	2	2	8	7
46	MemorialCare Miller Children's & Women's Hosp. Long Beach	70.1	6	11	17	3	3	38	4	5	NA	12	8	4.2	NA	34	8	2	10	1	0.9	43	13	13	3	2	8	6
48	SSM Health Cardinal Glennon Children's Hosp.-St. Louis Univ.	70.0	8	11	14	3	2	42	5	4	NA	11	8	3.0	NA	32	9	2	12	1	1.4	45	14	14	1	2	8	7
49	Children's Hospital and Medical Center	69.6	5	13	14	3	3	48	2	5	NA	11	11	4.5	NA	33	8	2	12	1	0.9	46	15	14	4	2	8	7
50	Akron Children's Hospital	68.2	6	11	15	3	3	39	4	5	NA	6	7	3.5	NA	33	9	2	11	1	0.9	46	15	14	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 2021-22: 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 programs	Commitment to clinical research	Help for families	Enlists families in structuring care
1	Boston Children's Hospital	100	14	2	30	26	18	9	3.9	3	9	8	10	13	1	60.6	41	15	14	6	3	8	7
2	Cincinnati Children's Hospital Medical Center	94.8	14	2	31	23	14	9	4.1	3	9	8	10	13	1	38.7	42	15	14	6	3	8	7
3	Riley Hospital for Children at IU Health	93.2	14	2	27	26	18	9	4.3	3	9	8	10	13	1	40.8	42	15	14	5	3	8	7
4	Children's Hospital of Philadelphia	92.0	11	2	31	26	19	9	4.3	3	9	8	10	13	1	61.3	42	15	14	6	3	8	7
5	Texas Children's Hospital	88.3	12	2	32	27	19	9	4.6	3	9	8	10	13	1	31.4	42	15	14	6	3	8	7
6	Children's Hospital Colorado	87.1	15	2	31	26	17	9	4.3	3	9	8	10	13	1	11.0	42	15	14	6	3	8	7
7	Ann and Robert H. Lurie Children's Hospital of Chicago	85.9	12	2	28	25	16	9	3.0	3	9	7	10	13	1	42.9	42	15	14	6	3	8	7
8	Monroe Carell Jr. Children's Hospital at Vanderbilt	85.5	13	2	30	21	17	8	3.1	3	9	8	10	13	1	31.4	41	15	14	5	3	8	7
9	Seattle Children's Hospital	81.7	12	2	31	20	15	8	3.4	3	9	8	10	13	1	27.2	40	15	14	6	3	8	7
10	Rady Children's Hospital	79.1	15	2	30	20	14	8	3.2	3	9	8	10	13	1	9.5	42	15	14	5	2	8	7
11	Nationwide Children's Hospital	78.4	11	2	30	23	18	9	3.3	3	9	8	10	13	1	25.2	40	15	14	6	3	8	7
12	St. Louis Children's Hospital-Washington University	75.0	15	2	30	19	14	8	3.8	3	9	8	10	13	1	2.2	39	15	14	6	3	8	7
13	UPMC Children's Hospital of Pittsburgh	74.4	13	2	27	21	15	9	3.5	3	9	8	10	13	1	8.6	42	15	14	6	3	8	7
14	Children's Medical Center Dallas	72.0	11	2	31	19	15	9	3.2	3	9	8	10	13	1	15.3	42	15	14	6	2	8	7
15	UCSF Benioff Children's Hospitals, San Francisco and Oakland	71.9	12	2	31	24	14	9	4.1	3	9	8	10	13	1	8.5	40	15	14	6	2	8	7
16	Children's Hospital Los Angeles	71.6	11	2	29	25	18	9	3.8	3	9	8	10	13	1	13.3	42	15	14	3	3	8	7
17	Children's Healthcare of Atlanta	71.5	11	2	31	23	18	9	4.8	3	9	8	10	13	1	9.4	39	15	14	6	3	8	7
18	Cohen Children's Medical Center	70.7	14	2	30	18	13	8	3.9	3	9	8	10	13	1	2.1	41	15	14	4	3	8	7
19	Children's Mercy Kansas City	70.0	13	2	31	18	16	8	4.6	3	9	8	10	13	1	2.6	42	15	14	4	3	8	7
20	C.S. Mott Children's Hospital-Michigan Medicine	69.7	13	2	31	19	10	7	3.7	3	9	8	10	13	1	5.1	37	15	14	6	3	8	7
21	Mayo Clinic Children's Center	69.5	13	2	27	23	11	5	4.1	3	9	8	10	12	1	10.0	40	15	14	2	3	8	7
22	Cleveland Clinic Children's Hospital	68.6	14	2	29	13	10	7	3.7	3	9	8	10	13	1	0.9	42	15	14	6	3	8	7
22	Le Bonheur Children's Hospital	68.6	15	2	30	11	12	8	3.0	3	9	7	8	12	1	3.5	39	15	14	5	2	8	7
24	Lucile Packard Children's Hospital Stanford	68.4	12	2	32	20	9	6	3.9	3	9	8	10	13	1	3.9	42	15	14	6	3	8	7
25	Children's National Hospital	65.0	8	2	32	23	13	9	4.1	3	9	8	10	13	1	12.2	42	15	14	6	3	8	7
26	Johns Hopkins Children's Center	62.7	9	2	30	18	13	6	3.3	3	9	8	10	13	1	12.7	40	15	14	6	3	8	7
27	Duke Children's Hospital and Health Center	62.2	11	2	30	21	13	6	3.5	3	9	8	10	13	1	6.8	39	15	14	3	3	7	7
28	Children's Hospital of Richmond at VCU	62.1	15	2	30	14	14	8	2.4	3	8	8	9	12	1	1.7	37	13	14	2	2	7	7
29	Children's Hospital and Medical Center	61.6	14	2	30	11	11	8	4.5	3	8	8	9	13	1	0.6	38	15	14	2	2	8	7
30	CHOC Children's Hospital	60.6	11	2	30	20	15	7	3.6	3	7	7	10	13	1	3.7	40	15	14	4	3	8	7
31	Rainbow Babies and Children's Hospital	59.6	14	2	29	11	5	4	3.3	3	9	8	10	11	1	1.5	41	15	14	2	2	8	7
32	Children's Hospital of Michigan	58.1	14	2	27	12	11	7	3.1	3	9	7	10	13	0	2.4	39	15	13	4	3	8	7
33	Intermountain Primary Children's Hospital-University of Utah	56.0	11	2	30	26	16	8	3.4	3	9	8	10	13	0	3.5	38	15	13	5	3	7	7
34	North Carolina Children's Hospital at UNC	55.3	11	2	31	9	12	6	4.7	3	9	8	10	12	1	1.5	38	14	13	5	2	8	7
35	West Virginia University Children's Hospital	55.2	13	2	30	10	9	6	4.6	3	8	8	10	10	1	0.6	37	12	14	0	3	8	7
36	SSM Health Cardinal Glennon Children's Hospital-St. Louis University	54.9	13	2	28	11	8	5	3.0	3	9	7	10	13	1	0.9	38	14	14	1	3	8	7
37	UC Davis Children's Hosp./Shriners Hosps. for Children-Northern California	54.4	10	2	31	17	10	8	6.9	3	9	8	10	13	1	1.4	42	15	14	0	3	8	7
38	Spectrum Health Helen DeVos Children's Hospital	54.0	14	2	24	13	12	8	2.7	3	9	7	8	12	1	0.1	39	15	14	1	2	8	7
39	Connecticut Children's Medical Center	53.8	13	2	30	10	8	4	3.1	3	8	8	10	13	1	0.2	41	15	14	0	2	8	7
40	Norton Children's Hospital	53.7	13	2	31	18	12	4	3.1	3	9	8	10	13	0	0.4	39	15	14	4	2	8	7
41	Akron Children's Hospital	53.4	13	2	25	13	10	5	3.5	3	9	8	7	13	1	1.9	38	15	14	1	2	8	7
42	Valley Children's Healthcare and Hospital	53.1	13	2	29	15	14	8	3.4	3	9	6	9	13	1	1.3	38	15	13	1	0	8	7
43	Children's Hospital of Alabama at UAB	52.6	11	2	30	17	15	8	3.4	3	9	6	10	12	0	2.8	38	15	14	4	3	8	7
43	University of Virginia Children's Hospital	52.6	12	2	29	8	12	7	3.1	3	8	8	7	11	1	2.8	38	15	14	1	2	8	7
45	Johns Hopkins All Children's Hospital	52.3	15	2	31	8	11	5	3.8	2	9	6	2	13	1	1.3	36	13	14	0	0	8	7
46	UF Health Shands Children's Hospital	52.0	13	2	31	12	8	6	2.9	3	9	7	10	10	1	0.4	35	15	14	3	1	8	7
47	Arkansas Children's Hospital	51.3	11	2	21	15	13	7	3.2	3	9	8	10	13	1	1.7	41	14	14	3	3	8	7
48	Phoenix Children's Hospital	51.2	10	2	31	22	12	8	3.0	3	9	8	10	13	0	2.4	41	15	14	6	2	8	7
49	Arnold Palmer Hospital for Children	50.8	12	2	30	12	8	4	3.0	3	8	7	10	11	1	0.4	38	15	14	1	3	7	7
50	MassGeneral Hospital for Children	50.3	10	2	28	14	6	4	3.5	3	9	8	10	12	1	2.0	40	15	14	3	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

2021-22 Best Children's Hospitals Honor Roll

2021-22 Best Children's Hospitals Honor Roll

Rank	Name	Points
1	Boston Children's Hospital	237
2	Children's Hospital of Philadelphia	224
3	Texas Children's Hospital, Houston	211
4	Cincinnati Children's Hospital Medical Center	205
5	Children's Hospital Los Angeles	178
6	Children's Hospital Colorado, Aurora	167
7	Children's National Hospital, Washington, D.C.	159
8	Nationwide Children's Hospital, Columbus, Ohio	146
9	UPMC Children's Hospital of Pittsburgh	145
10	Lucile Packard Children's Hospital Stanford, Palo Alto, Calif.	137