

# The Leapfrog Hospital Survey Scoring Algorithms

**Scoring Details for Sections 2 – 10 of the  
2019 Leapfrog Hospital Survey**



## Table of Contents

2019 Leapfrog Hospital Survey Scoring Algorithms .....	3
What's New in 2019.....	7
Section 2: 2019 Medication Safety - Computerized Physician Order Entry (CPOE) Scoring Algorithms.	8
CPOE Scoring Algorithm for Adult/General Hospitals .....	8
CPOE Scoring Algorithm for Pediatric Hospitals .....	9
Section 3: 2019 Inpatient Surgery Scoring Algorithms.....	10
Hospital and Surgeon Volume .....	10
Surgical Appropriateness.....	12
Section 4: 2019 Maternity Care Scoring Algorithms .....	13
Elective Deliveries.....	13
Cesarean Birth .....	13
Episiotomy .....	14
Maternity Care Process Measures .....	14
High-Risk Deliveries.....	15
Section 5: 2019 ICU Physician Staffing (IPS) Scoring Algorithm.....	16
ICU Physician Staffing .....	16
Section 6: 2019 NQF Safe Practices Scoring Algorithm .....	19
NQF Safe Practices .....	19
Hand Hygiene Practices .....	20
Section 7: 2017 Managing Serious Errors Scoring Algorithms .....	21
Never Events .....	21
Healthcare-Associated Infections .....	21
Antibiotic Stewardship Practices.....	22
Section 8: 2019 Medication Safety Scoring Algorithms .....	24
Bar Code Medication Administration .....	24
Medication Reconciliation .....	25
Section 9: 2019 Pediatric Care Scoring Algorithms .....	26
Patient Experience (CAHPS Child Hospital Survey) .....	26
Pediatric Computed Tomography (CT) Radiation Dose .....	27
Section 10: 2019 Outpatient Procedures Scoring Algorithms .....	29
Appendix I: CPOE Evaluation Tool Scoring Algorithm.....	30
CPOE Evaluation Tool (v3.6) Scoring .....	30
Results from the Adult Inpatient Test.....	30

# 2019 Leapfrog Hospital Survey Scoring Algorithms

<http://leapfroggroup.org/survey>

This document includes the scoring algorithms for the 2019 Leapfrog Hospital Survey. The scoring algorithms are organized by section:

- What's New in 2019
- Section 2 Medication Safety - Computerized Physician Order Entry (CPOE)
- Section 3 Inpatient Surgery
- Section 4 Maternity Care
- Section 5 ICU Physician Staffing
- Section 6 NQF Safe Practices
- Section 7 Managing Serious Errors
- Section 8 Medication Safety
- Section 9 Pediatric Care
- Section 10 Outpatient Procedures

For a hard copy of the Leapfrog Hospital Survey, which includes measure specifications, endnotes, and FAQs, please visit the [Survey and CPOE Materials webpage](#).

**Leapfrog is committed to data accuracy. Please carefully review Leapfrog's data accuracy protocols on our [website](#).**

<b>Scoring and Public Reporting Overview</b>
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Once a hospital submits a Leapfrog Hospital Survey via the [Online Hospital Survey Tool](#), the submitted responses are scored using the algorithms detailed in this document. Only those responses that have been submitted are scored and publicly reported; saved responses are not scored or publicly reported.

Those hospitals that submit by the June 30 Submission Deadline will be able to view their Survey Results on Leapfrog's public [website](#) on **July 25**. In addition, those hospitals will be able to preview their survey results, including their [NHSN Antibiotic Stewardship Results](#) and [NHSN infection data](#) on the [Hospital Details Page](#) on **July 12**, about two weeks prior to the public release.

After July 25, the Hospital Details page and public reporting website will be refreshed monthly within the first five (5) business days of each month to reflect new and updated survey submissions until the survey closes for the year on November 30, 2019. More information about survey submission deadlines is available on our [website](#).

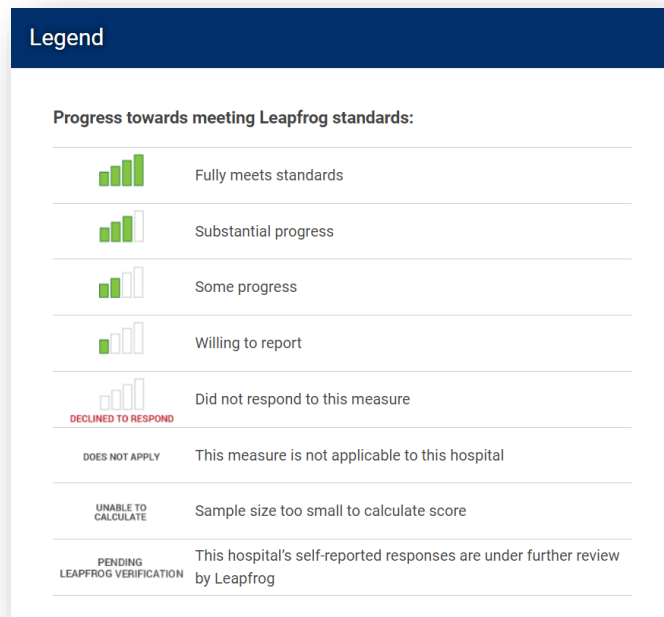
**Hospitals should review their Survey Results following their submission to ensure accuracy and completeness.**

For the purposes of public reporting, performance on each measure on the Leapfrog Hospital Survey is placed into one of four performance categories:

- **Fully Meets the Standard** (displayed as four-filled bars)
- **Substantial Progress** (displayed as three-filled bars)
- **Some Progress** (displayed as two-filled bars)
- **Willing to Report** (displayed as one-filled bar)

Additional scoring terms include:

- **Does Not Apply:** This term is used for hospitals that report not performing a particular procedure (e.g., SSI Colon), not having a particular unit (e.g., ICU), or are not applicable for a particular measure (e.g., facility doesn't deliver newborns).
- **Unable to Calculate Score:** This term is used for hospitals that report a sample size that does not meet Leapfrog's minimum reporting requirements. For the healthcare-associated infections, this term is used if the hospital reported too small of a sample size to calculate their results reliably (i.e. the number of predicted infections across all locations is <1) or the number of observed MRSA or CDI infections present on admission (community-onset prevalence) was above a pre-determined cut-point.
- **Declined to Respond:** This term is used for hospitals that do not submit a survey or a particular section of the Survey.
- **Pending Leapfrog Verification:** This term is used for hospitals who have self-reported survey responses that are under further review by Leapfrog.



For the purposes of [public reporting](#), measures are grouped together under six main tabs. The following measures are included in each tab:

Tab Name	Section/Subsection	Measure Name	Shown on public reporting website as:
<b>Inpatient Care Management</b>	Section 6	NQF Safe Practices	<i>Steps to Avoid Harm</i>
	Subsection 7A	Never Events Policy	<i>Never Events Management</i>
	Subsection 7C	Antibiotic Stewardship Practices	<i>Appropriate Use of Antibiotics in Hospitals</i>
	Section 5	ICU Physician Staffing	<i>Specially Trained Doctors Care for ICU Patients</i>
<b>Medication Safety</b>	Section 2	Medication Safety - Computerized Physician Order Entry (CPOE)	<i>Doctors Order Medication Through a Computer</i>
	Section 8A	Bar Code Medication Administration (BMCA)	<i>Safe Medication Administration</i>
	Section 8B	Medication Reconciliation	<i>Medication Reconciliation</i>
<b>Maternity Care</b>	Subsection 4B	Elective Delivery	<i>Early Elective Deliveries</i>
	Subsection 4C	Cesarean Birth	<i>Cesarean Sections</i>
	Subsection 4D	Episiotomy	<i>Episiotomies</i>
	Subsection 4E	Maternity Care Processes	<i>Maternity Care Processes</i>
	Subsection 4F	High-Risk Deliveries	<i>High-Risk Deliveries</i>

Tab Name	Section/Subsection	Measure Name	Shown on public reporting website as:
<b>Infections</b>	Subsection 7B	Central Line-Associated Blood Stream Infections (CLABSI) in ICUs and Select Wards	<i>Infection in the Blood</i>
	Subsection 7B	Catheter-Associated Urinary Tract Infections (CAUTI) in ICUs and Select Wards	<i>Infection in the Urinary Tract</i>
	Subsection 7B	Facility-wide inpatient MRSA Blood Laboratory-identified Events	<i>MRSA Infection</i>
	Subsection 7B	Facility-wide inpatient C. Diff. Laboratory-identified Events	<i>C. difficile Infection</i>
	Subsection 7B	Surgical Site Infection: Colon	<i>Surgical Site Infection after Colon Surgery</i>
<b>High-Risk Surgery</b>	Section 3A and 3B	Carotid Endarterectomy	<i>Carotid Artery Surgery</i>
	Section 3A and 3B	Mitral Valve Repair and Replacement	<i>Mitral Valve Repair and Replacement</i>
	Section 3A and 3B	Open Aortic Procedures	<i>Open Aortic Procedures</i>
	Section 3A and 3B	Bariatric Surgery for Weight Loss	<i>Bariatric Surgery for Weight Loss</i>
<b>Cancer Surgery</b>	Section 3A and 3B	Lung Resection for Cancer	<i>Lung Resection for Cancer</i>
	Section 3A and 3B	Esophageal Resection for Cancer	<i>Esophageal Resection for Cancer</i>
	Section 3A and 3B	Pancreatic Resection for Cancer	<i>Pancreatic Resection for Cancer</i>
	Section 3A and 3B	Rectal Cancer Surgery	<i>Rectal Cancer Surgery</i>
<b>Pediatric Care</b>	Subsection 9A	CAHPS Child Hospital Survey	<i>Experience of Children and their Parents</i>
	Subsection 9B	Pediatric Computed Tomography (CT) Radiation Dose	<i>Radiation Dose for Head Scans</i>
	Subsection 9B	Pediatric Computed Tomography (CT) Radiation Dose	<i>Radiation Dose for Abdomen Pelvis Scans</i>

As a reminder, Section 6F Hand Hygiene Practices and Section 10 Outpatient Procedures will not be scored or publicly reported in 2019.

<b>What's New in 2019</b>
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To further Leapfrog's commitment to publicly reporting accurate Survey Results, Leapfrog will make the following change to its [Monthly Data Review](#) process in 2019. Hospitals that receive a [Category A Data Review](#) message at the beginning of the month for any measure will have until the end of that same month to contact the Help Desk to either (1) document that the original response was correct or (2) correct the data entry or reporting error, or they will be publicly reported as "Pending Leapfrog Verification" for that measure. This term is used to indicate that the hospital has self-reported survey responses that are under further review by Leapfrog.

Category A data review messages are reserved for responses that are considered implausible or responses that appear to have been provided with the intent to mislead. As in past Surveys, the primary Survey Contact and System Contact will receive an email within the first 5 business days of the month AFTER they submit a Leapfrog Hospital Survey if their Survey has been flagged for any Category A Data Review messages. Hospitals will need to respond to this email immediately to indicate that they will either (1) document that the original response was correct or (2) correct the data entry or reporting error.

If any Category A data review messages are not resolved by January 31 (when the Online Hospital Survey Tool is taken offline), the entire section in which the flagged responses were included will be decertified and all measures within the section will be publicly reported as "Declined to Respond."

In addition, updates to the following scoring algorithms have been made for the 2019 Leapfrog Hospital Survey:

- [Section 3A Hospital and Surgeon Volume](#) - The minimum hospital volume standard for open aortic procedures was updated to ten cases and the minimum surgeon volume standard was updated to seven cases.
- [Section 3B Surgical Appropriateness](#) - In 2019, responses to Section 3B Surgical Appropriateness will not be scored, but they will continue to be used in public reporting. For the four cancer surgeries, lung resection for cancer, pancreatic resection for cancer, esophageal resection for cancer, and rectal cancer surgery, Leapfrog is asking a single question regarding national accreditation status from the American College of Surgeons (applies to rectal cancer surgery only) OR regarding whether or not the hospital has a multidisciplinary tumor board that prospectively reviews cancer cases to ensure surgical appropriateness.
- [Section 4A Maternity Care Volume](#) - Leapfrog has added a response option to Question #2 in Section 4A Maternity Care Volume so that hospitals can indicate if they delivered newborn babies during the reporting period, but now have a closed labor and delivery unit or had/have a labor and delivery unit that was not open for the entire reporting period. Hospitals selecting "No" or "Yes, but unit is now closed or wasn't open for the entire reporting period" will skip the remaining questions in Section 4 and will be scored as "Does Not Apply" for all maternity care measures.
- [Section 8A BCMA](#) - Leapfrog removed the patient-specific allergy check and vital sign check from the list of required types of decision-support. The 2019 BCMA standard now requires five types of decision-support: Wrong patient, wrong medication, wrong dose, wrong time, and second nurse check needed.
- [Section 8B Medication Reconciliation](#) - Hospitals are now able to earn partial credit ("Willing to Report") if they are conducting any protocol to measure the accuracy of their existing medication reconciliation process. However, in order to earn full credit, they must conduct the endorsed protocol and report those data to Leapfrog. Hospitals are scored as "Some Progress" if they sampled and responded to the questions in this section of the Survey, but had their responses flagged in Leapfrog's Monthly Data Review.

<b>Section 2: 2019 Medication Safety - Computerized Physician Order Entry (CPOE) Scoring Algorithms</b>
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## CPOE Scoring Algorithm for Adult/General Hospitals

<b>Score on Adult Inpatient Test via the CPOE Evaluation Tool</b> (see <a href="#">Appendix I</a> for details on the CPOE Evaluation Tool Scoring Algorithm)						
<b>Implementation Status</b> (from Leapfrog Hospital Survey Questions #3-4)	<i>Full Demonstration of National Safety Standard for Decision Support</i> (60% or greater of test orders correct)	<i>Substantial Demonstration of National Safety Standard for Decision Support</i> (50-59% of test orders correct)	<i>Some Demonstration of National Safety Standard for Decision Support</i> (40-49% of test orders correct)	<i>Completed The Evaluation</i> (Less than 40% of test orders correct)	<i>Insufficient Evaluation</i> (Hospital was not able to test at least 50% of test orders)	<i>Incomplete Evaluation</i> (Failed deception analysis or timed out) <b>-or-</b> <b>Did not complete an evaluation</b>
85% or greater of all inpatient medication orders entered through CPOE System	Fully Meets the Standard	Substantial Progress	Substantial Progress	Some Progress	Unable to Calculate Score	Willing to Report
75-84% of all inpatient medication orders entered through CPOE System	Fully Meets the Standard	Substantial Progress	Some Progress	Some Progress	Unable to Calculate Score	Willing to Report
50-74% of all inpatient medication orders entered through CPOE System	Substantial Progress	Substantial Progress	Some Progress	Willing to Report	Unable to Calculate Score	Willing to Report
CPOE implemented in at least one inpatient unit but <50% of all inpatient medication orders entered through CPOE System	Substantial Progress	Some Progress	Some Progress	Willing to Report	Unable to Calculate Score	Willing to Report
CPOE not implemented in at least one inpatient unit	Cannot take CPOE Evaluation Tool; hospital will be scored as "Willing to Report"					

**Declined to respond:**

The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.

**Pending Leapfrog Verification:**

The hospital's self-reported responses are under further review by Leapfrog.



**CPOE Scoring Algorithm for Pediatric Hospitals**

<b>CPOE Score</b> (Performance category)	<b>Implementation Status</b> (from Leapfrog Hospital Survey Questions #3-4)
<b>Fully Meets the Standard</b>	<b>85% or greater</b> of all inpatient medication orders entered through CPOE System
<b>Substantial Progress</b>	<b>75-84%</b> of all inpatient medication orders entered through CPOE System
<b>Some Progress</b>	<b>50-74%</b> of all inpatient medication orders entered through CPOE System
<b>Willing to Report</b>	CPOE implemented in at least one inpatient unit but <b>&lt;50%</b> of all inpatient medication orders entered through CPOE System OR CPOE not implemented in at least one inpatient unit
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

<b>Section 3: 2019 Inpatient Surgery Scoring Algorithms</b>
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## Hospital and Surgeon Volume

For each procedure, Leapfrog assesses whether the hospital met the minimum hospital volume standard and whether the hospital's process for privileging its surgeons includes meeting or exceeding the minimum surgeon volume standard detailed below:

Procedure	Hospital Volume (minimum per 12-months or 24-month average)	Surgeon Volume (minimum per 12-months or 24-month average)
Carotid endarterectomy	20	10
Mitral valve repair and replacement	40	20
Open aortic procedures	10	7
Lung resection for cancer	40	15
Esophageal resection for cancer	20	7
Pancreatic resection for cancer	20	10
Rectal cancer surgery	16	6
Bariatric surgery for weight loss	50	20

Leapfrog then assigns a performance category based on whether the minimum hospital volume standard was met and whether the hospital's process for privileging surgeons includes the surgeons meeting or exceeding the minimum surgeon volume standard. Performance categories are assigned for each procedure as follows:

Hospital and Surgeon Volume Standard Score (Performance Category)	For each of the procedures performed by the hospital...
<b>Fully Meets the Standard</b>	<ul style="list-style-type: none"> <li>The hospital met the minimum hospital volume standard for the procedure; <b>and</b></li> <li>The hospital's process for privileging surgeons includes meeting or exceeding the minimum surgeon volume standard.</li> </ul>
<b>Substantial Progress</b>	<ul style="list-style-type: none"> <li>The hospital met the minimum hospital volume standard for the procedure; <b>and</b></li> <li>The hospital's process for privileging surgeons does not include meeting or exceeding the minimum surgeon volume standard, but the hospital is committed to doing so within the next 12 months.*</li> </ul>
<b>Some Progress</b>	<ul style="list-style-type: none"> <li>The hospital did not meet the minimum hospital volume standard for the procedure, but the hospital's process for privileging surgeons includes meeting or exceeding the minimum surgeon volume standard; <b>OR</b></li> <li>The hospital met the minimum hospital volume standard for the procedure, but the hospital's process for privileging surgeons does not include the minimum surgeon volume standard, and the hospital is not committed to doing so within the next 12 months.</li> </ul>
<b>Willing to Report</b>	<ul style="list-style-type: none"> <li>The hospital did not meet the minimum hospital volume standard for the procedure; <b>and</b></li> <li>The hospital does not include the minimum surgeon volume standard in its privileging process, whether or not they are committed to doing so in the next 12 months.</li> </ul>
<b>Does Not Apply</b>	The hospital does not perform the procedure or is a pediatric facility.
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.

<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.
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\*If a hospital indicated on the 2018 Leapfrog Hospital Survey that they were committed to including Leapfrog's minimum surgeon volume standards in their privileging process within the next 12 months, they will **not** receive credit for selecting that same response option on the 2019 Leapfrog Hospital Survey. For the purposes of scoring, hospitals that respond "Plan to implement within 12 months" in both 2018 and 2019, will be scored as though they had responded "No."

## **Surgical Appropriateness**

In 2019, responses to this subsection are not scored. However, the responses are used in public reporting. For each procedure performed by the hospital, Leapfrog displays the hospital's overall score, which is based on the hospital's ability to meet the hospital volume standard and inclusion of the minimum surgeon volume standard in its privileging process.

When visitors to Leapfrog's public reporting [website](#) click into the score icon (i.e. four filled bars, three filled bars, etc.) indicating the performance category for the procedure, they will see a statement indicating whether the hospital "does" or "does not" have processes and protocols in place to ensure surgical appropriateness for the following four high-risk procedures: **carotid endarterectomy, mitral valve repair and replacement, open aortic procedures, and bariatric surgery for weight loss.**

Surgical Appropriateness	For each of the procedures performed by the hospital...
<b>Does</b>	Hospital indicates having <u>all five</u> of the following regarding surgical appropriateness: <ul style="list-style-type: none"> <li>• Has appropriateness criteria for the procedure</li> <li>• Has processes or structures in place to promote ongoing adherence to the appropriateness criteria</li> <li>• Conducts regular retrospective reviews of surgical cases to evaluate the extent to which the appropriateness criteria are met or not met by each surgeon</li> <li>• Has a process in place for communicating with surgeons, surgical leadership, and administrative leadership when a surgeon's trend or pattern suggests challenges to adhering to the hospital's appropriateness criteria and works to understand potential barriers to meeting the criteria</li> <li>• Reports annually to its Board the findings from the retrospective reviews and plans to improve adherence to the appropriateness criteria</li> </ul>
<b>Does Not</b>	Hospital indicates that they do not have all of the above.

When visitors to Leapfrog's public reporting [website](#) click into the score icon (i.e. four filled bars, three filled bars, etc.) indicating the performance category for the procedure, they will see a statement indicating whether the hospital "does" or "does not" have national accreditation from the American College of Surgeons (rectal cancer surgery only) or a multidisciplinary tumor board that prospectively reviews cancer cases to ensure surgical appropriateness for the following four cancer procedures: **lung resection for cancer, esophageal resection for cancer, pancreatic resection for cancer, and rectal cancer surgery.**

Surgical Appropriateness	For each of the procedures performed by the hospital...
<b>Does</b>	Hospital indicates having national accreditation from the American College of Surgeons (rectal cancer surgery only) or a multidisciplinary tumor board that prospectively reviews cancer cases to ensure surgical appropriateness
<b>Does Not</b>	Hospital indicates that they do not have national accreditation from the American College of Surgeons (rectal cancer surgery only) or a multidisciplinary tumor board that prospectively reviews cancer cases to ensure surgical appropriateness

<b>Section 4: 2019 Maternity Care Scoring Algorithms</b>
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**Elective Deliveries**

A hospital's early elective deliveries rate prior to 39 weeks completed gestation is used to determine in which performance category a hospital is placed:

Early Elective Deliveries Score (Performance Category)	Early Elective Deliveries Rate
Fully Meets the Standard	≤ 5%
Substantial Progress	> 5% and ≤ 10%
Some Progress	> 10% and ≤ 15%
Willing to Report	> 15%
Unable to Calculate Score	The hospital did not meet the minimum reporting size (n < 10).
Does Not Apply	The hospital did not deliver newborns during the reporting period or the labor and delivery unit is now closed.
Declined to Respond	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
Pending Leapfrog Verification	The hospital's self-reported responses are under further review by Leapfrog.

**Cesarean Birth**

A hospital's unadjusted NTSV cesarean section rate is used to determine in which performance category a hospital is placed:

NTSV Cesarean Section Score (Performance Category)	NTSV Cesarean Section Rate
Fully Meets the Standard	≤ 23.9%
Substantial Progress	> 23.9% and ≤ 27.0%
Some Progress	> 27.0% and ≤ 33.3%
Willing to Report	> 33.3%
Unable to Calculate Score	The hospital did not meet the minimum reporting size (n < 10).
Does Not Apply	The hospital did not deliver newborns during the reporting period or the labor and delivery unit is now closed.
Declined to Respond	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
Pending Leapfrog Verification	The hospital's self-reported responses are under further review by Leapfrog.

## Episiotomy

A hospital's rate of episiotomy is used to determine in which category a hospital is placed:

<b>Episiotomy Score (Performance Category)</b>	<b>Episiotomy Rate</b>
<b>Fully Meets the Standard</b>	<= 5%
<b>Substantial Progress</b>	> 5% and <= 10%
<b>Some Progress</b>	> 10% and <= 15%
<b>Willing to Report</b>	> 15%
<b>Unable to Calculate Score</b>	The hospital did not meet the minimum reporting size (n < 10).
<b>Does Not Apply</b>	The hospital did not deliver newborns during the reporting period or the labor and delivery unit is now closed.
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

## Maternity Care Process Measures

A hospital's adherence to the two maternity care process measures is used to determine in which performance category the hospital is placed. Leapfrog's target for each process measure is ≥ 90%.

<b>Maternity Care Process Measures Score (Performance Category)</b>	<b>Meaning that...</b>
<b>Fully Meets the Standard</b>	The hospital met the 90% target for both Newborn Bilirubin Screening Prior to Discharge and Appropriate DVT Prophylaxis in Women Undergoing Cesarean Section.
<b>Substantial Progress</b>	The hospital met the 90% target for one of the process measures and did not meet the minimum reporting requirement for the other process measure (n<10).
<b>Some Progress</b>	The hospital met the 90% target for one of the process measures and did not perform a medical record audit of all cases or did not meet the 90% target for the other process measure.
<b>Willing to Report</b>	The hospital did not meet the 90% target on either process measure.
<b>Unable to Calculate Score</b>	The hospital did not meet the minimum reporting requirements for either process measure (n < 10).
<b>Does Not Apply</b>	The hospital did not deliver newborns during the reporting period or the labor and delivery unit is now closed.
<b>Declined to Respond</b>	The hospital did not measure, did not respond to the questions in this section of the Survey, or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

## High-Risk Deliveries

Scoring for this measure is based on either (a) a hospital's annual volume of very-low birth weight (VLBW) infants **and** adherence to the antenatal steroids process measure **or** (b) a hospital's performance on the VON outcome measure **and** adherence to the antenatal steroids process measure. Leapfrog's target for the antenatal steroids process measure is  $\geq 90\%$ .

### For hospitals reporting on Volume:

High-Risk Deliveries Score (Performance Category)	NICU annual patient count (volume)	Antenatal steroids process measure
Fully Meets the Standard	$\geq 50$ VLBW infants	Met target
Substantial Progress	$\geq 50$ VLBW infants	Did not meet target or did not measure or unable to calculate score (n<10)
Some Progress	< 50 VLBW infants or No NICU	Met target
Willing to Report	< 50 VLBW infants or No NICU	Did not meet target or did not measure or unable to calculate score (n<10)

### For hospitals reporting on VON's Death or Morbidity Outcome Measure:

If the **upper bound** of the shrunken standardized mortality ratios (SMR) is less than 1, the center is performing **better than expected**. (e.g., SMR: 0.7; lower bound: 0.3; upper bound: 0.9)

If the **lower bound** of the shrunken SMR is greater than 1, the center is performing **worse than expected**. (e.g., SMR: 1.6; lower bound: 1.2; upper bound: 2.1)

If the **lower and upper bounds include 1**, then the center is performing **as expected**. (e.g., SMR: 1.0; lower bound: 0.8; upper bound: 1.2)

High-Risk Deliveries Score (Performance Category)	Death or Morbidity (VON Outcome Measure)	Antenatal steroids process measure
Fully Meets the Standard	Hospital's outcomes are <b>better</b> than expected	Met target
Substantial Progress	Hospital's outcomes are <b>better</b> than expected	Did not meet target or did not measure or unable to calculate score (n<10)
	Hospital's outcomes are <b>equal</b> to what is expected	Met target
Some Progress	Hospital's outcomes are <b>equal</b> to what is expected	Did not meet target or did not measure or unable to calculate score (n<10)
Willing to Report	Hospital's outcomes are <b>worse</b> than expected	Whether a hospital met target or did not meet target

### Does not apply:

The hospital does not electively admit high-risk deliveries.

### Declined to respond:

The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.

### Pending Leapfrog Verification:

The hospital's self-reported responses are under further review by Leapfrog.

## Section 5: 2019 ICU Physician Staffing (IPS) Scoring Algorithm

**ICU Physician Staffing**

Hospitals are scored for the ICU Physician Staffing section of the Survey based on their answers to a set of 14 questions related to the staffing structures they have in place to care for ICU patients in adult and pediatric general medical and/or surgical intensive care units and neuro intensive care units.

IPS Score (Performance Category)	Meaning that...
<b>Fully Meets the Standard</b>	<p>The hospital responded “Yes” or “Not applicable, intensivists are present 24/7” to <b>all</b> of the following questions:</p> <ul style="list-style-type: none"> <li>• Question #3: Physicians certified in critical care medicine (i.e. “intensivists”), when present on-site or via telemedicine, manage or co-manage all critical care patients in adult and pediatric general medical and/or surgical ICU(s) and neuro ICUs</li> <li>• Question #4 or #5: One or more intensivist(s) is/are <ul style="list-style-type: none"> <li>○ Present via telemedicine, in combination with on-site intensivist coverage, for a total of 24 hours per day, 7 days per week; meets all of Leapfrog’s ICU requirements; and supported by an on-site intensivist who establishes and revises the daily care plan for each ICU patient;</li> <li>○ present in each ICU during daytime hours for at least 8 hours per day, 7 days per week, providing clinical care exclusively in one ICU during these hours</li> </ul> </li> <li>• Question #6: When intensivists are not present (on-site or via telemedicine) in these ICUs, one of them returns more than 95% of calls/pages/texts from these units within five minutes</li> <li>• Question #7: When intensivists are not present (on-site or via telemedicine) in the ICU or not able to physically reach an ICU patient within 5 minutes, another physician, physician assistant, nurse practitioner or FCCS-certified nurse “effector” is on-site at the hospital and able to reach ICU patients within five minutes in more than 95% of the cases</li> </ul> <p>Note: When telemedicine is employed as a substitute for on-site intensivist coverage, it must meet all ten requirements detailed in endnote #27 (in the <a href="#">hard copy of the Survey</a>), which includes some on-site intensivist time to manage the ICU patients’ admissions, discharges, and care planning.</p>
<b>Substantial Progress</b>	<p>The hospital responded “Yes” or “Clinical pharmacist rounds 7 days per week” to <b>all</b> of the following questions:</p> <ul style="list-style-type: none"> <li>• Question #3: Physicians certified in critical care medicine (i.e. “intensivists”), when present on-site or via telemedicine, manage or co-manage all critical care patients in adult and pediatric general medical and/or surgical ICU(s) and neuro ICUs</li> <li>• Question #8 or #12: <ul style="list-style-type: none"> <li>○ One or more intensivist(s) is/are present in each ICU during daytime hours for at least 8 hours per day, 4 days per week or 4 hours per day, 7 days per week; providing clinical care exclusively in one ICU during these hours</li> <li>○ On-site clinical pharmacist makes daily rounds on all critical care patients in adult and pediatric medical and/or surgical and neuro ICUs at least 5 days/week, and on the other 2 days/week, a clinical pharmacist returns more than 95% of calls/pages/texts from these</li> </ul> </li> </ul>



IPS Score (Performance Category)	Meaning that...
	<p>units within five minutes; or on-site clinical pharmacist rounds 7 days per week</p> <ul style="list-style-type: none"> <li>• Question #13 or #14:               <ul style="list-style-type: none"> <li>○ An intensivist leads daily, interprofessional rounds on-site on all critical care patients in adult and pediatric medical and/or surgical and neuro ICUs 7 days per week;</li> <li>○ When intensivists are on-site in adult and pediatric medical and/or surgical and neuro ICUs, they make all admission and discharge decisions</li> </ul> </li> </ul>
<p><b>Substantial Progress</b> (alternative for hospitals)</p>	<p>The hospital responded “Yes” to <b>all</b> of the following questions:</p> <ul style="list-style-type: none"> <li>• Question #3: Physicians certified in critical care medicine (i.e. “intensivists”), when present on-site or via telemedicine, manage or co-manage all critical care patients in adult and pediatric general medical and/or surgical ICU(s) and neuro ICUs</li> <li>• Question #9: One or more intensivist(s) is/are present via telemedicine 24 hours per day, 7 days per week, meet all of Leapfrog’s modified ICU requirements, with on-site care planning done by an intensivist, hospitalist, anesthesiologist, or a physician trained in emergency medicine</li> </ul> <p>Note: When telemedicine is employed as a substitute for on-site intensivist coverage, it must meet all nine requirements detailed in endnote #32 (in the <a href="#">hard copy of the Survey</a>).</p>
<p><b>Some Progress</b></p>	<p>The hospital responded “Yes” to <b>all</b> of the following questions:</p> <ul style="list-style-type: none"> <li>• Question #3: Physicians certified in critical care medicine (i.e. “intensivists”), when present on-site or via telemedicine, manage or co-manage all critical care patients in adult and pediatric general medical and/or surgical ICU(s) and neuro ICUs</li> <li>• Question #10: One or more intensivist(s) is/are present on-site at least 4 days per week to establish or revise daily care plans for all critical care patients</li> <li>• Question #13 or #14:               <ul style="list-style-type: none"> <li>○ An intensivist leads daily, interprofessional rounds on-site on all critical care patients in adult and pediatric medical and/or surgical and neuro ICUs 7 days per week;</li> <li>○ When intensivists are on-site in adult and pediatric medical and/or surgical and neuro ICUs, they make all admission and discharge decisions</li> </ul> </li> </ul> <p>Or the hospital responded “Yes” to <b>all</b> of the following questions:</p> <ul style="list-style-type: none"> <li>• Question #11: If not all, at least some critical care patients are managed or co-managed by physicians who are certified in critical care medicine (i.e. “intensivists”), either on-site or via telemedicine</li> <li>• Question #13 or #14:               <ul style="list-style-type: none"> <li>○ An intensivist leads daily, interprofessional rounds on-site on all critical care patients in adult and pediatric medical and/or surgical and neuro ICUs 7 days per week;</li> <li>○ When intensivists are on-site in adult and pediatric medical and/or surgical and neuro ICUs, they make all admission and discharge decisions</li> </ul> </li> </ul>

IPS Score (Performance Category)	Meaning that...
	Note: When telemedicine is employed as a substitute for on-site intensivist coverage, it must meet all nine requirements detailed in endnote #32 (in the <a href="#">hard copy of the Survey</a> ).
<b>Willing to Report</b>	The hospital responded to all of the questions in this section, but it does not yet meet the criteria for <b>Some Progress</b> .
<b>Does Not Apply</b>	The hospital does not operate an adult or pediatric general medical or surgical intensive care unit or a neuro intensive care unit.
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

<b>Section 6: 2019 NQF Safe Practices Scoring Algorithm</b>
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**NQF Safe Practices**

The Leapfrog Safe Practices Score (SPS) measures hospitals' progress on five of the National Quality Forum's Safe Practice areas. Each practice area is assigned an individual weight, which is factored into the overall score. Hospitals are then put into one of four performance categories based on their relative progress out of the total number of possible points.

As a reminder, Section 6F Hand Hygiene practices will not be scored or publicly reported in 2019.

SPS Score (Performance Category)	Overall Points Earned
Fully Meets the Standard	Grand Total $\geq$ 475 Points
Substantial Progress	Grand Total $\geq$ 425 and $<$ 475 Points
Some Progress	Grand Total $\geq$ 375 and $<$ 425 Points
Willing to Report	Grand Total $<$ 375 Points
Declined to Respond	Means the hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
Pending Leapfrog Verification	The hospital's self-reported responses are under further review by Leapfrog.

Note: Cut-points are based on the distribution of points earned from 2017 Leapfrog Hospital Surveys submitted by June 30, 2017. These cut-points will remain in place for the entire survey reporting cycle, unless it is determined that there are compelling reasons to make revisions.

Scoring details are described below.

- Maximum Points:** Each of the five Safe Practices has a number of points, or Maximum Points, based on the relative impact of the Safe Practice. Maximum Points for all Practices total 500. See below for a list of Safe Practices and their respective Maximum Point values.

<b>Safe Practice</b>	<b>Weighting (pts)</b>
1 Culture of Safety Leadership Structures and Systems	120
2 Culture Measurement, Feedback, and Intervention	120
4 Risks and Hazards	100
9 Nursing Workforce <sup>a</sup>	100
19 Hand Hygiene	60
<b>GRAND TOTAL</b>	<b>500</b>

<sup>a</sup> Hospitals indicating in Safe Practice #9 that they have current Magnet status designation, as determined by the American Nurses Credentialing Center (ANCC), will receive full points for this Safe Practice.

- Point values per checkbox:** Within a Safe Practice, each question has an equal point value, computed as the Maximum Points for that Practice divided by the number of checkboxes within that Practice.
- Points Earned:** Total points earned for each Safe Practice is the sum of the points for each checkbox marked in that respective Safe Practice (the exception being Safe Practice #9, whereby hospitals indicating that they have current Magnet status designation, as determined by the American Nurses Credentialing Center (ANCC), will automatically receive full credit).

4. **Overall points:** The overall score for this section of the Survey is the sum of all Points Earned for each Safe Practice.
5. **Final scoring:** All responding hospitals are stratified into performance categories based on Overall Points.
6. **Performance Category cut-points** are based on a percentage of the Maximum Points achievable across all Safe Practices (500). The distribution of scores, including new or updated survey results, will be reviewed periodically to determine if there are compelling reasons to revise these performance category cut-points further. However, there are no current plans or commitments to change the cut-points during the 2019 survey cycle.
7. **Updated submissions:** Hospitals may update and resubmit their surveys as often as needed to reflect actual progress achieved or additional commitments undertaken in these patient safety areas. Hospitals submitting new information will have new results replace the posted results from the prior submission to reflect this progress, consistent with Leapfrog's monthly update of survey results.

### **Hand Hygiene Practices**

This section will not be scored in 2019 and results will not be shown on Leapfrog's public reporting [website](#)

**Section 7: 2017 Managing Serious Errors Scoring Algorithms**

### **Never Events**

Adoption of the nine principles of the Leapfrog Group’s Policy Statement on Serious Reportable Events/ “Never Events” is scored and publicly reported based on the criteria below:

Never Events Score (Performance Category)	Meaning that...
<b>Fully Meets the Standard</b>	The hospital has implemented a policy that adheres to all 9 principles of The Leapfrog Group’s Policy Statement on Serious Reportable Events/ “Never Events.”
<b>Substantial Progress</b>	The hospital has implemented a policy that adheres to all of the original 5 principles* of The Leapfrog Group’s Policy Statement on Serious Reportable Events/ “Never Events,” as well as at least 2 additional principles.
<b>Some Progress</b>	The hospital has implemented a policy that adheres to all of the original 5 principles* of The Leapfrog Group’s Policy Statement on Serious Reportable Events/ “Never Events.”
<b>Willing to Report</b>	The hospital responded to the Leapfrog survey questions pertaining to adoption of this policy, but does not yet meet the criteria for “Some Progress.”
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital’s self-reported responses are under further review by Leapfrog.

\*The Leapfrog Group’s original five principles include: apologizing to the patient, performing a root cause analysis, reporting to an external agency within 15 days, waiving all associated costs, and making a copy of the policy available to patients and payers upon request. More information is available at <http://www.leapfroggroup.org/ratings-reports/never-events-management>.

### **Healthcare-Associated Infections**

The **standardized infection ratios (SIRs)** for CLABSI, CAUTI, MRSA, C. Diff., and SSI Colon are calculated by [NHSN](#), and will be scored and publicly reported for each hospital that joins Leapfrog’s NHSN group, provides a valid NHSN ID in their Leapfrog Survey Profile, and submits Section 7 of the 2019 Leapfrog Hospital Survey.

As described in the hard copy of the [Survey](#), All hospitals in Leapfrog’s NHSN Group are required (a) generate datasets within NHSN, (b) download CMS IQR reports, and (c) and download a copy of your 2018 Patient Safety Component - Annual Hospital Survey from NHSN on the **same day** that Leapfrog will be downloading the data from NHSN for all current group members.

By generating datasets and downloading reports within NHSN on the same day as Leapfrog, hospitals will be ensured that the data matches what Leapfrog has obtained. If hospitals do not generate datasets and download reports on the same day as Leapfrog, the Help Desk will not review any discrepancies.

A hospital’s standardized infection ratio is used to determine in which performance category a hospital is placed for each healthcare-associated infection. Note that the MRSA and C. Diff. measures apply to all hospitals:

Score (Performance Category)	CLABSI SIR	CAUTI SIR	MRSA SIR	CDI SIR	SSI Colon SIR
<b>Fully Meets the Standard</b>	<= 0.413	<= 0.427	<= 0.496	<= 0.621	<= 0.349
<b>Substantial Progress</b>	> 0.413 and <=0.788	> 0.427 and <=0.823	> 0.496 and <=0.901	> 0.621 and <=0.885	> 0.349 and <=0.783
<b>Some Progress</b>	> 0.788 and <=1.184	> 0.823 and <=1.281	> 0.901 and <=1.516	> 0.885 and <=1.161	> 0.783 and <=1.302
<b>Willing to Report</b>	> 1.184	> 1.281	> 1.516	> 1.161	> 1.302
<b>Unable to Calculate Score</b>	The hospital reported too small of a sample size to calculate their results reliably (i.e. the number of predicted infections across all locations is <1) or the number of observed MRSA or CDI infections present on admission (community-onset prevalence) was above a pre-determined cut-point.				
<b>Does Not Apply</b>	The measure did not apply to the hospital during the reporting period (e.g. zero device days or procedures, no applicable locations, etc.).				
<b>Declined to Respond</b>	The hospital did not join Leapfrog’s NHSN group, did not provide a valid NHSN ID, did not respond to the questions in this section of the Survey, or did not submit a Survey.				

Note: Cut-points are based on the distribution of results from 2017 Leapfrog Hospital Surveys submitted as of July 31, 2017, which included data pulled from NHSN on July 25, 2017. These cut-points will remain in place for the entire survey reporting cycle, unless it is determined that there are compelling reasons to make revisions.

### Antibiotic Stewardship Practices

The 2018 Patient Safety Component Annual Hospital Survey was released on January 1, 2019 with several new survey items.

In this section of the Survey, hospitals are scored on their adoption and implementation of the [CDC's Core Elements of Antibiotic Stewardship Programs](#). The number of Core Elements Met is calculated by NHSN and will be scored and publicly reported for each hospital that joins Leapfrog’s NHSN group, provides a valid NHSN ID in their Leapfrog Survey Profile, and submits Section 7 of the 2019 Leapfrog Hospital Survey.

As described in the hard copy of the [Survey](#), All hospitals in Leapfrog’s NHSN Group are required to download a copy of your 2018 Patient Safety Component - Annual Hospital Survey from NHSN on the **same day** that Leapfrog will be downloading the data from NHSN for all current group members.

By downloading the Annual Hospital Survey from NHSN on the same day as Leapfrog, hospitals will be ensured that the data matches what Leapfrog has obtained. If hospitals do not download reports on the same day as Leapfrog, the Help Desk will not review any discrepancies.

Hospitals can find the “Crosswalk of the Core Elements of Antibiotic Stewardship Mapping from the Patient Safety Annual Survey” on the NHSN website (<https://www.cdc.gov/nhsn/ps-analysis-resources/reference-guides.html>), under “Detailed Guides for Specific Analysis Options.” This document shows which questions from the 2018 Patient Safety Component – Annual Hospital Survey correspond to the seven Core Elements.

Hospitals that have adopted all seven of the Core Elements will be scored as “Fully Meets the Standard.” Hospitals that have adopted fewer than seven of the Core Elements will be scored as “Willing to Report.”

Antibiotic Stewardship Practices Score (Performance Category)	Meaning that...
<b>Fully Meets the Standard</b>	The hospital has implemented all seven Core Elements identified by the CDC for a successful Antibiotic Stewardship Program.
<b>Willing to Report</b>	The hospital has implemented fewer than seven Core Elements identified by the CDC for a successful Antibiotic Stewardship Program.
<b>Declined to Respond</b>	The hospital did not join Leapfrog’s NHSN group, did not provide a valid NHSN ID, did not respond to the questions in this section of the Survey, or did not submit a Survey.

**Section 8: 2019 Medication Safety Scoring Algorithms****Bar Code Medication Administration**

In this section of the Survey, hospitals are scored on four components of BCMA use:

- **% Units:** A hospital's implementation of BCMA throughout the hospital, as measured by the percentage of units with a focus on adult and pediatric medical and/or surgical units, intensive care units (adult, pediatric, and neonatal), and labor and delivery units.
- **% Compliance:** A hospital's compliance with scanning the patient and medication during the administration in applicable units where BCMA is implemented.
- **Decision Support:** The types of decision support that the hospital's BCMA system offers, including:
  1. Wrong patient
  2. Wrong medication
  3. Wrong dose
  4. Wrong time (e.g., early/late warning; warning that medication cannot be administered twice within a given window of time)
  5. Second nurse check needed
- **Workarounds:** A hospital's structures to monitor and reduce workarounds, including:
  1. Has a formal committee that meets routinely to review data reports on BCMA system use
  2. Has back-up systems for hardware failures
  3. Has a help desk that provides timely responses to urgent BCMA issues in real-time
  4. Conducts real-time observations of users at the unit level using the BCMA system
  5. Engages nursing leadership at the unit level on BCMA use
  6. In the past 12 months used the data and information obtained through items 1-5 to implement quality improvement projects that have focused on improving the hospital's BCMA performance  
**OR**  
In the past 12 months used the data and information obtained through items 1-5 to monitor a previously implemented quality improvement project focused on improving the hospital's BCMA performance
  7. In the past 12 months evaluated the results of the quality improvement projects (from 6) and demonstrated that these projects have resulted in higher adherence to your hospital's standard medication administration process  
**OR**  
In the past 12 months evaluated the results of the quality improvement projects (from 6) and demonstrated continued adherence to your hospital's standard medication administration process
  8. Communicated back to end users the resolution of any system deficiencies and/or problems that may have contributed to the workarounds



BCMA Score (Performance Category)	% Units	% Compliance	Decision Support	Processes & Structures to Prevent Workarounds
<b>Fully Meets the Standard</b>	100%	95%	5 out of 5	6 out of 8
<b>Substantial Progress</b>	The hospital meets 3 of the 4 standards			
<b>Some Progress</b>	The hospital meets 2 of the 4 standards			
<b>Willing to Report</b>	The hospital meets 1 or 0 of the 4 standards			
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey or did not submit a Survey.			
<b>Does Not Apply</b>	The hospital does not operate an ICU, medical/surgical unit, or labor and delivery unit.			
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.			

## Medication Reconciliation

Data collection and reporting on the number of unintentional medication discrepancies identified between the Gold Standard Medication History obtained by a trained pharmacist and the admission and discharge orders, including the number of additional unintentional medications is scored and publicly reported based on the criteria below:

Medication Reconciliation Score (Performance Category)	Meaning that...
<b>Fully Meets the Standard</b>	The hospital uses a nationally endorsed protocol to collect data on the accuracy of its medication reconciliation process and reported the data collected to Leapfrog.
<b>Some Progress</b>	The hospital uses a nationally endorsed protocol to collect data on the accuracy of its medication reconciliation process, but did not report the data collected to Leapfrog.
<b>Willing to Report</b>	The hospital is not yet using the endorsed protocol to collect data on the accuracy of its medication reconciliation process or has not put any protocol in place.
<b>Declined to Respond</b>	The hospital did not respond to the questions in this section of the Survey, or did not submit a Survey.
<b>Does Not Apply</b>	The hospital is a pediatric facility.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

Note: Hospitals are scored as “Some Progress” if they sampled and responded to the questions in this section of the Survey, but had their responses flagged in Leapfrog’s monthly [data review](#).

## Section 9: 2019 Pediatric Care Scoring Algorithms

**Patient Experience (CAHPS Child Hospital Survey)**

Hospitals are scored based on Top Box Scores from a subset of the domains (5 out of 18) included on the CAHPS Child Hospital Survey. These domains were selected for use in scoring due to having the lowest median performance and the largest variation in performance across hospitals.

- Communication with Parent – Communication about your child’s medicines
- Communication with Parent – Keeping you informed about your child’s care
- Communication with Child – How well nurses communicate with your child
- Communication with Child – How well doctors communicate with your child
- Attention to Safety and Comfort – Preventing mistakes and helping you report concerns

Quartile values for each of the 5 domains listed above were calculated based on the range of hospital performance reported in 2018 Leapfrog Hospital Surveys submitted by June 30, 2018. Hospitals receive points for each of the 5 domains based on how their Top Box Scores compare to the quartile cut-points. Hospitals that perform in the top quartile receive 4 points for that domain; those that perform in the 3rd quartile receive 3 points, etc.

Point Assignment (Quartiles [Q])	Communication about child’s medicines (%)	Keeping you informed about child’s care (%)	Child Communication with nurses (%)	Child Communication with doctors (%)	Preventing mistakes and reporting concerns (%)
<b>4 Points (&gt;= Q3)</b>	>= 82	>= 78	>= 77	>= 76	>= 65
<b>3 Points (&gt;= Q2 and &lt; Q3)</b>	>= 80 and < 82	>= 75 and < 78	>= 74 and < 77	>= 72 and < 76	>= 60 and < 65
<b>2 Points (&gt;= Q1 and &lt; Q2)</b>	>= 77 and < 80	>= 71 and < 75	>= 72 and < 74	>= 69 and < 72	>= 56 and < 60
<b>1 Point (&lt; Q1)</b>	< 77	< 71	< 72	< 69	< 56

Note: Cut-points are based on the distribution of performance reported from 2018 Leapfrog Hospital Surveys submitted by June 30, 2018. These cut-points will remain in place for the entire survey reporting cycle, unless it is determined that there are compelling reasons to make revisions.

Then the number of points earned over all domains is calculated to determine the overall performance category. The number of points required for each of the four performance categories (i.e. “Fully Meets the Standard,” “Substantial Progress,” etc.) was determined by the distribution of Total Points Earned using 2018 Leapfrog Hospital Surveys submitted by June 30, 2018.

Patient Experience (Performance Category)	Total Points Earned
<b>Fully Meets the Standard</b>	>= 16 Points
<b>Substantial Progress</b>	>= 13 and < 16 Points
<b>Some Progress</b>	>= 11 and < 13 Points
<b>Willing to Report</b>	< 11 Points
<b>Unable to Calculate Score</b>	The hospital did not meet the minimum reporting requirements for the measure (<100 returned CAHPS Child Hospital Surveys).
<b>Does Not Apply</b>	The hospital had too few pediatric inpatient admissions (n < 500) to administer the CAHPS Child Hospital Survey, or had fewer than 100 non-NICU pediatric inpatient admissions.

<b>Declined to Respond</b>	The hospital did not administer the CAHPS Child Hospital Survey, did not respond to the questions in this section of the Survey, or did not submit a Survey.
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.

Note: Cut-points are based on the distribution of total points earned from 2018 Leapfrog Hospital Surveys submitted by June 30, 2018. These cut-points will remain in place for the entire survey reporting cycle, unless it is determined that there are compelling reasons to make revisions.

## Pediatric Computed Tomography (CT) Radiation Dose

Hospitals are scored on their performance for head scans and abdomen/pelvis scans separately by comparing the median radiation dose length product (DLP) for each anatomic region and age stratum to two benchmarks. The first benchmark is the Median Benchmark, which is the median of the median doses reported across all Leapfrog-reporting hospitals from 2018 Leapfrog Hospital Surveys submitted by June 30, 2018. The second benchmark is the 75th Percentile Benchmark, which is the median of the 75th percentile doses reported across all Leapfrog-reporting hospitals from 2018 Leapfrog Hospital Surveys submitted by June 30, 2018.

Hospitals receive points based on their reported median dose (50<sup>th</sup> percentile) compared to the benchmarks. If the hospital's reported median dose is less than the Median Benchmark, then it receives 2 points. If the hospital's reported median dose is greater than or equal to the Median Benchmark and less than the 75<sup>th</sup> Percentile Benchmark, then it receives 1 point. Otherwise, if the hospital's reported median dose is greater than or equal to the 75<sup>th</sup> Percentile Benchmark, it receives no points for that category.

Therefore, for each anatomic region, there are at most 10 possible points. If a hospital had less than 10 CT scans for an age stratum, then the age stratum is not included in scoring.

<b>HEAD SCANS</b>					
<b>Point Assignment (Benchmarks)</b>	<b>&lt; 1 year</b>	<b>1 - 4</b>	<b>5 - 9</b>	<b>10-14</b>	<b>15-17</b>
<b>2 Points</b> (Median Dose < Median Benchmark)	< 291	< 395	< 492	< 637	< 755
<b>1 Point</b> (Median Dose >= Median Benchmark and < 75 <sup>th</sup> Percentile Benchmark)	>= 291 and < 360	>= 395 and < 499	>= 492 and < 578	>= 637 and < 758	>= 755 and < 865
<b>0 Points</b> (Median Dose >= 75 <sup>th</sup> Percentile Benchmark)	>= 360	>= 499	>= 578	>= 758	>= 865

<b>ABDOMEN/PELVIS SCANS</b>					
<b>Point Assignment (Benchmarks)</b>	<b>&lt; 1 year</b>	<b>1 - 4</b>	<b>5 - 9</b>	<b>10-14</b>	<b>15-17</b>
<b>2 Points</b> (Median Dose < Median Benchmark)	< 62	< 88	< 142	< 284	< 392
<b>1 Point</b> (Median Dose >= Median Benchmark and < 75 <sup>th</sup> Percentile Benchmark)	>= 62 and < 80	>= 88 and < 114	>= 142 and < 193	>= 284 and < 391	>= 392 and < 573
<b>0 Points</b> (Median Dose >= 75 <sup>th</sup> Percentile Benchmark)	>= 80	>= 114	>= 193	>= 391	>= 573

Note: Cut-points are based on the distribution of median doses from 2018 Leapfrog Hospital Surveys submitted by June 30, 2018. These cut-points will remain in place for the entire survey reporting cycle, unless it is determined that there are compelling reasons to make revisions.

For each anatomic region, the percentage of points awarded is calculated by summing the points earned and dividing by the total number of possible points (e.g., 2 times the number of age strata with at least 10 CT scans). This percentage of points earned is used to assign a performance category according to the table below:

<b>Pediatric CT Dose Score (Performance Category)</b>	<b>Head Scans</b>	<b>Abdomen/Pelvis Scans</b>
<b>Fully Meets the Standard</b>	>= 75% of total possible points	>= 75% of total possible points
<b>Substantial Progress</b>	>= 50% and < 75% of total possible points	>= 50% and < 75% of total possible points
<b>Some Progress</b>	>=25% and < 50% of total possible points	>=25% and < 50% of total possible points
<b>Willing to Report</b>	< 25% of total possible points	< 25% of total possible points
<b>Unable to Calculate Score</b>	Fewer than 10 CT scans for all age ranges	Fewer than 10 CT scans for all age ranges
<b>Does Not Apply</b>	The hospital does not perform CT scans on pediatric patients.	
<b>Declined to Respond</b>	The hospital did not measure pediatric scan doses, did not respond to the questions in this section of the Survey, or did not submit a Survey.	
<b>Pending Leapfrog Verification</b>	The hospital's self-reported responses are under further review by Leapfrog.	

<b>Section 10: 2019 Outpatient Procedures Scoring Algorithms</b>
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This section will not be scored in 2019 and results will not be shown on Leapfrog's public reporting [website](#).

## Appendix I: CPOE Evaluation Tool Scoring Algorithm

**CPOE Evaluation Tool (v3.6) Scoring****(For Adult and General Hospitals Only)**

To fully meet Leapfrog’s CPOE Standard, each adult and general hospital must (1) ensure that licensed prescribers enter at least 85% of inpatient medication orders via a computer system that includes decision support software to reduce prescribing errors, and (2) demonstrate, via a test, that its inpatient CPOE system can alert physicians to at least 60% of frequent serious medication errors known to cause harm to patients.

Hospitals are asked to use Leapfrog’s CPOE Evaluation Tool to complete an Adult Inpatient Test to fulfill the second requirement of our standard. Upon successful completion of an Adult Inpatient Test, a hospital’s responses are immediately scored and available to be viewed and printed. Results from prior year’s tests are also archived and can be accessed at any time by logging back into the CPOE Evaluation Tool from the [Survey Dashboard](#).

**Results from the Adult Inpatient Test**

The CPOE Evaluation Tool calculates the results from the Adult Inpatient Test and displays a report that includes 10 individual category scores and an overall score using the criteria described below.

**Category Scores**

- Each category included in the CPOE Evaluation Tool represents an area where a serious adverse drug event (ADE) could occur if the CPOE system’s clinical decision support fails to alert the prescriber. The intent of the test is to measure and improve on a hospital’s use of clinical decision support to reduce ADEs and improve medication safety.
- Results are calculated for each category and are displayed as a percent correct (i.e. 80% in the drug-allergy category means that the hospital responded to 80% of the test orders in this category correctly).
- Test Orders that include medications that could not be electronically entered in any formulation are excluded from the overall score calculation. For some categories, orders that could not be entered with the specified dose, frequency, or route are also excluded.
- For any category for which too few orders were entered to reliably calculate a category score, “insufficient responses to evaluate performance in this category” appears instead of a percentage score. Individual orders that were able to be tested within a category are included in the overall score.

Order Checking Category	Description	Example
<b>Therapeutic Duplication</b>	Medication combinations overlap therapeutically (same agent or same class)	Using clonazepam and lorazepam together
<b>Drug Dose (Single)</b>	Specified dose of medication exceeds safe range for single dose	Tenfold overdose of digoxin
<b>Drug Dose (Daily)</b>	Specified frequency of administration results in daily dose that exceeds safe range for daily dose	Ordering ibuprofen regular dose every three hours
<b>Drug Allergy</b>	Medication (or medication class) is one for which patient allergy has been documented	Penicillin prescribed for patient with documented penicillin allergy
<b>Drug-Route</b>	Specified route of administration is inappropriate and potentially harmful	Use of hydroxyzine intravenously

Order Checking Category	Description	Example
<b>Drug-Drug Interaction</b>	Medications in pair of orders result in known harmful interaction when used in combination	Concurrent sumatriptan and phenelzine
<b>Drug Diagnosis</b>	Medication dose inappropriate/contraindicated based on documented problem/diagnosis	Nonspecific beta-blocker in patient with asthma
<b>Drug-Age</b>	Medication dose inappropriate/contraindicated based on patient age	Prescribing diazepam for a patient over 65 years old
<b>Drug Laboratory</b>	Medication dose inappropriate/contraindicated based on documented laboratory test results (includes renal status)	Use of nitrofurantoin in patient with severe renal failure
<b>Drug Monitoring</b>	Medication for which the standard of care includes subsequent monitoring of the drug level or lab value to avoid harm	Prompt to monitor drug levels when ordering aminoglycosides or INR/PT when ordering warfarin

The Tool also includes an “Alert Fatigue” test category, which checks if prescribers are receiving alerts or information for inconsequential medication interactions that clinicians typically ignore. An example would be alerting on the concurrent use of hydrochlorothiazide and captopril. This test category is not included in scoring.

The Tool also includes a “Deception Analysis” test category, which checks for “false positives” (e.g., orders that should not have generated any warning in the hospital’s CPOE system). Hospital’s that “fail” the Deception Analysis are scored as “incomplete evaluation” and will not be able to retake an Adult Inpatient Test for 120 days.

**Overall Score**

In addition to individual category scores for each of the 10 categories for which hospitals were able to test a sufficient number of orders, the results also include an overall score based on all scored orders across all categories. The overall score is used as part of Leapfrog’s CPOE Standard Scoring Algorithm.

The overall score is based on the performance of the hospital’s CPOE clinical decision support to alert prescribers to frequent serious medication errors known to cause harm to patients. In addition, the test includes a number of orders that could result in a fatal adverse drug event. Any of these potentially fatal orders not flagged by the clinical decision support are listed on the results page of the CPOE Evaluation Tool. In addition, the Test Orders include a number of orders that could contribute to alert fatigue if clinical decision support is displayed reporting potential harm. Any Alert Fatigue orders for which advice or information was reported are also listed on the results page of the CPOE Evaluation Tool.

Overall Score (Combined with the hospital’s % of inpatient medication orders entered via CPOE and publicly reported)	Description
<b>Full Demonstration of National Safety Standard for Decision Support</b>	This hospital’s CPOE system alerts prescribers to most common serious prescribing errors. Meaning that: <ul style="list-style-type: none"> <li>• The hospital responded to ≥20 test orders</li> <li>• The hospital responded correctly to ≥60% of test orders across all categories</li> </ul>
<b>Substantial Demonstration of National Safety Standard for Decision Support</b>	This hospital’s CPOE system alerts prescribers to many common serious prescribing errors. Meaning that: <ul style="list-style-type: none"> <li>• The hospital responded to ≥20 test orders</li> <li>• The hospital responded correctly to ≥50%, but less than 60% of test orders across all categories</li> </ul>

Overall Score (Combined with the hospital's % of inpatient medication orders entered via CPOE and publicly reported)	Description
<b>Some Demonstration of National Safety Standard for Decision Support</b>	<p>This hospital's CPOE system alerts prescribers to some common serious prescribing errors. Meaning that:</p> <ul style="list-style-type: none"> <li>• The hospital responded to <math>\geq 20</math> test orders</li> <li>• The hospital responded correctly to <math>\geq 40\%</math>, but less than 50% of test orders across all categories</li> </ul>
<b>Completed the Evaluation</b>	<p>This hospital's CPOE system alerts prescribers to few common serious prescribing errors. Meaning that:</p> <ul style="list-style-type: none"> <li>• The hospital responded to <math>\geq 20</math> test orders</li> <li>• The hospital responded correctly to less than 40% of test orders across all categories</li> </ul>
<b>Insufficient Evaluation</b>	<p>This hospital was not able to test a sufficient number of orders (&lt;20) to receive an overall score. However, the hospital may use the category scores for local hospital quality improvement efforts. The hospital is eligible to retake the test in 120 days.</p>
<b>Incomplete Evaluation</b>	<p>This hospital did not complete the CPOE Evaluation Tool within the allotted time. The hospital is eligible to retake the test in 120 days.</p> <p>Note: Hospital will not be able to view results within the CPOE Evaluation Tool. The test is not scored.</p>
<b>Failed Deception Analysis (Publicly reported as Incomplete Evaluation)</b>	<p>This hospital submitted responses that included potentially inaccurate results. The hospital is eligible to retake the test in 120 days.</p>



Results from the 2019 Leapfrog Hospital Survey Results will be available at <http://leapfroggroup.org/compare> on July 25, 2019.

Results are then updated within the first five (5) business days of each month to reflect new survey submissions and resubmissions.

Find more information about the 2019 Leapfrog Hospital Survey at: <http://leapfroggroup.org/hospital>.