

Planned Updates to the Leapfrog Hospital Safety Grade Methodology: Request for Public Comment

As first announced in September 2020, Leapfrog is planning changes to the Leapfrog Hospital Safety Grade scoring methodology effective with the spring 2021 Hospital Safety Grade. Leapfrog is inviting public comments on these proposed changes through January 31, 2021. Public comments can be submitted using the directions at the end of the primary document.

Background

In September 2020, Leapfrog was notified by the American Hospital Association (AHA) that it would not be renewing Leapfrog's data license for their AHA Annual Survey and Health Information Technology Supplement datasets used in the Hospital Safety Grade. These two datasets have been used by Leapfrog since 2012 to assign scores to hospitals that decline to publicly report via the [Leapfrog Hospital Survey](#) on Computerized Physician Order Entry (CPOE), Bar Code Medication Administration (BCMA), and ICU Physician Staffing (IPS).

Each of these three measures reflect important, evidence-based structures that hospitals should implement to ensure the safest patient care, and each represent a significant weight within the Hospital Safety Grade. CPOE and BCMA both address the most prevalent patient safety issue – medication errors – and research has shown that staffing ICUs with intensivists (IPS) can reduce ICU mortality by up to 40%.

Dealing with Missing Data: Planned Approach for Calculating Scores for CPOE, BCMA, and IPS

Leapfrog has worked closely with statisticians at Mathematica, Leapfrog's National [Expert Panel](#), and our scientific partners at Johns Hopkins Medicine to develop this new imputation approach, which uses the most accurate information publicly available, is feasible to calculate, transparent and reproducible by hospitals, and useful for those relying on the Hospital Safety Grade (i.e., consumers, purchasers, health plans, etc.).

Effective with the spring 2021 Hospital Safety Grade, if a hospital is missing a [publicly reported](#) score from the Leapfrog Hospital Survey on CPOE, BCMA, and/or IPS, the following 3-step methodology will be used to assign a measure score for each of the three applicable measures:

Step 1: Use a Hospital's Most Recent Score on the Measure

Applies to CPOE, BCMA, and IPS

If the hospital had a score assigned by Leapfrog in the previous six rounds of grades (i.e., fall 2020, spring 2020, fall 2019, spring 2019, fall 2018, or spring 2018), the hospital will be assigned the most recent score on that measure in the current Hospital Safety Grade (i.e., spring 2021).

Example of Step 1:

A hospital did not submit a Leapfrog Hospital Survey in 2019 or 2020. Therefore, in the fall 2020 Hospital Safety Grade, the hospital's scores for CPOE, BCMA, and IPS were assigned by Leapfrog based on other supplemental data sources. In the fall 2020 Hospital Safety Grade, the hospital's CPOE score was 45, BCMA score was 45, and IPS score was 85. For the spring 2021 Hospital Safety Grade, the score of 45 will be used for CPOE, 45 will be used for BCMA, and 85 will be used for IPS.

If a hospital did not have a measure score assigned by Leapfrog on any one of the measures in any of the previous six rounds of grades, continue to Step 2

Step 2: Use the Mode of Scores Assigned to Other Hospitals in the Same Health System

Applies to CPOE and BCMA only.

If the hospital is part of a health system that has at least 6 hospitals, of which at least two-thirds have a score on the CPOE and/or BCMA measure in the current round (i.e., spring 2021) that is [publicly reported](#) from the Leapfrog Hospital Survey, the hospital will receive the mode score of the other health system hospitals (the **mode** is the most frequent score). Leapfrog will determine a hospital’s membership in a health system using the Agency for Healthcare Research and Quality’s *Compendium of U.S. Health Systems* (<https://www.ahrq.gov/chsp/data-resources/compendium-2018.html>).

If the hospital did not have an IPS measure score assigned by Leapfrog in any of the previous six rounds of grades (some hospitals do not operate intensive care units, and therefore an ICU staffing measure would not be applicable to the hospital), the IPS score will remain missing (i.e., displayed as “Not Available”) and the measure will not be used to calculate the Hospital Safety Grade. The weight for the measure will be re-apportioned to other measures within the process/structural measure domain to calculate the grade.

Example of Step 2:

A hospital is part of a health system that has 10 hospitals in total. The hospital is missing a score for the BCMA measure because they did not submit BCMA as part of their 2020 Leapfrog Hospital Survey, and they do not have a BCMA score within the previous six rounds of grades. The other nine hospitals in the health system have scores on BCMA of 100, 100, 75, 75, 50, 50, 50, 50, and 25. Therefore, in the 2021 Hospital Safety Grade, the hospital will be assigned a score of 50, which is the most frequent health system score (4 of 9 other hospitals received that score).

If the hospital is not part of a health system, is part of a small health system (<6 hospitals) or there are not enough hospitals in the health system that have a measure score in the current round that is [publicly reported](#) from the Leapfrog Hospital Survey, continue to Step 3

Step 3: Use the Mean of the Scores Assigned to Other “Like” Hospitals in the U.S.

Applies to CPOE and BCMA only

The hospital will be assigned to a cohort (see cohort descriptions in Table 1) of other “like” hospitals using four hospital characteristics obtained from the most recent CMS Impact File: (1) number of beds (**BEDS**), (2) urban/rural status (**URGEO**), (3) teaching status (**Resident to Bed Ratio**), and (4) disproportionate share hospital patient percentage (**DSHPCT**). The hospital will then be assigned the mean score of that cohort, which will be calculated based on hospitals that have a score on the CPOE and/or BCMA measure in the current round (i.e., spring 2021) that is [publicly reported](#) from the Leapfrog Hospital Survey. Leapfrog will determine a hospital’s membership in a cohort using the CMS Impact file (<https://www.cms.gov/files/zip/impact-file-fy-2021-final-rule-and-correction-notice.zip>).

If the hospital has not received a score on IPS in any of the previous six rounds of grades (some hospitals do not operate intensive care units, and therefore an ICU staffing measure would not be applicable to the hospital), the IPS score will remain missing (i.e., displayed as “Not Available”) and the measure will not be used to calculate the Hospital Safety Grade. The weight for the measure will be re-apportioned to other measures within the process/structural measure domain to calculate the grade.

Table 1. Characteristics Used to Categorize Hospitals into Cohorts

Characteristic 1: Number of Beds <i>(Derived from CMS Impact Variable: BEDS)</i>	Characteristic 2: Urban/Rural Location <i>(Derived from CMS Impact Variable: URGEO)</i>	Characteristic 3: Teaching Status <i>(Derived from CMS Impact Variable: Resident to Bed Ratio)</i>	Characteristic 4: DSH Patient Percentage <i>(Derived from CMS Impact Variable: DSHPCT)</i>
<ul style="list-style-type: none"> • 1-109 beds • 100-199 beds • 200-359 beds • 360 and more beds 	<ul style="list-style-type: none"> • Urban • Rural 	<ul style="list-style-type: none"> • Teaching (variable > 0) • Non-Teaching (variable = 0) 	<ul style="list-style-type: none"> • Safety Net (% in top 20% nationally) • Not Safety Net (% in bottom 80% nationally)

Example of Step 3:

A hospital is part of a health system with five hospitals in total. The hospital is missing scores for CPOE, BCMA, and IPS because they have never submitted a Leapfrog Hospital Survey or had data available via other supplemental data sources. In fact, due to missing data, they have never received a Hospital Safety Grade. Therefore, in the 2021 Hospital Safety Grade, the hospital will be assigned scores based on the mean CPOE and BCMA scores of other “like” hospitals in the U.S. based on Table 1 above and may receive a Hospital Safety Grade for the first time.

Important Highlights

- The 3-step imputation process described above will be applied to ALL hospitals that are missing a score for CPOE and/or BCMA in spring 2021, **including those hospitals that have always been missing a score for CPOE and/or BCMA and hospitals that have never received a Hospital Safety Grade. This will likely result in some hospitals receiving a Leapfrog Hospital Safety Grade for the first time.**
- If the hospital has not received a score on IPS in any of the previous six rounds of grades, the IPS score will be missing (i.e., displayed as “Not Available”), and the measure will not be used to calculate the Hospital Safety Grade. The weight for the measure will be re-apportioned to other measures within the process/structural measure domain to calculate the grade. This is because some hospitals do not operate intensive care units, and therefore an ICU staffing measure would not be applicable to the hospital.
- If a hospital’s score on a measure is imputed using the 3-step process described above, on Leapfrog’s public Hospital Safety Grade [Website](#), the data source and reporting period for a hospital’s score will be reported as “hospital score based on historical data and/or data from similar hospitals” instead of a specific data source and specific reporting period.

There are no additional planned changes to the spring 2021 Hospital Safety Grade Methodology.

Instructions to Submit a Public Comment

To submit a public comment:

1. Visit <https://leapfroghelpdesk.zendesk.com/>
2. Click on "Submit a Request" on the top right-hand corner of the webpage
3. Select "Hospital Safety Grade" as the name of the ratings program
4. Select "Submit a Public Comment" from the Safety Grade issue drop-down list
5. Include your public comments in the "Question" field
6. Click Submit after completing all required fields

Leapfrog will publish responses to public comments received in February. The data snapshot date for the spring 2021 Hospital Safety Grade is January 31. More information can be found on the Hospital Safety Grade Website at <http://www.hospitalsafetygrade.org/for-hospitals/updates-and-timelines-for-hospitals>.

Appendix A: Spring 2021 Leapfrog Safety Grade Measures, Reporting Periods, and Data Sources

PROCESS AND STRUCTURAL MEASURES (12)				
Measure Name	Primary Data Source	Reporting Period	Secondary Data Source	Reporting Period
Computerized Physician Order Entry (CPOE)	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	Mathematical Imputation Model (i.e., Step 1, 2 or 3)	N/A
Bar Code Medication Administration (BCMA)	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	Mathematical Imputation Model (i.e., Step 1, 2 or 3)	N/A
ICU Physician Staffing (IPS)	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	Mathematical Imputation Model (i.e., Step 1, 2 or 3)	N/A
Safe Practice 1: Leadership Structures and Systems	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	N/A	N/A
Safe Practice 2: Culture Measurement, Feedback & Intervention	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	N/A	N/A
Safe Practice 9: Nursing Workforce	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	2019 or 2020	N/A	N/A
Hand Hygiene	2019 Leapfrog Hospital Survey or	2019 or 2020	N/A	N/A

PROCESS AND STRUCTURAL MEASURES (12)

Measure Name	Primary Data Source	Reporting Period	Secondary Data Source	Reporting Period
	2020 Leapfrog Hospital Survey			
H-COMP-1: Nurse Communication	CMS	01/01/2019 – 12/31/2019	N/A	N/A
H-COMP-2: Doctor Communication	CMS	01/01/2019 – 12/31/2019	N/A	N/A
H-COMP-3: Staff Responsiveness	CMS	01/01/2019 – 12/31/2019	N/A	N/A
H-COMP-5: Communication about Medicines	CMS	01/01/2019 – 12/31/2019	N/A	N/A
H-COMP-6: Discharge Information	CMS	01/01/2019 – 12/31/2019	N/A	N/A

OUTCOME MEASURES (15)

Measure Name	Primary Data Source	Reporting Period	Secondary Data Source	Reporting Period
Foreign Object Retained	CMS	07/01/2017 – 06/30/2019	N/A	N/A
Air Embolism	CMS	07/01/2017 – 06/30/2019	N/A	N/A
Falls and Trauma	CMS	07/01/2017 – 06/30/2019	N/A	N/A
CLABSI	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	07/01/2018 – 06/30/2019 or 01/01/2019 – 12/31/2019	CMS	01/01/2019 – 12/31/2019
CAUTI	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	07/01/2018 – 06/30/2019 or 01/01/2019 – 12/31/2019	CMS	01/01/2019 – 12/31/2019
SSI: Colon	2019 Leapfrog Hospital Survey or	07/01/2018 – 06/30/2019 or 01/01/2019 – 12/31/2019	CMS	01/01/2019 – 12/31/2019

OUTCOME MEASURES (15)				
Measure Name	Primary Data Source	Reporting Period	Secondary Data Source	Reporting Period
	2020 Leapfrog Hospital Survey			
MRSA	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	07/01/2018 – 06/30/2019 or 01/01/2019 – 12/31/2019	CMS	01/01/2019 – 12/31/2019
C. Diff.	2019 Leapfrog Hospital Survey or 2020 Leapfrog Hospital Survey	07/01/2018 – 06/30/2019 or 01/01/2019 – 12/31/2019	CMS	01/01/2019 – 12/31/2019
PSI 3: Pressure Ulcer Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 4: Death Rate among Surgical Inpatients with Serious Treatable Conditions	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 6: Iatrogenic Pneumothorax Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 11: Postoperative Respiratory Failure Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 12: Perioperative PE/DVT Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 14: Postoperative Wound Dehiscence Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A
PSI 15: Unrecognized Abdominopelvic Accidental Puncture/Laceration Rate	CMS	07/01/2017 – 06/30/2019	N/A	N/A