

Planned Updates to the Leapfrog Hospital Safety Grade Methodology for Fall 2021: Request for Public Comments

Leapfrog is planning four changes to the Leapfrog Hospital Safety Grade methodology that will be used to calculate the fall 2021 Hospital Safety Grades. These updates were made under the guidance of Leapfrog's national expert panel and research team at Johns Hopkins Medicine and are based on stakeholder feedback. Leapfrog is inviting public comments on these proposed changes through May 31, 2021. Public comments can be submitted using the directions below.

The methodology changes outlined in this document include:

1. [Scoring for the Hand Hygiene measure from the Leapfrog Hospital Survey](#)
2. [Maintaining CMS infection data from the spring 2021 Hospital Safety Grades for hospitals that do NOT submit a 2021 Leapfrog Hospital Survey \(including Section 7\)](#)
3. [Replacing six \(6\) of the individual PSI measures with the PSI 90 composite measure](#)
4. [Implementing a new standard weight calculation to account for the addition of a composite measure \(PSI 90\)](#)

In addition, this document includes information regarding the continuation of the two-step imputation model first introduced for the spring 2021 Hospital Safety Grade, important dates for the fall 2021 Hospital Safety Grade, and monitoring the missing data threshold for the Outcome Measures Domain.

Appendix A on pages 6-7 include the fall 2021 measure names, data sources, and reporting periods.

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 June. More information can be found on the Hospital Safety Grade Website at <http://www.hospitalsafetygrade.org/for-hospitals/updates-and-timelines-for-hospitals>.





1. Scoring for the Hand Hygiene measure from the Leapfrog Hospital Survey

Background

Due to COVID-19, Leapfrog only scored and publicly reported results for the new Hand Hygiene measure for hospitals that performed in the top two performance categories (i.e., Achieved the Standard or Considerable Achievement) on the 2020 Leapfrog Hospital Survey. In the fall 2020 and spring 2021 Hospital Safety Grades, performance on both performance categories was scored as 60 points (the maximum possible score). For the 2021 Leapfrog Hospital Survey, Leapfrog will score and publicly report all four performance categories (i.e., Achieved the Standard, Considerable Achievement, Some Achievement, and Limited Achievement) for the Hand Hygiene measure.

Updates

Beginning with the fall 2021 Hospital Safety Grade, the following points will be assigned to each of the four performance categories from the Leapfrog Hospital Survey for the Hand Hygiene measure:

| 2021 Leapfrog Hospital Survey Performance Category for the Hand Hygiene Measure | Fall 2021 Safety Grade Score for the Hand Hygiene Measure |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Achieved the Standard  | 100 |
| Considerable Achievement  | 70 |
| Some Achievement  | 40 |
| Limited Achievement  | 15 |

Hospitals that do not submit a 2021 Leapfrog Hospital Survey by the Data Snapshot Date will be scored and publicly reported as “Declined to Respond” for the Hand Hygiene Measure. The standard weight assigned to the Hand Hygiene measure in the Hospital Safety Grade methodology will be redistributed to the other measures in the Process/Structural Measure Domain. More information about dealing with missing data is available in the [Hospital Safety Grade Scoring Methodology](#).

2. Maintaining CMS infection data from the spring 2021 Hospital Safety Grade for hospitals that do NOT submit a 2021 Leapfrog Hospital Survey (including Section 7)

Background

The Leapfrog Hospital Survey is the primary data source the Safety Grade’s five healthcare-associated infection measures (CLABSI, CAUTI, MRSA, C. diff., and SSI: Colon), for hospitals that provide a valid NHSN in the Profile Section of the Online Survey Tool, join Leapfrog’s NHSN Group, and submit Section 7 of the Leapfrog Hospital Survey by the [published deadlines](#). For hospitals that do not complete these steps by the August 31, 2021 Data Snapshot Date for the Hospital Safety Grade, CMS data are used as the secondary data source for the Safety Grade’s five healthcare-associated infection measures.

Update

Due to uncertainty regarding how CMS will implement their plan to exclude 2020Q1 and 2020Q2 data when publishing updated infection data in July 2021, Leapfrog plans to maintain the CMS infection data that was used for the spring 2021 Safety Grade for the five HAI measures for those hospitals that do not have infection data available via the 2021 Leapfrog Hospital Survey on the Data Snapshot Date of August 31, 2021. Therefore, the reporting period for the CMS infection measures used in the fall 2021 Hospital Safety Grade will be 01/01/2019 – 12/31/2019.

3. Replacing six (6) of the individual PSI measures with the PSI 90 composite measure

Leapfrog has previously included seven individual PSI measures in the Hospital Safety Grade. In recent years, PSI 90, a composite made up of 10 “child” PSI measures, has been tested and updated significantly and is now a central component of CMS’ Hospital-Acquired Condition Reduction Program (HACRP). To align with CMS’ efforts to reduce harm to patients from medical and surgical complications, Leapfrog plans to replace six of the seven individual PSIs in the Leapfrog Hospital Safety Grade with the PSI 90 composite measure. Thus, as illustrated in Table 1, starting this fall, the Hospital Safety Grade will include two PSIs: PSI 4: Death Rate among Surgical Inpatients with Serious Treatable Conditions and PSI 90: Patient Safety and Adverse Events Composite. The inclusion of PSI 90 will allow Leapfrog to account for postoperative sepsis rate and other important patient safety measures.

For the purposes of public reporting on the Hospital Safety Grade [Website](#), Leapfrog will display performance on each of the 10 individual PSIs included in PSI 90.

Table 1: PSI Measures included in the Hospital Safety Grade in Spring 2021 vs Fall 2021

| PSI | Indicator | PSI 90 Child Measure | Spring 2021 Hospital Safety Grade measure | Fall 2021 Hospital Safety Grade measure |
|--------|------------------------------------------------------------------------|----------------------|-------------------------------------------|-----------------------------------------|
| PSI 3 | Pressure ulcer rate | Yes | Yes | No |
| PSI 4 | Death Rate among Surgical Inpatients with Serious Treatable Conditions | No | Yes | Yes |
| PSI 6 | Iatrogenic pneumothorax rate | Yes | Yes | No |
| PSI 8 | In-hospital fall with hip fracture rate | Yes | No | No |
| PSI 9 | Perioperative hemorrhage and hematoma rate | Yes | No | No |
| PSI 10 | Postoperative acute kidney injury rate | Yes | No | No |
| PSI 11 | Postoperative respiratory failure rate | Yes | Yes | No |
| PSI 12 | Perioperative pulmonary embolism or deep vein thrombosis rate | Yes | Yes | No |
| PSI 13 | Postoperative sepsis rate | Yes | No | No |
| PSI 14 | Postoperative wound dehiscence rate | Yes | Yes | No |
| PSI 15 | Unrecognized abdominopelvic accidental puncture/laceration rate | Yes | Yes | No |
| PSI 90 | Patient Safety and Adverse Events Composite | N/A | No | Yes |

Additional information about the PSI 90 measure and how it is calculated by CMS can be found [here](#).

4. Implementing a new standard weight calculation to account for the addition of a composite measure (PSI 90)

In order to ensure that PSI 90, which includes 10 “child” PSI measures, is assigned an appropriate standard weight, Leapfrog will update its standard weight calculation to include a fourth element specifically designed to account for composite measures. Starting with the fall 2021 Safety Grade, the standard weight assigned to composite measures (i.e., PSI 90) will

be calculated by multiplying a measure’s weight score by the number of child measures included in the composite measure. For PSI 90, the only composite measure currently included in the Hospital Safety Grade, the number of child measures is 10. Therefore, the measure weight score will be calculated in the following way:

$$\text{Measure Weight Score} = ((\text{Evidence} + (\text{Impact} \times \text{Opportunity})) \times \text{Number of Child Measures})$$

Based on the current measure weight criteria, PSI 90 will receive an Evidence score of 1 and Impact score of 2. The Opportunity score will be calculated this fall based on the number of hospitals that receive a fall 2021 Safety Grade and thus cannot be determined in advance. The Table 2 illustrates how the inclusion of PSI 90 is *estimated* to affect the individual measure weights of each measure included in the Outcome Measures Domain this fall.

Table 2: Estimated Standard Measure Weights in the Outcome Measures Domain of the Hospital Safety Grade in Spring 2021 vs Fall 2021

| Outcome Measure | Spring 2021 Standard Measure Weight | Estimated Fall 2021 Standard Measure Weight due to the inclusion of PSI 90 |
|-----------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------|
| Foreign Object Retained | 4.3% | 3.9% |
| Air Embolism | 2.5% | 2.2% |
| Falls and Trauma | 4.6% | 4.2% |
| CLABSI | 4.6% | 4.2% |
| CAUTI | 4.4% | 4.0% |
| SSI: Colon | 3.5% | 3.1% |
| MRSA | 4.5% | 4.1% |
| C. Diff. | 4.2% | 3.7% |
| PSI-3 | 4.0% | N/A |
| PSI-4 | 2.0% | 1.8% |
| PSI-6 | 2.1% | N/A |
| PSI-11 | 2.2% | N/A |
| PSI-12 | 2.2% | N/A |
| PSI-14 | 2.0% | N/A |
| PSI-15 | 2.9% | N/A |
| PSI-90 | N/A | 18.8% |
| Total Weight of Outcome Measures (half of Safety Grade Weight) | 50% | 50% |

Other Information Regarding the Fall 2021 Hospital Safety Grade

Continuation of the two-step imputation model first introduced for the spring 2021 Safety Grade

In the spring 2021 Safety Grade, Leapfrog introduced a two-step imputation approach for assigning for CPOE, BCMA, and IPS if those measures were missing from Leapfrog’s publicly reported [Survey Results](#). In the fall 2021 Safety Grade, this approach will be maintained with one additional data source to determine teaching status for the purposes of Step 2. The imputation method is summarized below.

Step 1: Use a hospital’s most recent score on the measure (applies to CPOE, BCMA, and IPS)

If the hospital had a non-imputed score assigned by Leapfrog in the previous four rounds of grades (i.e., spring 2021, fall 2020, spring 2020, fall 2019), the hospital is assigned the most recent non-imputed score on that measure in the current Hospital Safety Grade (i.e., fall 2021).

Example of Step 1: The hospital did not submit a 2021 Leapfrog Hospital Survey by the August 31 [Data Snapshot Date](#), which makes the hospital eligible for imputation. The hospital also 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. Since the fall 2020 grade is within four past grades of fall 2021, those same scores for CPOE, BCMA, and IPS will be used again for fall 2021.

Step 2: Use the mean of the scores assigned to other “like” hospitals in the U.S. (applies to CPOE and BCMA only)

The hospital is assigned to a cohort of other similar hospitals using three or four hospital characteristics obtained from either the 2021 Leapfrog Hospital [Survey Results](#) or the most recent CMS Impact file: (1) urban/rural status (from the Impact File), (2) safety net status (determined by disproportionate share hospital patient percentage from the Impact File), (3) number of beds (from the Impact file), and (4) teaching status. Teaching status will be obtained from the 2021 Leapfrog Hospital [Survey Results](#) if available; otherwise, it will be determined from the Resident to Bed Ratio from the Impact file if available. Teaching status is only used for urban hospital cohorts.

Once assigned to a cohort, the hospital is assigned the mean score of its cohort. The mean score is calculated based on hospitals that have a score in the current round (i.e., fall 2021) from either Leapfrog’s publicly reported [Survey Results](#) or Step 1 of the imputation model.

| Characteristic | Data Source | Criteria |
|---------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Urban/rural status | CMS Impact file: URGEO | Urban Rural |
| Safety net status | CMS Impact file: DSHPCT | Non-safety net: DSHPCT is in the bottom 80% of hospitals Safety net: DSHPCT is in the top 20% of hospitals |
| Number of Beds | CMS Impact file: Beds | Fewer than 100 beds 100 or more beds |
| Teaching status | 2021 Leapfrog Hospital Survey: Teaching Status CMS Impact file: Resident to Bed Ratio | 2021 Leapfrog Hospital Survey <ul style="list-style-type: none"> • Non-Teaching • Teaching CMS Impact file <ul style="list-style-type: none"> • Non-Teaching: Resident to bed Ratio equals 0 • Teaching: Resident to bed ratio is greater than 0 |

Example of Step 2:

A hospital is missing scores for CPOE, BCMA, and IPS because it has never submitted a Leapfrog Hospital Survey or never had non-imputed data available via other supplemental data sources. In fact, due to missing data, the hospital has never received a Hospital Safety Grade. Therefore, in the spring 2021 Hospital Safety Grade, the hospital will be assigned scores

based on the mean CPOE and BCMA scores of other similar hospitals in the U.S. and may receive a Hospital Safety Grade for the first time. The CMS Impact file data shows the hospital belongs to a cohort of hospitals that are urban, safety net, teaching, and have fewer than 100 beds. As such, the hospital's CPOE score and BCMA score will match the mean scores of that cohort.

Important Dates for the fall 2021 Safety Grade

July 31, 2021 Survey Deadline:

Hospitals that would like Leapfrog Hospital Survey Results included in the Fall 2021 Leapfrog Hospital Safety Grade are urged to submit a Survey by July 31. This will allow Leapfrog to perform its [Extensive Monthly Data Verification](#), which must be completed before the Survey Results are used in the Hospital Safety Grade. It also ensures that hospitals have adequate time to correct data entry and reporting errors prior to the [August 31 Data Snapshot Date](#).

August 31, 2021 Data Snapshot Date:

The data snapshot date is the date that Leapfrog will extract public data (i.e., download data published by CMS or submitted to Leapfrog or secondary data sources) to calculate Leapfrog Hospital Safety Grades. All data, including Leapfrog Hospital Survey Results, must be finalized by these dates. As described above, Leapfrog will maintain CMS infection data from the spring 2021 Hospital Safety Grades for hospitals that do not submit a Leapfrog Hospital Survey (including Section 7).

Monitoring the Missing Data Threshold for the Outcome Measures Domain

Leapfrog is actively monitoring how COVID-19 will affect the amount of CMS data available for the Safety Grade and may announce an update to the missing data threshold for the Outcome Measures Domain later this summer or early fall.

In previous rounds of the Hospital Safety Grade, hospitals missing more than six (6) process/structural measures or more than five (5) outcome measures were not graded.

Appendix A: Fall 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) | 2021 Leapfrog Hospital Survey | 2021 | Imputation Model Applied | N/A |
| Bar Code Medication Administration (BCMA) | 2021 Leapfrog Hospital Survey | 2021 | Imputation Model Applied | N/A |
| ICU Physician Staffing (IPS) | 2021 Leapfrog Hospital Survey | 2021 | Imputation Model Applied | N/A |
| Safe Practice 1: Leadership Structures and Systems | 2021 Leapfrog Hospital Survey | 2021 | N/A | N/A |
| Safe Practice 2: Culture Measurement, Feedback & Intervention | 2021 Leapfrog Hospital Survey | 2021 | N/A | N/A |
| Safe Practice 9: Nursing Workforce | 2021 Leapfrog Hospital Survey | 2021 | N/A | N/A |
| Hand Hygiene | 2021 Leapfrog Hospital Survey | 2021 | N/A | N/A |
| 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 (10) | | | | |
|--------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------|------------------------------|-------------------------|
| Measure Name | Primary Data Source | Reporting Period | Secondary Data Source | Reporting Period |
| Foreign Object Retained | CMS | To Be Determined | N/A | N/A |
| Air Embolism | CMS | To Be Determined | N/A | N/A |
| Falls and Trauma | CMS | To Be Determined | N/A | N/A |
| CLABSI | 2021 Leapfrog Hospital Survey | 07/01/2019 – 12/31/2019 AND 07/01/2020 – 12/31/2020 | CMS | 01/01/2019 – 12/31/2019 |
| CAUTI | 2021 Leapfrog Hospital Survey | 07/01/2019 – 12/31/2019 AND 07/01/2020 – 12/31/2020 | CMS | 01/01/2019 – 12/31/2019 |
| SSI: Colon | 2021 Leapfrog Hospital Survey | 07/01/2019 – 12/31/2019 AND 07/01/2020 – 12/31/2020 | CMS | 01/01/2019 – 12/31/2019 |
| MRSA | 2021 Leapfrog Hospital Survey | 07/01/2019 – 12/31/2019 AND 07/01/2020 – 12/31/2020 | CMS | 01/01/2019 – 12/31/2019 |
| C. Diff. | 2021 Leapfrog Hospital Survey | 07/01/2019 – 12/31/2019 AND 07/01/2020 – 12/31/2020 | CMS | 01/01/2019 – 12/31/2019 |
| PSI 4: Death Rate among Surgical Inpatients with Serious Treatable Conditions | CMS | 07/01/2018 – 12/31/2019 | N/A | N/A |
| PSI 90: Patient Safety and Adverse Events Composite | CMS | 07/01/2018 – 12/31/2019 | N/A | N/A |