

Hospital Equity Report Cell Suppression Procedures

This document describes the Hospital Quality Institute’s cell suppression procedures used for the HCAI Hospital and System Equity Reports.

In accordance with [Health and Safety Code Section 127373](#), subdivision (d), the data and information included in annual equity reports must be disclosed in a manner that protects the personal information of patients pursuant to state and federal privacy laws, including the Confidentiality of Medical Information Act (Part 2.6 (commencing with [Section 56](#)) of Division 1 of the Civil Code) and the federal Health Insurance Portability and Accountability Act of 1996 ([Public Law 104-191](#)).

This is defined in Sections 95303 and 95304 as being consistent with the California Health and Human Services Agency’s “[Data De-Identification Guidelines \(DDG\)](#),” dated September 23, 2016, which include using complementary suppression when necessary to prevent back-calculation of suppressed cells. For the purposes of this requirement, CCR, Title 22, Division 7, Chapter 8.4 Sections 95303 and 95304 indicate that reports shall include the numerator, denominator, and rate of each core measure broken down by each stratification category, to the extent the data is available and consistent with the DDG. If the stratification group is prohibited from being reported due to the DDG, select “*suppressed*.”

The [Hospital Equity Measures Submission Guide \(HEMSG\)](#) clarifies that if the data is not readily available, including when data is not collected for *one* stratification group (e.g., Middle Eastern or North African) or *none* of the stratification groups (e.g., disability status), the category values should be left blank (i.e., the numerator, denominator, and rate treated as missing, rate *excluded* from use as a numerator or denominator for purposes of calculating rate ratios, and rate ratio left blank for the stratification group or groups).

The [HEMSG](#) specifies that rate ratios should be calculated **after** applying the DDG procedures. In the case of measures for which low rates are preferred (e.g., readmissions), the rate ratios are calculated as the rate for each stratification group divided by the rate of the reference group (i.e., the group with the lowest rate), resulting in the rate ratio for the reference group being **1.0**. However, if the rate of the reference group is zero (e.g., 0% readmissions), the rate ratios are calculated as the rate for each stratification group divided by *half of the lowest non-zero rate* (the rate ratio for the true reference group should be *reported* as **0.0** in such cases). In the case of measures for which high rates are preferred (e.g., breastfeeding), the rate ratios are calculated as the rate of the reference group (i.e., the group with the highest rate) divided by the rate for each stratification group, resulting in the rate ratio for the reference group being **1.0**.

The cell suppression procedures used by the Hospital Quality Institute for generating HCAI Hospital and System Equity Reports in accordance with the above law, regulations, and DDG guidelines are as follows.

- 1. The numerator, denominator, and rate for a measure stratification are all replaced with the word “*suppressed*” (without the quotation marks), the rate is treated as *missing* and *excluded* from use as a numerator or denominator for purposes of calculating rate ratios,**

and the rate ratio is left blank for the stratification group, if at least one of the following conditions is true:

a. If the DDG risk assessment results in a risk score of 13 or greater AND either the numerator is from 1-10 individuals OR the denominator is less than 20,000 individuals.

i. DDG Risk Score Calculation Method:

1. **Start with the subtotal risk score for the stratification** (see below)
2. **Add population size risk points based on numerator as follows:**
 - 1000+ events: +2 points
 - 100-999 events: +3 points
 - 11-99 events: +5 points
 - <11 events: +7 points
3. **If Behavioral Health (BH) stratification:** +4 points

ii. Subtotal Risk Scores by Measures for Structural Measures:

Language Distribution (Subtotal: 8 points)

- Language detail (+4), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <100 events*

CMS Screening of SDoH (Subtotal: 4 points)

- Geography (+3), Variable interactions (+1)
- *Suppression thresholds: Never*

iii. Subtotal Risk Scores by Stratification for Core Measures:

Race/Ethnicity (Subtotal: 7 points for general, 11 points for BH)

- Race/Ethnicity detail (+3), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <11 events (general) OR Any events (BH)*

Age - Non-maternal (Subtotal: 6 points for general, 10 points for BH)

- Age range >10 years (+2), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <11 events (general) OR <1000 events (BH)*

Age - Maternal (Subtotal: 9 points for general, 13 points for BH)

- Age range 6-10years (+3), Sex detail (+1), Geography (+3), Variable interactions (+2)
- *Suppression thresholds: Any events*

Age - Children's Hospital (Subtotal: 9 points for general, 13 points for BH)

- Age range 3-5 years (+5), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <100 events*

Sex Assigned at Birth (Subtotal: 5 points for general, 9 points for BH)

- Sex detail (+1), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: Never (general) OR <100 events (BH)*

Preferred Language (Subtotal: 8 points for general, 12 points for BH)

- Language detail (+4), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <100 events (general) OR Any events (BH)*

Expected Payor (Subtotal: 7 points for general, 11 points for BH)

- Other variables <5 groups (+3), Geography (+3), Variable interactions (+1)
- *Suppression thresholds: <11 (general) OR Any events (BH)*

2. The following procedures govern the implementation of complementary cell suppression for stratified measures to prevent back-calculation of suppressed data cells and maintain statistical disclosure control.

Primary Assessment

Determine the number of stratification groups requiring suppression based on established disclosure risk criteria.

Scenario 1: No Suppression Required

When no stratification groups meet suppression criteria, no complementary suppression measures are implemented.

Scenario 2: Multiple Groups Suppressed

When two or more stratification groups require suppression, sufficient ambiguity exists to prevent back-calculation. No additional complementary suppression is necessary.

Scenario 3: Single Group Suppression

When exactly one stratification group requires suppression, implement complementary suppression using the following hierarchy:

i. Primary Method (Preferred)

Apply when the following conditions are met:

- A residual category exists (Other, Unknown, Other/Unknown, or Choose Not to Disclose; all stratifications have a residual category except race/ethnicity, age, and disability status)
- Data is available to calculate rates for the residual category
- The residual category is not the group already requiring suppression

Implementation: Suppress the numerator, denominator, and rate values for the residual category. Exclude the suppressed rate from rate ratio calculations and leave corresponding rate ratios blank.

ii. Secondary Method (Alternative)

Apply when primary method conditions are not met:

- No appropriate residual category exists
- Data is unavailable for residual category calculation

- The residual category is the group already requiring suppression

Implementation: Identify the stratification group with the smallest *denominator* among those with available data for rate calculation. Suppress the numerator, denominator, and rate values for this group. Exclude the suppressed rate from rate ratio calculations and leave corresponding rate ratios blank.

Suppressed values are replaced with the designation "suppressed" and treated as missing data for all subsequent analytical procedures. Suppressed rates are excluded from use in numerator or denominator calculations for rate ratios, with corresponding ratio fields left blank to maintain data integrity.