

Grouped Performance Metrics Methodology

In-Hospital Mortality

- a. **Definition (Numerator):** Percentage of cases where patients expired on or before discharge date.
- b. **Population (Denominator):** All elective total hip or total knee arthroplasties, respectively. All cases with a diagnosis of a femoral neck fracture (FNF) were removed from the data set.

90-Day Readmission

- a. **Definition (Numerator):** Percentage of cases where patients were initially readmitted to the hospital within 90 days of receiving hip or knee arthroplasty.
- b. **Population (Denominator):** All elective total hip or total knee arthroplasties when postoperative complications data has been submitted. All cases with a diagnosis of a femoral neck fracture (FNF) were removed from the data set.

Surgical Site Infection (SSI)

- a. **Definition (Numerator):** Percentage of cases where the reported postoperative complication diagnosis code (up to 30 fields) indicates infection for the initial postoperative encounter, as defined below using mapped ICD-10-CM codes¹.
- b. **Population (Denominator):** All elective total hip or total knee arthroplasties when postoperative complications data has been submitted. All cases with a diagnosis of a femoral neck fracture (FNF) were removed from the data set.

90-Day Mortality

- a. **Definition (Numerator):** Percentage of cases where patients expired on or after procedure date, and within 90 days of procedure date.
- b. **Population (Denominator):** All AJRR elective total hip or total knee arthroplasties, for the performance period. All cases with a diagnosis of a femoral neck fracture (FNF) were removed from the data set.

Overview and Interpretation

The analysis approach is based on the Center for Medicare and Medicaid Services (CMS) methodology for the [Hospital Compare Program](#). However, institutions will be compared against the registry benchmark rather than a CMS-generated national rate, and a low volume threshold of 10 eligible cases was used rather than 25 used by CMS.

The “AJRR Benchmark” is the national rate for the specified metrics based on the first full year of available AJRR data. The institution’s interval estimate is compared to this registry benchmark.

For each measure institution performance is categorized as:

Benchmark Status	Statistically significantly lower than national rate	No statistically significant difference from national rate	Statistically significantly higher than national rate	Insufficient data to calculate
Criterion	The entire 95% interval estimate surrounding the institution’s rate is lower than the registry rate.	The 95% interval estimate surrounding the institution’s rate includes the registry rate.	The entire 95% interval estimate surrounding the institution’s rate is higher than the registry rate.	Unable to compute metric due to missing or invalid data.

Modified from <https://www.medicare.gov/hospitalcompare/Data/Hospital-returns.html>

¹Calderwood, MSMa, AKhan, YMOlsen, MABratzler, DWYokoe, DSHooper, DCStevenson, KFraser, VJPlatt, RHuang, SSCDC Prevention Epicenters Program. Use of Medicare diagnosis and procedure codes to improve detection of surgical site infections following hip arthroplasty, knee arthroplasty, and vascular surgery. *Infection Control and Hospital Epidemiology*, 2012, Vol 33, 1