

Infection Reporting for Knee Replacement Surgeries

The following graph and table show information about infections following knee replacements for Vermont hospitals during the reporting year.

The standardized infection ratio (SIR) is a summary measure that compares the number of infections following knee replacement surgeries in Vermont to national data for people having the same surgery. The SIR takes into account patient and medical characteristics (e.g., age, gender, length of surgery, overall assessment of physical health) that may increase or decrease the patient's risk of infection. This adjustment for differences allows us to make reasonable comparisons among hospitals regardless of the characteristics of their patients. Findings in this report are based on the assumption that patients at Vermont hospitals are similar to all patients in the NHSN database.

The SIR is a ratio that describes a hospital's infection numbers compared to a predicted number using national data. The national data includes all hospitals in the U.S. reporting data for this surgery to the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN) Database. Since the NHSN database does not contain data for every knee replacement performed in the U.S, there is a level of uncertainty associated with the estimated SIR. This uncertainty is represented by a "95% confidence interval" (presented as a shaded bar on the graph below). A confidence interval of 95% can be interpreted as follows. If the procedure for calculating the SIR were repeated for different groups of people who had a knee replacement surgery, the true SIR would fall within that range 95% of the time. Confidence intervals provide a simple way to determine statistical significance. If one SIR lies outside the 95% confidence interval of another SIR, there's a significant difference between the two SIRs. ([Click here for technical guide](#)).

Keep in mind that a hospital's infection reporting is only one thing to consider when choosing where to get your care. The advice of your physician, the hospital's and specialist's experience with the type of care you need, and other factors unique to your situation should be considered as well. Be careful when drawing conclusions from this information. Small numbers of patients and infections may distort reported performance.

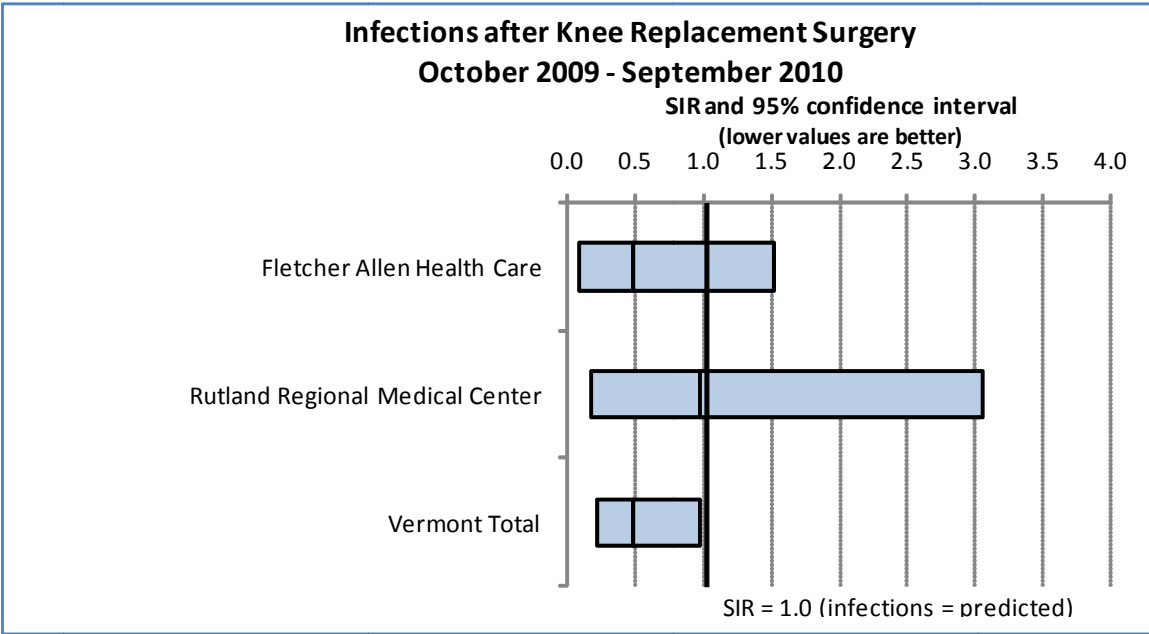
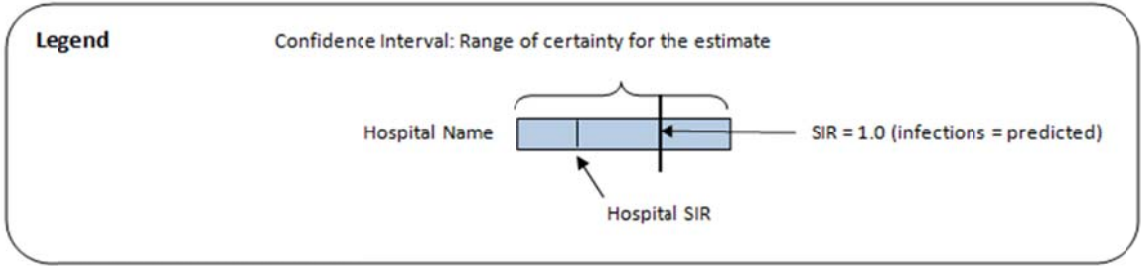
Reading the graph:

Since the SIR is an estimate, the confidence interval (CI) is also shown using the shaded bar in the graph below. A confidence interval is a measure of certainty (in this case with 95% certainty) of an estimate (such as the SIR).

The closer the hospital's SIR is to 1.0, the closer the number of infections was to the number of predicted infections for that hospital. The SIR can only be calculated if the number of predicted infections for the hospital is greater than 1.0. When the number of predicted infections is less than 1.0, the number of surgeries performed is too low to calculate a reliable SIR. This is the reason that a SIR could not be calculated for every Vermont hospital that performed knee replacement surgery within the reporting year.

When a SIR can be calculated, there are four possible results for the hospital:

- If a Vermont hospital has an SIR of 0, it means they had **no** infections during that time period.
- If the shaded bar on the graph (95% CI) falls completely below the reference line of 1.0, the number of infections was **lower (better)** than what we would predict, based on national data.
- If the shaded bar crosses over the reference line of 1.0, the number of infections was **similar (not significantly different)** than what we would predict, based on national data.
- If the shaded bar falls completely above the reference line of 1.0, the number of infections was **higher (worse)** than what we would predict, based on national data.



Knee Replacements October 1, 2009 through September 30, 2010					
Hospital	Number of Infections	Number of Surgeries	Standardized Infection Ratio	95% Confidence Interval for SIR	Hospital performance compared to NHSN national data
Brattleboro Memorial Hospital	0	89	Not applicable	na	na
Central Vermont Medical Center	0	56	Not applicable	na	na
Copley Hospital	0	102	Not applicable	na	na
Fletcher Allen Health Care	2	426	0.48	(0.09, 1.5)	Similar to national NHSN
Gifford Medical Center	0	51	Not applicable	na	na
Mt. Ascutney Hospital & Health Center	0	15	Not applicable	na	na
North Country Hospital	0	26	Not applicable	na	na
Northeastern Vermont Regional Hospital	0	48	Not applicable	na	na
Northwestern Medical Center	1	88	Not applicable	na	na
Porter Hospital	0	50	Not applicable	na	na
Rutland Regional Medical Center	2	263	0.97	(0.17, 3.06)	Similar to national NHSN
Southwestern Vermont Medical Center	1	61	Not applicable	na	na
Springfield Hospital	0	45	Not applicable	na	na
Vermont Total	6	1,320	0.49	(0.22, 0.98)	Lower than national NHSN

Not applicable (na): Too few surgeries were performed to calculate a reliable SIR. When SIR cannot be calculated, a comparison to national data is not possible.

Note: Grace Cottage Hospital is excluded because they do not perform this surgery.