

Total Abdominal Hysterectomy Surgical Site Infection Rates: Technical Guide

This technical guide was developed to provide more detail about Vermont's public reporting of surgical site infections.

What is a Total Abdominal Hysterectomy?

A total abdominal hysterectomy is the removal of the uterus through an incision in the abdomen. The ICD-9-CM codes for this procedure are: 68.31, 68.39, 68.41, 68.49, 68.61, and 68.69.

Who is required to report data?

Any Vermont hospital performing a total abdominal hysterectomy is required to report data to NHSN.

How are data reported?

Data are reported in the CDC National Healthcare Safety Network (NHSN) System. The data are entered into the NHSN system by designated hospital staff. The NHSN System allows for data extraction and analysis, including benchmarking results against peer group and national data. The CDC excludes hospitals with fewer than 20 procedures per risk category in a year from their benchmark calculations. Vermont excluded hospitals performing fewer than 20 total abdominal hysterectomies per risk category during the 12 month reporting period from this public report due to concerns about small numbers.

How is an infection rate calculated and what does it mean?

A surgical site infection rate is reported as the percent of procedures that developed an infection. Surgical site infection rates are calculated and reported separately by procedure and risk category. Lower rates are better.

For example, if a hospital had 1 infection resulting from a total abdominal hysterectomy and had performed 100 total abdominal hysterectomies, the infection rate is calculated as follows: $1/100 \times 100 = 1\%$ of total abdominal hysterectomies had an infection.

What is a risk category and how is it determined?

NHSN assigns surgical patients into categories based on the presence of three major risk factors:

- 1) Operation lasting more than the duration cut point hours, where the duration cut point is the approximate 75th percentile of the duration of surgery in minutes for the operative procedure, rounded to the nearest whole number of hours.
- 2) Contaminated (Class 3) or Dirty/infected (Class 4) wound class.
- 3) ASA classification of 3, 4, or 5.

The patient's SSI risk category is simply the number of these factors present at the time of the operation (0, 1, 2, 3). Patients with zero factors are considered "lower risk"; patients with one risk factor are considered "moderate risk"; and patients with two or three risk factors are considered "higher risk".

How do I interpret the comparison to hospitals reporting to NHSN?

The comparison is based on significance testing. Three categories are used to summarize how each hospital compares to the Average Total Abdominal Hysterectomy (TAH) Infection Rate for all hospitals in the U.S. reporting to this procedure to NHSN:

- The infection rate is lower (better) than the average TAH infection rate for hospitals reporting to NHSN;
- The infection rate is similar to the average TAH infection rate for hospitals reporting to NHSN;
- The infection rate is higher (worse) than the average TAH infection rate for hospitals reporting to NHSN.

The following link leads to an article from the Centers for Disease Control and Prevention that contains NHSN national data from January 2006 through December 2007:

<http://www.cdc.gov/ncidod/dhqp/pdf/nhsn/2008NHSNReport.pdf>

What is significance testing?

Tests of significance are needed to tell us whether the number of infections in a hospital is unusually high or low relative to the number of infections in a reference group (all NHSN hospitals reporting the same procedure).

One way to do this is using a p-value. The p-value is a probability that weighs the evidence for determining whether an infection rate is unusually high or low in comparison to the reference group. If the p-value is small (less than .05), there is sufficient evidence to suggest that the infection rates are either higher or lower than the average for all NHSN hospitals. If the p-value is greater than .05, then there is not enough evidence to conclude the hospital's infection rate is different from the average for all NHSN hospitals.