



OPERATIONAL DEFINITION

MEASUREMENT: Nosocomial Infection Rates: Surgical Site Infections per 100 Procedure Days

I. Description and Rationale

This measure answers the question:

How often do patients contract an infection as a result of the medical care we provide?

Surgical Site Infections per 100 Procedure Days is measured according to definitions published by the National Healthcare Safety Network [NHSN] of the Centers for Disease Control and Prevention (CDC). It is the number of Class I and Class II surgical site infections (SSI's) per 100 procedure days. The infection must not be incubating at the time of admission into the hospital. For most infections, this means that the infection becomes evident 48 hours or more after admission, but each infection must be assessed individually.

II. Population Definition (Inclusions/Exclusions)

- All Inpatients who had surgical procedures
- Infection must not be incubating at the time of admission into the hospital. For most infections, this means that the infection becomes evident 48 hours or more after admission, but each infection must be assessed individually.

III. Data Source(s)

Dr. Beverly Connelly, CCHMC Division of Infectious Diseases

IV. Sampling and Data Collection Plan

Numerators: The following methods are used to determine infections:

- 1) For ICU patients, there is a daily review of patient charts for any indications that there might be an infection, and appropriate steps taken to identify and/or confirm, based on what is found in those reviews.
- 2) For both ICU and non-ICU patients, Infection Control will be alerted to any positive results from blood cultures ordered by the physicians. In such cases, Infection Control will also review the corresponding patient charts to check for any additional information or indications.
- 3) Discharge codes are reviewed for all patients for indication of any infections not previously identified.

Denominators: Procedure days are determined electronically, from the list of surgical procedures performed during the month, along with the associated wound class (as

entered by surgical staff). A "procedure day" is most often simply a trip to the operating room, regardless of how many procedures are performed. However, when procedures involving different wound classes are performed in the same trip to the operating room, a procedure day will be counted separately for each wound class involved. Thus, procedures involving both Class I and Class II wounds will result in two procedure days -- one for Class I, and one for Class II, since in such cases there are usually separate incisions, each vulnerable to infection. But there is no specific count of incisions. It is difficult to determine a precise count of procedure days. The counts obtained will be close, but not exact.

V. Calculation

Numerator: A Class I or II infection as defined by CDC guidelines.

Denominator: A procedure-day is a "trip" to the operating room. For example, if a patient has 6 procedures for one surgery, this only counts as 1 "trip" or procedure day.

Nosocomial Infection Rate = (Numerator/Denominator)*100

VI. Analysis Plan and Frequency of Reporting

Data is collected monthly and reported internally via a monthly control chart. It is also reported quarterly on the CCHMC Hospital scorecard. This measure is broken out by Class I and Class II separately on the CSI Perioperative dashboard, CSI Inpatient dashboard, and the Patient Safety team. Separate Class I and Class II, as well as combined Class I and Class II monthly control charts are available.

VII. Reporting Venues

- Results are reported on the CCHMC Hospital Scorecard under “Health Care Delivery”
- Results are reported monthly (Class I and II broke out separately) on the Inpatient CSI Dashboard and Perioperative CSI Dashboard.
- Monthly control chart with are posted on Centerlink under Patient Safety (link entitled, “[Class I and II Surgical Site Infections](#)”)

VIII. Limitations

IX. Experts/Resources

- Centers for Disease Control (CDC) – National Nosocomial Infection Surveillance (NNIS): definitions are available for download at <http://www.apic.org/pdf/cdcdefs.pdf>
- CDC NNIS System. National Nosocomial Infections Surveillance (NNIS) System report, data summary from January 1992 through June 2003, issued August 2003.
- Jarvis W. R., Benchmarking for Prevention: The Centers for Disease Control and Prevention’s National Nosocomial Infections Surveillance (NNIS) System Experience. Infection 31:2003 Supplement 2.

X. Revision History

Version	Primary Author(s)	Description of Version	Date Completed
Draft	AMA		06/01/2004
Revision 1	AMA	Population is all inpatients	11/10/2004
Revision 2	HA	Change format	1/5/2005
Revision 3	AMA	Added Analysis/Reporting and venues section	2/9/2005
Revision 4	TAW	Amended Description and the Analysis Plan	6/23/2005
Revision 5	TAW	Expanded Sampling and Data Collection Description Updated NNIS references to NHSN	09/11/2008