



OPERATIONAL DEFINITION

MEASUREMENT: Nosocomial Infection Rates: Bloodstream Infections per 1000 Catheter Days

I. Description and Rationale

This measure answers the question:

How often do patients contract an infection as a result of Central Venous Catheter (CVC) or Peripherally Inserted Central Catheters (PICC) insertions or maintenance practices?

Bloodstream Infections are assessed according to definitions published by the National Healthcare Safety Network [NHSN] of the Centers for Disease Control and Prevention (CDC). This measure is the number of CVC or PICC associated laboratory confirmed bloodstream infections (LCBI's) per 1000 catheter days. The data are collected house-wide for patients with one or more CVCs or PICCs. To be counted, an infection must not be incubating at the time of admission. For most infections, this means that the infection does not become evident until 48 hours or more after admission, but each infection must be assessed individually.

II. Population Definition (Inclusions/Exclusions)

- Collected house-wide for patients with a CVC or PICC
- Analyzed and reported separately for CCHMC house-wide, RCNIC, CICU, PICU, A5N2, A5S, B5E, and B5W.
- Infection must not be incubating at the time of admission into the hospital. For most infections, this means that the infection does not become evident until 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: CVC and PICC line days are provided to Infection Control monthly, from the CVC Resource Nurses, who make a daily count all of the lines.

V. Calculation

Numerator: Number of patients contracting an infection, as defined by CDC guidelines. Multiple infection sites due to the same organism are counted as one infection. For this measure, distinction is not made between an infection due to CVC/PICC insertion and one due to maintenance practices.

Denominator: Total number of catheter days during the time period.

Nosocomial Infection Rate = (Numerator/Denominator)*1000

VI. Analysis Plan and Frequency of Reporting

Data is collected monthly. It is analyzed and reported separately for CCHMC house-wide, RCNIC, CICU, PICU, A5N2, A5S, B5E, and B5W.

VII. Reporting Venues

- Reported quarterly on the CCHMC Hospital Scorecard under “Health Care Delivery”
- R reported monthly on the Inpatient CSI Dashboard
- Monthly control charts are posted on Centerlink under Strategic Improvement Priorities Reports and under Patient Safety.

VIII. Limitations

- Does not distinguish between infections due to CVC insertion and infections due to CVC maintenance practices. Catheter days as a denominator may not be as effective for Infections due to CVC insertion.

X. Experts/Resources

- Centers for Disease Control (CDC) – National Healthcare Safety Network [NHSN]: definitions are available for download at...
<http://www.cdc.gov/ncidod/dhqp/pdf/nnis/NosInfDefinitions.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.

XI. Revision History

Version	Primary Author(s)	Description of Version	Date Completed
Draft	AMA		06/03/2004
Revision 1	AMA	Reformatted	02/09/2005
Revision 2	TAW	Amended Description and Analysis Plan	06/23/2006

Version	Primary Author(s)	Description of Version	Date Completed
Revision 3	TAW	Added mention of Individual Units	06/29/2006
Revision 4	TAW	Expanded Sampling and Data Collection Description Updated NNIS references to NHSN	09/11/2008