DELAWARE DEPARTMENT OF HEALTH & SOCIAL SERVICES
DIVISION OF PUBLIC HEALTH

Validation of Central Line-Associated Bloodstream Infections Data Reported To The National Healthcare Safety Network

BACKGROUND

In February 2012, the Delaware DHSS DPH contracted with Advanta Government Services, LLC (AGS) to conduct a validation study of the data reported to the National Healthcare Safety Network (NHSN) of the Centers for Disease Control and Prevention (CDC). The objective of the study was to determine the accuracy of data reported to the CDC NHSN.

The project goal, as stipulated in contract requirements, was to evaluate the completeness and accuracy of Central Line-Associated Blood Stream Infections (CLABSIs) reported by Intensive Care Units (ICUs) of eight (8) Delaware hospitals, to NHSN, for the period of January 1, 2010, through December 31, 2011.

The Delaware Hospital Infections Disclosure Act of 2007 established the requirement for the DHSS to publicly report CLABSIs that occur in participating hospital, intensive care units. The law requires hospitals to report hospital-acquired infections (HAIs) to the DHSS by means of the CDC NHSN. AGS designed the methodology for this validation study to evaluate the extent to which the reported data conform to NHSN, CLABSI specifications. Data that do not conform to NHSN definitions could negatively affect the publicly-reported HAI infection rates for both the participating hospitals and the DPH reporting of State initiatives to monitor and reduce the CLABSI rates.

METHODOLOGY

The project methodology centered on (1) establishing relationships with the Delaware hospitals, including working with hospitals to submit the necessary data to identify the project sample, and obtaining hospital participation in the chart audit and survey processes; and (2) determining and implementing the processes for selection, identification, and reporting appropriateness, including the discrepancy review process.

Determine the accuracy and completeness of each hospital's CLABSI reports submitted to NHSN.

The accuracy and completeness of CLABSI reports submitted to NHSN was a two-step process. The first step was accomplished by comparing the CDC's NHSN database of CLABSIs reported to DPH for the validation study period of January 1, 2010 through December 31, 2011, against all the CLABSI reports submitted by each Delaware hospital. The second step was to conduct an on-site chart audit of all cases of CLABSI reported by the hospitals and all cases of sampled positive blood cultures where no CLABSI was reported. The auditor, an Infection Preventionist (IP) with current certification from the Certification Board for Infection Control (CBIC) of the Association for Professionals in Infection Control & Epidemiology (APIC), evaluated the medical records of all patients identified as having a CLABSI. The auditor's chart review included both the determination of whether the case was consistent with NHSN criteria for identifying a CLABSI and whether the data-entry of the hospital's CLABSI report was accurate.

The following data sources were used to accomplish these tasks:

- All CLABSI reports submitted to NHSN by DE hospitals;
- CDC NHSN Delaware CLABSI database;
- DE DPH annual and quarterly publicly reported CLABSI data;
- Medical records of patients identified with cases of CLABSI;
- All blood culture reports, both positive and negative, drawn on ICU patients; and
- Administrative data on all patients admitted to the ICU during the study period.

CONCLUSIONS

The accuracy of the CLABSI cases reported to the NHSN was 87.0%, or 47 of the 54 reported cases. Seven (7) of the cases did not meet the NHSN reporting definitions, and these all occurred in the same hospital. The accuracy of the 104 sampled positive blood cultures, ostensibly not associated with a reportable ICU CLABSI, was 90.4%, or 94 non-CLABSI cases of 104 positive blood cultures sampled. From these 104 positive blood cultures that were not supposed to be associated with a reportable CLABSI, 10 cases were found eligible for NHSN reporting. The overall accuracy of the 158 sampled cases was 89.2%, or 141 of 158 cases.

Changes in CLABSI Findings Between 2010 & 2011

	Reported CLABSI	**Over-reports***	**Under-reports**	**True CLABSIs**
2010 Total	36	1	7	42
2011 Total	18	6	3	15
2 year Total	**54**	**7**	**10**	**57**
Reduction Between Years	18	N/A	4	27
Percentage Reduction	**50.0%**	**N/A**	**57.1%**	**64.3%**
* All over-reports occurred in the same hospital.				