



To develop a probabilistic method for measuring central line-associated bloodstream infection (CLABSI) rates that reduces the variability associated with traditional, manual methods of applying CLABSI surveillance definitions” Hota et al (2015).

Abstract:

OBJECTIVE: To develop a probabilistic method for measuring central line-associated bloodstream infection (CLABSI) rates that reduces the variability associated with traditional, manual methods of applying CLABSI surveillance definitions.

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DESIGN: Multicenter retrospective cohort study of bacteremia episodes among patients hospitalized in adult patient-care units; the study evaluated presence of CLABSI.

SETTING: Hospitals that used SafetySurveillor software system (Premier) and who also reported to the Centers for Disease Control and Prevention’s National Healthcare Safety Network (NHSN).

PATIENTS: Patients were identified from a stratified sample from all eligible blood culture isolates from all eligible hospital units to generate a final set with an equal distribution (ie, 20%) from each unit type. Units were divided a priori into 5 major groups: medical intensive

care unit, surgical intensive care unit, medical-surgical intensive care unit, hematology unit, or general medical wards.

INTERVENTIONS: Episodes were reviewed by 2 experts, and a selection of discordant reviews were re-reviewed. Data were joined with NHSN data for hospitals for in-plan months. A predictive model was created; model performance was assessed using the c statistic in a validation set and comparison with NHSN reported rates for in-plan months.

RESULTS: A final model was created with predictors of CLABSI. The c statistic for the final model was 0.75 (0.68-0.80). Rates from regression modeling correlated better with expert review than NHSN-reported rates.

CONCLUSIONS: The use of a regression model based on the clinical characteristics of the bacteremia outperformed traditional infection preventionist surveillance compared with an expert-derived reference standard.

Reference:

Hota, B., Malpiedi, P., Fridkin, S.K., Martin, J. and Trick, W. (2015) Probabilistic Measurement of Central Line-Associated Bloodstream Infections. *Infection Control and Hospital Epidemiology*. December 14th. .

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