The objective of this study was to evaluate performance metrics and associated patient outcomes of an automated surveillance system, the blood Nosocomial Infection Marker (NIM)" Ridgway et al (2016).

Abstract:

Background: The objective of this study was to evaluate performance metrics and associated patient outcomes of an automated surveillance system, the blood Nosocomial Infection Marker (NIM).

Methods: We reviewed records of 237 patients with and 36,927 patients without blood NIM using the National Healthcare Safety Network (NHSN) definition for laboratory-confirmed bloodstream infection (BSI) as the gold standard. We matched cases with noncases by propensity score and estimated attributable mortality and cost of NHSN-reportable central line-associated bloodstream infections (CLABSIs) and non-NHSN-reportable BSIs.

Results: For patients with central lines (CL), the blood NIM had 73.2% positive predictive value (PPV), 99.9% negative predictive value (NPV), 89.2% sensitivity, and 99.7% specificity.
For all patients regardless of CL status, the blood NIM had 53.6% PPV, 99.9% NPV, 84.0% sensitivity, and 99.9% specificity. For CLABSI cases compared with noncases, mortality was 17.5% versus 9.4% (P = .098), and median charge was $143,935 (interquartile range, $89,794-$257,447) versus $115,267 (IQR, $74,937-$173,053) (P < .01). For non-NHSN-reportable BSI cases compared with noncases, mortality was 23.6% versus 6.7% (P < .0001), and median charge was $86,927 (IQR, $54,728-$156,669) versus $62,929 (IQR, $36,743-$115,693) (P < .0001).

Conclusions: The NIM is an effective screening tool for BSI. Both NHSN-reportable and nonreportable BSI cases were associated with increased mortality and cost.

Reference:


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