



To establish the reliability of the application of National Health and Safety Network (NHSN) central-line-associated bloodstream infection (CLABSI) criteria within established reporting systems internationally” Larsen et al (2019).

Abstract:

OBJECTIVE: To establish the reliability of the application of National Health and Safety Network (NHSN) central-line-associated bloodstream infection (CLABSI) criteria within established reporting systems internationally.

DESIGN: Diagnostic-test accuracy systematic review.

METHODS: We conducted a search of Medline, SCOPUS, the Cochrane Library, CINAHL (EbscoHost), and PubMed (NCBI). Cohort studies were eligible for inclusion if they compared publicly reported CLABSI rates and were conducted by independent and expertly trained reviewers using NHSN/Centers for Disease Control (or equivalent) criteria. Two independent reviewers screened, extracted data, and assessed risk of bias using the QUADAS 2 tool. Sensitivity, specificity, negative and positive predictive values were analyzed.

RESULTS: A systematic search identified 1,259 publications; 9 studies were eligible for inclusion (n = 7,160 central lines). Publicly reported CLABSI rates were more likely to be underestimated (7 studies) than overestimated (2 studies). Specificity ranged from 0.70 (95%

confidence interval [CI], 0.58-0.81) to 0.99 (95% CI, 0.99-1.00) and sensitivity ranged from 0.42 (95% CI, 0.15-0.72) to 0.88 (95% CI, 0.77-0.95). Four studies, which included a consecutive series of patients (whole cohort), reported CLABSI incidence between 9.8% and 20.9%, and absolute CLABSI rates were underestimated by 3.3%-4.4%. The risk of bias was low to moderate in most included studies.

CONCLUSIONS: Our findings suggest consistent underestimation of true CLABSI incidence within publicly reported rates, weakening the validity and reliability of surveillance measures. Auditing, education, and adequate resource allocation is necessary to ensure that surveillance data are accurate and suitable for benchmarking and quality improvement measures over time. Registration: Prospectively registered with International prospective register of systematic reviews (PROSPERO ID CRD42015021989; June 7, 2015). http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42015021989.

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Reference:

Larsen, E.N., Gavin, N., Marsh, N., Rickard, C.M., Runnegar, N. and Webster, J. (2019) A systematic review of central-line-associated bloodstream infection (CLABSI) diagnostic reliability and error. *Infection Control and Hospital Epidemiology*. July 31st. doi: 10.1017/ice.2019.205. .

