"Pre-selection of patients to be checked for signs and symptoms of VAP and CLABSI by a computer-generated automated trigger system was time saving but slightly less accurate than conventional surveillance" Kaiser et al (2014).

Reference:

Kaiser, A.M., de Jong, E., Evelein-Brugman, S.F., Peppink, J.M., Vandenbroucke-Grauls, C.M. and Girbes, A.R. (2014) Development of trigger-based semi-automated surveillance of ventilator-associated pneumonia and central line-associated bloodstream infections in a Dutch intensive care. Annals of Intensive Care. December 21st. eCollection.

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Abstract:

BACKGROUND: Availability of a patient data management system (PDMS) has created the opportunity to develop trigger-based electronic surveillance systems (ESSs). The aim was to evaluate a semi-automated trigger-based ESS for the detection of ventilator-associated pneumonia (VAP) and central line-associated blood stream infections (CLABSIs) in the intensive care.

METHODS: Prospective comparison of surveillance was based on a semi-automated ESS with and without trigger. Components of the VAP/CLABSI definition served as triggers. These included the use of VAP/CLABSI-related antibiotics, the presence of mechanical ventilation or an intravenous central line, and the presence of specific clinical symptoms. Triggers were automatically fired by the PDMS. Chest X-rays and microbiology culture results were checked only on patient days with a positive trigger signal from the ESS. In traditional screening, no triggers were used; therefore, chest X-rays and culture results had to be screened for all patient days of all included patients. Patients with pneumonia at admission were excluded.

RESULTS: A total of 553 patients were screened for VAP and CLABSI. The incidence of VAP was 3.3/1,000 ventilation days (13 VAP/3,927 mechanical ventilation days), and the incidence of CLABSI was 1.7/1,000 central line days (24 CLABSI/13.887 central line days). For VAP, the trigger-based screening had a sensitivity of 92.3%, a specificity of 100%, and a negative predictive value of 99.8% compared to traditional screening of all patients. For CLABSI, sensitivity was 91.3%, specificity 100%, and negative predictive value 99.6%.

CONCLUSIONS: Pre-selection of patients to be checked for signs and symptoms of VAP and CLABSI by a computer-generated automated trigger system was time saving but slightly less accurate than conventional surveillance. However, this after-the-fact surveillance was mainly designed as a quality indicator over time rather than for precise determination of infection rates. Therefore, surveillance of VAP and CLABSI with a trigger-based ESS is feasible and effective.

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