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Effectiveness of Outcome and Process Surveillance for Reducing Ventilator-Associated Pneumonia in a Hospital of Italy.

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OBJECTIVE:
To determine the effect of outcome and process surveillance (intervention) on the rate of ventilator associated pneumonia (VAP) and central vascular catheter associated blood stream infection (CVC-BSI) in three intensive care units (ICUs) of Milan, Italy.

METHODS:
An open label, prospective cohort, active healthcare associated infection surveillance, sequential study was conducted on adult patients admitted to three tertiary-care ICUs. CDC National Nosocomial Infections Surveillance Systems (NNIS) program definitions were used to define device associated infections. The rate of VAP and CVC-BSI during baseline was compared to the rate during an intervention period. During both periods, an open infusion system (glass) was used.

RESULTS:
From November 2003 to February 2005, 843 adult ICU patients were enrolled (273 in the baseline period and 570 in the intervention period). The patient demographics were similar over the two periods.

The incidence of VAP rate during the intervention period was significantly lower than during the baseline period (baseline of 16.3 [11 VAP and 673 mechanical ventilator days] versus intervention of 3.9 [4 VAP and 1033 mechanical ventilator days] VAP per 1000 MV days, RR = 0.24, 95% CI = 0.08 - 0.74, P = 0.007).

The percentage of patients with VAP during the intervention period was significantly lower than during the baseline period (baseline of 5.8% [11/189] versus intervention of 1.2% [4/344]; RR = 0.20, 95% CI = 0.06 - 0.62, P = 0.0019).

The CVC-BSI rate during the intervention period was not statistically significantly different than during the baseline period of the study (baseline of 7.3 [11 BSIs and

1516 CVC days] versus intervention of 6.2 [19 BSIs and 3057 CVC days] per 1,000 CVC days). The RR was 0.86 with a 95% CI of 0.41 – 1.80 and a P value of 0.68.

The percentage of patients with CVC-BSI during the intervention period was not significantly different than during the baseline period (baseline of 4.0% [11/273] versus intervention of 3.3% [19/570]; RR = 0.83, 95% CI = 0.40 – 1.71, P = 0.61).

CONCLUSION:
Outcome and process surveillance resulted in a significant reduction of VAP rate without a concurrent impact on CVC-BSI rate.