**Álvarez-Moreno C, Rosenthal VD, Villamil-Gómez W, et al. Impact of outcome surveillance on central line-associated bloodstream infection rates in 11 intensive care units in 2 cities of Colombia: findings of the International Nosocomial Infection Control Consortium (INICC). In: Proceedings and Abstracts of the 14th Annual Meeting of the International Society of Infectious Diseases (ICID); 2010; Miami, Florida, U.S.A.: March 9-12; 2010.**

# Impact of outcome surveillance on central line-associated bloodstream infection rates in 11 intensive care units in 2 cities of Colombia: findings of the International Nosocomial Infection Control Consortium (INICC)

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**Objectives:** To determine the effect of outcome and process surveillance (intervention) on the rate of Central Line-Associated Bloodstream (CLAB) infection in 11 intensive care units (ICUs) from 2 cities of Colombia.

**Methods:** An open label, prospective cohort, active CLAB surveillance, sequential study was conducted on adult and neonatal patients admitted to tertiary-care ICUs. Rates of CLAB were recorded by applying the definitions provided by CDC-NNIS. The protocol, forms, and outcome and process surveillance methodology used were developed by the INICC. Data were collected from patients with and without device associated infection (DAI). Forms were designed to continuously prompt surveillance officer to suspect DAI by providing a panoramic view of outcomes for each patient (eg, vital signs, invasive device use, cultures, antibiotic use, etc); this is useful when no cultures have been done, because DAI could otherwise be wrongly omitted. Data were collected in ICU. Data uploading and analysis were done at INICC office analyzing DAI rates, microbiological profile of isolates, bacterial resistance, LOS, extra mortality. The CLAB rates during baseline were compared to the rates during an intervention period. Statistical analysis was performed using Chi-square test. $P < 0.05$ was considered significant.

**Results:** The baseline period included the first three months of each medical center's participation in the study; the intervention period lasted a mean of 24.5 months (range 6-54 months). During the baseline period, 620 ICU patients were enrolled, and 5,516, patients were enrolled during the intervention period. Patients' characteristics were similar over the two periods (Patient Gender, P: 0.3271; Patient Age, P: 0.6744; Cancer, P: 0.1032; Renal Failure, P: 0.4458; Hepatic Failure, P: 0.5380; Thoracic Surgery, P: 0.5161; Trauma, P: 0.6332; Previous Infection, P: 0.5982; Stroke, P: 0.2445; Immune compromise, P: 0.6788).
The rate of CLAB per 1,000 CL days during the intervention period was significantly lower than during the baseline period, 15.4 (52/3,376) vs. 10.6 (277/26,171) CLAB per 1000 CL days (RR, 0.69; 95% CI, 0.51-0.92; P 0.0125).

**Conclusions:** Outcome and process surveillance resulted in a significant reduction of the CLAB rate.