

Arikan ÖA, Rosenthal VD, Tulunay M, Oral M, Ünal N. Effectiveness of Outcome and Process Surveillance for Reducing Device Associated Infections Rates in a Turkish Hospital. Findings of the INICC. In: Proceedings and Abstracts of the 17th Annual Scientific Meeting of The Society for Healthcare Epidemiology of America; 2007 April 14-17; Baltimore, U.S.A.; 2007. p. 97.

Effectiveness of Outcome and Process Surveillance for Reducing Device-Associated Infection Rates in a Turkish Hospital. Findings of the INICC.

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OBJECTIVE: To determine the effect of outcome and process surveillance (intervention) on the health care associated infection (HAI) rate in one intensive care unit (ICU) of Ankara, Turkey.

METHODS: An open label, prospective cohort, active HAI surveillance, sequential study was conducted on adult patients admitted to one tertiary-care ICU. The protocol, forms, and methodology implemented were developed by the INICC. The data collection was performed at the participating ICU. Data uploading and data analysis were conducted at INICC headquarters on proprietary software. Rates of HAI were recorded through applying the definitions provided by the CDC-NNIS system. The rate of HAI during baseline was compared to the rate during an intervention period.

RESULTS: From 09/2003 to 12/2005, 468 adult ICU patients were enrolled. We divided the study period in the two following phases: phase 1, from 09/2003 to 03/2005 (19 months); and phase 2, from 04/2005 to 12/2005 (9 months). A total of 349 patients were incorporated during the first phase, and 119 patients during the second phase. Patient's characteristics were similar over the two periods (Patient gender, RR= 1.12, 95% CI = 0.86 - 1.46, P = 0.4114; Age, P= 0.9680; ASIS score, P = 0.9211; Presence of Endocrine diseases, RR = 0.79, 95% CI = 0.44 - 1.39, P = 0.4053; Cardiac Failure, RR = 0.39, 95% CI = 0.09 - 1.71, P = 0.1957; Angina pectoris, RR = 0.81, 95% CI = 0.44 - 1.50, P = 0.5035, Cardiac Surgery, RR = 0.49, 95% CI = 0.11 - 2.18, P = 0.3383; Cancer, RR = 0.84, 95% CI = 0.54 - 1.30, P = 0.4529; Hepatic failure, RR = 0.39, 95% CI = 0.14 - 1.11, P = 0.0673; Thoracic Surgery, RR = 0.59, 95% CI = 0.13 - 2.68, P = 0.4858; Trauma, RR = 1.03, 95% CI = 0.61 - 1.74, P = 0.9062; Previous infections, RR = 0.91, 95% CI = 0.65 - 1.29, P = 0.6057; Immune-compromise, RR = 1.15, 95% CI = 0.53 - 2.49, P = 0.7260). On the other hand, hand hygiene (HH) compliance was compared during the following two periods: from 09/2003 to 06/2004 (baseline HH period), matching with first phase of outcome surveillance; and 07/2004 to 12/2005 (intervention HH Period), matching with the second phase of outcome surveillance. During the baseline HH period, the HH was 36.2%, and during the intervention HH period, it was 45.9%, showing significant HH compliance improvement (RR = 1.27, 95% CI = 1.15 - 1.40, P-value = 0.0001).

The HAI rate per 1,000 bed days during the intervention period was significantly lower than during the baseline period (42.0 vs 25.5 DAIs per 1000 bed days, RR = 0.67, 95% CI = 0.48 - 0.92, P = 0.0133). The percentage of patients with DAI was also significantly lower during the intervention period (56.7% vs 37.8%, RR = 0.61, 95% CI = 0.44 - 0.84, P = 0.0023).

CONCLUSION: Outcome and process surveillance resulted in a significant reduction of the DAI rate, which was reduced 39%.