Research

Impact of active screening for methicillin-resistant *Staphylococcus aureus* (MRSA) and decolonization on MRSA infections, mortality, and medical cost: a quasi-experimental study in surgical intensive care unit

Yuarn-Jang Lee[12], **Jen-Zon Chen**[3], **Hsiu-Chen Lin**[45], **Hsin-Yi Liu**[1], **Shyr-Yi Lin**[6], **Hsien-Ho Lin**[7], **Chi-Tai Fang**[78*] and **Po-Ren Hsueh**[89*]

Critical Care 2015, **19**:143 doi:10.1186/s13054-015-0876-y
Published: 8 April 2015

Abstract (provisional)

Introduction Methicillin-resistant Staphylococcus aureus (MRSA) is a leading pathogen of healthcare-associated infections in intensive care units (ICUs). Prior studies have shown that decolonization of MRSA carriers is an effective method to reduce MRSA infections in ICUs patients. However, there is currently a lack of data on its effect on mortality and medical cost. Methods Using a quasi-experimental, interrupted time-series design with re-introduction of intervention, we evaluated the impact of active screening and decolonization on MRSA infections, mortality and medical costs in the surgical ICU of a university hospital in Taiwan. Regression models were used to adjust for effects of confounding variables. Results MRSA infection rate decreased from 3.58‰ (baseline) to 0.42‰ (intervention period) (P < 0.05), re-surged to 2.21‰ (interruption period), and decreased to 0.18‰ (re-introduction of intervention period) (P < 0.05). Patients admitted to surgical ICU during the intervention periods had a lower in-hospital mortality (13.5% [155/1147] vs. 16.6% [203/1226], P = 0.038). After adjusting for effects of confounding variables, the active screening and decolonization program was independently associated with a decrease in in-hospital MRSA infections (adjusted odds ratio: 0.3; 95% CI: 0.1-0.8) and 90-day mortality (adjusted hazard ratio: 0.8; 95% CI: 0.7-0.99). Cost analysis showed that $22 medical costs can be saved for every $1 spent on the intervention. Conclusions Active screening for MRSA and decolonization in ICU settings is associated with a decrease in MRSA infections, mortality and medical cost.