

Healthcare Case Study
*Oncology Hospital -
National Medical Center,
21st Century, Mexico*

October 2013

Impact of Disinfection With Hydrogen Peroxide as a Strategy to Prevent Nosocomial Pneumonia Caused by *A. baumannii* in Intensive Care Units.

Introduction

Nosocomial Pneumonia is a serious problem in Intensive Care Units (ICUs), with significant economic impact on hospitals. Recently, biofilms have been identified in hospital environmental surfaces which intervene in the cutaneous and oropharyngeal colonization in critically ill patients in ICU, conditioning within 72 hrs the invasion to lung parenchyma, with high prevalences of Nosocomial Pneumonias associated with non-fermenting, gram-negative bacilli, as in the case of *A. baumannii*.

Objective

Identify the impact of an aerial surface disinfectant based on 5% hydrogen peroxide stabilized through a colloidal silver complex on the prevalence of Nosocomial Pneumonia associated with a ventilator by *A. baumannii* in the ICU of the Oncology Hospital, National Medical Center, 21st Century.

Material and Methods

A retrospective study was carried out for 8 months, comparing and evaluating the prevalence of *A. baumannii* implicated in Pneumonia associated with a ventilator 120 days before and 120 days after the additional implementation of the conventional surface cleaning of every room at patient discharge from the ICU, an environmental decontamination, through a 5% Hydrogen Peroxide aerosol stabilized through colloidal silver complex in the Oncology Hospital - National Medical Center, 21st Century, Mexican Institute of Social Security, which consists of 10 rooms, descriptive statistical analysis using Pearson's chi-squared test, SPSS version 19.



Halosil International
91 Lukens Drive
New Castle, Delaware 19720 USA
Phone +1 302 454 8102
Fax +1 302 454 8009
www.halosil.com

Results

During the 8 month follow up (July 2012 to February 2013) a total of 168 patients were identified as admitted in the ICU of the Oncology Hospital, average age of 59 years, 60% of the male population, 78 reported cases by hospital infections with high hospital costs, occurring a prevalence by surgical site infection (SSI) 44.3% (n=35) Nosocomial Pneumonia (NP) 40.5% (n=32), Catheter-Associated Bacteremia (BAC) 15.2% (n=12), pan-resistant *A. baumannii* was found to be involved as an etiologic agent 120 days prior to intervention in 40% vs 5% after the same, in all reported cases with high hospital costs in the ICU. During the study period, an overall prevalence for Nosocomial Pneumonia 120 days prior on intervention of 62.5% (n=20) vs 37.5% (n=12) after the same (figure 1), the principal infectious agent involved in 61% (n =11) of the cases of Nosocomial Pneumonia was *A. baumannii* pan-resistant, finding the greatest impact against Nosocomial Pneumonia of 10 cases prior to intervention vs. 1 case during the 120 days after the environmental decontamination with hydrogen peroxide with a value of $p = 0.005$ (Figure 2).

Conclusion

In hospital environments with complicated surface disinfection as is the ICU, environmental decontamination with Hydrogen Peroxide spray in ICU rooms after patient discharge, results in an effective strategy to prevent the transmittal of pan-resistant *A. baumannii* in critically ill patients, reducing the consumption of antibiotics specific to *A. baumannii* and length of stay in ICU.

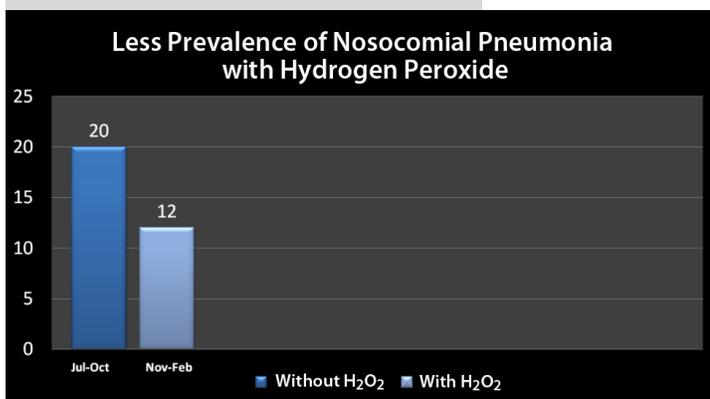


Figure 1

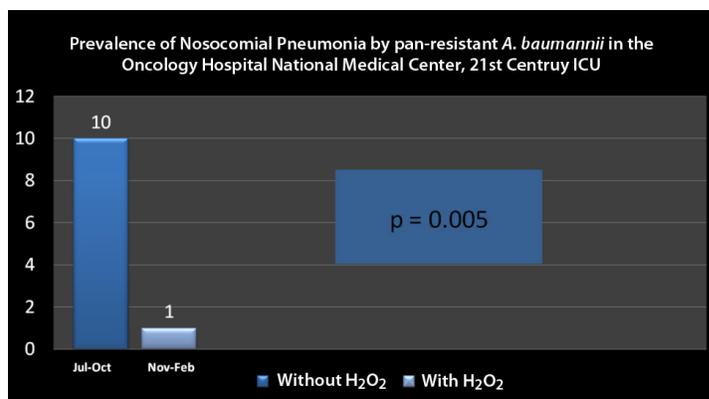


Figure 2