

# Reduction of Healthcare-Associated Infection Related Events by Replacing Regular Hospital Textiles with Copper Oxide Impregnated Textiles: A Crossover, Double-Blind Controlled Study in Chronic, Ventilator-Dependent Patients.

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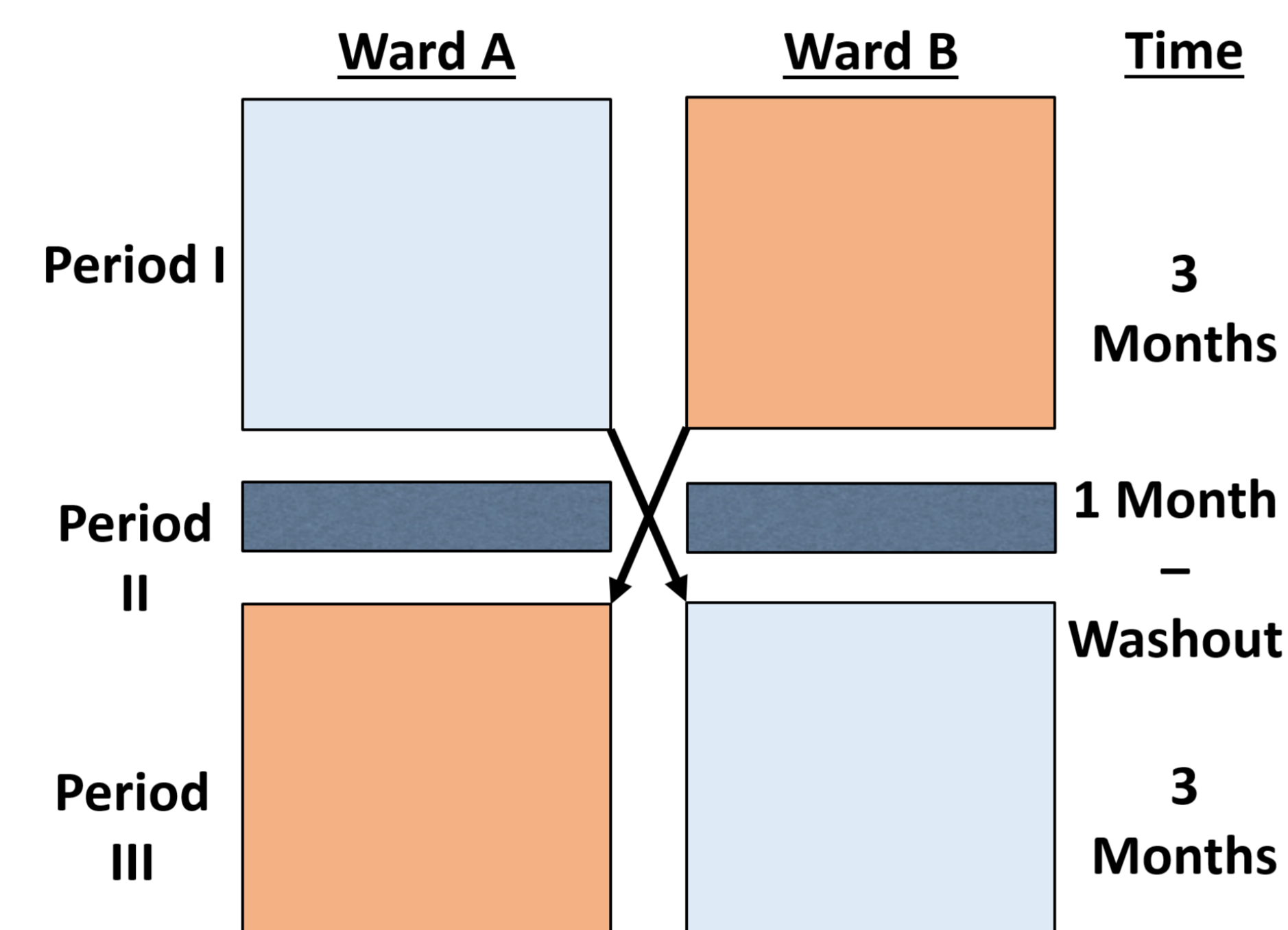


## Introduction

Contaminated linens are a potentially neglected source of nosocomial pathogens that contribute to HAIs. Our objective was to determine if replacing regular textiles with copper oxide biocidal textiles reduces antibiotic treatment initiation (ATI) events, fever days and antibiotic usage among chronic ventilator-dependent patients.

## Methods

- A seven month (February 15-September 15, 2015) double-blind controlled crossover study of 2 intervention periods of 3 months and a 1-month washout period.
- The textiles were dyed and all personnel were blinded to which were the treated or control textiles.
- Cupron® Medical Textiles utilized: Patient gowns, pillowcases, fitted and flat sheets, bath towels, bath blankets, thermal blankets.
- All patients in two ventilator-dependent wards in a long-term care hospital were included in the study.
- No change in infection control measures during the trial.
- All data collection (hospital staff) and independent statistical analysis were conducted blinded to the nature of the linens.



## Outcomes

Endpoint	Criteria	Time Frame for Inclusion
Infection (HAI)	Clinician initiated antibiotic therapy	>24 hours after start of Periods I and III and until the last day of each period
Fever Days	Axillary temperature >37.6°C	
Days of Antibiotic Treatment	Type, dosage, duration	
Antibiotic Daily Defined Dose (DDD)		

## Results

There was a cumulative 29.19% ( $P=.002$ ), 55.45% ( $P<.0001$ ), 22.97% ( $P<.0001$ ) and 29.22% ( $P<.001$ ) relative reductions in HAI events, fever days, antibiotic treatment days and DDD per 1000 Hospitalization Days (HD) when using the copper impregnated textiles compared to control linens in both time periods combined.

Copper impregnated textile endpoint reductions compared to control within each ward are summarized in the table below (normalized to 1000 HD).

Endpoint	Ward A	Ward B
HAI events	25.63% ( $p=.093$ )	34.68% ( $p=.007$ )
Fever Days	49.15% ( $p<.0001$ )	65.08% ( $p<.0001$ )
Days of Antibiotic Treatment	17.93% ( $p=.003$ )	30.30% ( $p<.0001$ )
DDD	18.42% ( $p<.001$ )	41.52% ( $p<.0001$ )

## Conclusions

- In a double-blind, placebo, crossover trial Cupron® Medical Textiles demonstrate a statistically significant reduction in HAI events, fever days, days of antibiotic usage and Daily Defined Dose of antibiotics in a long-term care ward of ventilator-dependent patients.
- Using biocidal textiles may be an important measure aimed at reducing HAI in long-term care medical settings.

