

Demonstrating a 50% Reduction in HO-CDI SIRs

Following Implementation of the Ecolab Patient Room Program, Eight Hospitals Reduce *C. difficile* Infection Rates*

* Carling PC, O'Hara LM, Harris AD, Olmsted R. (2022). Mitigating hospital-onset *Clostridioides difficile*: The impact of an optimized environmental hygiene program in eight hospitals. *Infection Control & Hospital Epidemiology*. [In Press] <https://doi.org/10.1017/ice.2022.84>

**EACH YEAR,
C. diff CAUSES:**

500,000 infections

29,000 deaths

\$4.8B financial burden

In a 2015 study using national U.S. surveillance data (Lessa et al), *Clostridioides difficile* caused almost 500,000 infections and 29,000 deaths¹. Approximately 24.2% of those infections were hospital-acquired, creating a financial burden of \$4.8 billion and a patient mortality rate of 9.3% in the first 30 days. Another study (Zhang et al) quantified the added length of stay as 9.7 days, with a cost of as much as \$34,000 per infection².

Design: Multi-center controlled study with control hospitals and a nonequivalent dependent variable

Setting: Eight acute-care hospitals in six states with stable, endemic hospital-onset *C. diff* infection standardized infection ratios (HO-CDI SIRs)



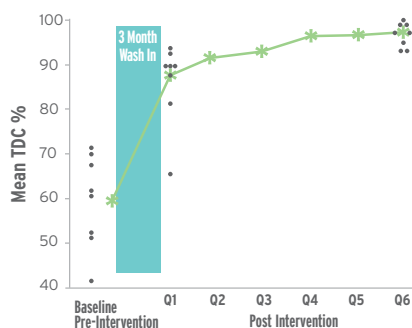
RESULT: 50% REDUCTION IN HO-CDI SIRs**

This study represents the first multi-center controlled study to evaluate a 4-component intervention, Ecolab Patient Room Program (standardized cleaning process, training, monitoring and feedback with DAZO®, daily sporicidal cleaning) on HO-CDI. Ongoing improvement in cleaning thoroughness led to a sustained decrease in new *C. diff* infections.

Following an 18-month pre-intervention control period and collection of baseline thoroughness of disinfection cleaning (TDC), each site was trained on best practices and started daily hospital-wide, sporicidal disinfectant patient zone cleaning. After a wash-in period, the TDC was monitored using patented DAZO Fluorescent Marking Gel. Feedback was provided to staff using a previously validated process improvement program.

STEADY IMPROVEMENT FOR ALL SITES

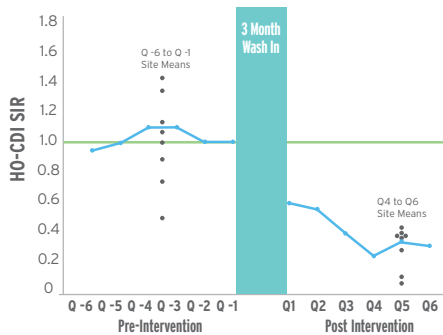
TDC improved steadily for all sites and by 18 months was 93.6% for the group, demonstrating the Ecolab program's effectiveness for optimizing cleaning performance.



A total of 2,328 rooms were evaluated post-intervention (48/site/quarter)

50% DROP IN HOSPITAL-ONSET *C. diff* INFECTION

Ongoing improvement in cleaning thoroughness helped achieve and sustain a relative 50% drop in hospital-onset *C. diff* infection – alleviating known financial burdens and lessening mortality risks.



Mean HO-CDI SIRs were calculated by quarter and decreased from 1.03 to 0.6. Change in average HO-CDI SIR and HO-CAUTI SIR for pre- and post-intervention periods was estimated using a difference-in-differences analysis (95% CI, 0.13-0.75; P = .009). In the adjusted analysis in comparison to controls, there was a 0.55 reduction (95% CI, -0.77 to -0.32) in HO-CDI (P < .001).

ECOLAB PATIENT ROOM PROGRAM

For daily defense against *C. diff* and other hospital-acquired infections: **THIS COMPLETE HYGIENE PROGRAM** combines process, training, monitoring, and feedback to set new standards for a clean, safe environment.

LEARN MORE:

ecolab.com/patient-room-program

¹ Lessa FC, Bامberg WM, Beldavs ZG et al. Burden of *Clostridium difficile* Infection in the United States. *N Engl J Med* 2015;372:825-34. DOI 10.1056/NEJMoa1408913
² Zhang S, Palazuelos-Munoz S, Balsells EM et al. Cost of Hospital Management of *Clostridium difficile* Infection in the United States: A Meta-analysis and Modelling Study. *BMC Infectious Diseases* 2016;16:447. DOI 10.1186/S12879-016-1786-6
**versus controls