STUDY PROFILE

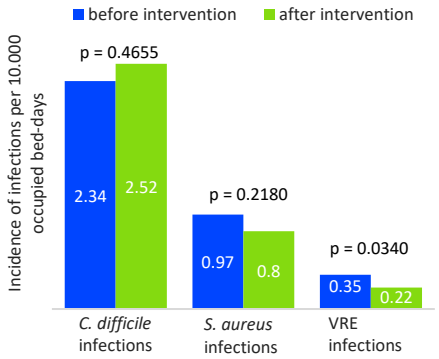
Successful improvement in cleaning thoroughness by implementing a cleaning bundle

Hospital environment as a reservoir of infectious microorganisms is an issue that should be addressed by regular evaluation and optimisation of cleaning procedures, as this can reduce the risk of healthcare associated infections (HAIs).

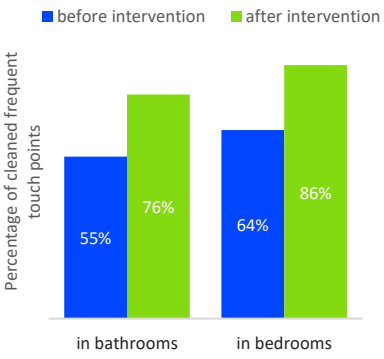
A multicenter, stepped-wedge, randomized trial

STUDY RESULTS

Reduction of infection
The incidence of vancomycin-resistant enterococci (VRE) infections could be significantly reduced.



Improvement of cleaning thoroughness
The percentage of frequent touch points cleaned could be significantly increased.



STUDY DESIGN

Introduction of the REACH environmental cleaning bundle

11 Australian acute care hospitals

STUDY PERIOD

May 2016 until July 2017;
intervention phase of 20–50 weeks,
randomly distributed among hospitals

MEASUREMENTS

Measurements during intervention phase

Incidence rates of HAIs:
- *Staphylococcus aureus* bacteriaemia
- *Clostridioides difficile* infection
- Vancomycin-resistant enterococci infections

Observation of thoroughness of hospital cleaning by fluorescent marking gel

INTERVENTIONS

The multimodal REACH cleaning bundle focused on

Optimal types of cleaning agents, frequency of cleaning and cleaning techniques

Auditing strategies

Training of environmental cleaning staff

Creation of a hospital-wide commitment to improved cleaning

Research for infection protection

Source: Mitchell BG *et al.* (2019) An environmental cleaning bundle and health-care-associated infections in hospitals (REACH): a multicentre, randomised Trial. Lancet Infect Dis 19: 410–418.

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BACKGROUND

Hospital cleaning and environmental hygiene play a crucial role in the prevention of HAIs. Surfaces, especially frequently touched ones such as bed rails, can act as a reservoir of pathogens. Therefore, they pose a risk of contamination and infection and might lead to prolonged length of stay, increased risk of mortality and a greater burden on health services and populations.

GOAL

The aim of the study was to assess the effect of an improvement in cleaning processes on the incidence of relevant HAIs.

DESIGN AND METHODS

The study was designed as a multicenter, stepped-wedge, randomized trial. The stepped-wedge design resulted in a variable length of intervention from 20 to 50 weeks.

The cleaning bundle of the study was introduced in 11 acute care hospitals in Australia and consisted of a multimodal intervention for routine cleaning. In addition to optimal product use and technique, the intervention also focused on staff training, auditing and feedback as well as communication.

The primary outcome was the incidence of HAIs caused by

- *Staphylococcus aureus*
- *Clostridioides difficile*
- Vancomycin-resistant enterococcus

The secondary outcome was defined as thoroughness of cleaning of frequent touch points assessed by a fluorescence marking gel.

RESULTS

The cleaning bundle was implemented in 11 hospitals and included 1,729 staff members cleaning 190 wards.

Infections with vancomycin-resistant enterocci decreased significantly from 0.35 to 0.22 per 10,000 occupied bed days (p=0.0340). However, no significant change was observed for *S. aureus* bacteraemia (0.97 to 0.80, p=0.2180) and *C. difficile* infections (2.34 to 2.52. p=0.4655).

Moreover, an improvement in frequent touch points being cleaned was observed. They increased from 55 % to 76 % in bathrooms and 64 % to 86 % in bedrooms.

CONCLUSION

A multimodal strategy for cleaning and disinfecting frequently touched surfaces in hospitals can improve cleaning performance and reduce the incidence of clinically relevant pathogens, as shown here for vancomycin-resistant enterococci.

Research for infection protection

Source: Mitchell BG *et al.* (2019) An environmental cleaning bundle and health-care-associated infections in hospitals (REACH): a multicentre, randomised Trial. Lancet Infect Dis 19: 410–418.

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