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IMPACTOF LAUNDERABLE BED PROTECTION SYSTEM

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BACKGROUND:

According to a recent CDC report, 1 in 25 hospital admissions will get an HAI, 1 out of 10 will die as a result. C-diff was reported as the most frequent infection. HAI's are increasingly linked to the hospital environment as it proves to be a reservoir of bacteria. In September 2013, the CDC report titled "Antibiotic Resistance Threats in the United States 2013" lists C. diff as one of the top three pathogens that are an urgent threat. Previous studies proved that terminal cleaning processes of mattresses is ineffective, and FDA issued a warning to hospitals that the use of disinfectants is causing damage to mattresses resulting in compromised surfaces. Previous research has shown that the use of the a launderable cover provides a cleaner patient surface than does terminal cleaning, and the use of the launderable cover prevented contamination of the mattress (Figure 1).

OBJECTIVES:

To determine if using a launderable cover can decrease the incidence of hospital acquired *clostridium difficile* infections.

METHODS:

Seton operates two LTAC facilities in Indiana. Covers were applied to most beds in both facilities. Hill-Rom Clinitron beds were not covered. A launderable barrier cover was applied prior to patient admission. The cover was changed every 30 days. The cover was laundered in a healthcare laundry using chlorine bleach, standard detergents and 160 degree water. The covers were dried at temperatures exceeding 160 degrees.

RESULTS:

- Using a baseline of four months of data prior to the use of the cover compared to ten months after the use of the cover CDI's have been reduced by 49% from a four month average pre-cover use of 13.42 (+/- 4.22) infections per 10,000 patient days to 6.81 (+/- 4.81) infections per 10,000 patient days (p=0.034) (Figure 2).
- Both facilities have experienced a drop in CDI's, 45% in one and the other 52% in the other.
- The average cost of treating a CDI is \$11,285. (Zimlichman, 2013)
- In the last ten months the hospital saved \$186,202 as a result of a reduction in CDI's; annualized the savings is \$223,442.
- There was no other on-going initiatives in place to reduce c-diff infections in either facility[1].
- Based on infection cost of \$11,285 per infection the savings from a reduction in infections is \$223,442.
- An unexpected result of the use of the covers was a reduction in pseudomonas infections evidenced by a reduction in the use of Dakins solution. Dakins is used exclusively to treat pseudomonas infections and the prescriptions written for Dakins is down by 34% or 7.85 units / 1000 patient days to 5.25 / 1000 patient days.
- Replacement of damaged mattresses / covers was reduced by 3, saving \$11,600 / year.
- Terminal cleaning costs were reduced by 12 minutes, saving \$4,400 / year

SUMMARY OF SAVINGS

C-diff infections Wound treatment Mattress replacement Reduction in terminal cleaning times

\$4,400.00 TOTAL \$241,642.00 LESS:

\$223,442.00*

\$1,200.00

\$11,600.00

Laundry cost \$5,300.00 Staff training: 15 min, 300 employees, \$30 per hr. \$2,250.00 Investment in covers \$80,000, estimated 4 year life \$20,000.00

SAVINGS PER ANNUM

\$213,092.00

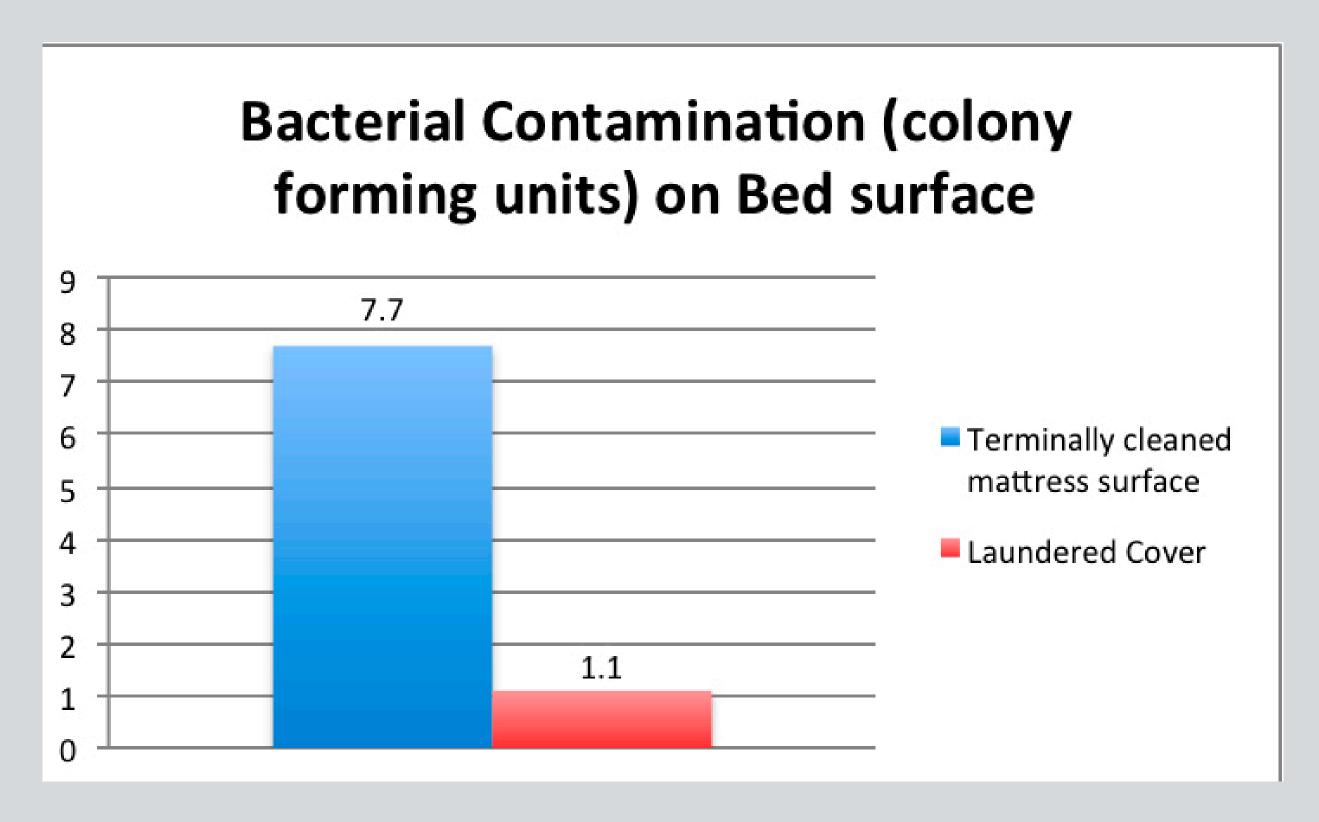
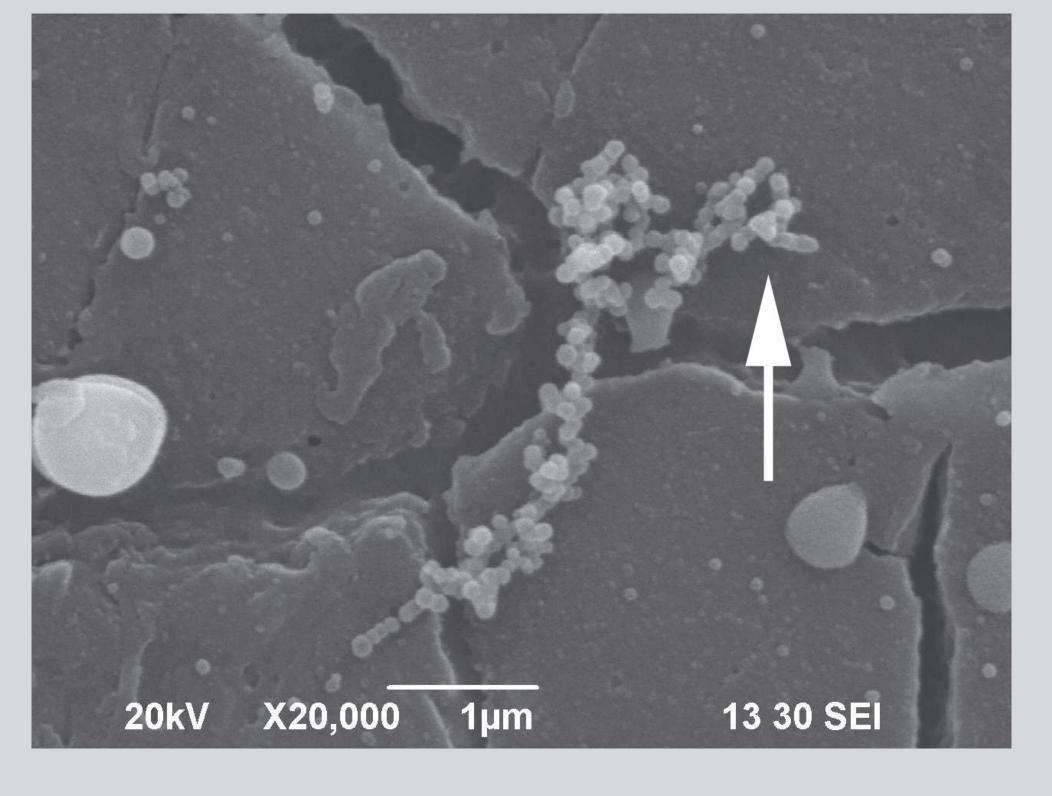


Figure 1



SEM of cleaned mattress surface showing cracking and bacteria

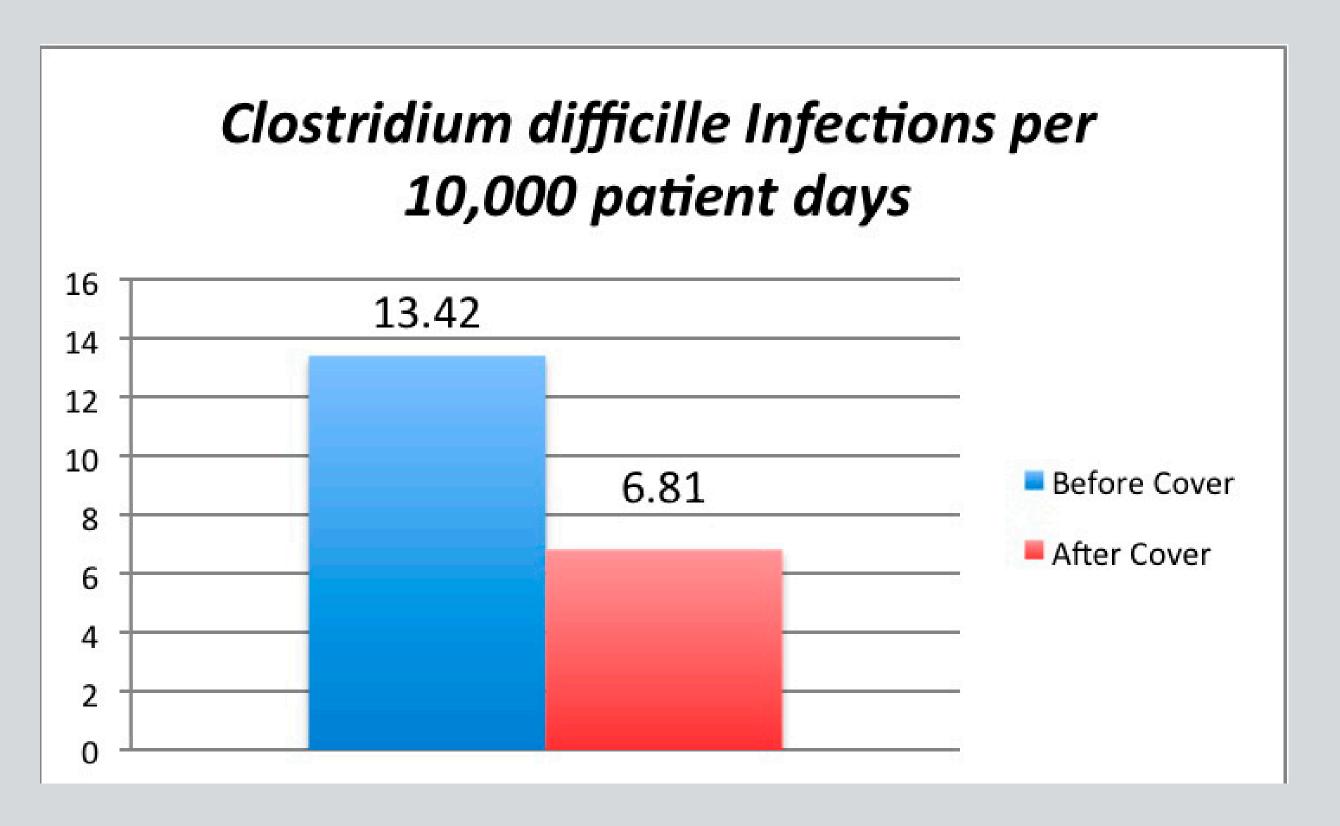


Figure 2

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Bed Cover Manufacturer: **Trinity Guardion**

^{*} Savings are based on national average cost for treating a c-diff infection (Zimlichman, 2013) representing costs absorbed by provider. Savings may vary depending on payor mix.