



Innovation in the Village: Wounds, Clostridium difficile and a Mattress Cover

Dea J. Kent DNP, RN, NP-C, CWOCN
Community Health Network, Indianapolis, Indiana

Clostridium difficile

In the United States in 2015¹:

Caused nearly 500,00 infections
Caused about 29,000 death



Transmission

Through hands and surfaces and exposure to spores

Prevention

- ✓ Aggressive handwashing
- ✓ Handwashing surveillance of caregivers
- ✓ Isolation of patients
- ✓ Effective cleaning of environment and inanimate objects
- ✓ Antibiotic Stewardship practices

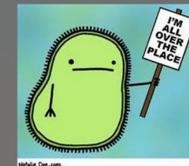
Patient Environment: many opportunities for cleaning²



Problem Recap

- High touch surfaces are not always cleaned well²
- Chemicals for traditional cleaning of surfaces can cause mattress cover to erode/fail⁵
- Mattress cover failure leads to germ exposure⁵
- Mattress cover failure leads to an increase in friction/shear forces⁵
- Mattress cover failure leads to a change in Moisture Vapor Transfer Rate (MVTR)⁵

Solution: Launderable Mattress Cover⁶



WHY

Provides a barrier to the mattress cover, decreasing erosion potential and body matter deposit into the existing cover, leading to a healthier cover, preservation of mattress functionality and safety.

Lived experiences:

- LTACH in Virginia decreased c.diff by 71% just by replacing bed decks⁷
- 2 LTACHs in Indiana found that this mattress cover did NOT lead to an increase in HAPIs⁸
- Demonstrated decrease in c.difficile infections, wound infections, and no increase in pressure related injuries=a viable, safe solution for infection control and patient safety!

Traditional environmental cleaning of high touch surfaces has been demonstrated to be inadequate^{2,3}

Mattresses and bed decks and other inanimate objects have been shown to harbor bacteria, including c.difficile^{2,3}

Traditional cleaning agents have been shown to affect the mattress cover, leading to erosion of the mattress cover, and allowing infection transmission from one patient to another^{4,5}

Traditional Bleach leads to mattress erosion—must always follow manufacturer's instructions for cleaning^{4,5}

Mattress cover erosion places all patients, and especially wounded patients, at risk for c.diff and other harmful bacteria

References

1. Centers for Disease Control and Prevention. Nearly half a million Americans suffered from Clostridium difficile infections in a single year. <https://www.cdc.gov/media/releases/2015/p0225-clostridium-difficile.html>. Published 2015.
2. Larson, C., Leder, L, Freeburg, A & Slattery, W. The effect of proper cloth saturation on disinfection of high touch surfaces. Am J Infect Control. 2011;39(5):E 23. <https://doi.org/10.1016/j.ajic.2011.04.066>
3. Hooker EA, Allen S, Gray L, Kaufman C. A randomized trial to evaluate a launderable bed protection system for hospital beds. Antimicrob Resist Infect Control. 2012;1(27):1-7. <http://www.ajicjournal.com/content/1/1/27>.
4. Chlorox Healthcare® disinfectant compatibility overview. <https://www.chloroxprofessional.com/assets/Industry/Healthcare/Compatibility/Chlorox-HC-surface-compatibility-Sept-2017.pdf> . Published 2017.
5. Milnes, J. The impact of cleaning chemical on polyurethane mattress cover materials and their propensity for physical damage. [http://www.dartexcoatings.com/Dartex/media/Sitelimages/Applications/events/TVS-Poster-Presentation-\(-news-article-5\).pdf](http://www.dartexcoatings.com/Dartex/media/Sitelimages/Applications/events/TVS-Poster-Presentation-(-news-article-5).pdf)
6. Trinity Guardian Mattress Cover <http://www.trinityguardian.com>
7. T. Beuscher, personal communication, October 28, 2017.
8. Hooker EA, Bochan M, Reiff TT, Blackwell C, Webb KW, Hart KW. Decreasing Clostridium difficile health care associated infections through use of a launderable mattress cover. Am J Infect Control. 2015;43:1326-1330.