



A leading American Health System implements a Mattress Inspection and Repair Program with CleanPatch® to enhance patient safety while saving money.

A Case Study – July 2015

The Need

Surfaces play an important role in the transmission of healthcare acquired infections (HAI), and routine cleaning and preventative maintenance is crucial to patient safety (Creamer and Humphreys, 2008). Soft surfaces such as mattresses, stretchers, wheelchairs and examination tables must be intact to (a) be properly cleaned and (b) prevent contamination from entering equipment. It is estimated that 20 - 40% of mattresses and other soft surfaces are damaged in healthcare institutions today as a result of physical abrasion, exposure to corrosive chemical disinfectants, and material disintegration from daily use (Bradbury *et al*, 2014, Wong *et al*, 2013).

In April 2013, the FDA released a Safety Communication alerting healthcare providers that damaged mattress covers pose a serious risk of infection to patients by permitting blood and bodily fluids to penetrate the surface. In a two year period, the FDA received 458 reports of blood and bodily fluids leaking into the mattress (i.e. fluid ingress).

This case study describes the experience of a private non-for-profit seven facility health system with 800 beds based in Pennsylvania, and focuses on one hospital's Emergency Department (ED) at one of the busiest facilities in the State.

As a result of high patient turnover and the continual use of incompatible disinfectants, the department was faced with a persistent problem around mattress damage. Due to the high cost of new mattresses, it was increasingly difficult to keep up with the demand for mattress replacement. The problem continued until a patient lay on a mattress and was exposed to bodily fluids contained within the core of the mattress; the bodily fluids had seeped inside the foam through a damage point. As a result of this incident, the ED staff became fearful

of damaged mattresses and pulled more than 30 off the floor and placed them in a storage room.

Following a complaint, the Pennsylvania (PA) Department of Health conducted an audit which confirmed the prevalence of this issue. The health system began looking for a solution.

The Solution

In order to protect patient safety and meet requirements, US healthcare facilities have sought to replace their damaged equipment – a considerable expense for many organizations. Healthcare facilities have longed for a cost-effective and clinically proven solution to this problem that will also enhance patient safety. Surface Medical Inc. has developed CleanPatch® - the first medical surface repair product for damaged mattresses and other soft surfaces that restores the surface to an intact and hygienic state. CleanPatch is a FDA-registered Class 1 medical device and has been implemented by over 300 facilities to date. In collaboration with clinicians, Surface Medical has developed a Mattress Inspection and Repair Program consistent with the policies of the Joint Commission (JC) and Centers for Disease Control and Prevention (CDC). JC and CDC permit mattress repair as long as it is performed with a clinically validated product like CleanPatch using a defined process.

The US health system's Infection Prevention and Control team learned about CleanPatch and the Mattress Inspection and Repair Program at a national conference. After conducting a review of independent studies on CleanPatch, Infection Prevention and Control reached out to their Network Director of Safety and Materials Management to act as project champion. A CleanPatch trial was initiated within the ED to determine the performance of the product on stretchers. Staff reported that CleanPatch was simple to apply and disinfect, and it remained adhered during the month-long trial. Mattress covers from several manufacturers were evaluated. When the trial produced positive results, the Network Director of Safety presented the information to Infection Prevention and Control for final approval; this led to a discussion about possible implementation within hospitals in the health system.

Along with educating hospital staff about CleanPatch, Surface Medical's Mattress Inspection and Repair Program was used. This Program consists of a 3-Step process developed in consultation with leading infection preventionists:

- **Step 1: Mattress Inspection** – Conduct full inspection for signs of fluid ingress and measure size of damage
- **Step 2: Mattress Intervention** – Determine whether to repair or replace the mattress based on inspection
- **Step 3: Mattress Repair Tracking** – Once repaired, track mattresses to record long-term results

More information about this program can be found here: www.cleanpatch.ca/pages/implementation

In addition to implementing this safe and validated approach, the health system adopted a different disinfectant to reduce the amount of chemical damage to mattress surfaces. The health system also adopted a **Zero Tolerance** policy regarding damaged mattress surfaces:

All departments are required to repair damaged mattresses when possible or replace them where indicated.

This policy is reinforced by the Network Director of Safety who conducts walkthroughs to educate staff on the safety risks associated with damaged surfaces and to remind them about the utility of CleanPatch as a repair option.

Following the implementation of the Zero Tolerance policy, the PA Department of Health returned to the hospital. They were encouraged with the progress the hospital had made by using the Mattress Inspection and Repair Program. The health system is now in the midst of implementing this Program across other facilities within its network.

The Result

Surfaces in healthcare are frequently damaged owing to heavy use, and equipment replacement is a costly burden that affects all healthcare facilities. Leaving damaged surfaces unaddressed is a patient safety concern due to the risk of patient exposure and cross contamination. Following a patient exposure incident, a private health system based in

Pennsylvania looked for a cost-effective and clinically validated approach to address damaged mattresses that complies with JC and CDC guidelines. Infection Prevention and Control, in collaboration with the Network Director of Safety, initiated a Mattress Inspection and Repair Program to begin realizing significant cost savings by reducing the frequency of mattress replacement while enhancing patient safety.

Would you like to speak to the Network Director of Safety referred to in this case study?

Please contact Tony Abboud, VP Business Development at Surface Medical for more information: tony@surfacemedical.ca

About Surface Medical

Surface Medical Inc. is an Alberta-based medical device company focused on developing products to address an estimated 48 billion dollar problem that results in 100,000 deaths in North America each year: healthcare acquired infections. Founded in 2010, SMI is dedicated to creating innovative products that reduce the transfer of infection and facilitate the safe administration of healthcare for the benefit of practitioners and patients alike. For more information, please visit www.surfacemedical.ca

References:

Bradbury SL et al. Potential bloodborne pathogen exposure from occult mattress damage. American Journal of Infection Control. 2014.1-2

Wong H et al. Surface Medical Whitepaper. 2013