Reduce HAIs with Electrostatic Disinfecting
By David L. Smith, ESP

ISSUE

Healthcare-associated infections (HAIs) affect 1 in 25 patients in Canadian Hospitals. There are specific cleaning and disinfection protocols to prevent contamination and the spread of disease, but when it comes to mobile medical devices, these are often overlooked and thus can be a large contributor to HAIs. Equipment such as wheelchairs, IV poles and mobile computers/workstations are touched thousands of times every day by patients, visitors and staff. Pathogens can spread from the individual to the equipment, and vice versa, and bacteria spread from one area of the hospital to another.
A recent study that was published in the American Journal of Infection Control titled 'Wheelchair cleaning and disinfection in Canadian health care facilities', surveyed hospitals and long-term care facilities and concluded that wheelchair cleaning and disinfection is not optimally performed. Respondents were very concerned about wheelchair cleaning as an infection control issue. Specific concerns included difficulty cleaning cushions (42%), lack of guidelines (35%) and lack of resources (25%).[1]

PROJECT:

Correctional Service Canada initiated a Cleaning Pilot Project at their Millhaven Regional Treatment Centre with the goal of decreasing bacterial load on surfaces within their healthcare unit. Induction charged electrostatic sprayers with the approved disinfectant was used in attempt to achieve this goal. Electrostatic sprayers generate charged droplets that repel each other, but are attracted to nearby oppositely charged or neutral surfaces. The combination of attraction to the surface and the repulsion between the droplets results in a "wrap-around" effect. As a result, even complex surfaces and porous areas achieve complete coverage.
The pilot project was over the course of three months (June – August 2016). Adenosine triphosphate (ATP) readings were taken before and after the use of the electrostatic sprayers on often overlooked surfaces within their healthcare unit. These include an ECG Machine, Blood Pressure Cuff, Oximeter, Blood Chair, Keyboards, Eye Examine Light Handle and Centrifuge.

RESULTS:

At the end of the pilot period there was an overall average ATP reduction of 83% in bacterial load after disinfecting with the electrostatic sprayers. Most significant reductions were on the Oximeter (97%), Keyboard 1 (96%) and Blood Chair (84%). The lowest ATP reading was found on the Oximeter with a score of just 2. The goal set by Correctional Service Canada was a score of 50 or under in their acute environment. These ATP scores far exceeded the initial goal set with an achieved average score of 23.4

LESSONS LEARNED:

Electrostatic sprayers, coupled with approved disinfectant and implemented protocols will significantly reduce the bacterial load on complex, often overlooked surfaces such as those on mobile medical devices, resulting in significantly reducing contamination and HAIs . With healthcare-associated infections on the rise, the electrostatic system can be a powerful infection control tool in preventing the spread of harmful pathogens.

[1]Gardner et al, "Wheelchair cleaning and disinfection in Canadian health care facilities: "That's wheelie gross!", American Journal of Infection Control, (November 2014), 1173-1174.

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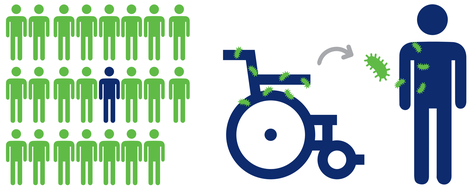
1 in 25 Canadian Patients



Goal: Reduce biofilm on equipment to an ATP score of less than 50

Sanitize
with electrostatic applicator

360° coverage with approved disinfectant

Biofilm Reduction 83%

- 78% ECG
- 73% blood pressure
- 92% oximeter
- 84% blood chair
- 96% keyboard
- 83% eye exam light
- 61% centrifuge

23.4 ATP score!

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