



WINNING THE FIGHT

Long-term care facilities employ electrostatic disinfecting technology to defeat HAs outbreak

By David L. Smith

Every year, between 300 and 400 outbreaks of norovirus are reported to the Public Health Agency of Canada. In November and December 2018, a number of long-term care facilities in Ontario experienced particularly persistent outbreaks. In some cases, the facilities fought to eliminate norovirus for two and three weeks without success. Since residents in these facilities typically fall into a high-risk category for this type of illness, the results were devastating.

As experts in infection prevention and control know all too well, two cases of acute gastrointestinal or respiratory tract illness in the same unit within 48 hours is often enough to

trigger a warning about the possibility of an outbreak. Though long-term care facilities typically have outbreak management teams and very specific cleaning protocols to deal with such occurrences, it is extremely difficult to eradicate all disease-causing pathogens with manual cleaning products and methodology.

Why?

Because it is virtually impossible to simultaneously clean and disinfect all surfaces in a facility by hand. It's also time and resource intensive.

Think about the intricate surfaces of keyboards, TV remotes, telephones, mobility equipment such as walkers and wheel chairs, monitoring equip-

ment and personal items. The sides and backs of surfaces can also be extremely difficult to reach.

This was the battle the Ontario long-term care facilities were fighting late last year. When the outbreaks persisted despite best efforts to control them, they decided to test a revolutionary new approach: electrostatic disinfecting technology.

Electrostatic disinfecting is a method by which a liquid disinfectant is applied to a surface using an electrostatic applicator. The liquid is atomized into droplets, which are charged by an electrical current as they exit the applicator. When the charged droplets approach the target surface area, they



induce an opposite charge on it, which in turn attracts the charged droplets to the surface. The charged droplets also repel each other, preventing them from forming larger droplets. This allows them to completely and uniformly cover a surface.

The charged droplets are attracted to the backs, sides and undersides of objects, regardless of the direction of the application, enabling them to 'wrap around' a wide range of surface types, from tables, desks and wash-room fixtures to intricate surfaces.

In a traditional spray or mist application, the coverage of a surface is determined by the direction of spray and where the droplets fall based on

gravity. This can result in uneven surface coverage and allows the disinfecting product to remain in the air and travel through ventilation systems. In contrast, the fine electrostatically charged droplets produced by an electrostatic applicator provide consistent coverage of a surface, use less disinfectant in the process and do not linger in the air. This allows staff and residents to immediately re-enter treated areas once the application is complete.

The addition of electrostatic disinfecting to the cleaning protocols of the affected facilities brought the outbreaks under control within 36 hours. Swab ATP (adenosine triphosphate) testing was completed before and after the cleaning and disinfecting process. The documented results showed the reduction of pathogens to below undetectable levels. As a result, all of the long-term care facilities were cleared within a short time by public health authorities.

A number of the facilities have since purchased electrostatic disinfecting equipment to augment their daily cleaning protocols. They are also adding the technology to their enhanced environmental cleaning programs within their outbreak management procedures.

While the equipment does require an upfront investment by the facility, the capital cost can be deferred through a

leasing program. That, along with the reduced requirement for both labour and disinfectant, improved staff health and wellness, and enhanced public perception, makes the economics of the technology very attractive.

When a facility is considering adding electrostatic disinfecting to its environmental cleaning protocol, it is important to select the equipment carefully. Foggers, misters and other types of atomizers are not electrostatic and do not enable the wrap around effect that electrostatic technology achieves. It is also critical to verify the charge density of the application equipment. The electrostatic applicator should have a charge density greater than five in order to truly deliver the disinfectant in an even layer over all exposed surfaces for thorough disinfecting to occur. ■

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