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Corrections 101: Jailhouse Cleaning

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Earlier last year in Florida's Pinellas County Jail, a female inmate unexpectedly died. At first, investigators were confounded as to the exact cause of the woman's death.

An autopsy was performed and other than being slightly overweight and having minor coronary artery disease, the procedure found no serious health problems. However, a closer investigation determined the inmate had contracted methicillin-resistant *Staphylococcus aureus* (MRSA).

MRSA is a bacteria that normally causes skin infections, but has become

increasingly resistant to penicillin and other antibiotics, which have traditionally terminated any threat. Typically, MRSA invades the system through a cut on the skin, but it can also be transmitted by sharing personal items, such as razors, towels, and even clothing.

Although most people can make a full recovery with treatment—often involving a rigorous treatment of various powerful antibiotics—MRSA can lead to death. Furthermore, the infection is a real threat to everyone, regardless of age, race, location, or gender.

In October 2007, for example, a healthy and active seventh grade male in a New York City school died as a result of MRSA. And, the young man's death comes after numerous reports have surfaced throughout the U.S. of students infected with MRSA. In 2007, it is believed that three student deaths could be attributed to MRSA.

This appears to be a big and growing concern in schools, hospitals, and nursing homes. However, the concern is now widespread with the emergence of community-acquired MRSA (CA-MRSA). Today, all facilities, including dormitories, military barracks, and correctional buildings, need to be aware and prepared for an outbreak.

Not only is this a health concern serious enough to cause death, but it is also a costly legal and liability problem as well. For instance, the family of the female jail inmate mentioned earlier has hired an attorney with the intent of suing the Pinellas County Sheriff's Office for providing inadequate conditions and medical care.

The More You Know About MRSA

Before finding ways to prevent the spread of MRSA, you should know more information about the disease. Scientists first identified the bacterium *Staphylococcus* as far back as the 19th century. Early cases of MRSA, caused by a bacteria called *Staphylococcus*, were discovered in the early 1950s.

Most of these cases were reported in British medical facilities. However, there was little concern at the time because the infection was easily treated with penicillin, the wonder drug of mid-20th century.

But, within a few years, the bacterium causing the disease adapted to penicillin, and doctors began to recognize that *Staphylococcus* had an uncanny talent of rapidly changing to resist and overcome drug treatment.

In 1959, a new antibiotic, methicillin, was developed and successfully used to fight this new form of *Staphylococcus*. But, within a few years, methicillin also became ineffective. Since then, doctors have referred to the disease as methicillin-resistant *Staphylococcus aureus*.

The 5 Cs

Since MRSA is a skin disease, it can actually be contracted just about anywhere. However, there are five factors that appear to increase the likelihood of transmission known as the 5 Cs:

- Crowding, such as in a school, hospital, or corrections facility
- Contact with the bacteria causing the infection
- Compromised skin - in most cases, for the infection to be transmitted, there must be a cut, sore, or opening on the skin
- Contaminated items or surfaces

Cleanliness - often, MRSA is contracted in facilities that are not properly or as frequently cleaned as necessary.

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Personal Responsibility

The first step in preventing the spread of MRSA in a correctional facility is education, which will help encourage inmates and staff to take more personal responsibility. Inmates, staff, and others working in the facility should know how the disease is spread, the seriousness of the illness, how it can be treated, and the likely outcomes as well as steps they can take on their own to prevent cross-contamination.

For instance, proper hand hygiene is essential. Washing hands frequently with warm soap water for approximately 20 seconds and drying properly are crucial. Additionally, an alcohol-based hand sanitizer with at least 60 percent alcohol can be effective.

Other steps that can be incorporated in a correctional facility include:

- Encouraging inmates and staff to clean and treat skin abrasions and cuts—regardless of severity—with a topical antibiotic and keep covered until healed.
- Avoid sharing any items that can come into contact with bare skin; this can even apply to weight training equipment and benches.
- Maintain a clean environment by establishing proper cleaning procedures for frequently touched surfaces and surfaces that come into direct contact with the skin.

Although these steps can considerably help prevent the spread of MRSA in a correctional facility, without the fifth “C”—proper and effective cleaning, often referred to as hygienic cleaning—MRSA can be difficult to maintain. Often when MRSA is detected in a school or hospital, the entire facility or sections of the facility are closed for a very thorough cleaning.

In the short-term, this cleaning can prove to be effective. However, this bacteria and several others are resilient so a potential outbreak is always looming. Reasonably, in addition to needing the most effective products, today’s facility managers also require ongoing cleaning solutions and systems.

A Closer Look at the Cleaning Component

Historically, cleaning a large, crowded facility, such as a corrections center, has involved the use of mops, buckets, various chemicals, cloths, and scrub brushes. Although these tools have served us well, new studies suggest that they may not be as effective as previously believed.

For instance, Dr. Charles Gerba, a microbiologist at the University of Arizona, has determined that some cleaning cloths actually spread contaminants as they are used and become soiled. Aware of this problem, one manufacturer recently introduced a “smart towel,” which can be folded into marked quadrants on both sides. This way a fresh, not soiled, section of the towel can always be used.

Additionally, cleaners have used these traditional tools to clean only for appearance. Today, we now know that potentially harmful contaminants are not always visible.

Dr. Elizabeth Scott, a U.K. microbiologist and last year’s Cleaning Industry Research Institute (CIRI) keynote speaker, addressed this directly at the CIRI symposium.

“Microbiological contamination on surfaces cannot be observed by visual inspection,” said Dr. Scott. “It has been shown many times that surfaces can look visually clean and yet be heavily contaminated with microbes.”

Dr. Scott’s assessment is reinforced in the advances in ATP (adenosine triphosphate bioluminescence) rapid-monitoring technology. These systems are now replacing swabs and Petri dishes when it comes to detecting surface contaminants.

A handheld ATP system can detect microorganisms and contaminants on surfaces within 15 seconds or

less—days faster than a Petri dish. When it comes to cleaning, ATP provides “proof of service” that an area has been properly cleaned. Workers can test an area before cleaning to determine the ATP count and then afterwards to evaluate the effectiveness of the cleaning process.

Many facilities, especially schools, are turning away from the old cleaning standards mentioned earlier and adopting new technologies. One such system that can work well in a correctional facility is referred to as “no-touch” or high-flow fluid extraction. With this system, the cleaning professional never touches the surfaces to be cleaned.

Instead, the machine applies a properly diluted cleaning solution or disinfectant to surfaces. Proper dwell time is needed, allowing the solution to work. The areas are then high pressure rinsed, which loosens and removes soils so they can be flushed down drains.

More advanced machines include a vacuum system to more thoroughly remove the contaminants. These vacuum-equipped systems also include a recovery/holding tank where the contaminants are contained and quarantined for proper disposal.

As referenced earlier, the professional cleaning industry is shifting away from cleaning for appearance to cleaning for the health of a facility. Hygienic cleaning helps ensure that surfaces are free of contaminants, stopping the spread of diseases like MRSA.

Interestingly, the cleaning industry is finding that when a surface is hygienically cleaned to protect health, its appearance is also nearly always improved as well—a situation that serves well for any correctional facility.

Matt Morrison is communications manager for Kaivac, Inc., a leading manufacturer of professional no-touch cleaning products and related equipment.

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