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CLEANING Flooring and Superbugs

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issue than some might think.

By Dr. Greg S. Whiteley

he problem with floors is *gravity*.

You walk on floors, and everything that falls to the earth also lands on the floor and is walked upon. Then the dirt and soils are stuck to the bottom of your shoes, and as you walk, you are tracking that dirty stuff everywhere.

When looking at cleaning in most buildings, removing dirt from the floor is just a part of the challenges of a janitors' life.

But in hospitals, the problems can become much more complex and dangerous.

Before we open that little can of worms, let's review some of the latest news on the so-called "superbugs." And by "superbug" we mean the multi-drug-resistant microbes that don't respond to antibiotics. These superbugs are also referred to as antimicrobial-resistant (AMR) superbugs, and they are deadly.

The Centers for Disease Control and Prevention (CDC)

in Atlanta, have released an updated report (2019) on AMR/ Superbugs. The CDC advised that the number of superbugs has increased from 18 (in 2013) to 21 (in 2019). The highest level of concern at the top section of the list has expanded from three to five superbugs. People with infections from these bad bugs often end up in a hospital and many of those people die.

Health care settings

In hospital or health care facility cleaning, we must clean in such a way to combat the normal soiling that falls off every one of us, every day. For example, each day, every day, everyone sheds around 50 million skin cells. That soil load is in addition to the normal dirt that gets tracked into a hospital. Cleaning away all of this human debris is a constant challenge for any cleaning process.

However, when a patient has contracted a superbug it will

Content is copyright protected and provided for personal use only - not for reproduction or retransmission. **13** For reprints please contact the Publisher. be present on the person's skin cells, which is very concerning. This is because the skin cells fall off and the superbugs with them, where they can circulate throughout the hospital. From a hospital bed where a sick person is resting, bugs from that person may be spread, ending up to 13 yards from the bed, in just one day!

Now for many years, it was thought that if the bad bugs (superbugs) are on the floor—with all of the other many, many other bugs and dirt—then what's the big Terrifyingly, when a patient is colonized with a superbug, it is a silent and ominous event, and no one rings a warning bell.

worry? It's not as if the patient gets lifted out of the bed and rolled around on the floor for a bit of fun.



Colonization issues

The concern is that the superbugs on the floor can end up in a bed with another patient, where they can transfer onto that patient's skin and spread. This is commonly referred to as patient "colonization." Terrifyingly, when a patient is colonized with a superbug, it is a silent and ominous event, and no one rings a warning bell. It just happens silently, and many people who get colonized are completely unaware of the problem.

Being colonized with a superbug poses an elevated

risk of infection, but infection doesn't always happen, and there is a very low risk of death from skin colonization in of itself. But colonized patients shed the superbugs just as much as an infected patient with the same superbug. And because the colonization is silent, the shedding of skin cells with superbugs included is a silent risk inside the hospital.

However, it gets truly horrific for any patient, if the superbug moves from the patients' skin into a wound, a catheter, a cannula, or a respiratory device. That is when the bug has moved from colonization, into an infection state. With many of the superbugs, the risk of death arising from a superbug infection can often be as high as 50% mortality risk (from within 90 days from onset of infection).

How do the bugs jump from the floor and onto the patient? A recent study from the team led by Dr. Curtis J. Donskey (Case Western Reserve University) observed two critical issues. First is that 41% of occupied hospital rooms had an item that touched the floor at some point. These items were then returned to the patient level without any cleaning or disinfecting action. The items included articles of clothing, the TV remote, the call buzzer, and other commonly used items. The other significant finding from the study was the frequency of C. diff spores, MRSA, and VRE contaminating the hospital floors.

Dr. Donskey was able to show that superbugs on the floor, could grab onto the dropped items, and then be lifted up to the bed level to make contact with the patient. The bad bugs get a free ride from the floor up to the patient level, where a new victim awaits.

But wait, there's more... Two other studies have shown the danger of non-slip bed socks which are handed out to

14 ISSA Today | March/April 2020 Content is copyright protected and provided for personal use only - not for reproduction or retransmission. For reprints please contact the Publisher. patients within hospitals. A study in England showed that from 54 pairs of non-slip bed socks collected from patients in a hospital, there were 46 pairs (85%) that had gathered up at least one superbug.

A separate study from Australia demonstrated that in just five minutes of walking around on a hospital floor, non-slip socks were very efficient at picking up the superbugs from the floor and then transferring them onto

hospital sheets.

Please note that the socks collected the superbugs from the floors, and then the socks and the bugs hopped back into bed with the patient. Could it be that they all lived happily ever after? Unfortunately, no, because those bad bugs, the superbugs, simply found someone else on which they could live. And once they are on the skin, these same superbugs have an extraordinary capacity to move around on the skin, and into places that are normally moist, and covered, such as the underarms, genitals, and groin.

A recent medical commentary has noted: "Rectal colonization with ESBL producing Enterobacteriaceae [these bad bugs are in the top five of the CDC superbugs lists] is associated with increased risk of hospital-acquired pneumonia, bacteraemia, and urinary tract infection with the same organism." [Stewart et al, Microbiol Aust 2019] So the superbugs can move to the bottom, to the top, and back again.

Therefore, it's extremely important to keep the superbugs far away from the patients. And it turns out that the floor is a critical concern and must be maintained, clean and free from superbugs. If the superbugs are allowed to get onto the patient at bed level, and then onto the patient skin, there is a heightened risk of infection which can put a patient's life in jeopardy.

Importance of cleaning

Cleaning suddenly comes into focus as a critical, lifesaving intervention. But there is one proviso, which is, that the cleaning process (materials and method together) must be proven to be effective. This is a difficult challenge in hospital cleaning.

Another study by Dr. Donskey's group, published in 2013, demonstrated that improperly used wipes could easily spread C. diff spores from place to place on the wipe itself. The misused wipe becomes the mechanism of transfer for a life-threatening superbug. We could go into another bunch of published studies of events where the cleaning process



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In hospital cleaning, we must clean in such a way to combat combat the normal soiling that falls off

every one of us.

simply moved the bugs from one place to another and never removed or killed the superbugs, but we have run out of space for this first article.

The only logical conclusion is that we need better quality control of cleaning. This quality control challenge affects both the materials used (equipment and chemicals) and the methods used to achieve the cleaning process. This is a quality challenge, and while production rates-based methods will assist with cost control, they are useless when it comes to quality control.

Cleaning in healthcare is, without a doubt, the most important cleaning challenge facing our sector. So, make sure those floors get properly cleaned. Patients' lives depend on it!



Dr. Greg Whiteley is the chairman of Whiteley Corporation based in Australia and has been a member of ISSA for more than 40 years.



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