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FEATURE: HEALTH & SAFETY

FLOOR CARE: REDUCING THE SPREAD OF CONTAMINATION

By Robert Kravitz

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What do all of the following have in common?

- A food service worker removes her safety boots when working in the food-processing area.
- Another worker ties his shoelaces while working in the kitchen.
- An office visitor places her purse on the floor while using the restroom.
- A cafeteria worker picks up utensils that have dropped on the floor.
- A trade person wraps up the power chord he was using.
- A plant supervisor places a briefcase on the floor while talking to kitchen workers.

In each case, these individuals (in one way or another) have indirect contact with the floor area.

Recent studies indicate every person has as many as 50 direct and indirect contacts with floors each day. In most cases, people don't even realize they have had that contact.

In and of itself, this is not critical. However, it is important to know floors can be germ and bacteria reservoirs. As such, through the process of cross contamination, potentially health-endangering pathogens on floors can be transferred to people and surfaces, spreading disease and causing illness.

PATHOGENIC HITCHHIKERS

Ever heard of listeria?

Those in the meat processing industry will likely know listeria is a particular strain of bacteria. It is found in varying degrees in soil, vegetables, water, animal feed and other places.

If listeria contamination is present in a food service establishment and ingested in significant amounts by high-risk individuals, such as young children, pregnant women, the elderly and those with weakened immune systems, it can threaten health and even prove fatal.

While there are many sources of listeria, because it needs moisture to survive and grow it is often found on floors, especially near drains. If listeria is on the sole of a worker's shoe and the bottom of the shoe is touched, the beginning of cross contamination is likely.

Dr. Charles Gerba, a microbiologist with the University of Arizona, has conducted one of the few studies regarding shoe bottom contaminants. Gerba asked 10 study participants to wear a new pair of contaminant-free shoes for a two-week period and simply go about their regular business and daily activities. After two weeks, the new shoes were taken to a laboratory to determine if bacteria and other contaminants might be found on the bottoms. Although Gerba anticipated contaminants would be present, the amount and variety were more than expected.

According to Gerba, this is what was discovered on the shoes tested:

- Approximately 421,000 units of bacteria were on the outside and more than 2,880 inside.
- Coliform (a group of bacteria) was detected on 96 per cent of the shoes.
- E. coli was found on 27 per cent of the shoes.
- Other contaminants found on the shoes included *Klebsiella pneumoniae*, a common cause of bloodstream infections as well as pneumonia, and *Serratia ficaria*, which can cause respiratory infections.

Further, Gerba found much of this contamination on shoe bottoms can spread from contaminated to uncontaminated floor surfaces as well as onto fingers and hands.

"In essence, the contaminants are hitchhikers catching a ride on shoes from one location to another," says Mark Warner, product manager for disinfectants and sanitizers for [Enviro-Solutions](#), a leading manufacturer of professional-grade 'green' cleaning chemicals.

STEPS TO STOP THE TRANSMISSION

According to Warner, the most effective way to stop the transmission of germs and bacteria from one surface to another is through more effective cleaning and disinfecting.

"In essence, the contaminants are hitchhikers catching a ride on shoes from one location to another."

"In some cases, this may mean simply cleaning floor areas more frequently, using a more effective cleaner or cleaning (floors) with an appropriate disinfectant cleaner. However, certain precautions must also be in place, especially in regards to the cleaning tools used."

Warner says studies have found that soiled mops, water and buckets can actually spread germs instead of removing them. Because of this he suggests the following:

- Change the cleaning solution frequently, ensuring the parts per million (ppm) of the disinfectant is still adequate.
- Change mop heads frequently. Some facilities reuse mops several times before changing them. As the mop head becomes contaminated it can spread disease and pathogens instead of removing them.
- Clean and disinfect mop frames, buckets and even carts. Although they are often overlooked, these also become contaminated in the floor cleaning process and can transmit disease.

Warner adds food service operators must also adjust cleaning products, frequencies and procedures based on infection "risk levels." Referred to as the DEFCON (Defence Conditions for Cleaning) ranking system, there are essentially four infection risk levels.

Level 1. No dangerous infection or pathogen risk exists. Cleaning personnel should follow proper cleaning procedures using neutral and all-purpose cleaners in most areas, with sanitizers and disinfectants primarily used to clean restrooms, food service areas and floors.

Level 2. This level signals a contagious disease, infection or virus is present in a community or area but not in a specific building. For example, the swine flu (or H1N1) has been reported in several schools and colleges but its impact has been minimal on many other types of facilities. However, this level requires that neutral, light duty all-purpose cleaners be replaced with products that have greater cleaning efficacy and use disinfectants with stated kill claims for the pathogen(s) of concern, which should be indicated on the product's label. There should also be an increased focus on cleaning and disinfecting floors, other horizontal surfaces and cross contamination contact points, in this order.



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Level 3. At this level, more specific and extensive measures must be implemented because the disease or virus is present in the facility. Cleaning products and disinfectants as well as procedures for all surface areas should be increased significantly in efficacy with floors cleaned and disinfected first, then walls, counters, fixtures and high touch-point areas followed by the floors again. Surfaces should be pre-cleaned with an effective, heavy duty cleaner or cleaner/disinfectant. The disinfectant should then be applied and allowed to remain wet (dwell) on the surface per the label directions.

Level 4. This is the most serious risk level and denotes the presence of a dangerous biohazard. This situation calls for experts who are trained in hazardous agent removal.

MORE THAN MOPPING

Although thorough and frequent floor care is necessary to keep food service area floors clean and healthy, they also need to be “scrubbed clean” to thoroughly remove soils and, most importantly, contaminants.

“Mop and bucket cleaning can go only so far,” says Rob Godlewski, vice-president of marketing for [Powr-Flite](#), a leading manufacturer of floor care equipment. “To ensure contaminants are removed from porous floor and grout areas, an automatic scrubber is called for.”

According to Godlewski, along with removing contaminants some of the other benefits of using an automatic scrubber to clean food service floors include:

- Improved appearance. The scrubber automatically uses chemicals and proper agitation to make the floor look better.
- Increased safety. Removing soils and contaminants from floors helps reduce the potential for ‘slip and fall’ accidents. Additionally, automatic scrubbers are designed to clean and dry floors in one pass, so floors are safe and ready for use as soon as they are cleaned.
- Increased worker productivity. Studies indicate using an automatic scrubber can be as much as six times more productive than cleaning floors with conventional mopping and floor cleaning systems.

Godlewski says the technology behind automatic scrubbers has improved significantly in recent years; however, some designs and equipment appear to have more benefits than others. For durability, he recommends selecting equipment with a rotational molded polyethylene body, chemical-resistant skirt and aluminum brush housing.

“Some machines have a four-wheel design, which helps improve (the machines’) stability,” he says. “Some machines also have adjustable brush pressure. This allows (the user to apply) more pressure for heavily soiled floors or when contamination or disease are of greater concern and less (pressure) for more routine floor care.”

In most cases, a walk-behind automatic scrubber will work best in a commercial food service area, says Godlewski.

And because most of these machines are battery powered, selecting equipment with long-lasting batteries (up to eight hours of run time) helps improve worker productivity significantly.

Robert Kravitz has authored two books on the professional cleaning industry. Today he is a writer for the professional cleaning, building, hospitality and health care industries. Robert has owned three contract cleaning companies and was web content manager for the [ISSA](#), the worldwide cleaning association. For more information, contact Robert at rkravitz@rcn.com

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