



Preventing Infection with Environmental Controls: A “Broad-spectrum” Approach

By the Water Quality & Health Council

As reports of the dangers of antibiotic-resistant bacteria and “superbug” infections continue to make headlines, we think the time is right to consider the environmental controls at our disposal for fighting the spread of infectious illness. Environmental controls lower the risk of infection by taking the fight against pathogens into the environment. Once implemented, environmental controls can be thought of as offering “broad-spectrum” antibiotic protection.



Examples of Environmental Controls in Preventing Infection

Disinfecting frequently touched surfaces: Hand contact with pathogens on frequently touched surfaces, such as door knobs and hand rails, is a common way to spread infection. Surfaces may *look* clean but looks can be deceiving, and the surface may be teeming with germs invisible to the naked eye. Once hands are contaminated, the host has only to touch his or her face—especially the eyes, nose or mouth—to increase the likelihood of infection. Regularly disinfecting frequently touched surfaces with disinfectants, such as dilute chlorine bleach solutions, can go a long way toward lowering the risk of infection.

Appropriate handwashing: Handwashing for at least 20 seconds with warm, soapy water can send most hand-clinging germs down the drain (see [“The Right Way to Wash Your Hands”](#)). When soap and water are unavailable, alcohol-based hand sanitizer (with at least 60 percent alcohol) is a good compromise. Attention to hand hygiene is particularly important before preparing food, eating, and after using the bathroom or changing diapers.

The [Centers for Disease Control and Prevention](#) calls handwashing a “do-it-yourself” vaccine that is “...one of the best ways to remove germs, avoid getting sick, and prevent the spread of germs to others. It’s quick, it’s simple, and it can keep us all from getting sick. Handwashing is a win for everyone, except the germs.” In many situations, especially in public settings, handwashing is the most proactive measure an individual can take to avoid infection.

Engineering solutions: We can also dodge pathogens with smart engineering solutions. Recently we wrote about a [“staged mode of transmission” of superbug bacteria](#) which, once washed down the drains

of hospital sinks, colonize the P-shaped portion of the drainpipe and grow slowly back up toward the sink strainer. From there they are strategically positioned to be launched into the environment when running water impacts the strainer area. One way to avoid this exposure could be to relocate sink drains to an area of the sink not directly below the default faucet position.

Other engineering solutions that can help curtail the spread of germs are:

- Antimicrobial [copper alloy](#) (such as brass or bronze) door knobs and countertops.
- Motion-activated faucets, soap dispensers and towel dispensers in public restrooms.
- Disposable sanitizing wipes positioned at the entrances to grocery stores to wipe down shopping cart handles.

There is some speculation that the wonderful effectiveness of early antibiotics gave way to a relaxed attitude toward environmental controls. As the development of new antibiotics lags behind the evolution of resistant bacteria, it makes sense to harness all of the tools available to us, including time-tested, “broad-spectrum” environmental controls.

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