

# EquiManagement

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March/April 2018

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## New Ideas for Cleaning Hospitals



Hands, tools and clothing are all possible fomites for transmission of pathogens in your hospital.



# New Ideas for Cleaning Your Hospital

Good housekeeping and effective cleaning are important to your equine facility.

*By Tony Cochrane, AIA*

**W**hile cleaning is not a topic that equine veterinarians think about often, you have likely heard of high-profile cases in equine medical facilities of resistant bacteria (such as salmonella or other

pathogens endemic in institutional facilities). These resulted in public scares, disruption of services, loss of time and money, and risk to equine patients.

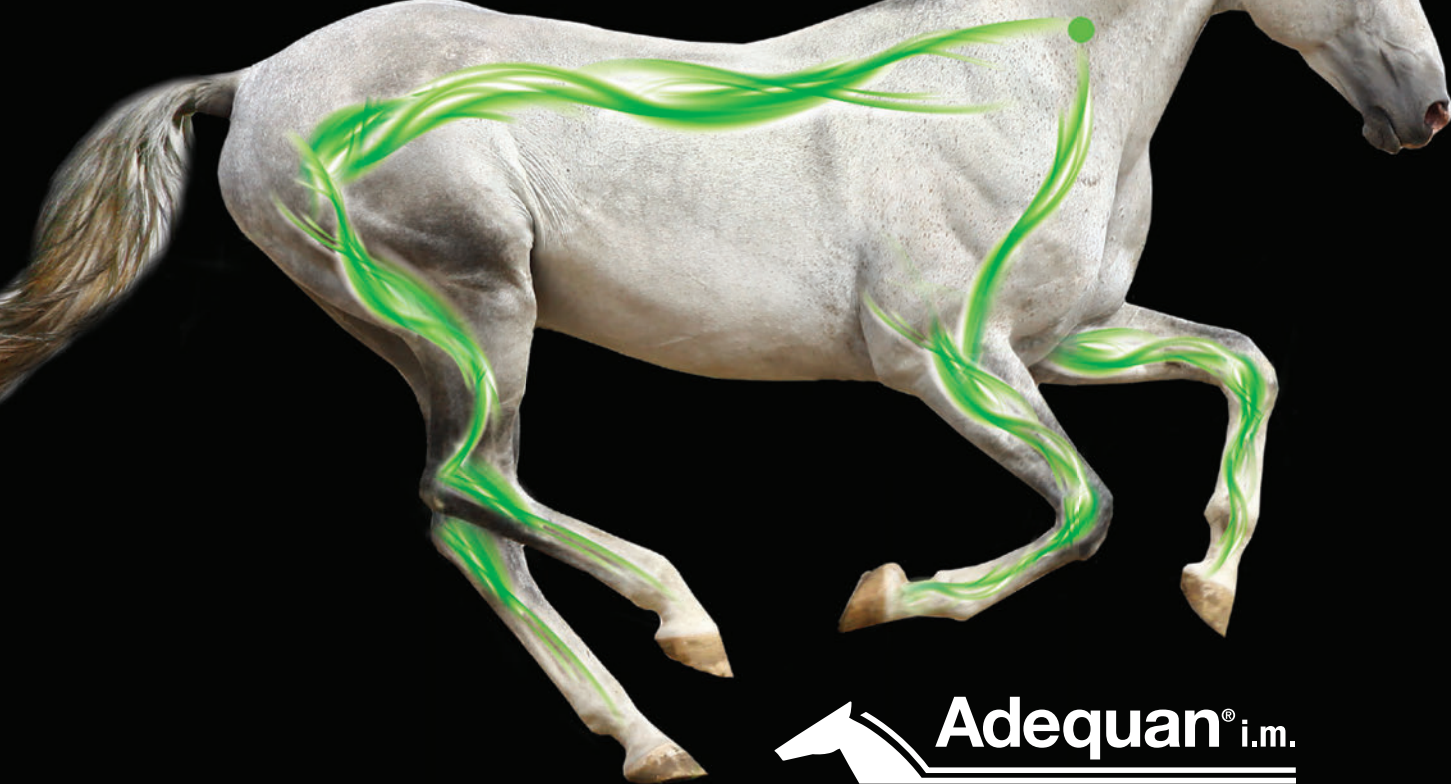
While these dramatic incidents are far less common in private practice, it pays to use the most up-to-date protocols for cleaning and disinfection.

In this article, we will explore modes of disease transmission, methods for cleaning and new ideas for creating healthier equine hospitals.

As veterinarians, you know how diseases spread between horses. The modes of transmission most likely in equine hospital facilities are: 1) fomite trans-

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mission; 2) fecal/oral transmission; 3) direct contact; and 4) aerosol transmission. Diseases are also transferred via vectors, but these are varied and more difficult to discuss within the umbrella of facility design and cleaning methods.

In this article, we will focus primarily on fomite transmission and fecal/oral transmission because they're most easily influenced by excellent cleaning protocols. Direct contact can be managed via other strategies such as good traffic flow. Aerosol transmission is avoided by having properly designed remote isolation facilities for pathogens that spread through the air.<sup>1</sup>

Fomites are contaminated objects that spread pathogens from one being to another. In an equine hospital, a fomite could be a contaminated tool, the wheels of a manure spreader, the clothing of a staff member or any number of objects.

While equine hospitals should isolate a contagious patient immediately, it is not always possible to know when a horse is shedding a pathogen. In addition, equine hospitals are subject to the same potential problems that are rampant in human medicine, such as increasingly antibiotic- and cleaning-resistant bacteria, which can lead to hospital-acquired infections.

The best way to have a healthy hospital is to have a tidy one. Keep the floor clean, remove manure immediately and store tools off the floor. If possible, keep your floor surfaces well sealed to make them easier to clean. Once you have created a tidy space, then consider cleaning methods.

One excellent way to attack fomite transmission and fecal/oral transmission is to use a well-formulated hospital cleaner. The best ones destroy the pathogens that we're most concerned about, while also being good at general cleaning. To do both, the chemical formulation must have both a disinfectant and a surfactant.

The best product on the market



### **Fecal/oral transmission of pathogens is a common mode of disease spread in equine hospitals.**

currently is an accelerated hydrogen peroxide (AHP). The hydrogen peroxide provides safe disinfection while the other ingredients provide the surfactant. AHP is the disinfectant of choice in human hospitals and is also used extensively in companion animal medicine and animal shelters.

The use of a good cleaner such as AHP helps supplement good housekeeping by effectively disinfecting surfaces and by attacking stubborn dirt. In hoseable rooms, AHP can be delivered at the end of a hose with a small dispensing device. In mop-down rooms, it can be delivered onto surfaces with something that looks like a weed sprayer.

In these mop-cleaned spaces, AHP can also be dispensed onto surfaces and removed with a wet/dry vacuum. This system can be portable—in which case it can be purchased for around \$4,000—or it can be centralized. Centralized systems cost more, but they eliminate roll-around equipment, which can itself cause pathogens to travel from space to space. Finally, AHP can be dispensed onto a surface, such as a stainless counter, for spot cleaning.

If you have an existing hospital and

you have not yet used AHP, but you want to try it, you will need to give it some time. The chemical is good at breaking down built-up dirt, so for the first three weeks or so, surfaces will often become slippery until the formerly soiled materials are fully rinsed of their grime.

The only downside of AHP is its cost. While many facilities use it, it does cost significantly more than bleach or some of the other more traditional chemicals. For a quote, contact Virox, the manufacturer of the product. They can put you in touch with a local distributor.

If AHP is out of reach financially for your hospital, there are a variety of other products on the market that can work, including the old standby, diluted bleach. If you do use something traditional such as bleach, consider that you might need a two-step process to scrub then disinfect, because bleach water is not an adequate surfactant. And without a surfactant, your hospital floors will become increasingly difficult to clean.

If you have initiated good housekeeping and an effective cleaning method using both a disinfectant and a surfactant or a combination thereof, you will have taken many steps in the right di-

rection. However, don't forget that lots of little actions will help support your cleaning efforts. These could include:

- providing sinks for staff members and doctors to wash their hands;
- using tools in one space, rather than carrying them from space to space;
- properly disinfecting the tools themselves; and
- cleaning typically forgotten places, such as the mat by the front door to the hospital.

## Cleaning Outdoor Spaces

Outdoor spaces are more difficult to clean, but fortunately we don't have to worry about them quite as much. This is because ultraviolet light provides some level of disinfection, except for the most stubborn microorganisms.

The problem with trying to use addi-

tional disinfection techniques outside is that most disinfectants deactivate when in the presence of soil. AHP, for example, readily breaks down into oxygen and water as well as some other mild byproducts, and it quickly loses its powers when applied to soil.

That said, because AHP breaks down into harmless chemicals, it can be sprayed outside onto flat, smooth surfaces such as concrete and asphalt without concern about its potential harm to the environment.

## The Future of Cleaning

One of the problems with pathogens is their ability to get together in colonies with diverse species and a food source to form cleaning-resistant matrices. These matrices are known as biofilms. Biofilms are a problem. A biofilm on a floor sur-

face, for example, can practically undo your cleaning efforts, as it can repopulate the surface with new bacteria shortly after cleaning.

One new technology that is being developed to combat this problem is probiotic fogging. The idea is to flood a surface with a harmless (or even beneficial) bacterial cocktail to "take the place" of the pathogenic bacteria that want to repopulate it. The beneficial bacteria assist in breaking down the food source that can be contained in biofilms; it can therefore break down a biofilm over the course of time. While the idea of a probiotic fogging device sounds suspect to many educated people, the technology is more convincing the more one learns about it. Probiotic foggers are now being used extensively in agriculture, with measured benefits for the health of

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food animals. Probiotic foggers are now starting to be used increasingly in universities, and in small animal veterinary corporate practices. They have great potential for application in private equine medicine practices, as well.

Probiotic fogging does not take the place of normal cleaning; it merely supplements cleaning by keeping bacteria at bay. A space can be fogged with a probiotic formula in minutes, and the fog poses no harm to humans or animals. In fact, a space can be fogged when horses are in it, with no ill effects.

### Clean Well, but Don't Overdo It

Better disinfectants and other technologies such as probiotic foggers hold tremendous promise for creating healthier hospitals. However, don't overdo cleaning to the point that spaces

are constantly damp or surfaces begin to erode from too much application of water and chemicals.

While we have all seen messy facilities that could use better cleaning, we have also seen over-cleaned spaces. This is most common in institutional facilities, where spaces are cleaned constantly and quite vigorously. Yet you know from your training that microorganisms generally reproduce more readily in the presence of moisture, and therefore too much water can work against your efforts to create healthy work spaces. In fact, some of the most well-known cases of salmonella in hospitals have resulted from water collecting perpetually below rubber mats.

The level of cleaning you should apply might depend on the space. Few barns are designed to be hose cleaned. Yet most equine surgery rooms are. Clean just enough to maximize the facilities you have in place. Maintain them in their optimum states, with neither excess soiling nor constant dampness.

### Take-Home Message

In summary, challenge yourself to be more thoughtful about cleaning than you are now. Realize that cleaning properly does make a difference for day-to-day biological risk.

Pay attention to the technologies used by leaders in your own industry and beyond, and you will continue to provide a safe and healthy hospital for the horses in your care for years to come. **EM**

1. For additional information about infection control, see the AAEP's biosecurity recommendations at [www.aaep.org/guidelines](http://www.aaep.org/guidelines).

*Tony Cochrane, AIA, is an architect at Animal Arts, which specializes exclusively in animal care facility design. The company has designed more than 600 equine and animal facilities in 40 states, Canada and overseas.*



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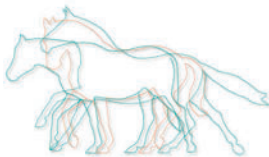
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