

Cleaning and Disinfecting Recommendations for Equine Events

Overview

Disease prevention at an equine event is typically easier and more cost-effective than addressing an outbreak situation; therefore, development and implementation of a biosecurity plan, which includes cleaning and disinfection (C&D) protocols, is essential for all equine events. Routine C&D protocols for a facility will differ from those necessary to control an infectious disease outbreak. C&D protocols will vary depending on the situation and the specific event.

Complex interactions influence the effectiveness of C&D protocols. Success of a C&D protocol depends upon the infectious disease agent, the various surfaces to be disinfected, the disinfectant, disinfectant concentration and surface contact time and environmental conditions.

Implementing a Cleaning and Disinfection Plan

There are four steps for an effective cleaning and disinfection plan: assessment, cleaning, washing and disinfecting. Train all employees on the proper implementation of the C&D protocols emphasizing thorough cleaning and safety. Clearly explain the C&D protocols in the training and post signs around the event venue to reinforce the training.

Assessment

An initial facility assessment will help determine the areas of disease risk that require cleaning and disinfection biosecurity measures. At an equine event, horses contact numerous surfaces, such as water buckets/troughs, equipment, fences and stall; therefore, consider all areas contacted by horses as contaminated and address in a C&D protocol.

Cleaning

The presence of organic material on surfaces can harbor infectious disease agents for extended periods of time and protect them from the action of chemical disinfectants. Research demonstrates that cleaning contaminated surfaces eliminates 90% of the bacteria on a surface. The goal of cleaning is to remove all organic material, such as manure, soiled

bedding and dirt, since the presence of organic matter inactivates many disinfectants, making them ineffective.

Washing

After removal of organic matter, clean the surface completely with a detergent and rinse with a low pressure hose. Use of high pressure water (pressure washer) is not recommended for cleaning stalls since this distributes dirt and infectious agents into the air and onto adjacent surfaces. Manual scrubbing further reduces the number of microorganisms adhering to surfaces. Thorough rinsing is important because soaps and detergents can also inactivate many disinfectants. Allow surfaces to dry before application of the disinfectant.

Disinfectant Selection

A basis for disinfectant selection is finding the most useful, efficacious and cost-effective product. An ideal disinfectant is one that is broad spectrum, non-toxic, non-irritating, non-corrosive, relatively inexpensive and works in variable weather conditions. No available disinfectant is suitable for all situations. Selection of the proper disinfectant depends on the potential infectious disease agent(s), the type of surface to disinfect, weather conditions and product safety. Consult a veterinarian to determine the infectious disease agent(s) of concern.

For routine disinfection, a disinfectant with broad spectrum anti-microbial activity is appropriate. Disinfectants are classified by their chemical nature; each class of disinfectant has unique characteristics, toxicities, safety concerns and level of efficacy. Commercially available disinfectants are classified as alcohols, aldehydes, biguanides, halogens/hypochlorites, halogens/iodine compounds, oxidizing agents, phenols, and quaternary ammonium compounds. Carefully read and follow label instructions when using any chemical disinfectant.

The US Environmental Protection Agency (EPA) and the California Environmental Protection Agency (CalEPA) define disinfectants (antimicrobials) as pesticides. Be certain to use all EPA-registered antimicrobials in accordance with California worker safety regulations.

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Disinfectant Concentration

Disinfectant concentration is critical for effectiveness against an organism; over dilution may render the product ineffective against the disease agent. Some disinfectants may be more efficacious at higher concentrations; however, higher disinfectant concentrations may pose a safety risk to personnel, animals, surfaces and/or the environment.

Disinfectant Application

Wipe, brush, spray or mist disinfectant solution on surfaces of objects or walls according to product label instructions. In general, 1:10 dilution of bleach to water is effective. However, in most stall situations, organic material cannot be completely eliminated, therefore it is necessary to use a disinfectant that has activity in the presence of organic materials, such as a phenolic (1 Stoke Environ® or SynPhenol-3®) or an accelerated hydrogen peroxide product (Intervention®). All products should be used in accordance with manufacturer's recommendations and label instructions. Soak brushes and other equipment in containers with disinfectant solution after use.

Disinfectant Contact Time

A critical step in the disinfection protocol is appropriate disinfectant contact time on the surfaces. Disinfectants vary in the contact time necessary to destroy or inactivate disease organisms. Carefully read and follow the product label for the minimum contact time for efficacy. To avoid surfaces drying out before the end of the optimal contact time, saturate the surfaces with the disinfectant.

Disinfectant Stability and Storage

Disinfectant storage influences the effectiveness of the product. Outdated or inactivated products are ineffective. Some disinfectants quickly lose stability after prepared for use or after storage for long periods of time. Heat and light may also inactivate certain disinfectants. To maximize stability and shelf life, store the stock concentration of the disinfectant in a cool, dark location and mix for use as necessary.

Disinfectant Safety Precautions

In general, most disinfectants cause irritation to the eyes, skin and or respiratory tract, so safety is a priority for all personnel using a product. Always review the product Material Safety Data Sheets (MSDS) to learn specific hazards and first aid information. Training on proper storage, mixing and application of disinfectants is essential; for some products this training is required by law. During the mixing and application processes, require use of personal protective equipment, such as gloves, masks and eye protection, by personnel.

Environmental Considerations

Environmental factors may impact the effectiveness of the C&D protocol. Factors to address in the plan include organic load, surface characteristics, temperature, weather, water quality and presence of other chemicals. In situations where removal of all organic matter is not possible, consider use of a product with some efficacy or residual activity in the presence of organic material. Porous, uneven, cracked or pitted surfaces (i.e., wooden stables and dirt floors) harbor microorganisms and require an increase in contact time and concentration of disinfectant. Air temperatures above 68°F are ideal for most disinfectants; however, elevated environmental temperatures may accelerate drying out of the surface decreasing the disinfectant efficacy.

C&D protocols should include evaluation of the drainage, runoff and biodegradability of the disinfectant. When selecting a disinfectant for use, consider the potential for runoff into creeks or ponds, since some agents, such as sodium carbonate, hypochlorites, and phenolics, are ecological hazards for plants and aquatic life.