# Cleaning and Disinfection Protocol for Gram-Negative and Gram-Positive Bacteria, including Antibiotic Resistant Bacteria

*This document has been developed in accordance with current applicable infection control and biosecurity guidelines. It is intended for use as a guideline only. At no time should this document replace existing documents established by the facility unless written permission has been obtained from the responsible facility manager.*

## PREFACE

Bacteria are a large domain of single-celled, prokaryote microorganisms. Typically a few micrometres in length, bacteria have a wide range of shapes, ranging from spheres to rods and spirals. The vast majority of the bacteria in the body are rendered harmless by the protective effects of the immune system, and a few are even beneficial. However, a few species of bacteria are pathogenic and cause infectious diseases. The mode of transmission for bacteria is characterized by the specific bacteria; however, the most common routes are via indirect or direct contact of infectious particles, contact with or inhalation of respiratory droplets. Some bacteria may also be transmitted by ingestion of contaminated food, or maternal-to-newborn transmission. Vegetative Bacteria including antibiotic resistant organisms are easily inactivated by routine surface cleaning and disinfection. At present there is no scientific evidence to show that antibiotic resistance equates to chemical resistance.

The following list provides examples of some pathogenic Gram Negative and Gram Positive Bacteria for birds, mammals and primates.

| | | |
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| *Acinetobacter iwoffi* | *Leptospira grippotyphosa* | *Rhodococcus equi* |
| *Bordetella avium* | *Leptospira interrogans* | *Salmonella enterica* |
| *Bordetella bronchiseptica* | *Listeria monocytogenes* | *Salmonella enteritidis* |
| *Brucella abortis* | *Micrococcus luteus* | *Salmonella typhimurium* |
| *Burkholderia mallei* | *Moraxella bovis* | *Serratia marcescens* |

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|---|---|---|
| *Campylobacter jejuni* | *Morganella morganii* | *Shigella dysenteriae* |
| *Chlamydia psittaci* | *Mycobacterium avium* | *Staphylococcus aureus* |
| *Corynebacterium faecium* | *Mycobacterium bovis* | *Staphylococcus aureus (MRSA)* |
| *Corynebacterium kutscheri* | *Mycoplasma cynos* | *Staphylococcus epidermidis* |
| *Corynebacterium pseudotuberculosis* | *Mycoplasma mycoides* | *Staphylococcus epidermidis, MRSE* |
| *Enterococcus faecalis* | *Mycoplasma pneumonia* | *Staphylococcus hyicus* |
| *Enterococcus faecalis* (Vancomycin Resistant) | *Pasteurella anatipestifer* | *Staphylococcus pseudintermedius* |
| *Enterococcus faecium* | *Pasteurella multocida* | *Streptococcus agalactiae* |
| *Escherichia coli* | *Proteus mirabilis* | *Streptococcus equi zooepidemicus* |
| *Escherichia coli* (Extended Spectrum Beta-lactamase) | *Proteus vulgaris* | *Streptococcus pneumoniae* |
| *Fusobacterium necrophorum* | *Pseudomonas aeruginosa* | *Streptococcus pneumoniae (Penicillin Resistant)* |
| *Helicobacter pylori* | *Pseudomonas aeruginosa* (Tetracycline Resistant) | *Trueperella pyogenes* |
| *Klebsiella pneumoniae* | *Pseudomonas maltophilia* | *Yersinia enterocolitica* |

## PREPARATION

Transmission of vegetative bacteria can be attributed to direct and indirect contact and contact with or inhalation of respiratory droplets. Some bacteria may also be transmitted by ingestion of contaminated food, feces or maternal-to-newborn transmission. Appropriate personal protection should be taken for those responsible for the decontamination of a cage, kennel, and stall or animal housing area. Appropriate biosecurity practices should be applied, including limiting the amount of aerosols generated and disturbance to dust / soil in the area to be cleaned and disinfected.

## PROTECTIVE BARRIERS

Appropriate personal protection should be taken for those responsible for the decontamination of the area and may include the following:

1. Disposable gloves. Gloves should be changed as required (when torn, when hands become wet inside the glove or when moving between animal housing areas)
2. Household gloves can be worn, but they must be discarded when the cleaning is complete.
3. Protective Eye wear (goggles, face shield or mask with eye protection) as appropriate based on task to be completed
4. Masks (surgical or procedural masks sufficient) as needed
5. Gowns as needed

## PRODUCTS

All Accelerated Hydrogen Peroxide® (AHP®) disinfectant-cleaner products have been approved for sale as a disinfectant by either Health Canada or the US Environmental Protection Agency (EPA) and carry either a DIN or EPA registration number indicating their approval for sale as a disinfectant.

AHP® disinfectants are registered as a Hospital Grade Disinfectant which denotes that the products have been proven efficacious against the three main surrogate bacteria designated both Health Canada and the EPA for Bactericidal activity; *Staphylococcus aureus, Pseudomonas aeruginosa* and *Salmonella enterica* (formerly known as *Salmonella choleraesuis*) with contacts times of 1 minute to 10 minutes depending on the formulation and/or dilution used. While many registered disinfectant products carry claims against Antibiotic Resistant Organisms such as MRSA or VRE it is important to understand that resistance to Antibiotics does not equate to chemical resistance.

| *Product Name* | Market | Country |
|---|---|---|
| ***Prevail™*** | Companion and Farm Animal | Canada |
| ***Rescue™*** | Companion Animal | USA |
| ***Intervention™*** | Farm Animal | USA |

## RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION OF ANIMAL CARE EQUIPMENT

Contaminated animal care equipment should be clearly identified and kept separate from clean equipment. Animal care equipment include: blood pressure cuffs, stethoscopes, thermometers, handling or restraining equipment, feeding and watering appliances, etc.

1. Use the AHP® solution to remove soil and body materials (e.g. blood, organic soils) from heavily soiled items
2. Apply AHP® solution evenly over surface ensuring that all surfaces are thoroughly wet. Items that can be immersed may be placed into a container of AHP® solution.
3. Allow the items to remain in contact with the AHP® solution for the appropriate contact time (refer to the label of the AHP® solution being used).
4. After the contact time has been achieved remove any excess solution with a clean cloth, sponge or paper towel.
5. Items that have been immersed should be removed from the solution after the appropriate contact time, rinsed with potable water and allowed to air dry.

## RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION OF KENNELS AND CAGES:

The AHP® technology is designed to be both an excellent cleaner and effective disinfectant and can be used in place of a degreaser or detergent.

1. Remove all animals and feed from the area to be cleaned and disinfected.
2. Remove all litter and fecal matter from floors, walls and surfaces of kennels or cages.
3. Empty or cover all feeding and watering appliances.
4. Thoroughly clean all surfaces with soap or a detergent or a diluted solution of AHP® and rinse with water.
5. Apply the AHP® solution to floors, walls and other surfaces of the kennels or cages ensuring the surfaces are thoroughly wet and remain wet for the appropriate contact time.
6. Allow surfaces to dry before reintroducing animals back into the kennels or cages.
7. Clean and disinfect all equipment used to remove litter and fecal matter such as forks, shovels and scrapers.

## RECOMMENDED PROCEDURES FOR CLEANING AND DISINFECTION OF ANIMAL HOUSING FACILITIES:

The AHP® technology is designed to be both an excellent cleaner and effective disinfectant and can be used in place of a degreaser or detergent.

1. Remove all animals and feed from the area to be cleaned and disinfected.
2. Remove all litter, bedding and manure from floors, walls and surfaces of cages, stalls or other animal handling areas.

3. Empty or cover all feeding and watering appliances.
4. Thoroughly clean all surfaces with soap or a detergent or a diluted solution of AHP® and rinse with water.
5. Apply the AHP® solution to floors, walls and other surfaces of the cages, stalls or other animal handling areas ensuring the surfaces are thoroughly wet and allow to remain wet for the appropriate contact time.
6. Allow surfaces to dry before reintroducing animals back into the kennels or cages.
7. Clean and disinfect all equipment used to remove litter, bedding and manure such as forks, shovels and scrapers.