AIRBORNE ANIMAL DISEASES AND THEIR CONTROL

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A better understanding of which animal diseases can transmit by air can enable individuals to deal effectively with suspected airborne disease transmission and can help in the selection of the appropriate decontamination methods to be used. Of the top ten most common dog diseases, seven are either potentially airborne or are known to transmit by air. These include Canine Distemper Virus, Canine Parvovirus, Canine Coronavirus, Infectious Canine Hepatitis, Rabies Virus, Bordetella, and Canine Parainfluenza Virus.

Many pathogens transmit by direct contact between dogs or between dogs and humans. Airborne respiratory infections are either inhaled or else cause infection via the nose, the mouth, or the eyes. Particular attention should be paid when any flu epidemic sweeps through the human community or infects a staff member, as these diseases can be transmitted to and from animals. Outbreaks caused by airborne pathogens can be explosive.

Anything that can be done to clean surfaces will minimize transmission rates, and anything that can be done to provide clean air can minimize airborne transmission and interdict epidemics. All the major pathogens that can transmit among animals by air are limited to bacteria, viruses, and fungi. The image shown below, Sources of Airborne Pathogens, lists all of the dog pathogens for which evidence exists to demonstrate airborne transmission or for which airborne transmission exists as a potential route of infection.

The best way to deal with indoor transmission of airborne diseases is a two-pronged approach using a combination of surface cleaning and air cleaning. The interior surfaces must be cleaned, washed, and disinfected, because airborne microbes will settle out of the air onto mostly horizontal surfaces like the floor or furniture. Common cleaning protocols are adequate and typically involve washing surfaces with detergents and disinfectants on a regular schedule.

Another popular and proven method of cleaning the air is the use of Ultra Violet Germicidal Irradiation (UVGI). The use of UVGI for airborne disinfection has been used in hospitals, operating rooms, and government agencies for more than 75 years. Recently, this technology has been proven effective in animal care facilities, killing over 99.9% of animal-specific pathogens within 60 seconds. UV systems can be installed relatively simply and can efficiently disinfect the air of viruses and many bacteria, as well as destroy mold inside the ventilation.

Cleaning the air with air filters can also greatly assist in removing microbes, fungal spores, and pollen that may cause allergies from indoor air, provided the appropriate filter is selected. Filters need not be HEPA filters since high levels of air cleanliness can be obtained using less expensive MERV-rated filters such as MERV 8–15 size filters. The combined use of both air filtration and UV air disinfection provides the most cost-effective way to provide clean ventilation air and to reduce the possibility of airborne disease transmission.

For indoor kennels and dog daycare centers, the use of air filtration combined with UV lamps can greatly augment the existing cleaning protocols and provide the best possible means of limiting the spread of airborne diseases among dogs, from dogs to humans, from humans to dogs, and from the environment to dogs.

Building ventilation is also a factor that can affect the relationship between airborne transmission of respiratory infections and the health of animals and staff. Animal care facilities are considered high risk and are very different from human occupancy or medical facilities. HVAC systems should be evaluated and designed specifically for the animal care industry. Proper ventilation, sizing, zoning, and other factors of an HVAC system can be vital for disease control.

It is not uncommon for excising buildings to be converted into boarding facilities. The existing HVAC systems may not be adequate since it will be used differently than originally purposed. The HVAC system may require modification to accommodate these changes. For example, if a warehouse area is converted into space now occupied by animals, the HVAC system may require alteration.

It may be impossible to provide completely sterilized air or a completely sterilized environment for the animals in your care, but surface cleaning and surface disinfection combined with air disinfection and air filtration can go a long way to provide the healthiest possible environment for the animals as well as for humans. No set levels have been established for indoor air cleanliness, but advanced air cleaners like UV will provide high levels of air cleanliness sufficient to reduce disease transmission rates to the lowest possible levels.

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