

A v i a n I n f l u e n z a a n d I n f e c t i o n C o n t r o l

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Abstract: Avian Flu is caused by Influenza A virus of the avian variety. While it is rare that the virus from birds affects humans, from time to time it does occur. Viruses mutate, but these mutations do not affect the ability of the virus to resist disinfection and other normal infection control measures. Hand washing and disinfection of surfaces and adherence to “universal precautions” is the most effective way of preventing disease. The use of alcohol based surface disinfectants such as SepteFX 6D-840™ and SepteFX 7D-11™ as well as the use of alcohol hand sanitizers is the key to reduced disease transmission.

The Influenza A virus is the organism that is commonly associated with outbreaks of influenza worldwide. It falls into a similar subgroup as other lipophilic viruses including Vaccinia and Herpes Simplex I.ⁱ A susceptibility scale called the Klein DeForest scheme, rates viruses ranging A through G, A being the most susceptible, G the least. Viral susceptibility group “A”, include other lipophilic (fat loving) viruses as Corona, Myxovirus, Herpes and the retrovirus group, influenza is in this group. Categorization in Group “A” positions these microorganisms as quite fragile in response to disinfection. Specifically, Influenza A is deactivated at room temperature in 10 minutes by 30% ethanol.ⁱⁱ Purpose formulated disinfectants that sometimes use less ethanol, can be equally or even more effective than single agents alone.

The chemistry that constitutes SepteFX 6D-840 and SepteFX 7D-11™ has third party testing that demonstrates Canine Parvovirus kill in 50 seconds and 5 minutes respectively in the presence of blood. Canine Parvovirus is a notoriously difficult virus to kill. Unlike the coated (enveloped) influenza virus, it is a naked (non-enveloped) virus, more primitive and less fragile. In the Klein DeForest Scheme it has been placed in Group “D”, which makes Canine Parvovirus more difficult to kill than all the Hepatitis viruses, Poliovirus that is, virtually all the other pathogenic viruses, including Influenza A.

How does that affect the emerging Avian influenza viruses?

First, it is important to understand how influenza is spread. Close contact is required. Certainly hand to hand contact as well as spread by way of fomites (inanimate objects) will occur. Influenza is one of the most contagious human diseases. The virus is found in great numbers in the aerosols in expelled breath. Ordinary breathing, coughing and sneezing spreads the virus. It can deposit on environmental surfaces, hands as well as spreading in the atmospheric environment. Because the virus is relatively hardy and resistant to drying, surviving as long as 4 hours on dried environmental surfaces, spread is assured. Consequently, disinfection of environmental surfaces and of hands, as well as reducing spread through coughing and sneezing, are essential tools in disease propagation of influenza. The World Health Organization has included a set of guidelines for disease prevention.ⁱⁱⁱ

Avian flu is a form of Influenza A (H₅N₁). The pandemic of 1918, which killed millions, was also Influenza A (H₁N₁), a strain that infects humans and swine, not avians such as fowl. But, viruses are characterized by their ability to mutate frequently. The Coronavirus that caused SARS (CoV) had at least 13 different strains identified in a matter of a few short months.

There are at the time of this writing 34 confirmed cases of humans contracting Avian flu, with 23 deaths^{iv} all of them in Asia.

This, together with the knowledge that Avian influenza jumps the species barrier rarely does allow for some measure of comfort. There is presence of antibodies to H₅N₁ in 30% of poultry workers and 3% of cullers.^v These numbers demonstrate clearly that although the virus has been present in many humans, its virulence in the human population is relatively low. Too, this number is very small in comparison with the 40-50 million who died during the Spanish flu pandemic in 1918.

The avian flu has taken hold in Canada's west coast as well as the US. At this time however, no human cases have been reported.

The characteristic of rapid mutation of viruses is the means by which they adapt themselves to continually remain virulent in the population. However, this same mutation does not affect the means by which viruses can be controlled with disinfectants. All varieties of Influenza respond in the

same way to disinfectants. This is an extremely important safety valve, and reaffirms the necessity of universal precautions such as hand-washing and proper disinfection of environmental surfaces. Alcohol hand sanitizers are a recognized method of hand cleaning between patient contacts.^{vi} Ethanol is a better virucide on the whole than other alcohols. Thus by extension, ethanol based sanitizers are a slightly better choice than other alcohols.

In summary, while there is a low likelihood of infection from the new avian strains of influenza of humans, the risk is still present. Good infection control protocols including the use of surface disinfectants such as SepteFX 6D-840™ and SepteFX 7D-11™, alcohol waterless hand sanitizers as well as proper barriers are the most effective means of preventing disease transmission from bird to man.

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ⁱ Prince NH, Prince DL, Principals of Viral Control and Transmission. In: Block SS, *Disinfection, Sterilization and Preservation* 5th Edition, Philadelphia: Lippincott Williams & Wilkins, 2001:546

ⁱⁱ Prince NH, Prince DL, Principals of Viral Control and Transmission. In: Block SS, *Disinfection, Sterilization and Preservation* 5th Edition, Philadelphia: Lippincott Williams & Wilkins, 2001:544

ⁱⁱⁱ Influenza A (H5N1): WHO Interim Infection Control Guidelines for Health Care Facilities, WHO 10 March 2004

^{iv} http://www.who.int/csr/disease/avian_influenza/country/cases_table_2004_03_24/en/

^v http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/

^{vi} Guideline for Hand Hygiene in Health-Care Settings, Morbidity and Mortality Weekly Report Recommendations and Reports, October 25, 2002 / Vol. 51 / No. RR-16