



A STRONG VIRUCIDE AND BACTERICIDE YET MILD TO SURFACES AND EQUIPMENT

**HALAMID**<sup>®</sup>  
THE UNIVERSAL DISINFECTANT

# Poultry Conference Module

## Avian Flu



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# Influenza A

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- Influenzas are (negative) single-stranded RNA Viruses (Lipid Enveloped) of the Orthmyxoviridae Family.
- 3 Types Influenza (A,B,C) of which Influenza A most common and the only one affecting poultry.
- Many subtypes HxNy. Five subtypes have been highly pathogenic in humans. These are types **H5N1**, H7N3, H7N7, H7N9, and H9N2



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# Origins, Spread & Recent Highlights

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- Found routinely in wild aquatic birds
- H5N1 has been spreading throughout Asia since 2003. Reached Europe in 2005, and Africa & the Middle East in 2006
- H5N1 considered endemic among poultry in six countries (Bangladesh, China, Egypt, India, Indonesia, and Vietnam).
- Outbreaks occur among poultry all around the world from time to time...
- March-May 13: Outbreaks in Mexico of H7N3
- April 13: H7N1 in ostriches in S Africa
- April 13: Outbreak of H5N1 in Germany
- May 13: Outbreak of H7N1 in Catalonia
- May 13: 13,000 poultry culled in Germany following detection of H7N7
- May 13: Outbreaks of H5N1 in N Korea and Tibet.



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## Human Impact

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- 1997, first reported human death due to avian 'flu (Hong Kong).
- 2003, 89 cases of H7N7 in Netherlands. (1 death).
- 2004, 2 cases H7N3 in North America
- 2005 Research in Thailand concludes first human-to-human secondary transmission (H5N1)
- 2007 First human case of H9N2 in China
- 2009 Latest of several cases of H9N2 in Hong Kong.
- July 13 Continuing spread of H7N9 (China), found in humans for first time this year, had infected 60 people and killed 13.
- As of July 2013, the cumulative number of confirmed human cases of infection with H5N1 reported to World Health Organization since 2003 is 633. Total number of deaths, 377..

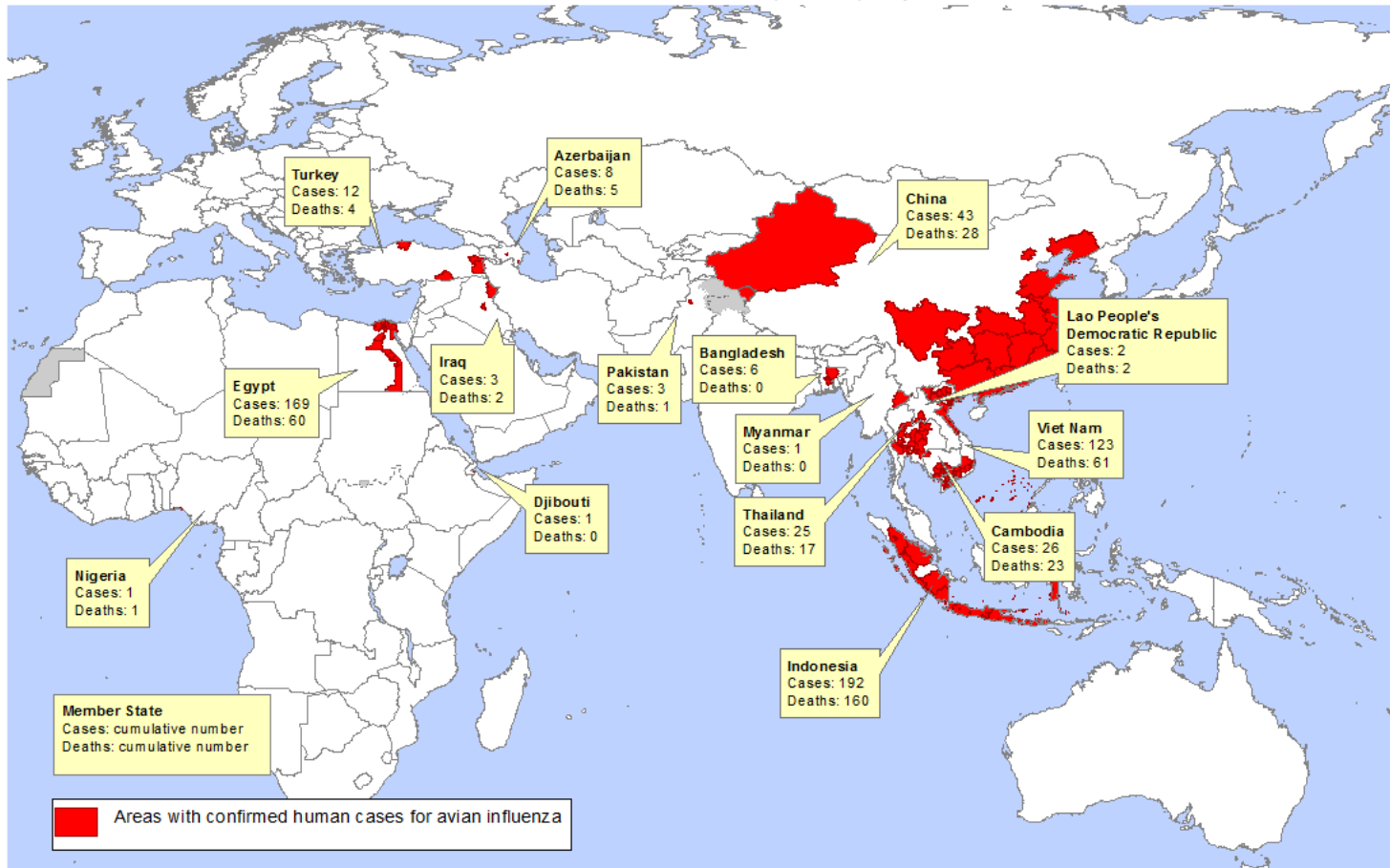
**WATER**

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# Human Impact (2) – H5N1

Areas with confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2013\*

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\*All dates refer to onset of illness  
Data as of 01 February 2013  
Source: WHO/HIP

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not be full agreement.  
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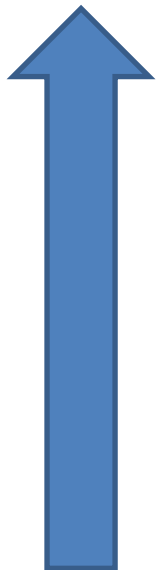


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# Resistance - Different types of Pathogens

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Harder to Kill



Easier to Kill

Spores	Clostrial diseases like botulism) and acid-fast bacteria (i.e., mycobacteria like Mycobacterium avium [avian tuberculosis])
Gram-negative Bacteria	Pseudomonas, E. coli, Salmonella
Fungi	Candida [crop mycosis] and Aspergillus [aspergillosis]
Non-enveloped viruses	Enteroviruses, Adenoviruses
Gram-positive Bacteria	Staphylococcus
Lipid-enveloped viruses	Avian Influenza

WATERGATE



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# Halamid Specific Efficacy

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- Even 0.1 % concentration of Halamid is able to reduce the virus titre more than 6 log<sub>10</sub> (99.9999 %)
- Completely inactivates avian influenza A virus in the liquid phase at all levels of organic soiling tested and at 10 °C.
- Independent Test by the Clinic for Birds, Reptiles, Amphibia & Fish (Giessen University)

**axcentive**

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# Subtypes

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Different numbers of  
Haemagglutinin &  
Neuraminidase proteins  
on the exterior

Same structure and  
lipid envelope

Very different  
pathogenic behaviour

Same  
resistance to  
disinfection

