Supplemental Information— Notable and Selected Recent Avian Influenza Outbreaks

Table S1. Summary of Notable and Selected Recent Avian Influenza Outbreaks

Virus	Outbreak Date	Outbreak Distribution	Wildlife Symptoms	Wildlife Prevalence	Poultry Symptoms	Poultry Prevalence	Human Symptoms	Human Prevalence
HPAI H5N1	2003-present	Humans: 17 countries; poultry/wildlife: 31 countries, primarily Southeast Asia	Fatal in many wild birds[1,2]; duck phenotype debated[3,4]	<0.02%[5]	Highly fatal, within 48 hours[6]	0-11% of live bird markets[7]	Severe respiratory disease, primarily 18-26 of age[8]	844 cases, 449 deaths as of 17 July 2015[9]

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[3] Wibawa H *et al* (2014) Experimentally infected domestic ducks show efficient transmission of Indonesian H5N1 highly pathogenic avian influenza virus, but lack persistent viral shedding. *PloS one* 9**:** e83417

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[6] Burggraaf S *et al* (2014) H5N1 infection causes rapid mortality and high cytokine levels in chickens compared to ducks. *Virus research* 185**:** 23-31

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[8] Cowling BJ *et al* (2013) Comparative epidemiology of human infections with avian influenza A H7N9 and H5N1 viruses in China: a population-based study of laboratory-confirmed cases. *Lancet* 382**:** 129-137

[9] World Health Organization. Influenza at the human-animal interface. http://www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_17_July_2015.pdf. Last Update July 17 2015. Accessed August 25th 2015.

Virus	Outbreak Date	Outbreak Distribution	Wildlife Symptoms	Wildlife Prevalence	Poultry Symptoms	Poultry Prevalence	Human Symptoms	Human Prevalence
LPAI H7N9	2013-present	China and Hong Kong, geographically contiguous	Little to no symptoms[10]	<0.01%[11]	Little to no symptoms[12]	0-66% of live bird markets[13]	Severe respiratory disease, primarily in elderly[14]	677 cases, at least 275 deaths as of 17 July 2015[15]
HPAI H5N2	2015-present	Poultry farms in USA, primarily Midwest	For closely related H5N8: fatal in many birds; ducks asymptomatic	At least 39 wild bird cases as of 4 Sept. 15[16]	Fatal[17]	211 turkey and chicken farms	NA	No reported cases as of 13 July 2015
LPAI H9N2	1990s-present	Near global	Low pathogenicity	Isolated from 20 of 3160 duck samples[18]	20% Mortality in Chickens[19]; reduction of egg production	Endemic at low levels	Mild Influenza-like illness.	Median 1.3% seropositive; reported globally.[20]

[10] Pantin-Jackwood MJ *et al* (2014) Role of poultry in the spread of novel H7N9 influenza virus in China. *Journal of virology* 88**:** 5381-5390

[11] Bui C *et al* (2015) A Systematic Review of the Comparative Epidemiology of Avian and Human Influenza A H5N1 and H7N9 - Lessons and Unanswered Questions. *Transboundary and emerging diseases*

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[18] Shi J *et al* (2014) Investigation of avian influenza infections in wild birds, poultry and humans in Eastern Dongting Lake, China. *PloS one* 9**:** e95685

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Virus	Outbreak Date	Outbreak Distribution	Wildlife Symptoms	Wildlife Prevalence	Poultry Symptoms	Poultry Prevalence	Human Symptoms	Human Prevalence
LPAI to HPAI H7N1	1999-2000	Italy	NA	NA	Fatal[21]	413 flocks, primarily turkey and egg layers[22]	NA	No reported cases
LPAI H7N2	2002	Virginia, USA	NA	NA	Turkeys: respiratory illness; chickens: mild symptoms[23]	197 chicken and turkey farms[24]	Respiratory Disease[25]	One reported case, no deaths. [26]
LPAI to HPAI H7N3	2003	British Columbia, Canada	NA	NA	HPAI fatal[27]	42 poultry farms, 11 backyard flocks[28]	Conjunctivitis, mild Illness[29]	2 confirmed, 55 suspected cases, 0 deaths. All poultry workers[30]
HPAI H7N7	2003	Poultry farms in Netherlands	NA	NA	Fatal[31]	255 flocks[32]	Primarily Conjunctivitis[33]	89 confirmed cases, 1 death, 250/500 seropositive.

[21] Capua I *et al* (2003) Avian influenza in Italy 1997-2001. *Avian diseases* 47**:** 839-843
[22] Ibid.
[23] Akey B (2003) Low-pathogenicity H7N2 avian influenza outbreak in Virginia during 2002. *Avian diseases* 47**:** 1099-1103
[24] Ibid.
[25] Centers for Disease Control (2004) Update: influenza activity--United States, 2003-04 season. *MMWR Morbidity and mortality weekly report* 53**:** 284-287
[26] Ibid.
[27] Tweed SA *et al* (2004) Human illness from avian influenza H7N3, British Columbia. *Emerging infectious diseases* 10**:** 2196-2199
[28] Ibid.
[29] Ibid.
[30] Ibid.
[31] Stegeman A *et al* (2004) Avian influenza A virus (H7N7) epidemic in The Netherlands in 2003: course of the epidemic and effectiveness of control measures. *The Journal of infectious diseases* 190**:** 2088-2095
[32] Ibid.
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Virus	Outbreak Date	Outbreak Distribution	Wildlife Symptoms	Wildlife Prevalence	Poultry Symptoms	Poultry Prevalence	Human Symptoms	Human Prevalence
								Mostly poultry workers[34,35]
HPAI H5N2	2004	Texas, USA	NA	NA	Fatal[36]	Single Flock, 7000 chickens[37]	NA	No reported cases
LPAI H10N8	2013-2014	Jiangxi Province, China	NA	None found in a small sample in China[38]; has been seen in wild birds in China previously	Likely little to no symptoms due to lack of detected outbreak	21 of ~1000 samples[39] (number of poultry samples not listed separately)	Severe respiratory disease	3 Cases , one death as of Jan 15 2015[40]

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[39] Ibid.
[40] Liu M *et al* (2015) Genetic diversity of avian influenza A (H10N8) virus in live poultry markets and its association with human infections in China. *Scientific reports* 5**:** 7632

Virus	Outbreak Date	Outbreak Distribution	Wildlife Symptoms	Wildlife Prevalence	Poultry Symptoms	Poultry Prevalence	Human Symptoms	Human Prevalence
HPAI H5N6	May 2014-present	Humans in China[41]; poultry in China, Laos[42] & Vietnam[43]	Fatal to 3 geese[44], other species unknown	NA	Fatal	China: 29 outbreaks[45]; Vietnam: 12 outbreaks[46] as of 8/20/15	Severe respiratory disease	4 cases, 3 deaths as of 17 July 2015[47]

[41] He J, Duan J (2015) First human case of avian influenza A (H5N6) in Yunnan province, China. *SAGE Open Medical Case Reports* 3**:** 2050313X15596484

[42] Wong FY *et al* (2015) Reassortant highly pathogenic influenza A(H5N6) virus in Laos. *Emerging infectious diseases* 21**:** 511-516

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[46] World Organization for Animal Health. H5N6 Reports for Vietnam 2013-2015. *World Animal Health Information Database*. http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home. Accessed Aug 25 2015.

[47] World Health Organization. Influenza at the human-animal interface. http://www.who.int/influenza/human_animal_interface/Influenza_Summary_IRA_HA_interface_17_July_2015.pdf. Last Update July 17 2015. Accessed August 25th 2015.