

Avian Influenza (H5N1)- Epidemiology and Enhanced Surveillance

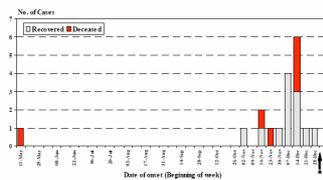
Presentation at a glance

- ❖ History of AI in HK
- ❖ Epidemiological investigation of an avian Influenza A (H5N1) case
- ❖ Global situation of avian influenza (H5N1)

Local situation of human Avian Influenza (H5N1)

- ❖ 21 cases so far
- ❖ 1997: 18 cases (6 deaths)
 - ⌚ 1st case occurred in May
 - ⌚ 2nd wave of additional 17 cases occurred in Nov & Dec
 - ⌚ Coincided with H5N1 highly pathogenic avian influenza (HPAI) outbreak in poultry/farms
- ❖ 2003: 2 cases (1 death)
 - ⌚ Imported from Mainland China (Fujian)
- ❖ No local human H5 case since 1998.

Figure 1 Epidemic Curve of Influenza A (H5N1) Cases in HKSAR, May - Dec 1997



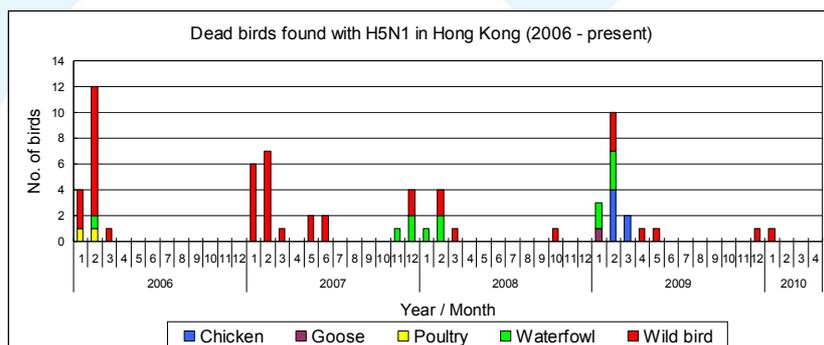
Case characteristics

- ❖ Among 21 cases since 1997:
 - ⌚ 10 males & 11 females
 - ⌚ Ages ranging from 1 to 60 yrs (median: 13 yrs)
 - ⌚ ~50% affected children aged < 12 yrs
 - ⌚ 7 cases died (CFR: 33%)

Local situation of Avian Influenza (H9N2)

- ❖ Low pathogenicity
- ❖ Total: 7 cases (2 in 1999, 1 in 2003, 1 in 2007, 1 in 2008, 2 in 2009)
- ❖ 1 male & 6 females
- ❖ Age range: 2 months – 47 yrs (median: 34 months)
- ❖ All cases recovered

Confirmed H5 cases of dead birds found in HK



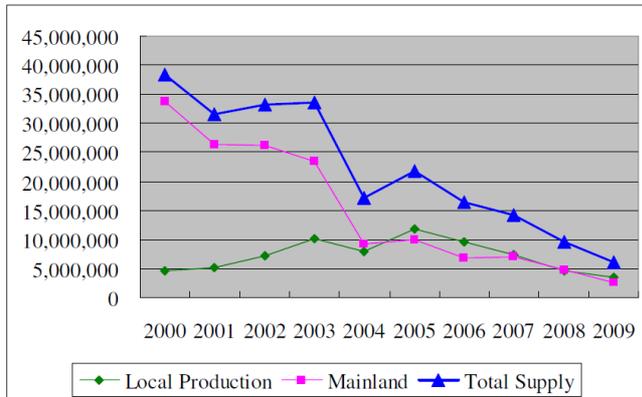
Year	2006	2007	2008	2009
No. of dead wild birds collected	11300	9884	12628	13933
No. of dead wild birds tested	9893	8719	7305	8622
No. of dead wild birds found with H5N1 virus	15	21	7	6
Prevalence	0.15%	0.24%	0.09%	0.07%

H5N1 detected in poultry/farms in HK in recent years

- ❖ Jun 2008: 5 out of 20 samples taken from cages of 3 poultry stalls in Sham Shui Po tested +ve for H5N1
- ❖ Dec 2008: H5N1 outbreak in local farm in Yuen Long
- ❖ Both were controlled without human infection

Multi-pronged strategy to minimize AI risk

- ❖ Close monitoring of global situation
- ❖ Compulsory biosecurity measures for local farms
- ❖ Vaccination for all imported & local chickens
- ❖ Routine inspection and testing of all imported chickens
- ❖ Stepped-up inspection and hygiene regulation of live poultry retail outlets, wholesale markets and farms
- ❖ Ban on backyard poultry farming; licensing control on keeping of racing pigeons
- ❖ Ban live poultry stocking at retail outlets overnight
- ❖ Enhanced surveillance of wild birds/dead chickens
- ❖ Buyout scheme for live poultry trade



Annual live poultry supply in live poultry markets

	Before the ban on overnight keeping of live poultry in retail markets	After the ban on overnight keeping of live poultry in retail markets
No. of samples collected	3572	2836
No. of positive H9N2	158	3
Isolation rate	4.42%	0.11%

Surveillance of H9N2 in retail markets (by HKU)

The case

- ❖ 59-year-old Chinese lady
- ❖ Lives in Tuen Mun with husband (M/60), son (M/26) & daughter (F/31)
- ❖ Onset
 - ☞ Runny nose since 2/11/2010
 - ☞ Cough, haemoptysis & fever since 5/11/2010
- ❖ Lab findings: PCR +ve for H5N1, sequencing showed the virus belonged to clade 2.3.2 (common in Asia)

Travel and exposure history

- ❖ Travelled to Shanghai, Nanjing & Hangzhou from Oct 23 to Nov 1 with husband & daughter
- ❖ Picked up by her elder son living in Shanghai
- ❖ Visited a wet market in Shanghai (Oct 30)
- ❖ No history of direct contact with live bird, poultry or other animals
- ❖ Visited wet market in Tuen Mun during Nov 2 to Nov 4

Contact tracing

- ❖ Close contacts
 - ☞ Family
 - ❖ Husband: history of running nose and productive cough on Nov 3 but has recovered
 - ❖ Younger son and daughter: asymptomatic
 - ☞ Ward contacts: all asymptomatic
 - ☞ All 8 close contacts tested negative for H5
- ❖ Other contacts (~200): all asymptomatic or tested negative for H5

Control measures

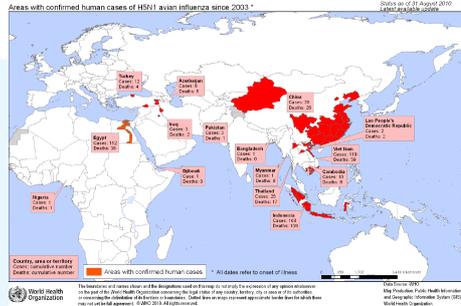
- ❖ Raised pandemic response level from “Alert” to “Serious” Response Level under the Framework of Government’s Preparedness Plan for Influenza Pandemic
- ❖ Relevant government departments, HA and stakeholders were informed and keep updated on the situation
- ❖ Notified World Health Organization
- ❖ Closely liaising with the Mainland authorities to monitor the situation

Enhanced surveillance

- ❖ Case definition:
 - ☞ A person presented with influenza-like illness (fever $>38^{\circ}\text{C}$ and either sore throat or cough);
AND
 - ☞ Had history of visiting wet market or contacting poultry in Shanghai, Nanjing or Hangzhou within incubation period (i.e., 7 days before onset of symptoms)
- ❖ No case reported so far

Global situation of Avian Influenza (H5N1)

- ❖ Human cases:
 - ☞ 508 confirmed cases (including 302 deaths) reported to WHO
 - ☞ In 15 countries, mostly in Asia
 - ☞ CFR: ~60%
 - ☞ So far, 40 cases in 2010
 - ☞ Countries with human cases in past 6 months: Vietnam, Indonesia, Cambodia, Egypt, China



Confirmed human cases of avian influenza A (H5N1) reported to WHO since 2003 by onset date of the cases[§]

	2003	2004	2005	2006	2007	2008	2009	2010	Overall
Cases	4	46	98	115	88	44	73	40	508
Deaths	4	32	43	79	59	33	32	20	302
Case Fatality Rate	100%	69.6%	43.9%	68.7%	67.0%	75.0%	43.8%	50.0%	59.4%

Countries/areas affected by HPAI in past 6 months

WHO Region	Date of last report by WHO / OIE	Countries	In the past 6 months, H5N1 has affected
Western Pacific	2010-11-17	China (Hong Kong [^])	Human
	2010-08-17	Vietnam	Human, Poultry
	2010-07-02	China (Tibet)	Wild birds
	2010-06-08	China (Hubei)	Human
	2010-05-14	Laos	Poultry
	2010-05-10	Mongolia	Wild birds
	2010-05-04	Cambodia	Human, Poultry
South-East Asia	2010-10-18	Indonesia ^{&}	Human, Poultry
	2010-06-17	Bangladesh	Poultry
Eastern Mediterranean	2010-08-31	Egypt ^{&}	Human
Europe	2010-06-25	Russia	Wild birds
	2010-05-06	Israel	Poultry
Africa	2009-03-03	Nigeria ^{&}	Poultry

Situation in Mainland China

❖ No. of human H5N1 cases reported to WHO

- 🌀 2006: 13
- 🌀 2007: 5
- 🌀 2008: 4
- 🌀 2009: 7
- 🌀 2010: 1 (in Hubei Province, onset on May 23)

❖ No. of H5 outbreak in poultry/wild birds

- 🌀 2006: 3
- 🌀 2007: 3
- 🌀 2008: 10
- 🌀 2009: 2 (Xinjiang, Tibet)
- 🌀 2010: 1 (Tibet in Jul 2010)

Summary

- ❖ Hong Kong recorded a sporadic case of human avian influenza A (H5N1) this year after last case in 2003
- ❖ Contact tracing identified 8 close contacts but no other confirmed cases
- ❖ Source of infection requires further investigations, but findings at present stage showed that it was likely an imported case

