



QUARTERLY EPIDEMIOLOGY REPORT

Country: Hong Kong SAR, China

Period: January - March 2006

Multiple species	Number of cases or see below*			Effective surveillance system**	Comment Numbers
	Month				
	January	February	March		
1. Aujeszky's disease	-	-	-	N	
2. Bluetongue	...	...	...	N	
3. Foot and mouth disease (A, O, C, Asia-1)	-	-	-	Y	1
4. Leptospirosis	...	...	...	N	
5. Rabies	(1987)			Y	
Cattle					
6. Bovine brucellosis	...	...	...	N	
7. Bovine tuberculosis	0000	0000	0000	Y	
8. Contagious bovine pleuropneumonia	0000	0000	0000	N	
9. Enzootic bovine leukosis	...	...	...	N	
10. Haemorrhagic septicaemia	...	...	...	N	
11. IBR/IPV	...	...	...	N	
12. Rinderpest	(1950)			N	
Sheep and goat					
13. Caprine arthritis/encephalitis	...	...	...	N	
14. Contagious caprine pleuropneumonia	0000	0000	0000	N	
15. Maedi-visna	0000	0000	0000	N	
16. Ovine pulmonary adenomatosis	0000	0000	0000	N	
17. Peste des petits ruminants	0000	0000	0000	N	
18. Scrapie	0000	0000	0000	N	
19. Sheep pox and goat box	0000	0000	0000	N	
Equine					
20. Contagious equine metritis	0000	0000	0000	Y	
21. Equine infectious anemia	(1976)			Y	
21. Equine influenza	(1992)			Y	
23. Equine rhinopneumonitis	-	-	-	Y	2
24. Equine viral arteritis	0000	0000	0000	Y	
25. Glanders	0000	0000	0000	Y	
26. Japanese encephalitis	(2000)			Y	3
Swine					
27. Classical swine fever	-	-	-	Y	4
28. Transmissible gastroenteritis	?	?	?	N	
Avian					
29. Highly pathogenic avian influenza	4	12	1	Y	5
30. Infectious bursal disease (Gumboro disease)	-	-	-	N	6
31. Marek's disease	+	-	-	N	
32. Newcastle disease	+	+	+	Y	7
Lagomorph					
33. Rabbit haemorrhagic disease	...	...	...	N	
34. Fish diseases of importance	-	-	+	Y	8
35. Other diseases of importance	...	...	...	N	

*Please use the following symbols to complete the table:

Codes indicating disease presence

+ Positive occurrence of the disease

+() Positive occurrence of the disease limited to certain zones/regions of the country

Codes indicating the presence of the infection/infestation

+? Identification of the presence of infection/infestation

Codes indicating disease absence

- Negative occurrence of the disease

0000 Disease never reported

Other codes

? Presence of the disease suspected but not confirmed

... No information available

** Existence of effective surveillance system

Yes System exists.

No System does not exist.

Approved by

Dr Kitman Dyrting

Name:

Senior Veterinary Officer (Veterinary Laboratory)

Position:

Signature:

27 June 2006

Date:



1. Epidemiological comments:

Comment No.	Please give here further details including the numbers of cases and/or outbreaks, locations of outbreaks, sero-types detected, measures taken, etc.
1	FMD type O is known to occur in pigs in Hong Kong and pigs are routinely vaccinated against type O FMD.
2	Since 1997, horses have been vaccinated against EHV 1 and 4.
3	Vaccination is practised in all equidae against Japanese Encephalitis.
4	Most pigs are vaccinated against classical swine fever.
5	<p>There are 17 isolated detection of highly pathogenic H5N1 infection in 15 wild birds and 2 chickens during the period of 10 January to 22 March 2006. The species involved are Oriental Magpie Robin (<i>Copsychus saularis</i>, 2 cases), Crested Myna (<i>Acridotheres cristaeillus</i>, 1 case), Common Magpie (<i>Pica pica sericea</i>, 4 cases), Little Egret (<i>Egretta garzetta</i>, 1 case), Japanese White-eye (<i>Zosterops japonica simplex</i>, 1 case), Munia (<i>Lonchura spp.</i>, 1 case), White-rumped Munia (<i>Lonchura striata</i>, 1 case), Large-billed Crow (<i>Corvus macrorhynchus</i>, 1 case), House Crow (<i>Corvus splendens</i>, 2 cases), Peregrine Falcon (<i>Falco peregrinus</i>, 1 case) and chickens (<i>Gallus domesticus</i>, 2 cases). The 2 dead chickens were collected during the enhanced territory-wide local dead wild bird surveillance exercise starting in October 2005. These chicken cases were not related to poultry farms or live poultry markets in Hong Kong as there have been no outbreaks of H5N1 in poultry farms or markets since around mid 2003. For details of these cases, please refer to the attached appendix 1.</p> <p>Extensive avian influenza surveillance was also being conducted in various other targeted areas including local poultry farms, live poultry markets, imported poultry consignments, pet birds, recreational bird collections, and wild bird nature reserves. No other cases or isolations of highly pathogenic avian influenza viruses occurred during this reporting period. The live poultry markets currently have 2 rest days each month whereby all birds are slaughtered and premises are cleaned and disinfected. In addition to enhanced biosecurity measures on farms and in markets, all local and imported live chickens are vaccinated with a killed H5N2 avian influenza vaccine for H5 avian influenza protection.</p> <p>In February, 1 low pathogenic H5N2 avian influenza virus was isolated from wild bird faecal samples collected at Mai Po by researchers of the Microbiology Department of The Hong Kong University.</p>
6	Poultry are routinely vaccinated against Infectious bursal disease.
7	Poultry are routinely vaccinated against Newcastle disease.
8	During the reporting period, there were 1 case of koi herpesvirus in koi carp and 2 cases of mortalities associated with red-spotted grouper nervous necrosis virus in fingerlings of green grouper and giant grouper.

2. New animal health regulations introduced (with effective date):

Nil

3. Names of countries with which you trade in livestock and its products:

Imports of livestock and livestock products are received from a wide range of countries.

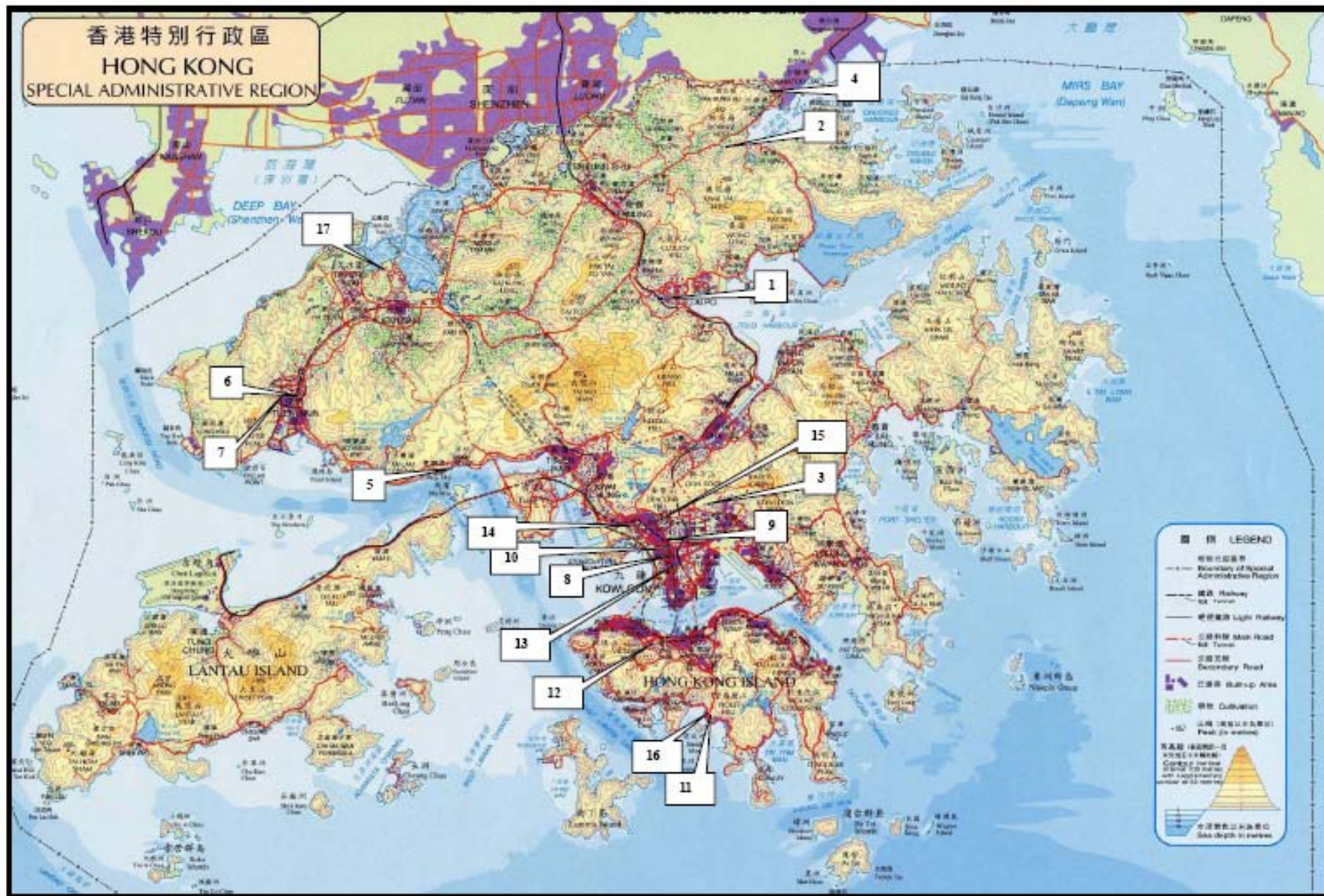


Detection of the HPNAI incident in Hong Kong SAR (in chronological order):

	Date of initial detection	Species	Location found	No. of outbreak	Susceptible/ Cases/ Deaths	Destroyed	Slaughtered
1	10 Jan 2006	Oriental Magpie Robin (<i>Copsychus saularis</i>)	Tai Po (22° 27' 00" N – 114° 09' 29" E)	1	1/ 1/ 1	0	0
2	26 Jan 2006	Oriental Magpie Robin (<i>Copsychus saularis</i>)	Sha Tau Kok (22° 31' 29" N – 114° 11' 44" E)	1	1/ 1/ 1	0	0
3	31 Jan 2006	Crested Myna (<i>Acridotheres cristatellus</i>)	Wong Tai Sin (22° 20' 32" N – 114° 11' 36" E)	1	1/ 1/ 1	0	0
4	31 Jan 2006	Chicken (<i>Gallus domesticus</i>)	Sha Tau Kok (22° 32' 55" N – 114° 13' 29" E)	1	1/ 1/ 1	0	0
5	3 Feb 2006	Common Magpie (<i>Pica pica sericea</i>)	Sham Tseng (22° 21' 43" N – 114° 02' 45" E)	1	1/ 1/ 1	0	0
6	3 Feb 2006	Little Egret (<i>Egretta garzetta</i>)	Tuen Mun (22° 23' 08" N – 113° 28' 06" E)	1	1/ 1/ 1	0	0
7	6 Feb 2006	Chicken (<i>Gallus domesticus</i>)	Tuen Mun (22° 22' 33" N – 113° 58' 08" E)	1	1/ 1/ 1	0	0
8	7 Feb 2006	Japanese White-eye (<i>Zosterops japonica simplex</i>)	Mong Kok (22° 19' 17" N – 114° 10' 27" E)	1	1/ 1/ 1	0	0
9	16 Feb 2006	Common Magpie (<i>Pica pica sericea</i>)	Sham Shui Po (22° 19' 49" N – 114° 10' 28" E)	1	1/ 1/ 1	0	0
10	17 Feb 2006	Common Magpie (<i>Pica pica sericea</i>)	Mong Kok (22° 19' 36" N – 114° 10' 19" E)	1	1/ 1/ 1	0	0
11	20 Feb 2006	Munia (<i>Lonchura spp.</i>)	Repulse Bay (22° 14' 29" N – 114° 11' 21" E)	1	15/ 1/ 15	0	0
12	20 Feb 2006	White-rumped Munia (<i>Lonchura striata</i>)	Wan Chai (22° 16' 31" N – 114° 10' 16" E)	1	1/ 1/ 1	0	0
13	20 Feb 2006	Large-billed Crow (<i>Corvus macrorhynchos</i>)	Sham Shui Po (22° 19' 44" N – 114° 10' 22" E)	1	1/ 1/ 1	0	0
14	21 Feb 2006	House Crow (<i>Corvus splendens</i>)	Cheung Sha Wan (22° 19' 52" N – 114° 09' 30" E)	1	1/ 1/ 1	0	0
15	23 Feb 2006	House Crow (<i>Corvus splendens</i>)	Shek Kip Mei (22° 19' 57" N – 114° 10' 19" E)	1	1/ 1/ 1	0	0
16	25 Feb 2006	Common Magpie (<i>Pica pica sericea</i>)	Shouson Hill (22° 14' 43" N – 114° 11' 14" E)	1	1/ 1/ 1	0	0
17	22 Mar 2006	Peregrine Falcon (<i>Falco peregrinus</i>)	Tin Shui Wai (22° 28' 08" N – 114° 00' 05" E)	1	1/ 1/ 1	0	0



Location map of the H5N1-infected birds found in Hong Kong in January to March in 2006 (labeled as listed above):





Description of the affected populations:

Avian species	World distribution	Status in Hong Kong	Feeding habit	Habitats in Hong Kong
Oriental Magpie Robin (<i>Copsychus saularis</i>)	Oriental zoogeographical region	Non-migratory; common abundant resident	Forages in shrubland; omnivorous with insects as its main diet.	Occurs throughout all habitats except uplands.
Crested Myna (<i>Acridotheres cristatellus</i>)	North Indochina to east China	Non-migratory; common abundant resident	Forages in open area and feed on ground; omnivorous with insects as its main diet.	Occurs throughout all habitats except woodlands and hill shrubs.
Common Magpie (<i>Pica pica sericea</i>)	Holarctic	Non-migratory; common widespread resident	Forages in open area and feed on ground; omnivorous.	Inhibits urban areas, parks, and wetlands.
Little Egret (<i>Egretta garzetta</i>)	Central and South Asia, Africa, Australasia, Europe	Common abundant resident (egretries) but some are winter visitors	Fishes at margins of ponds, damp areas and seashore.	Occurs in any wetlands.
Japanese White-eye (<i>Zosterops japonica simplex</i>)	East Asia	Non-migratory; common abundant resident	Forages in shrubs and trees; omnivorous with insects and fruits as its main diet.	Occurs in flocks in wooded areas in urban parks, woodlands, shrublands and wetlands.
Munia (<i>Lonchura spp.</i>)	Oriental zoogeographical region	Non-migratory; common abundant resident	Forages in woodlands and gardens; seed-eating bird.	Occurs in flocks in almost any habitats, including woodlands and urban gardens.
White-rumped Munia (<i>Lonchura striata</i>)	Oriental zoogeographical region	Non-migratory; common abundant resident	Forages in woodlands and gardens; seed-eating bird.	Occurs in flocks in almost any habitats, including woodlands and urban gardens.
Large-billed Crow (<i>Corvus macrorhynchos</i>)	East Asia	Non-migratory ; common abundant resident	Forages in open area and lightly wooded areas; omnivorous.	Occurs in hilly and lightly wooded areas but also see along shores.
House Crow (<i>Corvus splendens</i>)	Indian subcontinent and adjacent areas	Non-migratory; recently introduced to HK; resident	Forages in urban areas; omnivorous and feeds largely on human scrapes.	Occurs in urban areas; abundant scavenger of human settlements.
Peregrine Falcon (<i>Falco peregrinus</i>)	Southern and South-eastern Asia	Scarce resident and winter visitor	Feeds chiefly on birds, including ducks, and occasional small mammals, including bats and rats.	Seen singly or in pairs in almost any open habitat.
Chicken (<i>Gallus domesticus</i>)	The 2 dead chickens were collected during the enhanced local dead wild bird surveillance exercise since October 2005. These cases were not related to poultry farms or live poultry markets in Hong Kong because there have been no outbreaks of H5N1 in poultry farms or markets in Hong Kong after the first quarter of 2003. The first dead chicken was found in a property in Sha Tau Kok frontier closed area and the second chicken was found stray on the street in Tuen Mun.			

Diagnosis:

Laboratory where diagnosis was made: Tai Lung Veterinary Laboratory, Agriculture, Fisheries and Conservation Department, Hong Kong.

Diagnostic tests used: Tests conducted on cloacal and tracheal swabs or brain tissues included chicken embryo inoculation with haemagglutination inhibition testing by type specific reference antisera from CVL Weybridge; viral genome detection by real time RT-PCR tests using H5 specific primer sets from SEPRL, Atlanta, Georgia, USA; N1 typing by conventional RT-PCR following procedures from Department of Microbiology, The University of Hong Kong (HKU). Genetic sequencing of the haemagglutinin cleavage site and other genetic characterization are being conducted at HKU.

**Genetic and molecular analysis (conducted at the Department of Microbiology of HKU):**

- The viruses were confirmed as highly pathogenic H5N1 isolates by PCR and sequencing of the HA connecting peptide region. Molecular analysis showed that the HA proteins of these isolates have multiple basic amino acids at the HA1-HA2 cleavage site and satisfy the motif characteristic of highly pathogenic avian influenza virus for chickens. In comparison with Gs/GD/1/96, there is a deletion in the 2nd last position of the connecting peptide.
- Molecular analysis showed that there are no changes from Gs/GD/1/96 at the receptor binding sites of the haemagglutinin, indicating the viruses have high affinity for avian cell receptors.
- The NA genes have the 20 amino acid deletion in the stalk as seen in genotype Z viruses.
- The NS1 genes have Asp at position 92 and have the 5 amino acid deletion as seen in genotype Z viruses.
- The M genes have Ser at position 31 (in M2 ion channel) and have no other mutations that are known to confer amantadine resistance.
- The PB2 genes have Glu at position 627. They do not have Lys at position 627 which is associated with increased virulence in mammals.
- Phylogenetic analysis showed viruses 1 to 7 belong to H5N1 genotype V that has previously been recorded in southern China, Japan and South Korea. Genotype V differs from the dominant genotype Z, in the source of PA gene⁽¹⁾, which is widespread throughout Asia. Viruses 8 to 17 belong to genotype G that has been isolated from southern China and Vietnam since mid 2005. Genotype G is the same as genotype Z in 7 gene segments, but has a Gs/GD/1/96- like PB2 gene⁽¹⁾.

Source of agent / origin of infection: Not determined

Mode of spread:

- No spread detected.
- All poultry farms within 5 kms of where the wild birds or chickens had been found were checked and no unusual mortality or illness was detected.
- An intensive surveillance system is in place on all poultry farms and other locations. From January to March 2006, over 2500 faecal or cloacal/tracheal swabs from local poultry farms, 1100 from wholesale or retail live poultry markets, 600 from waterfowl and aviaries in recreational parks, 800 from pet bird shops and markets and 7800 from wild birds were tested as part of the avian influenza surveillance program. Seventeen cases of H5N1 infection was detected in 2006 up to the end of March. However, there have been no reports of unusual mortality in wild birds.
- The apparent increase in H5N1 incidents in Hong Kong wild birds is probably related to the effort of increase in dead wild bird testing since October 2005. On-going territory-wide dead wild bird surveillance is continuing.

Control measures during the reporting period:

Local poultry farms are routinely under a constant monitoring and surveillance program involving serological and virological testing and have individual farm biosecurity plans, which include bird proofing of all sheds. All chicken farms are routinely vaccinated with inactivated H5N2 vaccine and each batch of chickens has 60 unvaccinated individually identified sentinels, which are monitored over the production life of the batch. Extensive virus culture and surveillance is conducted in wholesale and retail poultry markets and in bird parks and wild bird populations throughout Hong Kong.

Reference:

(1) Li, K.S., Guan, Y., Wang, J., et al. Genesis of a highly pathogenic and potentially pandemic H5N1 influenza virus in eastern Asia. *Nature* 430: 209-213 (2004).