

Communicable Diseases

WATCH



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FEATURE IN FOCUS

Update on Psittacosis

Reported by Dr Ashley FONG, Medical and Health Officer, Respiratory Disease Office, Surveillance and Epidemiology Branch, CHP.

Psittacosis, also known as parrot fever or ornithosis, is an infectious disease caused by the bacteria *Chlamydophila psittaci* (*C. psittaci*), which primarily affect birds. The infection is usually transmitted to humans through inhalation of *C. psittaci* from dried droppings or secretions of infected birds. Although all birds can transmit the disease to human, pet birds (e.g. parrots, cockatiels, parakeets and macaws) and poultry (turkeys and ducks) are most frequently involved. Psittacosis is not normally transmitted from person to person.

In humans, psittacosis commonly presents as influenza-like illness or pneumonia. Symptoms include fever, headache, rash, muscle pain, chills and dry cough. Occasionally, complications such as encephalitis, endocarditis, myocarditis, hepatitis or sepsis may occur. The incubation period typically ranges from five to 14 days, but may be up to four weeks. Psittacosis can be effectively treated with appropriate antibiotics.

In birds, infection with *C. psittaci* is known as avian chlamydiosis. It can cause conjunctivitis, enteritis, air sacculitis, pneumonitis, and hepatosplenomegaly in psittacine birds. Symptoms in birds may include eye or nasal discharge, diarrhoea, loss of appetite and emaciation. However, apparently healthy birds can be carriers and shed the bacteria, particularly when they are subjected to stress through crowding and shipping.

In Hong Kong, psittacosis has been listed as a notifiable disease under the Prevention and Control of Disease Ordinance (Cap 599) since July 14, 2008. We reviewed the confirmed cases recorded by the Centre for Health Protection (CHP) of the Department of Health in the past five years.

Since 2013, CHP recorded a total of 32 cases of psittacosis (as of March 10, 2018). Between 2013 and 2017, the annual number of cases ranged from two to nine cases (Figure 1). So far, five cases have been recorded in 2018 (as of March 10). All the 32 cases were diagnosed by polymerase chain reaction (PCR). The male-to-female ratio was 2.2:1. Their ages ranged from 34 to 80 years with a median of 61.5 years (Figure 2). Among them, 20 (62.5%) were locally acquired infections and seven (21.9%) were imported infections. The remaining five patients (15.6%) had stayed both inside and outside Hong Kong during their incubation period and no obvious contact with birds could be identified so the places of infection were undetermined.

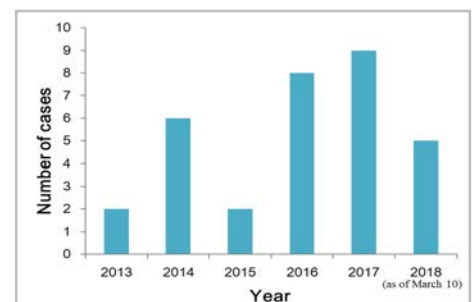


Figure 1 - Annual number of psittacosis cases recorded in Hong Kong, 2013-2018 (as of March 10, 2018).

The most common clinical presentations included cough (29, 90.6%), fever (28, 87.5%) and shortness of breath (17, 53.1%). All patients had pneumonia and required hospitalisation with 15 patients (46.9%) requiring admission to intensive care units (ICU) and one (3.1%) to high dependency unit. Seven patients (21.9%) developed other complications, including acute renal failure, deranged liver and/or renal functions and shock. There was one death due to psittacosis in 2014. Seventeen patients (53.1%) had pre-existing medical conditions.

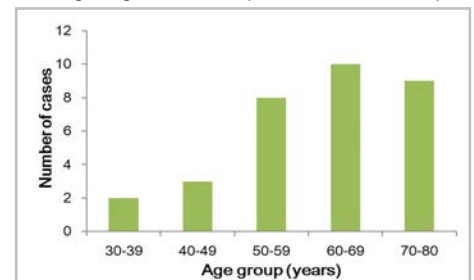


Figure 2 - Age distribution of psittacosis cases recorded in Hong Kong, 2013-2018 (as of March 10, 2018).

Regarding risk exposure, 14 patients (43.8%) had contact with birds/ bird droppings or history of visiting pet bird shop during the incubation period. Among them, swabs from birds and environment were available for testing in four cases. All were tested negative for *C. psittaci* except for two cases involved in a cluster in 2018 detailed below. The remaining 18 patients (56.3%) could not recall any known exposure to birds prior to their disease onset.

Thirty cases (93.8%) were sporadic cases without epidemiological linkage. Two cases in 2018 were involved in a household cluster affecting a couple aged 51 and 54 years old. Both patients had good past health. The 51-year-old woman presented with fever, productive cough, shortness of breath and malaise in late January. Her 54-year-old husband presented with fever, headache and myalgia on February 4. They had no travel history within the incubation period. Investigation revealed that they had visited the bird market on January 14 and 21, and bought a parrot from a bird shop there on January 21. A cloacal swab and a conjunctival swab

taken from the parrot and an environmental swab taken from the box used to keep the parrot were all tested positive for *C. psittaci* by PCR. Their household contacts and the persons who had contact with the parrot and the workers of the bird shop all remained asymptomatic.

To prevent psittacosis, the public is advised to:

- ❖ Maintain good personal and environmental hygiene;
- ❖ Wash hands thoroughly after handling birds; and
- ❖ Seek medical treatment if symptoms develop.

People keeping birds as pets are advised to:

- ❖ Purchase birds from licensed animal traders; never buy pets from suspicious or unknown sources;
- ❖ Position cages so that food, feathers, and faeces cannot spread between them (i.e. do not stack cages, use solid-sided cases or barriers if cages are next to each other);
- ❖ Disinfect bird cage and surfaces contaminated by bird droppings or secretions regularly;
- ❖ Avoid over-crowding of birds;
- ❖ Isolate and treat infected birds;
- ❖ Avoid close contact with infected birds; and
- ❖ Wear gloves and a surgical mask when handling droppings or secretions of infected birds.

Review of hantavirus infection in Hong Kong

Reported by Dr Eric LAM, Medical and Health Officer, Communicable Disease Surveillance and Intelligence Office, Surveillance and Epidemiology Branch, CHP.

Hantavirus infection is a zoonotic disease caused by hantaviruses which belong to the bunyavirus family¹. Hantaviruses are present throughout the world and are normally carried by rodents, such as rats, mice and moles².

Hantavirus is mainly transmitted to humans through inhalation of the virus in aerosolised excreta of infected rodents, which will carry and secrete infectious virus for prolonged periods, probably for life². It could also be transmitted indirectly through contact with the urine, droppings or saliva of infected rodents, consumption of the food contaminated by these matters, touching the eyes, nose or mouth after contacting articles contaminated likewise, or through bites by infected rodents. Some occupations pose an increased risk of contracting hantavirus, such as forestry workers, farmers and those that involve handling of rodents, entering and cleaning long abandoned buildings, etc³. Human-to-human transmission is extremely rare.

Hantavirus can cause a range of diseases in humans, from mild, flu-like illness to severe respiratory illness or haemorrhagic disease with kidney involvement, known as Hantavirus Pulmonary Syndrome (HPS) and Haemorrhagic Fever with Renal Syndrome (HFRS) respectively.

Symptoms may start to develop around one to eight weeks after exposure¹. Early symptoms include fever, fatigue and muscle-ache. There may also be headache, dizziness, chills and gastrointestinal symptoms such as nausea, vomiting, diarrhoea and abdominal pain.

There is no specific treatment for hantavirus infection and supportive therapy is the mainstay of care for patients.

HFRS is caused by the Old World Hantaviruses and is reported mostly in Asia and Europe. It could manifest as severe renal impairment, with mortality ranging from less than 1% to 15%¹. On the other hand, HPS is caused by the New World Hantaviruses and is largely reported in America. Patients with HPS may develop severe respiratory distress. The disease can be fatal, with a case fatality rate of up to 38%¹.

Hantavirus infection has been included in the list of notifiable diseases under the Prevention and Control of Disease Ordinance (Cap 599) since July 14, 2008. All registered medical practitioners are required to notify the Centre for Health Protection (CHP) of the Department of Health of any suspected or confirmed cases of hantavirus infection.

Since hantavirus infection became a notifiable disease, CHP recorded a total of six confirmed cases (as of February 28, 2018). The number of cases ranged from zero to two per year (Figure 1) with no obvious seasonality (Figure 2). Five cases (83%) were males. Their ages ranged from 22 to 76 years (median: 37 years) (Figure 3). The majority (4 cases, 67%) acquired the infection locally. One case was an imported infection from Mainland China. For the remaining case, the source of infection could not be determined, as the patient had spent part of the incubation period both in and outside Hong Kong.

All of the six cases were HFRS. They all presented with fever. Other symptoms include nausea/vomiting (67%), abdominal pain (67%), diarrhoea (33%), chills and rigor (50%), headache (17%), malaise (17%) and myalgia (17%) (Table 1).

All required hospitalisation and one (17%) of them required admission to intensive care unit. Hantavirus infection was confirmed by the detection of hantavirus-specific IgM in blood sample in four cases and a four-fold rise in hantavirus-specific antibody titres between acute and convalescent sera in the remaining two cases. Laboratory investigation revealed that all these patients had deranged renal function and three (50%) of them required haemodialysis. Four patients (67%) developed thrombocytopenia. Other abnormalities include deranged liver function (17%), deranged clotting profile (17%) and haematuria (17%) (Table 2). No fatality was recorded.

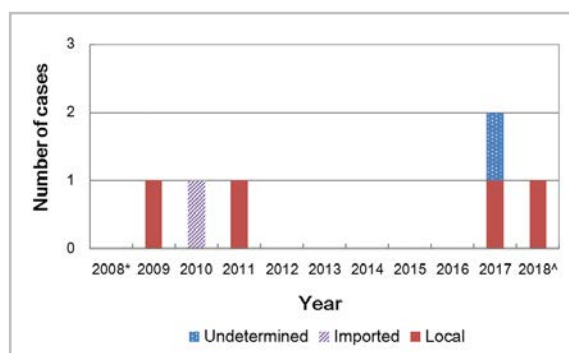


Figure 1 - Number of hantavirus infection reported in Hong Kong (July 2008* - February 2018*).

In all four locally acquired infection, rodent activity was found in the places frequented by the patients concerned during field investigation, including the vicinity of patients' residence, their workplaces or schools. Health advice on prevention of Hantavirus infection was given to the patients. Rodent control and preventive measures, environmental cleansing and disinfection were stepped up in the concerned areas by the Food and Environmental Hygiene Department, in liaison with relevant parties as appropriate. All of the cases were sporadic cases without epidemiological linkage identified.

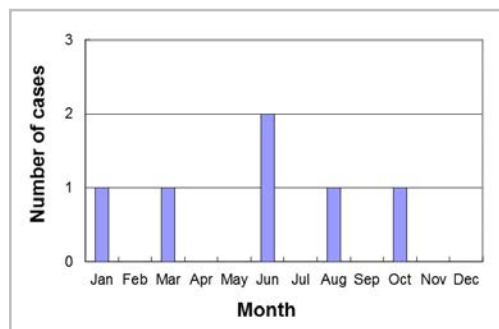


Figure 2 - Monthly distribution of hantavirus infection in Hong Kong (July 2008 - February 2018).

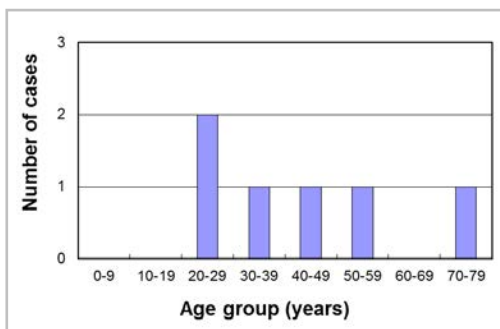


Figure 3 - Age distribution of hantavirus infection in Hong Kong (July 2008 - February 2018).

Currently there is no vaccine available for hantavirus. To prevent hantavirus infection, it is important to eliminate rodent infestation and maintain good personal and environmental hygiene. Members of the public should:

- ❖ Wash hands regularly, especially before preparing or eating food and after contact with animals;
- ❖ Store food properly;
- ❖ Keep all refuse and food remnants in rubbish bins fitted with cover;
- ❖ Inspect regularly all flowerbeds and pavements for rodent infestation;
- ❖ Avoid visiting places with poor environmental hygiene when travelling to places with reported cases of hantavirus infection; and
- ❖ Avoid high-risk activities such as handling rodents with bare hands, entering enclosed space infested by rodents, disturbing rodents excreta or nests and keeping wild rodents as pets, etc.

References

¹Hantavirus. United States Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/hantavirus/index.html/>.

²The characteristics, diagnosis, epidemiology of hantaviruses. Public Health England. Available at: <https://www.gov.uk/guidance/hantaviruses>.

³Facts about Hantavirus. European Centre for Disease Prevention and Control. Available at: <https://ecdc.europa.eu/en/hantavirus-infection/facts>.

Table 1 - Clinical presentation of the reported cases of hantavirus infection (July 2008 - February 2018).

Flu-like symptoms		
	Number of cases	%
Fever	6	100
Chills and rigors	3	50
Headache	1	17
Malaise	1	17
Myalgia	1	17
Gastrointestinal symptoms		
Nausea/vomiting	4	67
Abdominal pain	4	67
Diarrhoea	2	33

Table 2 - Laboratory findings of the reported cases of hantavirus infection (July 2008 - February 2018).

	Number of cases	%
Deranged renal function	6	100
Thrombocytopenia	4	67
Proteinuria	2	33
Deranged clotting profile	1	17
Deranged liver function	1	17
Haematuria	1	17
Leucocytosis	1	17

NEWS IN BRIEF

A cluster of pertussis in a public hospital

In March 2018, the Centre for Health Protection (CHP) recorded a cluster of pertussis infection affecting three one-month-old babies (two males and one female). They presented with persistent cough from February 25 to March 4 and were admitted to public hospitals for treatment from March 5 to 6. Their nasopharyngeal swabs were tested positive for *Bordetella pertussis* and they were treated with antibiotics. They remained in stable condition and two babies were discharged.

The three babies were not yet due for the first dose of diphtheria, tetanus, acellular pertussis and inactivated poliovirus (DTaP-IPV) vaccine. Chemoprophylaxis was offered to household contacts of the three affected babies.

Epidemiological investigation revealed that the trio were born in Prince of Wales Hospital and stayed in the same cubicle of a postnatal ward during the incubation period from February 12 to 16. Upon contact tracing of staff, mothers, babies and visitors who had stayed or visited the same cubicle, no other laboratory confirmed case was identified at this moment. Infection control measures of the ward have already been stepped up and all concerned staff, mothers, babies and visitors were under medical surveillance. Investigations are on-going.

Two local sporadic cases of listeriosis

CHP recorded two sporadic cases of listeriosis in early March. The first case was a 60-year-old woman with underlying illness. She was admitted to a public hospital for management of her underlying illness on February 20. She developed fever and shortness of breath on February 26. Her blood culture collected on February 26 yielded both *Listeria monocytogenes* and Group D *Salmonella*. She was treated with antibiotics. Her condition deteriorated and she passed away on March 1.

The second case was an 81-year-old man with underlying illnesses. He presented with fever and worsening of lower limb edema on March 4 and was admitted to a public hospital on the same day. The clinical diagnoses were sepsis and fluid overload. His blood culture collected on March 4 yielded *Listeria monocytogenes* and he was treated with antibiotics. His condition was stable.

Both cases had no travel history and did not consume any high-risk food (including Australian rockmelons) during the incubation period. Their household contacts remained asymptomatic. So far, no epidemiological linkage has been identified among these two cases. Investigations are on-going.