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FEATURE IN FOCUS

Summary of the measles outbreak at HKIA

Reported by Dr Albert LAM, Senior Medical and Health Officer, Field Epidemiology Training Programme, Surveillance and Epidemiology Branch, CHP.

Hong Kong has achieved the status of measles elimination in 2016. The annual totals had remained low since 2016. The Centre for Health Protection (CHP) of the Department of Health recorded nine, four and 15 confirmed measles cases in 2016, 2017 and 2018 respectively. In 2019, CHP recorded an upsurge of measles cases, including a total of 74 confirmed measles cases, as of May 20. Among them, 29 were workers of the Hong Kong International Airport (HKIA).

The local outbreak of measles in HKIA in 2019

The outbreak of measles infection was established in HKIA on March 22, 2019 when three measles cases working in HKIA were notified to CHP. Epidemiological investigations and control measures were carried out immediately. Subsequently, more airport related cases were recorded. From March 15 to April 10, a total of 29 airport workers were confirmed to have measles infection. They comprised of 20 males and nine females, age ranged from 20 to 49 years (median: 25 years). About two-third of the cases were within the age group of 20-29 years. The first case had onset of rash on March 4 and last case had onset of rash on April 5 (Figure 1). All of them had rash. All required hospitalisation. Their clinical courses were mild and none of them developed complications.



Figure 1- Epidemic curve of measles cases in 2019 (by date of rash onset), as of May 20, 2019.

Among these 29 cases, all were tested positive for measles virus by polymerase chain reaction. Twenty-eight of them were found to have an identical genotype B3 while one belonging to genotype B3 had mixed nucleotides at one position. Regarding their measles vaccination history, two (7%) had documented three doses of measles vaccination (including the third dose administered at the vaccination station at HKIA as outbreak control), nine (31%) had documented two doses of measles vaccination, 16 (55%) had unknown vaccination history, and two (7%) were unvaccinated. Among these 29 cases, 22 (76%) were born in Hong Kong and seven (32%) were non-local born.

Actions taken to control the outbreak

Upon notification and laboratory confirmation of the measles cases, CHP immediately commenced epidemiological investigations and control measures. CHP interviewed patients for their local movements both during the incubation period and communicable period for sourcing finding and contact tracing. CHP issued daily (except May 5 and 12) press releases during March 22 to May 17 to update the public in Hong Kong on the latest situation of measles and to advise them on prevention and control measures of measles. A telephone hotline (2125 1122) has also been set up by CHP from March 23 to May 17 to facilitate surveillance and answer public enquiry.

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With the assistance of Airport Authority, a vaccination campaign was commenced during the first evening on March 22 when an outbreak among HKIA staff was suspected. During the period from March 22 to May 17, a total number of vaccinations of 8 501 were given to eligible persons. The outbreak was declared over on May 17 after two longest incubation periods (42 days) have passed since April 5, the date when the last case visited HKIA.

Members of the public can help in the prevention of measles outbreak by being vaccinated against measles. In addition, the following measures should be taken to prevent infection:

- Maintain good personal and environmental hygiene;
- Maintain good indoor ventilation;
- Keep hands clean and wash hands properly;
- ♦ Wash hands when they are dirtied by respiratory secretions, such as after sneezing;
- ◆ Cover the nose and mouth while sneezing or coughing and dispose of nasal and mouth discharge properly;
- Clean used toys and furniture properly; and
- ◆ Persons with measles should be kept out of school till four days from the appearance of rash to prevent spread of the infection to non-immune persons in school.

More information on preventive measures and the latest situation of measles could be found in the website of CHP at https://www.chp.gov.hk/en/features/100419.html.

Review of psittacosis in 2018-2019

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

In Hong Kong, psittacosis has been listed as a statutory notifiable infectious disease under the Prevention and Control of Disease Ordinance (Chapter 599) since July 14, 2008. The annual number of cases reported from 2013 to 2017 was stable at two to nine cases. An increase in the number of psittacosis cases has been observed since 2018. We reviewed the psittacosis situation in 2018 and 2019 in this article.

The Centre for Health Protection recorded 17 cases of psittacosis in 2018 and seven cases in the first four months so far in 2019 (Figure 1). Among the 24 cases recorded in 2018 and 2019 (January to April), majority (23, 95.8%) were diagnosed by polymerase chain reaction (PCR). The cases involved 14 males and 10 females, with ages ranging from 35 to 86 years (median: 60 years). Eight patients (33.3%) had pre-existing medical condition(s). The most common clinical presentations included cough (95.8%), fever (91.7%) and shortness of breath (50.0%). All patients developed pneumonia and required hospitalisation, with five patients (20.8%) requiring admission to intensive care units (ICU) and one (4.2%) to high dependency unit. Two patients (8.3%) developed other complications (acute renal failure and deranged liver function respectively). All Figure I - Annual number of psittacosis cases recorded in Hong Kong, patients recovered after treatment.



2013 to 2019 (*as of April 30, 2019).

Twenty-one cases (87.5%) were classified as locally acquired infection, while the places of infection of the remaining three cases were undetermined as the patient had stayed both inside and outside Hong Kong during the incubation period but without obvious history of contact with birds in both places. Regarding risk exposure, seven patients (29.2%) reported history of bird contact (visiting pet bird shop and/or keeping pet birds at home or contacting bird droppings) during the incubation period. The remaining 17 patients (70.8%) could not recall any known exposure to birds prior to their disease onset.

Twenty-two (91.7%) were sporadic cases without epidemiological linkage, while the remaining two cases were involved in a household cluster affecting a couple with common exposure to a parrot. Both patients had good past health. The 51-year-old woman presented with fever, productive cough, shortness of breath and malaise in late January 2018. 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 Chlamydia psittaci (C. psittaci) by PCR. Their household contacts, other persons who had contact with the parrot and the workers of the bird shop all remained asymptomatic.

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Apart from the above cluster, swabs from birds and Table I - Characteristics of Psittacosis cases, 2013 to 2019 (*as of April 30, 2019). environment were collected from the residence of two sporadic cases. Swabs taken from a bird and the box used to keep the bird in one case, swabs taken from bird cages in another case were tested positive for C. psittaci.

In summary, there was an increase in the number of psittacosis cases in Hong Kong since 2018. The overall epidemiological characteristics and clinical characteristics of the cases recorded in 2018 and 2019 were similar to those in the previous few years (Table 1).

To prevent psittacosis, the public is advised to:

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

	2013-2017	2018-2019"
Number of reported cases	27	24
Sox ratio (M-E)	1.0.4	1.0.7

Number of reported cases		27	24
Sex ratio (M:F)		I:0.4	1:0.7
Age group (median)		34 to 80 (63)	35 to 86 (60)
Clinical presentation	Fever	23 (85%)	22 (92%)
	Cough	25 (93%)	23 (96%)
	Shortness of breath	13 (48%)	12 (50%)
	Pneumonia	27 (100%)	24 (100%)
Number requiring hospitalisation		27 (100%)	24 (100%)
Number requiring ICU admission		14 (52%)	5 (21%)
Number of deaths (case fatality rate)		I (3.7%)	0
Number with bird contact		11 (41%)	7 (29%)
Number of clusters recorded		0	I

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.
 - Wear gloves and a surgical mask when cleaning cages, or handling droppings, secretions or feather dusts of birds;
 - Cleaning procedures should avoid creating aerosols and dust. Use water or disinfectant to wet surfaces before cleaning bird cages or contaminated surfaces. Avoid dry sweeping or using a vacuum cleaner/pressure washer to minimise circulation of feathers, dust and droppings;
 - Thoroughly scrub with a detergent to remove all fecal debris, then disinfect and rinse all items in clean running water;
 - Thoroughly wash hands with running water and soap after contact with birds or their droppings.
- Avoid over-crowding of birds. Maintain good ventilation in bird housing.
- Isolate and treat infected birds. Take sick birds to a veterinarian as soon as possible.
- Avoid close contact with infected birds.

Facts on Psittacosis

Psittacosis, also known as parrot fever or ornithosis, is an infectious disease caused by the bacteria Chlamydia psittaci (C. psittaci), which primarily affect birds. The infection is usually transmitted to humans through inhalation of C. psittaci from dried droppings, respiratory secretions or feather dust of infected birds. Although all birds can transmit the disease to human, pet birds (e.g. parrots, cockatiels, parakeets, 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, chills, headache, dry cough, muscle pain and shortness of breath. 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.

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NEWS IN BRIEF

A probable case of sporadic Creutzfeldt-Jakob disease

On May 9, 2019, the Centre for Health Protection (CHP) of the Department of Health recorded a probable case of sporadic Creutzfeldt-Jakob disease (CJD) affecting a 61-year-old woman with underlying illnesses. She had presented with deterioration of memory since December 2018 and right side numbness and weakness since January 2019. She was admitted to a public hospital on February 2, 2019 and was found to have rapidly progressive dementia, pyramidal signs, extra-pyramidal signs, akinetic mutism and myoclonus. Electroencephalography (EEG) showed features compatible with CJD. Her condition was serious. She had no known family history of CJD and no reported risk factors for iatrogenic CJD. She was classified as a probable case of sporadic CJD.

A sporadic case of Brucellosis

On May 10, 2019, CHP recorded a case of brucellosis affecting a 60-year-old man with underlying illnesses. He had presented with lower back pain since April 23 and was admitted to a public hospital on May 1. He developed fever since May 2. His blood culture collected on May 3 yielded *Brucella melitensis*. He was treated with antibiotics for sepsis and his current condition was stable. He was a frozen meat-cutting technician and may have contact with frozen mutton at work. He had no recent travel history and did not consume any high-risk food during the incubation period. His home contacts were asymptomatic.

Two sporadic cases of psittacosis

On May 10 and 16, 2019, CHP recorded two sporadic cases of psittacosis. The first case affected a 44-year-old female with good past health. She had presented with fever and myalgia since April 28, followed by cough and shortness of breath since May 2. She was admitted to a public hospital on May 4. The clinical diagnosis was pneumonia and she was treated with antibiotics. She remained stable and was discharged on May 12. Her sputum collected on May 5 was tested positive for *Chlamydia psittaci* DNA by polymerase chain reaction (PCR). During the incubation period, she had travelled to Shenzhen from March 30 to 31 and Zhuhai from April 19 to 21.

The second case affected a 61-year-old female with history of hypertension. She had presented with fever and cough since May 6 and was admitted to a public hospital on May 11. Her chest X-ray showed left upper lobe consolidation. The clinical diagnosis was pneumonia and she was treated with antibiotics. She remained stable and was discharged on May 16. Her sputum collected on May 12 was tested positive for *Chlamydia psittaci* DNA by PCR. She had no travel history during the incubation period.

Investigation did not identify epidemiological linkage between the two cases. Both cases reported no history of contact with birds or their excreta. Both of them did not keep any pets at home and their home contacts and travel collaterals were asymptomatic.

A sporadic local confirmed case of acute Q fever

On May 16, 2019, CHP recorded a locally acquired case of acute Q fever affecting a 53-year-old female with good past health. She had presented with fever, myalgia and malaise since April 22. She attended the outpatient department of a public hospital on April 27. Her blood test showed elevated liver enzymes. Paired sera collected on April 27 and May 6 showed a more than four-fold rise in *Coxiella burnetii* (phase II) polyvalent antibody tire. She was treated with a course of antibiotics. Her condition remained stable. Epidemiological investigation revealed that she had no travel history during incubation period. She kept two dogs for a few years and they remained healthy. Her home contacts were asymptomatic.