

Communicable Diseases

WATCH



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FEATURE IN FOCUS

2016 Year in Review

Reported by Surveillance Section, Communicable Disease Division, Surveillance and Epidemiology Branch, CHP.

In this issue, we reviewed communicable diseases and issues of public health concern in 2016...

Avian influenza

In 2016, the Centre for Health Protection (CHP) of the Department of Health (DH) has recorded five human cases of avian influenza A(H7N9) and all were imported from Mainland China (four from Guangdong province (廣東省) and one from Jiangsu province (江蘇省)). They included four males and one female with ages ranging from 60 to 81 years (median: 75 years). The first three cases had onset of illness between January and April and the remaining two cases had onset of illness in December. The cases occurred at periods when the activity of avian influenza A(H7N9) in Mainland was high. All of them had pneumonia. Four cases had recovered while a 75-year-old man who had pre-existing chronic obstructive airway disease died. Epidemiological investigation revealed that all cases had visited wet markets or exposure to environments with poultry during the incubation period. Extensive contact tracing did not identify any secondary cases.

Apart from human infections, a sample of faecal droppings of live poultry taken from a poultry stall in Yan Oi Market in Tuen Mun was tested positive for H7N9 on June 4. Contact tracing of the persons with unprotected exposure to the poultry did not identify any human cases. Besides, there were four reports of detection of avian influenza A(H5N6) locally in Hong Kong in 2016. The first two reports involved chicken carcasses collected in Tuen Mun and Tai O respectively in February. The remaining two reports involved faecal droppings collected at Mai Po Nature Reserve in November.

Dengue fever

CHP recorded 124 dengue fever cases in 2016, which was higher than the annual number of 30 to 114 cases in the past 10 years (Figure 1). Among these 124 cases, there were 67 males and 57 females, with ages ranging from six to 79 years (median: 37.5 years). Among them, fever was the most common symptom (118, 95.2%), followed by headache (78, 62.9%), myalgia (62, 50%), and rash (61, 49.2%). Other symptoms included arthralgia (26, 21.0%) and eye pain (23, 18.5%). Eighty seven patients (70.2%) required hospitalisation and no case of severe dengue was recorded. All patients recovered and no fatal case was recorded.

One hundred and twenty cases were imported infections among which the patients had travelled to countries and areas including Indonesia (36), Thailand (19), the Philippines (18), India (10), Malaysia (10), Cambodia (4), the Maldives (4), Vietnam (4), Bangladesh (2), Singapore (2), Sri Lanka (2), Laos (1) and the Solomon Islands (1). Seven patients had travelled to multiple countries during the incubation period.

Four local cases were recorded with two cases in August and two cases in September, 2016 respectively. The first three cases lived in Central/Mid-Levels, while the fourth case lived in Wong Tai Sin. Laboratory investigation showed that the first three cases were caused by dengue virus serotype 3. Genetic characterisation of the virus from the three cases supported their epidemiological relationship. The fourth case was caused by dengue virus serotype 1.

Hepatitis A

In 2016, a total of 98 cases of hepatitis A were recorded, affecting 68 men and 30 women aged from three to 86 years (median: 32 years). Sixty three cases (64.3%) acquired the infection locally. Seven cases (7.1%) were imported from Pakistan (3), Malaysia (2), India (1) and South Korea (1) respectively, while the imported statuses of the remaining 28 cases (28.6%) were unknown/undetermined. Eighty four patients (85.7%) required hospitalisation.

Nine cases recorded in 2016 were men who have sex with men (MSM) who were known positive for human immunodeficiency virus, compared to generally zero to two per year from 2006 to 2015. For further details of this unusual increase in cases among MSM, please refer to the article "Unusual increase in number of hepatitis A infection among MSM in Hong Kong".

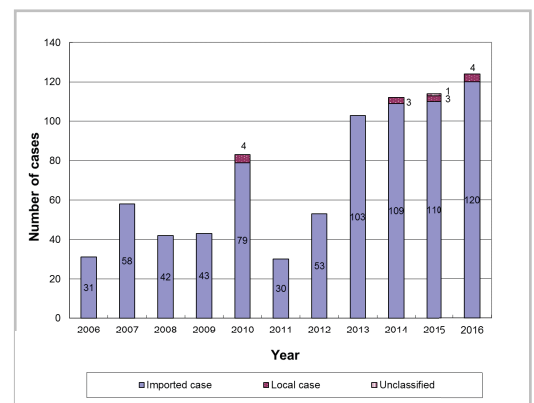


Figure 1 - Annual number of dengue fever cases from 2006 to 2016.

Hepatitis C

In 2016, a total of 37 cases of acute hepatitis C were recorded. The number had significantly increased comparing to previous years, ranging from three to 14 cases from 2012 to 2015 (Figure 2).

Of the 37 cases in 2016, 30 were male and seven were females (Figure 3). Their ages ranged from 23 to 94 years (median: 38 years). Over half of the cases (68%) were symptomatic. No fatalities were recorded due to acute hepatitis C.

Among the 37 recorded cases, 22 cases reported having unprotected sex, 21 cases were known MSM, two cases had tattoo procedure and one case was an intravenous drug user. All cases were sporadic cases without epidemiological linkage identified.

Invasive Pneumococcal Disease

There were 189 cases of invasive pneumococcal diseases (IPD) notified to CHP in 2016, corresponding to an annual incidence of 2.6 cases per 100 000 population. This was comparable to the IPD incidence in recent years (2007 to 2015: 1.7 to 2.9 per 100 000 population) (Figure 4). Young children aged under five (16%) and elderly aged 65 years or above (39%) accounted for over half of the cases. Overall, incidence of IPD caused by the seven serotypes covered in PCV7/10/13¹ was highest from 2007 to 2009 but started to decrease afterwards. Incidence of IPD caused by the six serotypes that are covered by PCV13 but not by PCV7 and those not covered by PCV13 have increased since 2010.

Leptospirosis

In 2016, CHP recorded a total of seven cases of leptospirosis, affecting five males and two females, with 21 to 72 years of age. Among these cases, four were classified as imported infection and three acquired the infection locally. The four imported cases reported to have engaged in water sports (including swimming, rafting and hiking) in Malaysia (2), Thailand (1) and in both Laos and Thailand (1) respectively. For the three locally acquired infections, one had hiking and swimming in Tai Tam, while the other one worked mainly outdoors and reported to have an abrasion wound over his left foot during the incubation period. The third local case could not recall any high risk exposure such as water sports, hiking etc. during the incubation period. No fatalities were recorded in 2016.

Scarlet fever

In 2016, CHP recorded 1 467 cases of Scarlet fever (SF), as compared to a range of 1 100 and 1 526 cases recorded per year between 2011 and 2015. More cases were recorded during May to June and November to December while fewer cases were recorded during August (Figure 5). The epidemiological characteristics of cases in 2016 were similar to those reported in previous years. Their ages ranged from seven months to 55 years (median: 5 years) with the majority (96%) of the cases affecting children aged 10 years or below. The male-to-female ratio was 1.4:1. Five hundred and thirty nine cases (37%) required hospitalisation. Three cases aged between four and 10 years developed severe complications, including two cases of septic shock and one case of toxic shock syndrome. No fatal cases were recorded in 2016. Most cases (91%) were sporadic infection while the remaining 133 cases were involved in a total of 51 clusters. These included 37 school / institutional clusters (25 kindergartens/child care centres, 10 primary schools, one residential child care centre and one special school) and 14 home clusters. The number of persons affected in each cluster ranged from two to six persons (median: two).

Seasonal influenza

In 2016, Hong Kong experienced two influenza seasons. The winter influenza season started in late January and ended in mid-May, spanning for about 16 weeks. Comparing with previous seasons, this winter season arrived and ended later than the usual time, which was also observed in other Northern Hemisphere countries and areas. Influenza A(H1N1)pdm09 and influenza B viruses co-circulated in this season. In contrast to the previous winter season predominated by influenza A(H3N2) where elders were mostly affected, children were particularly affected in this season as reflected by high hospital admission rates and large number of influenza-like illness (ILI) outbreaks in schools.

During the enhanced surveillance period of severe cases between January 29 and May 20, 2016, CHP recorded a total of 409 laboratory confirmed influenza cases (including 211 deaths) who required admission to intensive care unit or died among adults aged 18 years or above. Patients aged 18 to 49, 50 to 64 years and 65 years or above constituted 14%, 33% and 53% of the reported cases respectively, as compared to 3%, 10% and 88% in the previous winter season predominated by influenza A(H3N2). Most of the severe cases (77%) were known to have underlying chronic illnesses. Separately, 27 paediatric cases of severe influenza-associated

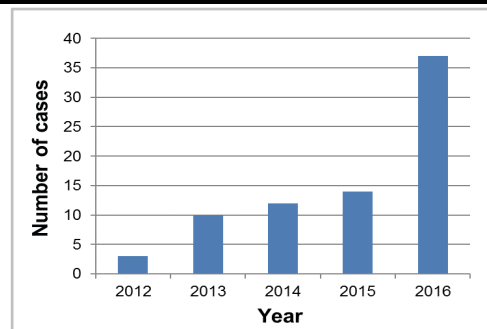


Figure 2 - Number of acute hepatitis C cases by year from 2012 to 2016.

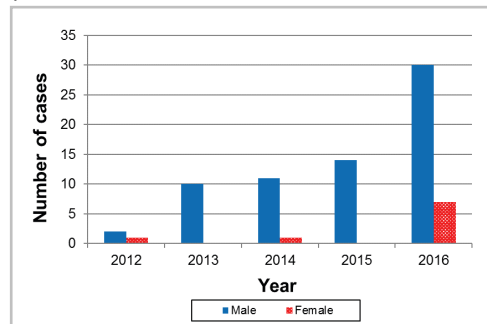


Figure 3 - Number of the acute hepatitis C cases by gender from 2012 to 2016.

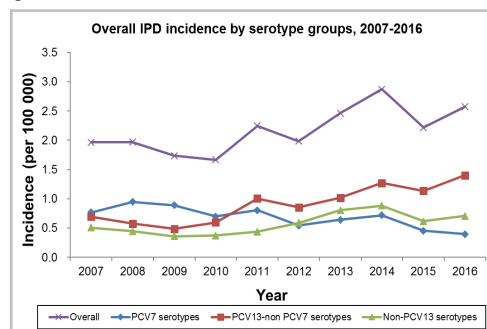


Figure 4 - IPD incidence in Hong Kong by serotype groups, 2007 to 2016.

Note: 2007 to 2014: Public Health Laboratory Services Branch laboratory surveillance (bacterial culture only); 2015 to 2016: IPD notification to CHP (bacterial culture + PCR).

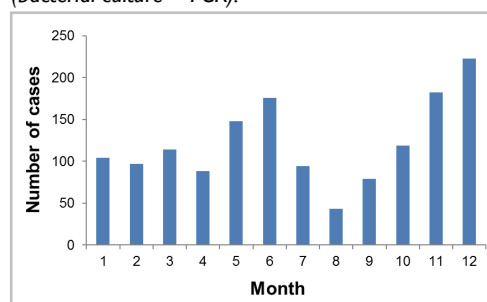


Figure 5 - Monthly number of scarlet fever cases recorded in 2016.

¹There are more than 90 serotypes of pneumococci and existing pneumococcal vaccines covered different serotypes.

complication/death (including three deaths) were reported to CHP among people aged below 18 years in the same period. Forty one percent of them had pre-existing chronic medical conditions or congenital conditions.

The influenza activity in Hong Kong remained at a low level between May and August 2016. It increased again in September and October. This delayed summer season was mild in intensity and only lasted for about five weeks. Unlike the winter season in early 2016, the vast majority of the influenza viruses detected were influenza A(H3N2). CHP recorded a total of 56 adult severe influenza cases (including 39 deaths) between September 23 and October 27, 2016. No paediatric severe cases were recorded in the same period.

Varicella

In 2016, 8 880 cases of varicella (also known as chickenpox) were notified to CHP. Previously, the annual incidence of varicella exhibited cyclical changes with peaks observed every four to five years (Figure 6). The incidence was highest among preschool children aged one to five, followed by those aged six to 11 (Figure 7). In July 2014, varicella vaccine was incorporated into the Hong Kong Childhood Immunisation Programme (HKCIP). From 2014 to 2016, varicella incidence has been decreasing among those aged one to five while the incidence in other age groups has increased. In addition, six to 11-year-old became the group with highest incidence (Figure 7). The decrease in incidence among those aged one to five is likely a result of increased vaccination uptake in very young children.

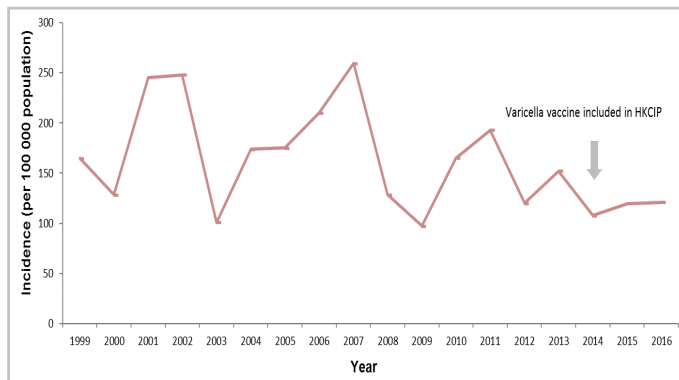


Figure 6 - Annual incidence of varicella in Hong Kong, 1999 to 2016.

Varicella vaccine is effective in preventing varicella infection and its complications. Eligible children should follow the schedule recommended in the HKCIP for vaccination.

Zika Virus Infection

Zika Virus Infection has become a notifiable infectious disease in Hong Kong since February 5, 2016. CHP recorded two imported cases, involving one 38-year-old female and one 56-year-old male, on August 25 and November 15, 2016 respectively. The first patient had travelled to Saint Barthelemy in the Caribbean and presented with joint pain and red eyes while the second patient had travelled to multiple countries including Antigua and Barbuda, St Maarten and Anguilla and developed fever, rash and diarrhoea. Their blood and urine specimens were tested positive for Zika virus and they were admitted to hospitals for isolation and management. The conditions of the two patients were all along stable and they were later discharged with negative blood tests for Zika virus.

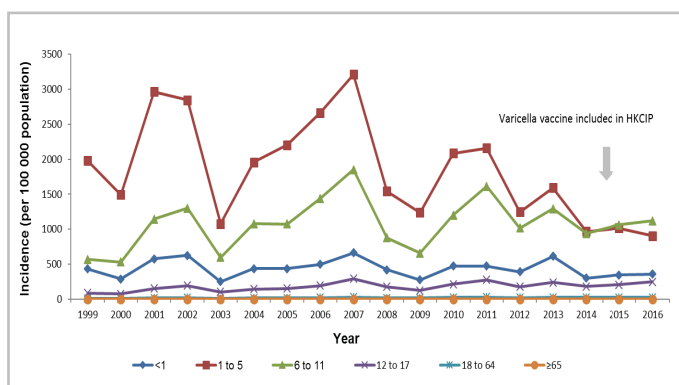


Figure 7 - Annual incidence of varicella in Hong Kong by age group, 1999 to 2016.

Unusual increase in number of hepatitis A infection among MSM in Hong Kong

Reported by Dr Billy HO, Senior Medical and Health Officer, Communicable Disease Division, Surveillance and Epidemiology Branch, Dr Bonnie WONG, Senior Medical and Health Officer, and Dr Kenny CHAN, Consultant, Special Preventive Programme, Public Health Services Branch, CHP.

An unusual upsurge of acute hepatitis A (HAV) infection affecting human immunodeficiency virus (HIV) positive men who have sex with men (MSM) was detected among the attendees of Integrated Treatment Centre (ITC), Special Preventive Programme of the Centre for Health Protection (CHP), Department of Health (DH) since August 2016. While the annual number of HAV cases was normally zero to two per year from 2006 to 2015, there was zero to three cases recorded per month since August 2016.

To assess the extent of possible outbreak, CHP has conducted retrospective investigations into previously reported cases of HAV. From September 2015 to February 10, 2017, CHP identified a total of 28 known MSM cases aged from 22 to 51 years (median: 33 years) who presented with acute hepatitis symptoms and were diagnosed to have HAV infection (Figure 1 and 2). Twenty-two were known to be HIV positive, who were patients attending one of the three designated public HIV clinics (ITC, the AIDS Clinical Service of Queen Elizabeth Hospital and the Infectious Disease Special Medical Clinic of Princess Margaret Hospital). All recorded cases were tested positive for anti-HAV IgM. All have recovered upon supportive treatment. Twenty-three have been discharged after hospitalisation and the remaining five required no admission. All patients recovered with supportive treatment and no fatality was recorded. One patient received first dose of HAV vaccination two weeks prior to his symptom onset, while another had completed combined hepatitis A and B vaccination series one year ago. The rest did not report history of HAV vaccination.

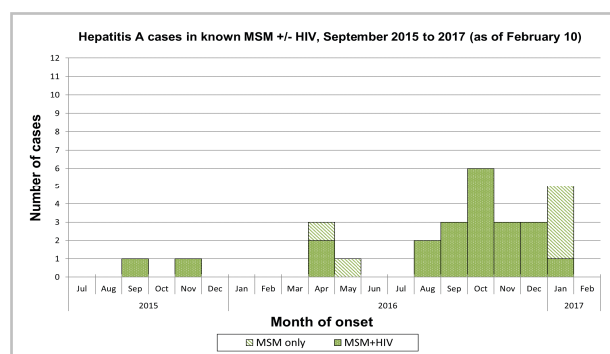


Figure 1 - Hepatitis A cases in known MSM +/- HIV, September 2015 to 2017 (as of February 10).

Ten of the 28 cases reported travel history within the incubation period, and the most common regions they had visited were Mainland China(3), Japan (2) and Thailand (2). Apart from one who reported acute HAV infection in his sexual partner two weeks following his own diagnosis, no other clustering of cases was identified. Seven cases were also known to have sexually transmitted infections (STI) (including syphilis, gonorrhoea, chlamydia infection, and one case of HIV seroconversion) during or within one month of the HAV diagnosis.

Retrospective analysis of laboratory data revealed that available virus from 22 cases were identical to either one of two genetically distinguishable groups found within genotype 1A.

Epidemiological investigations conducted thus far did not suggest a common food nor water source among these cases. With reference to overseas experience, our epidemiological and laboratory investigations coupled with the clinical presentations suggested that male person-to-person sexual transmission might have accounted for this hepatitis A outbreak. Apart from spreading among HIV-positive MSM, the virus may have spread among other MSM in the community by sexual transmission.

Vaccination for high-risk male attendees to control hepatitis A outbreak

In order to ward off infection and prevent community transmission, CHP has started a one-off HAV vaccination programme targeting MSM groups since February 3, 2017. HIV positive MSM followed up at the three public HIV clinics and current MSM attendees of two DH's male Social Hygiene Clinics with negative or unknown HAV immune status are to be offered two doses of hepatitis A vaccines for free.

In addition, education materials have been distributed to attendees of the three public HIV clinics and DH's Social Hygiene Clinics. Health promotion and counseling have been reinforced (Figure 3). In parallel, CHP has stepped up health education and publicity to raise the awareness towards hepatitis A infection among the MSM community via close liaison with non-governmental organisations (NGOs). The education materials have been distributed to NGOs working with people living with HIV and the MSM community and posted on websites and social media platform.

As timely risk communication, CHP has issued press releases on February 2 and 9. CHP has also sent letters to doctors and hospitals to alert frontline healthcare providers of the situation.

The Scientific Committee on AIDS and STI and the Scientific Committee on Vaccine Preventable Diseases will meet in April 2017 to review and update the current prevention and control strategies.

Periodic HAV outbreaks among MSM have been reported since early 90s in Europe, North America and Australia. Recent HAV outbreaks affecting MSM were also observed in Taiwan and a few European countries^{1,2}. In Taiwan, over 1 000 cases of hepatitis A were notified to its Centers for Disease Control in 2016 and over half of the patients had HIV or other STIs such as syphilis or gonorrhoea¹. In some of these outbreak settings, it has been postulated that the existence of an endemic population among MSM infected with HAV sustains continuous circulation of particular strains and facilitates cyclical outbreaks. While hepatitis A infection does not appear to be worse in HIV-positive patients when compared to HIV-negative persons, studies have shown that HIV infection was associated with prolonged HAV viraemia, which might cause a long-lasting outbreak of HAV infection in HIV positive MSM³. Vaccinating susceptible individuals, together with safer sex practice and strict personal hygiene to avoid direct and indirect faecal-oral contact are keys to preventing hepatitis A via sexual transmission.

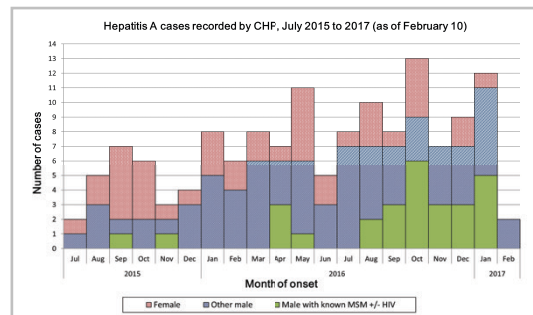


Figure 2 - Hepatitis A cases recorded by CHP, July 2015 to 2017 (as of February 10).

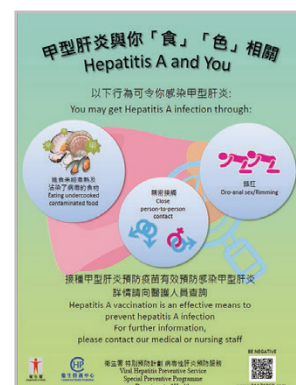


Figure 3 - Poster: Hepatitis A and You.

Facts on viral hepatitis A

HAV is usually transmitted by faecal-oral route either through contaminated drinks or food such as shellfish, or directly from close personal contact with an infected household member or sex partner. The patterns of endemicity have been found closely related to socioeconomic development. In developed areas with good sanitary and hygienic condition like Hong Kong, infection rates are low and person-to-person spread is a more common method of transmission. Disease may occur among adolescents and adults in high-risk groups, such as injecting-drug users, MSM, and people traveling to areas of high endemicity⁴.

Hepatitis A Vaccination

The HAV vaccine contains whole inactivated virus and is a safe and highly effective vaccine in healthy, as well as in HIV positive individuals. Injection site reactions are the most frequent side effect. It is indicated for persons at risk of exposure and contraindicated in those who have signs of hypersensitivity after previous hepatitis A vaccine administration. In adults, it is given intramuscularly at the deltoid region. The standard vaccine course comprises two doses given at least six months, and up to 18 months, apart. In HIV infected individuals, the immune response to HAV vaccination improve with increasing CD4 cell counts and viral load suppression on antiretroviral treatment, and the two-dose series confers protection in up to 70 to 80% of the vaccinees; while in healthy persons, immunisation with the two-dose series is believed to confer protection close to 100% of the vaccinees for at least 10 years and possibly for life.

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NEWS IN BRIEF

A domestic cluster of pertussis

The Centre for Health Protection (CHP) recorded a domestic cluster of pertussis in early February 2017, affecting a 65-year-old woman and her 48-year-old son-in-law. The woman with underlying illness was admitted to a private hospital on January 31 for cough since January 11. Her nasopharyngeal swab (NPS) was tested positive for *Bordetella pertussis* on February 1. Her condition was stable and she was discharged on February 7.

Contact tracing identified one symptomatic household contact, the son in-law, who had symptom onset on January 29. He presented with cough and CHP referred him to a public hospital for management on February 2. His condition was stable and hospitalisation was not required. His NPS was tested positive for *Bordetella pertussis* on February 3.

The woman did not travel outside Hong Kong during the incubation period, while the man had frequent travel to Guangdong. Both of them were unsure about their vaccination status of pertussis. Other household contacts remained asymptomatic and they were given chemoprophylaxis. Investigation is on-going.

A sporadic case of necrotising fasciitis due to *Vibrio vulnificus* infection

On February 7, 2017, CHP recorded a sporadic case of necrotising fasciitis due to *Vibrio vulnificus* infection affecting a 75-year-old male with underlying illnesses. He presented with fever and right forearm swelling since January 29. He attended the Accident and Emergency Department of a public hospital on January 30 and was admitted on same day. The clinical diagnosis was necrotising fasciitis. Excisional debridement of right forearm was performed on January 30 and February 3. His wound swab culture taken on January 30 grew *Vibrio vulnificus*. His current condition was stable. Epidemiological investigation revealed that the patient lived with his wife and son who remained asymptomatic. He did not have recent travel history. He did not report any wound or injury. The patient recalled history of buying seafood in a wet market during incubation period. Investigation is on-going.

CA-MRSA cases in January 2017

In January 2017, CHP recorded a total of 92 cases of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infection, affecting 56 males and 36 females with ages ranging from 11 months to 85 years (median: 36 years). Among them, there were 68 Chinese, 7 Filipinos, 4 Pakistani, 3 Caucasian, 2 Indian, 1 Indonesian, 1 Japanese, 1 Nepalese, and 5 of unknown ethnicity.

Ninety one cases presented with uncomplicated skin and soft tissue infections while the remaining case had invasive CA-MRSA infection. This case affected a 30-year-old man who presented with fever and left hip pain since January 16. He was admitted to a public hospital on January 20. His blood specimen collected on January 20 and ulcer swabs of left hip collected on January 20 and 21 were cultured positive for CA-MRSA. The diagnoses were left hip pyomyositis and sepsis. He was treated with antibiotics. CT-guided drainage of the left hip lesion was performed on January 27. His current condition remained stable. His close contacts were asymptomatic, and screening and decolonisation would be provided to them.

Among the 92 cases, three cases involved healthcare workers were recorded, including two nurses working in different hospitals and a dental therapist. Investigation did not reveal any cases epidemiologically linked to these three patients. Besides, two household clusters, with each affecting two persons, were identified. Screening and decolonisation would be carried out for their close contacts.

Scarlet fever update (January 1, 2017 – January 31, 2017)

Scarlet fever activity in January 2017 decreased as compared with that in December 2016. CHP recorded 179 cases of scarlet fever in January 2017 as compared with 222 cases in December 2016. Among those 179 cases, there were 109 males and 70 females aged between two months and 13 years (median: five years). There were three institutional clusters involving one kindergarten and two primary schools, with each affecting two children. No fatal cases were reported during this reporting period.