衞生防護中心
Centre for Health Protection
保障市民健康
Protecting Hong Kong's health
Department of Health
Hong Kong SAR

Feature:

Update on surveillance of multi-antimicrobial resistance

An outbreak of rubella among attendees of a church

LENS ON CHP

Above: CHP organised a Field Epidemiology Training Course on "Principles of Outbreak Investigation" during November 14 - 19, 2011.

NEWS

Field Epidemiology Training Course on Principles of Outbreak Investigation

The Hong Kong Field Epidemiology Training Programme of CHP organized a training course on "Principles of Outbreak Investigation" during November 14 - 19, 2011. The course was delivered by EpiConcept, an organization based in Europe specializing in training and studies in epidemiology and development of information & communication technology tools for public health. The objective of this course was to learn the steps, operational issues and computer tools of an outbreak investigation. The training course included a series of short presentations by the facilitators, computer tools exercise as well as interactive and practical case studies. A total of 18 health professionals attended the course and it was well received by the participants.

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Update on surveillance of multi-antimicrobial resistance

Reported by Dr Janice Lo, Head, Public Health Laboratory Services Branch, and Dr TY Wong, Head, Infection Control Branch, CHP.

The Centre for Health Protection (CHP) has been undertaking surveillance in Hong Kong on various multi-antimicrobial resistant bacteria of public health significance and had reported the findings in an earlier issue of CD Watch (Volume 7 Number 17, 2010 http://www.chp.gov.hk/files/pdf/cdw_v7_17.pdf). This article provides an updated overview on the latest surveillance findings.

According to the real-time MRSA Surveillance Programme in the Hospital Authority, there was a 3.4% increase in the total number of MRSA cases (from 6991 cases in 2007 to 7227 cases in 2010), but there was over 17% reduction in MRSA bacteremia rate between 2007 and 2010 (Figure 1). Since May 2011, the MRSA bacteremia data of each hospital has been uploaded to Hospital Authority internet website for reference. With the launching of environmental hygiene as part of the Multi-drug Resistant Organisms (MDRO) reduction programme to medical wards in acute care hospitals, the cross-transmission of MRSA within healthcare setting would be expected to reduce further.

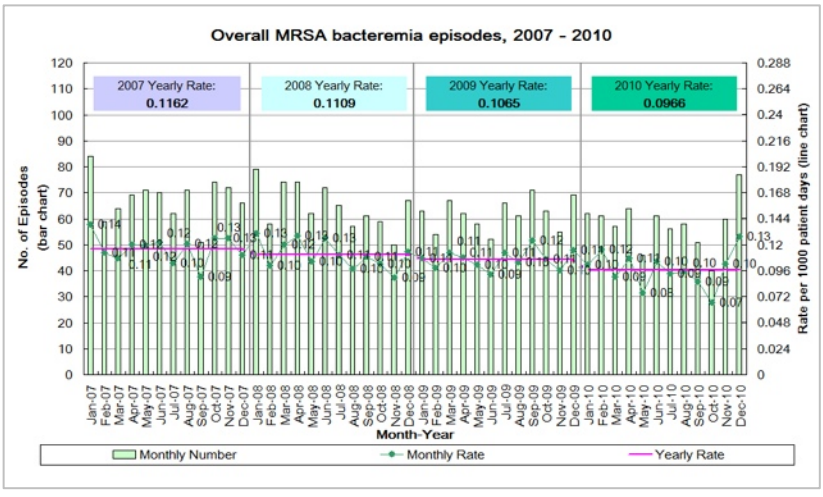

Figure 1 - Overall MRSA bacteremia episodes from 2007 to 2010.

In 2011, the reported number of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infections up to end of October was 509. This compares with 405 cases during the corresponding period in 2010. Most patients presented with skin and soft

tissue infections. The predominant strain remained that belonging to SCC*mec* type IV of spa type t019, also known as the Southwest Pacific clone. Strains of spa type t008, the strain predominant in the United States causing severe disease and outbreaks, remained sporadic in Hong Kong.

S. aureus with reduced susceptibility to vancomycin remained uncommon in Hong Kong. In 2011, there were four sporadic cases of vancomycin-intermediate *S. aureus* (VISA) infection, and no detection of vancomycin-resistant *S. aureus* (VRSA). Infection with the latter occurs very rarely even on a worldwide basis.

Another multi-resistant Gram positive bacterium of significance is the vancomycin-resistant enterococcus (VRE). These are mostly *Enterococcus faecium* strains harbouring the *vanA* gene. The number of isolations of VRE has apparently increased this year, with strains from 56 patients and asymptomatic carriers characterized by the Public Health Laboratory Services Branch (PHLSB) of the CHP up till the end of September, as compared with 1 and 24 patients in 2009 and 2010 respectively. All VRE isolates were detected in the hospital setting and over 80% of strains were associated with colonization only with no clinical signs of infection. Among representative strains typed by multi-locus sequence typing (MLST), all were shown to belong to clonal cluster 17. Strains of this cluster are associated with the hospital setting on a global scale. So far, no VRE strains have been detected from out-patient specimens. Control of VRE relies on measures in accordance with its epidemiological characteristics.

Regarding Gram negative bacteria, surveillance on carbapenem-resistant Enterobacteriaceae has been ongoing, with the PHLSB providing characterization of isolates phenotypically exhibiting reduced susceptibility to carbapenems. In 2011, up till September, 14 patients were found to harbour strains containing genes conferring carbapenem resistance, compared with 13 in the year 2010. Among the 14 cases this year, there were two strains carrying the NDM (New Delhi metallo-beta lactamase) gene, and 12 strains expressing other Class A or Class B carbapenemases, mainly KPC, and IMP / VIM respectively. Most strains were associated with colonization and not infection. Nevertheless, some strains, particularly those harbouring the KPC enzyme, were resistant to most antibiotics, such that continued vigilance in surveillance and stringent control measures are essential.

The Gram negative coccus *Neisseria gonorrhoeae* has been monitored for the presence of the mosaic *penA* gene. This gene confers reduced susceptibility especially to oral extended-spectrum cephalosporins, including ceftibuten which has been the first-line empirical treatment for the infection in the Social Hygiene Service in Hong Kong. A total of 44 patients harbouring such strains have been detected up till September 2011, as compared to five and seven patients in 2009 and 2010 respectively. This has important bearing on the recommended empirical treatment with injectable agents such as ceftriaxone and spectinomycin (please refer to CDW Volume 8 Number 21, 2011 http://www.chp.gov.hk/files/pdf/cdw_v8_21.pdf). As *N. gonorrhoeae* has a propensity to develop resistance to any heavily used antimicrobial agent, surveillance on its antimicrobial susceptibility pattern to a range of therapeutic agents is of importance to inform on treatment options.

A comprehensive antimicrobial surveillance system is necessary to provide information on both individual patient management and infection control and public health measures. The CHP will continue to closely monitor the situation in Hong Kong to provide regular updated data.

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An imported case of amoebic dysentery

CHP received report of a case of amoebic dysentery on November 15, 2011, affecting a 56-year-old man who lived in Chengdu, China. He developed rectal bleeding since early October while in China. He came to Hong Kong on November 7 for medical advice from a private practitioner. Colonoscopy with rectal biopsy taken on November 9 revealed trophozoites of *Entamoeba histolytica*. He was managed as out-patient with a course of metronidazole given and he was all along in stable condition. His household contacts in China were asymptomatic.

Two cases of human myiasis

On November 7, 2011, CHP recorded two cases of human myiasis.

The first case affected an 80-year-old woman who was bed-bound and with multiple medical problems. She presented with gum bleeding and maggots were found in the gum area by relatives on November 2. She was admitted to a public hospital on November 4. Maggots were removed and later confirmed to be *Chrysomya bezziana*. The patient was discharged on November 15 and remained in stable condition.

The second case involved an 82-year-old old-age home resident. He was bed bound with hypertension, intra-cranial haemorrhage and dementia. He presented with fever and breathing difficulty on November 2, 2011, and was admitted to a public hospital the next day with chest infection. He was incidentally found to have upper lip swelling and worms were found inside his mouth. The maggots were removed and were confirmed to be larvae of *Chrysomya bezziana*. His condition deteriorated after admission and he finally succumbed to pneumonia on November 6. Advice on oral care and environmental hygiene was given to the old-age home.

Rickettsial disease in November

In November 2011, CHP recorded seven sporadic cases of rickettsial disease affecting four men and three women with age ranged from 30 to 76

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years. Clinically they presented with fever with or without generalized skin rash. Serology tests suggested that one of them suffered from spotted fever and another from scrub typhus. The type of rickettsial diseases could not be delineated by serology tests for the other five patients. All patients required hospitalisation and have been discharged. Five of them had all gone hiking separately during the incubation period. Their hiking routes were different but three of them, who did not know each other, passed through Kam Shan Country Park. The other companions who hiked together with these three patients were all asymptomatic. Pest Control Advisory Section of the Food and Environmental Hygiene Department (FEHD) has carried out vector survey on the hiking routes of these patients. The FEHD Environmental Hygiene Office has also conducted tick disinfestations and strengthened cleansing.

Rickettsial disease is a febrile illness transmitted by vectors such as mites and ticks, and is a known risk to people who frequent scrubby areas such as parks and countryside. Different types of rickettsial diseases are caused by different types of 'rickettsiae'. Scrub typhus and spotted fever are more commonly seen in Hong Kong. To avoid rickettsial disease, one should wear long-sleeved shirts and trousers when visiting rural or scrubby areas. One should also apply insect repellent to clothes (especially the trousers); and avoid brushing the long grasses beside the paths, lying on scrubby areas, or hanging clothes on scrubs or trees.

Update on scarlet fever

Local activity of scarlet fever has remained stable in the past month. From October 30 - November 26, 2011, CHP recorded 129 cases of scarlet fever affecting 86 males and 43 females aged between 6 months and 26 years (median = 6 years). One case, a 7-year-old boy, presented with complication of toxic shock syndrome and has recovered. There were no fatal cases. During this period, there was one primary school cluster affecting 2 persons.

An outbreak of rubella among attendees of a church

Reported by Dr Gavin KW Tam, Medical Officer, Surveillance and Epidemiology Branch, CHP.

On October 11-12, 2011, the Centre for Health Protection (CHP) recorded rubella infection affecting 3 Indonesian domestic helpers, aged 27, 32 and 34 years respectively. One of them presented with fever, skin rash and conjunctivitis since October 7 and attended the Accident and Emergency Department of a public hospital on October 9. Blood sample taken on October 9 (day 3 of onset of symptoms) was positive for rubella virus IgM. The other two patients developed fever, generalized skin rash, arthralgia and conjunctivitis on October 5 and October 7 respectively. They sought medical attention from the same private clinic and both were diagnosed clinically as having rubella infection. All three were in stable condition and did not require hospitalization. Their home contacts were all asymptomatic.

Upon epidemiological investigation, CHP found that the three patients had attended the same Indonesian-speaking church service during their incubation periods. Active case finding among 155 attendees of the church service through questionnaire surveys and serological testing identified nine additional cases. They were all females, aged 23 to 42 years, who developed fever, skin rash, arthralgia and conjunctivitis from September 19 to October 7. All of them were tested positive for rubella virus IgM. Figure 1 shows the epidemic curve of this outbreak.

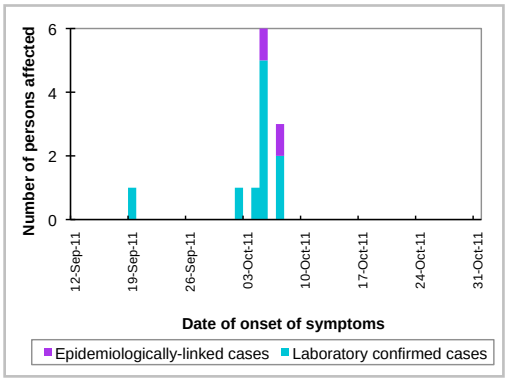
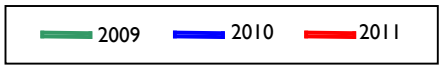


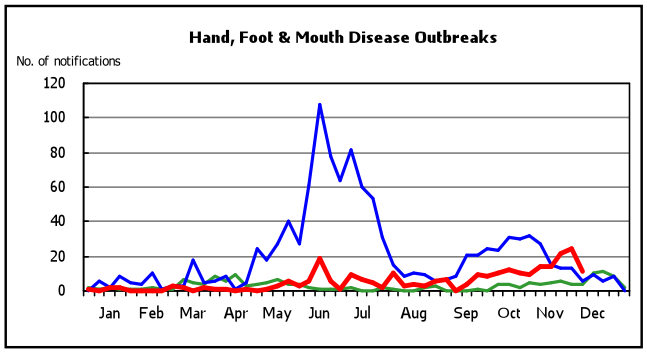
Figure 1 - Outbreak of rubella infection among attendees of a church.

Staff from CHP delivered a health talk to the attendees of the church service on October 16 to raise their awareness of precautions against rubella infection. All exposed participants were advised to refrain from attending church service for three weeks and they were put under medical surveillance. As only about 30% of the participants of the church service had previous history of rubella vaccination, arrangements have been made for the other non-immune individuals to receive rubella vaccination as appropriate. We issued a press release on October 16 and sent letters to the employers concerned to take necessary precautions and to look out for symptoms of rubella infection. We also set up a telephone hotline to provide health advice and answer related enquiries. No additional cases were reported so far.

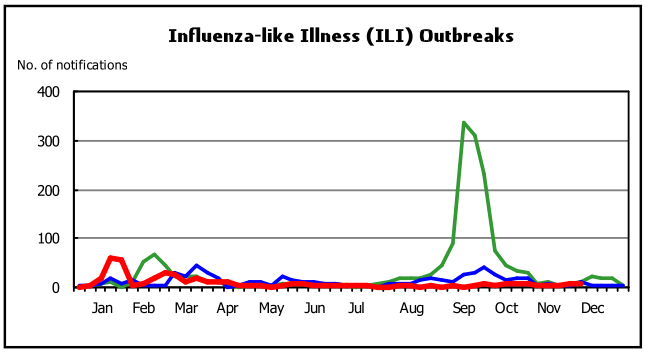
Rubella infection is a mild viral disease but when occurring in non-immune pregnant women may cause anomalies in the developing fetus. Immunisation with rubella is the most effective way to prevent the disease. Non-immune individuals are advised to consult their doctors for rubella vaccine, usually given together with measles and mumps vaccines. Women of reproductive age should check their immune status and receive vaccination before pregnancy. Those who do not have rubella antibody may also approach the Maternal and Child Health Centres of Department of Health for advice.

SUMMARY OF SELECTED NOTIFIABLE DISEASES AND OUTBREAK NOTIFICATIONS (WEEK 47 - WEEK 48)

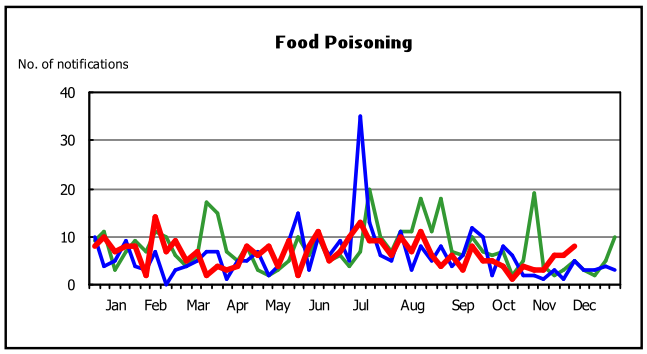




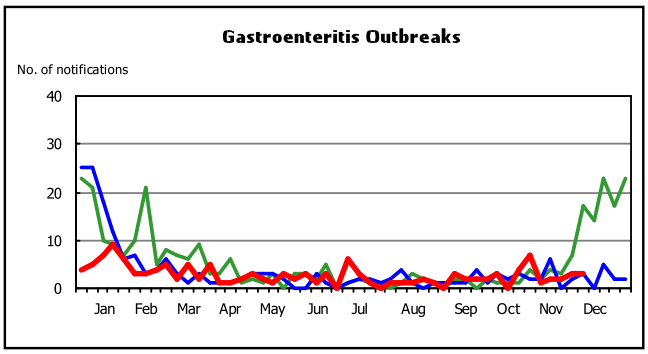
Week 45:	14	Week 47:	24
Week 46:	22	Week 48:	11



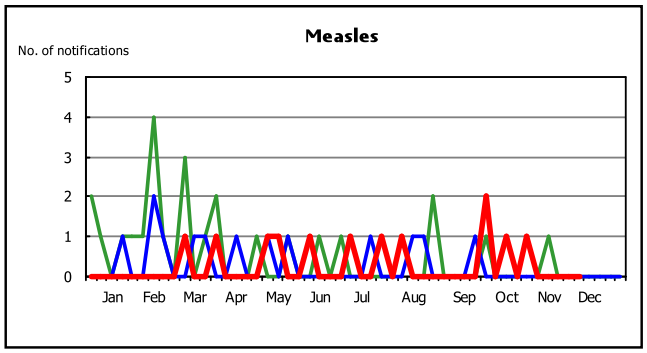
Week 45:	5	Week 47:	9
Week 46:	2	Week 48:	7



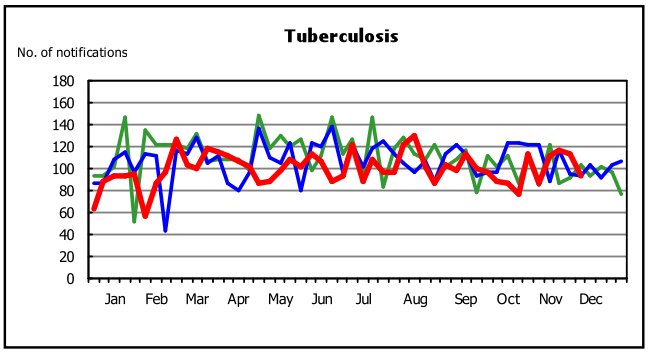
Week 45	3	Week 47:	6
Week 46:	6	Week 48:	8



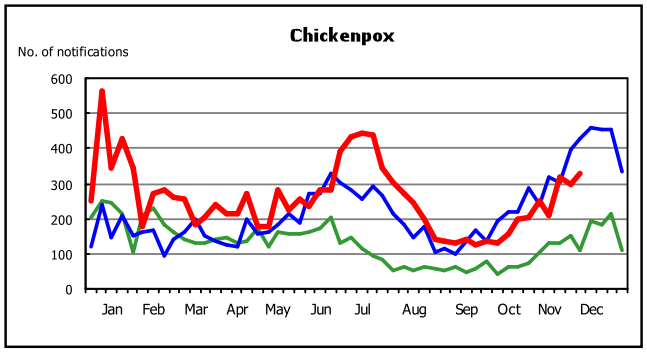
Week 45:	2	Week 47:	3
Week 46:	2	Week 48:	3



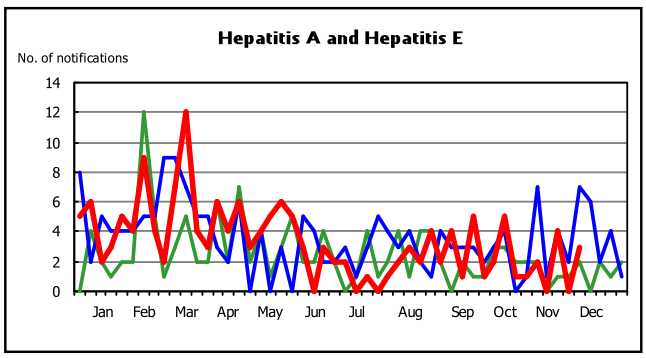
Week 45:	0	Week 47:	0
Week 46	0	Week 48:	0



Week 45:	111	Week 47:	114
Week 46:	117	Week 48:	94



Week 45:	208	Week 47:	298
Week 46:	316	Week 48:	329



Week 45:	0	Week 47:	0
Week 46:	4	Week 48:	3

Data contained within this bulletin is based on information recorded by the Central Notification Office (CENO) and Public Health Information System (PHIS) up until November 26, 2011. This information may be updated over time and should therefore be regarded as provisional only.