Department of Health

Public Health & Epidemiology Bulletin

Volume 8 Number 2 *Homepage : http://www.info.gov.hk/dh/* ***May 1999***

Contents

The publication is produced by Department of Health, 21/F, Wu Chung House, 213 Queen's Road East, Hong Kong.

REPORT OF TWO HUMAN INFLUENZA A (H9N2) CASES IN THE HONG KONG SPECIAL ADMINISTRATIVE REGION

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Two cases of febrile respiratory illness caused by influenza A (H9N2) infection in two girls aged 4 years and 13 months respectively were identified by the influenza surveillance system in the Hong Kong Special Administrative Region (HKSAR) in April 1999.

Case 1

The first case was a 4-year-old girl who had history of eczema and asthma and was taking beclomethasone by inhalation regularly and salbutamol by inhalation as necessary. She developed fever, sore throat, headache, vomiting and decreased appetite on 28 February 1999. She went to her attending doctor for a regular follow-up visit for her asthmatic condition on 1 March 1999. She was then admitted into a hospital for further management. On physical examination, her general condition was good. She had a temperature of 38.9 ^{o}C and her throat was congested. Examination of other systems was unremarkable. She was diagnosed as a case of acute pharyngitis and was treated with paracetamol, beclomethasone inhalation and intravenous antibiotics. The patient recovered fully and was discharged on 8 March 1999.

A nasopharyngeal aspirate was collected on 3 March 1999. Viral culture by the Government Virus Unit, Department of Health yielded an atypical influenza A virus. The isolate was sent to WHO Influenza

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Collaborating Reference Laboratories in London, United Kingdom and Atlanta, Georgia, the United States of America. The isolate was confirmed to be an influenza A (H9N2) virus on 7 April 1999 in both reference laboratories.

The patient had no history of travelling abroad in the past month. She had visited her grandfather 11 days before onset of symptoms and was exposed to live chickens between 15 and 18 February. The chickens were kept in two paper boxes in the front yard of the house. They were apparently healthy and were later slaughtered for food. Her family members were interviewed and some of them had sore throat but no fever.

Case 2

The second case was a 13-month-old girl. The patient was delivered at full term with a birth weight of 2.9 kg. She had a history of unsatisfactory weight gain and was being followed up by paediatricians. She developed fever and vomiting on 4 March 1999. She was seen by her attending doctor on 5 March 1999 and was subsequently hospitalised. On physical examination, her temperature was 39.5 ^{o}C and her throat was inflammed. She was treated with antipyretics, an antihistamine and intravenous antibiotics. A nasopharyngeal aspirate was collected on 5 March 1999. The patient recovered fully and was discharged on 7 March 1999. A viral culture initially yielded an atypical influenza A virus. The isolate was confirmed by the London and Atlanta WHO reference laboratories as influenza A (H9N2) on 7 April 1999.

The patient had no history of travelling abroad since birth and had no history of exposure to poultry. Her family members and relatives who took care of her were interviewed. Some of them had sore throat but no fever.

Actions taken

In the preliminary investigations, the parents and doctors who attended to both patients were interviewed. A detailed history was taken focusing on possible exposure to poultry, travel history, etc. Swabs and blood specimens were collected from some family members.

Health education materials for doctors, the general public, childcare workers and school teachers, and workers handling poultry have been prepared and uploaded in the homepage of the Department of Health (http://www.info.gov.hk/dh/index.htm). Hard copies were sent out to relevant parties.

Future Plan

An urgent meeting of the Special Investigation Group on Avian Flu was convened. The Group comprised public health doctors, veterinarians, local and overseas experts in microbiology and epidemiology.

The Group agreed that the major question about the isolation of influenza A (H9N2) virus in humans was whether it posed a major health risk for people. To answer this, the Group agreed it should determine-

1. whether there are other H9N2 infections in people in HKSAR.

2. the mode of transmission of the virus to humans.

3. the risk factors of contracting this virus.

4. the relation between H9 infection in poultry and other animals and people.

Accordingly, the Group recommended that several different studies and activities be

conducted. These included -

1. To continue with enhanced surveillance on poultry and humans.

2. Epidemiological studies to identify risk factors and the mode of virus transmission.

3. Prevalence studies to assess current levels of infection in humans and birds.

AN OVERVIEW OF NOTIFIABLE INFECTIOUS DISEASES IN THE HONG KONG SPECIAL ADMINISTRATIVE REGION IN 1998

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Under the Quarantine and Prevention of Disease Ordinance (Cap. 141), a total of 9 827 cases of infectious diseases were reported to the Department of Health of the Hong Kong Special Administrative Region (HKSAR) in 1998. This represented a decrease of 31% compared with that of 1997. The decrease was mainly due to the sharp fall in rubella notifications. Tuberculosis notifications (7 673) came from chest clinics (56%), public hospitals (35%) and private hospitals and practitioners (9%). As for other infectious diseases (2 154), the majority of the notifications came from the public sector: public hospitals (77%), government outpatient clinics (5%), and Regional Offices of the Department of Health during active case finding (10%). The remaining 8% mainly came from private hospitals and clinics.

The five diseases with highest number of notifications were tuberculosis (7 673), viral hepatitis (664), food poisoning (578 outbreaks with 2 998 persons affected), bacillary dysentery (512) and cholera (71). There were 264 deaths from notifiable infectious diseases. They were almost exclusively due to tuberculosis (260). The remaining deaths were caused by tetanus (3) and viral hepatitis (1).

Comparing the number of notifications in 1998 with those in the preceding five years (1993-1997), an increase of notifications was observed in six diseases while a decrease was noted in another 14 diseases (Figure 1). Six diseases have not been reported in the territory for more than ten years. They are acute poliomyelitis, diphtheria, plague, rabies, relapsing fever and yellow fever.

Figure 2 is a graphical presentation of the monthly notifications of selected infectious diseases compared to the monthly means of the past five years (1993-1997).

Quarantinable Diseases

The year 1998 was a challenging year for the control of cholera. A total of 71 cases were reported, of which 33 were local cases and 38 were imported from Thailand (30), mainland China (7) and the Philippines (1). 67 cases were caused by the organism *Vibrio cholerae O1 El Tor Ogawa* while the remaining four were caused by *Vibrio cholerae O139.*

Apart from 28 sporadic cases, five clusters of cases were identified. Two were imported and three were local. One cluster involved 29 travellers among four tour

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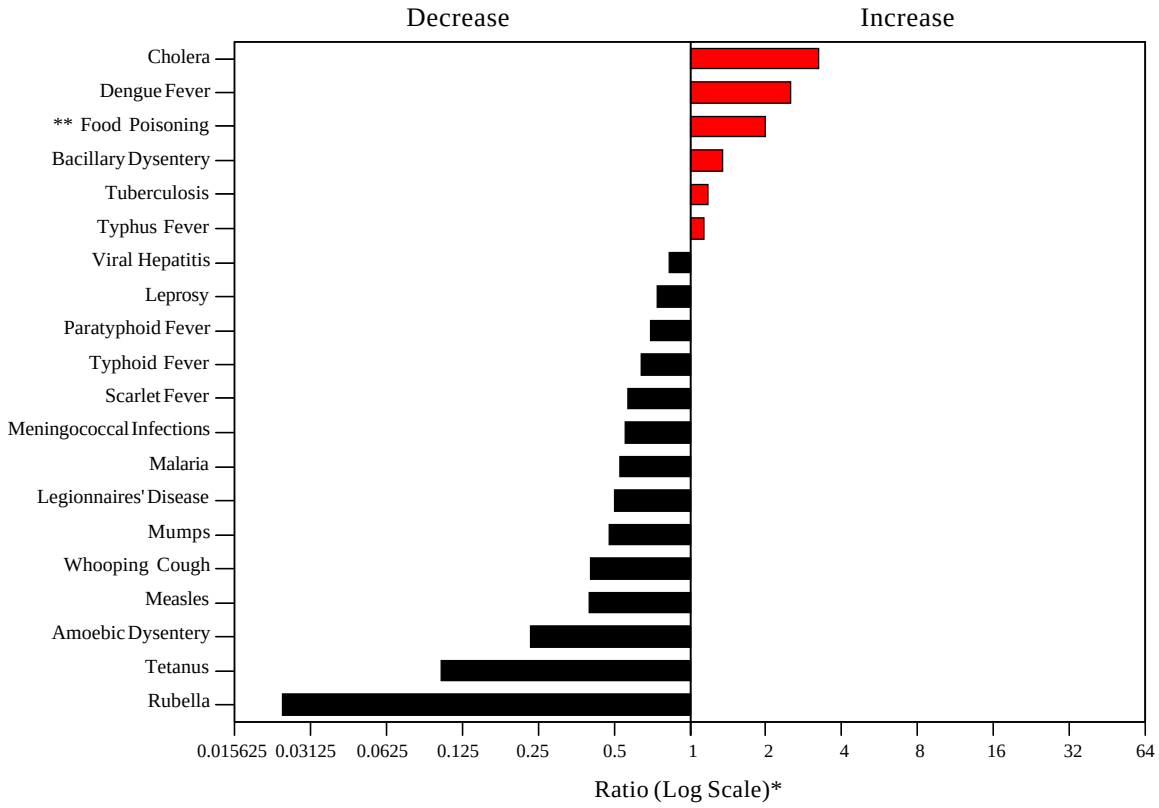
Figure 1 Comparison of Infectious Diseases Notifications Between 1998 and the Mean of 1993-1997



Notes : * Ratio of the number of notifications in 1998 to the mean number of notifications in 1993-1997 in logarithm of base 2.

** Indicating number of persons affected.

1. Diseases with no change are acute poliomyelitis, diphtheria, plague, rabies, relapsing fever and yellow fever.
2. For dengue fever, mumps and rubella which have become notifiable since 1994, data for 1994-1997 were used for comparison.

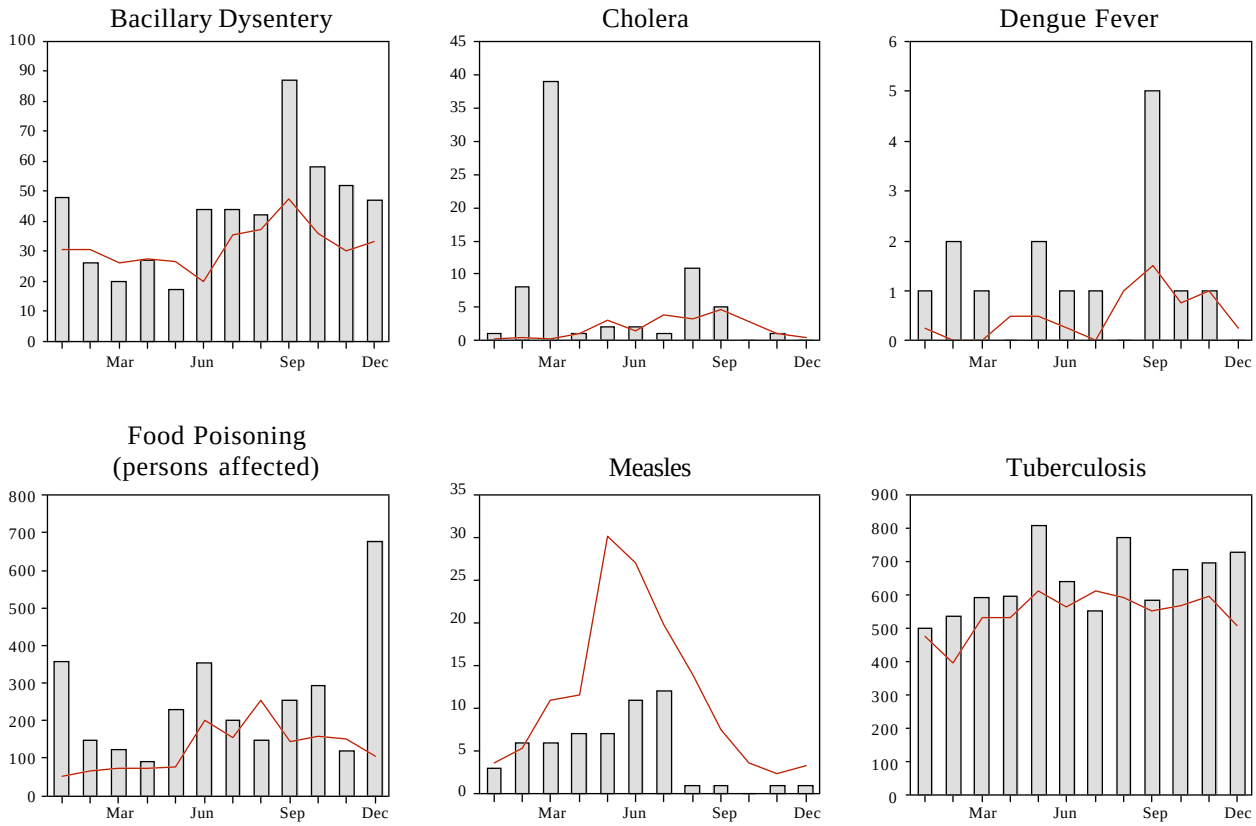
groups returning from Thailand. Another cluster comprised two travellers of a tour group returning from mainland China. The three clusters of local cases comprised seven cases having consumed undercooked imported cockles, three cases relating to a common meal consumed at a local restaurant, and two residents of an elderly hostel.

In the light of the above clusters, additional measures were undertaken in the prevention and control of cholera cases. Health education for travellers was enhanced, special videos were produced, pamphlets were distributed through travel agencies, and broadcasting of health messages in ferry piers and train stations was made. Food surveillance especially on shellfish was intensified. The restaurant incriminated in one of the local clusters was temporarily suspended for thorough disinfection and other control measures while inspections of restaurants were stepped up. Health education, with particular emphasis on food hygiene, was provided to caregivers in elderly homes.

Foodborne Diseases

As in previous years, the foodborne disease which affected the highest number of persons was food poisoning. In 1998, a total of 578 outbreaks of food poisoning

Figure 2 Monthly Notifications in 1998 and the Monthly Means of Past 5 Years (1993-1997) for Selected Notifiable Infectious Diseases



Notes : y-axis -number of notifications (in different scales) except food poisoning which indicates the number of persons affected.
x-axis - month in calendar year.
solid line in red - monthly means of past 5 years (1993-1997).
▮ - monthly notifications in 1998 except food poisoning which indicates the number of persons affected in 1998.

were reported, affecting 2 998 persons. More than half (54%) of the outbreaks occurred on food premises while the rest took place at home.

In terms of number of persons affected, the top five causative agents were *Clostridium perfringens* (25%), *Vibrio parahaemolyticus* (24%), *Salmonella* spp. (14%), ciguatoxin (14%) and *Staphylococcus aureus* (12%).

A large food poisoning outbreak affecting 559 school children of three primary schools occurred in December 1998. The incriminated food was lunch boxes prepared by a food factory. Investigation showed that the gravy was contaminated and improperly stored. *Clostridium perfringens* was found in the food remnants. Health education on personal, food and environmental hygiene was given to the food handlers and the factory was thoroughly cleansed. Inspection of food factories was stepped up accordingly.

Most of the ciguatoxin poisoning cases occurred in early 1998. There were 118 notifications of such cases affecting 428 persons, and all of them consumed large

coral reef fish such as tiger grouper (老虎斑) and black fin red snapper (紅鰽). Health education was given to the public through mass media and other channels, and special courses were organised for fish wholesalers.

Bacillary dysentery is an endemic disease in HKSAR. In 1998, 512 cases were reported, the highest number seen in the past 5 years. Notifications were slightly higher in summer months. Three outbreaks occurred in residential institutions. Epidemiological investigations revealed two further outbreaks involving food premises. Two food handlers were subsequently found to be carriers of Shigella bacteria. They were given antibiotic treatment and temporarily suspended from work until proven free of the infection.

Notification of other foodborne infectious diseases including hepatitis A, typhoid fever, paratyphoid fever and amoebic dysentery showed a decrease when compared with the average of the previous five years.

Tuberculosis

The number of tuberculosis notifications in 1998 was 7 673 representing an increase of 8% compared with 1997. The increase was mainly due to the ageing population and overcrowded living environment in HKSAR. Another reason for the increase could be due to the strengthening of tuberculosis surveillance. In late 1997, the Labour Department sent guidelines to doctors concerning the notification of tuberculosis in health care workers. Starting from early 1998, the Tuberculosis and Chest Service has been in close liaison with the Tuberculosis Laboratory to link the bacteriological data with the notification registry. This resulted in a significant number of unnotified cases from various health care facilities being traced and notified as tuberculosis cases to the Department of Health.

Apart from preventive and curative services, the Department of Health also provides health promotion service on tuberculosis. In collaboration with other organisations, the Department had organised health education programmes in institutions such as schools and elderly homes, and other health promotion activities in relation to the World Tuberculosis Day.

Vaccine Preventable Diseases

There were 56 notifications of measles, 25 notifications of mumps and 34 notifications of rubella in 1998. These figures represented a dramatic reduction of 82% in measles, 51% in mumps and 99% in rubella compared with 1997. The rapid decline in rubella notification was expected following a large outbreak in 1997. The decline in measles and mumps was due to the Special Measles Vaccination Campaign conducted in 1997 to prevent a predicted measles epidemic. One case of congenital rubella was reported in late 1998.

There were 144 cases of hepatitis B and three cases of tetanus notified in 1998.

Vector-borne Diseases

There were 54 notifications of malaria in 1998. All but one were imported cases from Indian subcontinent (27), Africa (12), South East Asia (11) and mainland China (2). One of the imported cases was a tourist who left the territory before notification was received. The source of her infection could not be identified. The only local case was a 35-year old female who suffered from *Plasmodium vivax* infection. Vector survey was performed and the major local malaria vectors, *Anopheles jeyporiensis* and *Anopheles*

minimus were not found in the vicinity of the patient's residence and workplace. Screening of contacts at home and workplace was conducted. No other cases were identified.

There were 15 cases of dengue fever notified in 1998, the highest number since the condition became notifiable in March 1994. Thirteen cases were imported from South East Asia and two from the Indian subcontinent. Although the major vector, *Aedes aegypti*, has not been found in HKSAR, the less efficient vector *Aedes albopictus* is present ubiquitously in the territory. Hence, HKSAR is receptive to the introduction and local transmission of the disease. Special anti-dengue vector operations were carried out in 1998 to tackle the problem. Vector control programmes together with prompt notification, timely case investigation and effective control measures are essential in preventing dengue fever to establish a firm foothold in HKSAR.

Eight reports of typhus fever were received in 1998. Six were local cases and two were imported ones. There were no clustering of cases.

Conclusion

The number of infectious disease notifications showed a decrease in 1998 when compared with the preceding five years. However, there were a number of diseases worth special attention. Foodborne diseases notifications such as cholera and bacillary dysentery have all increased. Tuberculosis remained an important public health problem in view of its global resurgence. Malaria and dengue fever still pose a constant threat to HKSAR, which is both susceptible and receptive to the two diseases.

The need for vigilance in infectious disease surveillance cannot be overemphasised. In the light of emerging and re-emerging diseases, prompt notification, which depends on the efforts of doctors from both the public and private sectors, remains a pivotal part of a successful surveillance system.

NEWS IN BRIEF

Influenza Vaccination Programme for Elderly Home Residents

In accordance with the recommendation of the Advisory Committee on Immunisation, the Department of Health launched the second influenza vaccination programme for elderly home residents in November 1998. The programme was well accepted with a total of 33 850 elderly home residents received vaccination. This represented a coverage of 82.5% which was satisfactory as compared with the achievement of other developed countries. The next programme is planned to take place in the last quarter of 1999. The World Health Organisation recommended influenza vaccine composition for the northern hemisphere in 1999/2000 will be used. The recommended vaccine composition is as follows :

A/Sydney/5/97 (H3N2)-like virus
A/Beijing/262/95 (H1N1)-like virus
B/Beijing/184/93-like virus or B/Shangdong/7/97-like virus

NUMBER OF NOTIFICATIONS OF INFECTIOUS DISEASES

DISEASE	1st Quarter 1998	4th Quarter 1998	1st Quarter 1999
	Cases	Cases	Cases
1) Cholera	48	1	1
2) Plague	-	-	-
3) Yellow Fever	-	-	-
4) Acute Poliomyelitis	-	-	-
5) Amoebic Dysentery	2	-	-
6) Bacillary Dysentery	94	157	65
7) Chickenpox	NA	NA	2 485
8) Dengue Fever	4	2	1
9) Diphtheria	-	-	-
10) Food Poisoning : *Outbreak*	141	117	106
Persons Affected	627	1 092	530
11) Legionnaires' Disease	-	-	-
12) Leprosy	1	3	1
13) Malaria	8	11	10
14) Measles	15	2	10
15) Meningococcal Infections	1	-	1
16) Mumps	8	5	17
17) Paratyphoid Fever	3	3	2
18) Rabies : *Human*	-	-	-
Animal	-	-	-
19) Relapsing Fever	-	-	-
20) Rubella	9	6	18
21) Scarlet Fever	11	12	26
22) Tetanus	3	-	1
23) Tuberculosis	1 625	2 100	1 638
24) Typhoid Fever	28	7	16
25) Typhus Fever	1	3	3
26) Viral Hepatitis :	307	129	275
- *A*	*266*	*77*	*174*
- *B*	*25*	*40*	*31*
- *Non-A Non-B*	*15*	*5*	*9*
- *Unclassified*	*1*	*7*	*61*
27) Whooping Cough	1	1	2

Notes : NA - Not Available.

Chickenpox has been notifiable since 1.2.1999.

AIDS/HIV Surveillance

Cumulative Number of Cases	as at 30.9.98	as at 31.12.98
AIDS	359	372
HIV	1 098	1 146