REPORT
MEETING ON THE CONTROL OF COMMUNICABLE DISEASES
IN GUANGDONG, HAINAN, HONG KONG AND MACAO
Hong Kong, China
2-4 June 1998

Manila, Philippines
April 1999
REPORT

MEETING ON THE CONTROL OF COMMUNICABLE DISEASES
IN GUANGDONG, HAINAN, HONG KONG AND MACAO

Convened by:

WORLD HEALTH ORGANIZATION
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NOTE

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This report has been prepared by the World Health Organization Regional Office for the Western Pacific for governments of Member States in the Region and for those who participated in the Meeting on the Control of Communicable Diseases in Guangdong, Hainan, Hong Kong and Macao, which was held in Hong Kong, from 2 to 4 June 1998.
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Keywords

Communicable diseases - prevention and control / China / Hong Kong / Macao
SUMMARY

The Meeting on the Control of Communicable Diseases in Guangdong, Hainan, Hong Kong and Macao was held in Hong Kong, China, from 2 to 4 June 1998. The objectives of the meeting were:

(1) to review action taken over the past two years to improve surveillance, information sharing and reporting on the control of communicable diseases, particularly STD/AIDS, cholera, malaria, viral hepatitis, influenza, tuberculosis and dengue; and

(2) to identify measures that have to be taken to reduce the incidence of communicable diseases particularly associated with population movement and international travel.

Two participants from the Ministry of Health, China, eight from Guangdong, two from Hainan, five from Hong Kong and two from Macao attended the meeting. There were also four observers from the Ministry of Health, China, one from Guangdong, one from Hainan, five from Hong Kong and two from Macao. Nine Secretariat members also attended the meeting.

Dr K.H. Mak of Hong Kong was elected as Chairperson, Dr Wang Zhao from China as Vice-Chairperson and Dr Koi Kuok Ieng of Macao and Dr Liu Zoulu of Guangdong as Rapporteurs. Ms Katherine Fok, Secretary of Health, Hong Kong welcomed the participants and Dr S.T. Han, Regional Director, World Health Organization, Regional Office for the Western Pacific, delivered the opening and closing remarks.

Members presented country situation reports on communicable diseases focusing especially on cholera, STD/AIDS, malaria, tuberculosis, poliomyelitis, viral hepatitis, dengue, and influenza. The meeting drew several conclusions as follows:

General conclusions

Participants reviewed the regional, national and local situations on communicable diseases which include HIV/AIDS, cholera, poliomyelitis, malaria, tuberculosis, viral hepatitis, dengue/dengue haemorrhagic fever and influenza. The importance of antimicrobial resistance was also stressed. Since the previous meeting, disease control programmes for such diseases have been well implemented. However, the participants recognized that the above communicable diseases still remain a public health threat in Guangdong, Hainan, Hong Kong and Macao. This is particularly important given the large floating populations and the mobility of the population in the areas concerned.

The participants concluded that collaboration is essential in the control of communicable diseases, and should be continued and strengthened in the areas of disease surveillance, information exchange and standardization of laboratory techniques between Guangdong, Hainan, Hong Kong and Macao in cooperation with the Ministry of Health, China and WHO. The further strengthening of communicable disease information exchange should be continued. The meeting proposed that WHO prepare a standardized reporting form. If possible, the number of notifiable diseases may be increased. However, the information circulated in this system should be restricted for internal operational use. If and when it is necessary to release the information to the public, agreement for release from the health authorities concerned should be obtained prior to announcement of the data (e.g. national disease figures should be obtained from the Ministry of Health; provincial and municipal data should be obtained from provincial health authorities). During outbreaks, communication among concerned parties should be made
via telephone, facsimile and electronic mail (e-mail). The telephone, fax numbers and e-mail addresses for contact points where such disease information should be sent to are listed in Annex 1 of the summary report of this meeting.

Exchange of expertise among the areas should be strengthened in collaboration with the Ministry of Health, China and WHO. In particular, clinical and laboratory training on dengue and influenza diagnosis needs to be considered. WHO training programmes and modules on clinical and laboratory diagnosis as well as case management should be actively utilized for selected communicable diseases.

Specific conclusions

(1) Increasing incidence of STD and HIV was reported in all areas, and is a serious public health concern. HIV transmission through injecting drug use is the major mode of HIV transmission in some areas. Heterosexual transmission of HIV is accounting for an increasing proportion of new HIV cases in all areas. The existing significant levels of STD infection show the potential for the sexual transmission of HIV.

Progress has been made in improving HIV surveillance, STD programmes and case management. However, urgent attention needs to be given to expanding and improving STD programmes, including effective integration of STD services at the primary health care level. Technical guidance on improving STD programmes, including STD policies, need to be further developed. STD and HIV prevention programmes, including condom promotion, should be targeted to individual at risk, including sex workers and their clients. Sexual health education, particularly in schools, should be reinforced. Harm reduction programmes, including “clean needle” and needle exchange programmes, should be established where needed. All efforts should be made to facilitate exchange of technical experience in STD and HIV/AIDS prevention and control between participating areas.

(2) A progressive decrease in the total number of reported cholera cases and deaths was noted in the Western Pacific Region since the previous meeting. However, concerns remain about the occurrence of *Vibrio cholerae* O139 which has the potential to spread quickly and cause large outbreaks due to lack of immunity in the community. Strong surveillance for O 139 is emphasized as well as reporting of it in cases where this serogroup has been isolated. For prompt containment of cholera outbreaks and prevention of the spread of an outbreak, rapid information sharing and alerting of neighbouring areas remains crucial. To avoid panic and demystify cholera from its old fearful connotations, the public should be properly informed about the particular cholera situation as well as on actions to be taken for treatment and prevention. Travel and trade restrictions between countries or different areas within a country do not have any place in cholera control.

(3) Malaria continues to decline in China. There were approximately 35 000 cases reported in 1997, 2802 imported. However, the problem of underreporting should not be neglected. An analysis of the different locations in China where the imported cases were detected and the source or country of infection would be helpful in strengthening surveillance and preventive measures. Only 100 imported cases were reported in Hong Kong and one in Macao.

Yunnan, Guangxi and Hainan provinces are the main malaria endemic areas in China. Multidrug-resistant falciparum malaria occurs in areas bordering Myanmar, the Lao People’s Democratic Republic and Viet Nam. Drug resistance also occurs in Thailand and Cambodia. Foreign workers, visitors and residents returning to China from these countries may require special attention, particularly if fever or undiagnosed illness occurs within two weeks after arrival. Prompt treatment is essential to prevent mortality in persons diagnosed or suspected with severe falciparum malaria. Drug regimens for treating severe and also uncomplicated
malaria should be routinely updated and made available to those involved in travel, diagnosis and treatment.

(4) Tuberculosis is still a major health problem in all areas. For the last several years, the number of newly registered cases has been increasing. The increase is mainly due to improved case detection and reporting. The directly-observed treatment, short course (DOTS) which saves lives and prevents multidrug resistance has been implemented in most of the areas.

Drug resistance surveillance was carried out in one province in China in 1997 and showed a very high rate of primary multidrug resistance. For a comprehensive figure on drug resistance for mycobacterium in the country, drug-resistance surveillance is being expanded in three other provinces including Guangdong province, in collaboration with WHO. Hong Kong has already established a drug-resistance surveillance system for tuberculosis and it should continue to analyse the drug-resistance data every two to three years to assess the trends of drug resistance rate. Experiences and laboratory skills on drug-resistance surveillance can be shared to facilitate surveillance activities in all participating areas.

Although the impact of HIV on tuberculosis does not yet seem to be serious, enhanced surveillance on HIV/tuberculosis is required.

(5) All areas are urged to ensure that acute flaccid paralysis and virological surveillance for poliomyelitis are improved and sustained at the levels of quality required for certification. In addition, supplementary immunization must continue in high-risk areas to protect against the potential effects of importation of wild poliovirus from other Regions. It is essential that current routine immunization programmes continue until global eradication is achieved.

(6) Notable progress in viral hepatitis surveillance has been seen, particularly in the area of laboratory confirmation. Laboratory-based differential diagnosis on hepatitis A, B and C has been introduced at national and local levels. The impact of hepatitis C infection has been well documented over the last two years.

Progress has also been seen in infant hepatitis B immunization programmes. In Hong Kong and Guangdong, a decline in the incidence of hepatitis B antigen-positive rates was reported among schoolchildren. The incidence rate of HAV infection continued to decrease during the 1996-1997 period. Outbreak information on foodborne hepatitis should be disseminated in a timely manner.

(7) Dengue/dengue haemorrhagic fever has become a major international public health concern and continues to be a serious problem in both developing and newly industrialized countries and areas in the Western Pacific Region. In China, some cases were reported in 1996-1997, primarily from the southern part of the country. However, in Hainan, disease prevention measures were effectively taken and no dengue cases were reported after the 1991 epidemic. Efforts should be continued to prevent and control dengue by identifying and eliminating mosquito larval habitats. Information on dengue outbreak occurrence in other countries and areas in South-East Asia should be disseminated to Guangdong, Hainan, Hong Kong and Macao as they are at potential risk of dengue outbreaks. This could be done in collaboration with the WHO Regional Office for the Western Pacific. WHO educational materials for health professionals and the public should be actively utilized and distributed.

(8) Influenza A(H5N1), previously identified only in birds, was isolated among humans for the first time in Hong Kong in 1997. Intensified influenza surveillance was implemented in Guangdong for six months starting in March 1998 with full support of the central and local government. This intensified surveillance will continue to be maintained until the end of October 1998 and longer if necessary.
Information exchange on influenza should be strengthened to ensure that influenza outbreaks are notified in the most rapid way possible (e.g. electronic mail, fax).

Other conclusions

The participants agreed that the meeting was an effective means to share information on communicable diseases relevant to the Region as well as to discuss ways in which to further improve the surveillance and information exchange on communicable diseases. It was agreed that at future meetings, specific topics should be determined in detail. WHO will consult with all parties concerned during preparations for the meeting. In line with this, the participants agreed that the next meeting should be conducted in two years’ time to review the progress made in such activities. The next meeting is planned to be held in Zhuhai, China in 2000.
1. INTRODUCTION

1.1 Objectives

(1) to review action taken over the past two years to improve surveillance, information sharing and reporting on the control of communicable diseases, particularly STD/AIDS, cholera, malaria, viral hepatitis, influenza, tuberculosis and dengue; and

(2) to identify measures that have to be taken to reduce the incidence of communicable diseases particularly associated with population movement and international travel.

1.2 Participants

Two participants from the Ministry of Health, China, eight from Guangdong, two from Hainan, five from Hong Kong and two from Macao attended the meeting. There were also four observers from the Ministry of Health, China, one from Guangdong, one from Hainan, five from Hong Kong and two from Macao. Nine Secretariat members also attended the meeting.

The members of the meeting elected Dr K.H. Mak of Hong Kong was elected as Chairperson, Dr Wang Zhao from China as Vice-Chairperson and Dr Koi Kuok Ieng of Macao and Dr Liu Zoulu of Guangdong as Rapporteurs.

The agenda and list of participants are attached as Annexes 2 and 3.

1.3 Organization

The members of the Meeting on the Control of Communicable Diseases in Guangdong, Hainan, Hong Kong and Macao met in Hong Kong from 2-4 June 1998.

The programme of activities is attached as Annex 4.

1.4 Opening ceremony

The meeting was opened by Dr S.T. Han, Regional Director of the Western Pacific and Ms K. Fok, Secretary of Health, Hong Kong. Dr Han stated that while many improvements had been made in communicable disease control programmes since the first meeting was held in Shenzhen in 1988, there were many communicable disease problems that had yet to be addressed and that had also become increasingly important at global, regional and national levels. He further stated that in the previous meeting held in Macao in 1996, the control of emerging and re-emerging communicable diseases had been designated as one of the priority areas for discussion for the meeting and that this was in line with the resolution made by the WHO Regional Committee held in the Republic of Korea in 1996. He cited examples of some emerging and re-emerging communicable diseases outbreaks that had occurred in the Western Pacific Region in recent years, such as the cholera outbreaks in the Lao People’s Democratic Republic, Malaysia and Mongolia in 1995 and 1997, the E. Coli O157 outbreak in Japan in 1997 and the recent influenza A(H5N1) outbreak in Hong Kong in 1997/1998. Dr Han stated that this year’s meeting would include an overview of the H5N1 outbreak and that the experience and lessons learnt from the outbreak could provide further discussions on ways in which collaboration to address disease outbreaks in border areas could be strengthened. Dr Han thanked the Department of Health, Hong Kong; the Ministry of Health, China; and the health authorities of Guangdong, Guangzhou,
Shenzhen and Hong Kong for their excellent work in controlling the H5N1 outbreak and their active involvement in the Ministry of Health-WHO joint mission to Guangdong which assessed the influenza situation there in January 1998. He emphasized that the meetings played an essential role in developing and implementing timely and effective emergency activities for outbreaks such as that of H5N1, and that WHO would continue to work with governments in addressing the threat of communicable diseases.

2. PROCEEDINGS

2.1 Summary of WHO programmes on the control of communicable diseases

2.1.1 Cholera

In 1996, approximately 150,000 cholera cases and 7000 deaths were reported worldwide (CFR=4.7%). During that year, a resurgence of *V. cholerae* O139 was experienced in India (Calcutta and Madras). In 1997, 147,425 cases and 6274 deaths (CFR=4.3%) were reported. In the Western Pacific Region, 8771 cholera cases and 118 deaths (CFR=1.3%) were officially reported in 1996 and 2453 cases and 34 deaths (CFR=1.4%) were reported in 1997 (Annex 5). The majority of cases in 1997 were reported from China, Malaysia and the Philippines. Imported cases of *V. cholerae* O139 were isolated in Japan in 1997 and Hong Kong in 1998.

WHO has collaborated with governments in strengthening their prevention and control activities for cholera. In April 1996, an Outbreak Response Task Force was established in the Regional Office for the Western Pacific to address life-threatening outbreaks due to new, emerging and re-emerging communicable diseases, including cholera. The Task Force has played an important role in coordinating cholera control activities in the Region in the areas of surveillance, provision of technical and logistical support and information exchange. Technical support has been given to train health personnel at national and subnational levels on cholera surveillance, and emergency kits have been provided for cholera outbreaks in the Region. Also, the WHO publication *Guidelines for cholera control* has been translated into several languages, including Chinese, Khmer, Lao and Vietnamese.

WHO is currently of the view that oral cholera vaccines be used only during the stable phase of an emergency, such as a natural disaster or a refugee crisis, when refugees are located in or come from cholera-endemic areas. In 1997, a study on the feasibility and acceptability of a mass vaccination campaign with the oral 2-dose cholera vaccine was conducted in a large refugee setting in Uganda. No major logistical constraints were reported and the study showed that mass vaccination was feasible. Combined with water and sanitation measures, the use of cholera vaccines in stable refugee settings in high-risk areas may be a valuable public health measure. However, WHO considers that more data is needed on the use of vaccines in cholera-endemic areas.

2.1.2 STD/AIDS

As of May 1998, a cumulative total of 15,558 AIDS cases and 84,913 HIV infections had been reported in the Region (Annex 6). Underreporting and under diagnosis of HIV/AIDS is common. The Western Pacific Regional Office estimates that there were more than 40,000 cumulative AIDS cases in the Region by the end of 1997. Also, it is estimated that more than 700,000 individuals in the Region were HIV-positive by 1997, based on HIV serosurveillance systems in Member States. By 2000, it is projected that the number of HIV-infected individuals
in the Region will exceed 1.8 million. Countries in the Region, such as China, Cambodia, the
Lao People's Democratic Republic and Papua New Guinea, have shown a steady increase in the
number of AIDS cases and HIV infections.

An estimated total of more than 35 million STD episodes occur in the Region each year.
Chlamydial infection appears to be the most prevalent STD in the Region with rates estimated to
be as high as 20% in Papua New Guinea and 13% in the South Pacific islands. Estimated
prevalence rates of gonococcal infection and syphilis are much lower on average. Although the
estimates for trichomoniasis infection vary considerably between countries, there is insufficient
data available to draw reliable conclusions.

Since early 1996, the Western Pacific Regional Office has provided a wide range of
technical support at the regional and country levels aimed at the reinforcement of
epidemiological surveillance of HIV/AIDS and other STDs, and the reinforcement of STD
programmes (e.g. STD treatment, education and programme management).

2.1.3 Malaria

The nine malaria endemic countries in the Region are Cambodia, China, the Lao People's
Democratic Republic, Malaysia, Papua New Guinea, the Philippines, Solomon Islands, Vanuatu
and Viet Nam. In 1996, 497,000 cases were detected by microscopy and 2,504,279 clinical cases
were reported in the Region. During the same year, local transmission reappeared in the
Republic of Korea and 396 cases were reported. Overall, a downward trend in incidence is
occurring and the prospects are good that the targets for 2000 - a reduction in malaria morbidity
by 50% and mortality by 80% - set at the malaria meeting held in Kunming, China in 1993 and in
Manila in 1995, will be achieved. For example, the reduction in morbidity through 1996 has
been 40% for Viet Nam, 45% for the Solomon Islands, 57% for Vanuatu, 60% for China and
63% for the Philippines (Annex 7).

Among the 112 million at-risk of contracting malaria in the Region in 1996,
approximately 20 million were protected with pyrethroid-treated mosquito nets and 9 million
with indoor residual house sprays. WHO will continue to collaborate with national malaria
control programmes in encouraging and supporting the provision of malaria microscopy down to
the peripheral level of health services, strengthening national training activities at the provincial
and district levels as well as other activities. Intensified control measures will be applied in
selected areas with high incidence in Cambodia, the Lao People's Democratic Republic and
Papua New Guinea. Attempts will be made to strengthen interregional cooperation in border
areas from China to Cambodia.

2.1.4 Tuberculosis

Seven highly endemic countries - Cambodia, China, Malaysia, Mongolia, Papua New
Guinea, the Philippines and Viet Nam - represent more than 90% of the total number of
tuberculosis patients in the Western Pacific Region (Annex 8).
Figure 1 shows the trends of notified tuberculosis cases in the Western Pacific Region from 1975 to 1997. Between 1985 and 1993, case notification more than doubled due to improvement of notification and extension of programmes using directly-observed treatment, short course (DOTS). The rise in the number of cases from 1995 to 1997 is mainly due to the expansion of the DOTS strategy, particularly in China, where case management has improved and has led to an increase in notification of cases.

Tuberculosis/HIV co-infection is still low in the Region except in Cambodia, Malaysia and Viet Nam. In Cambodia, the first nationwide random HIV surveillance for tuberculosis patients, conducted in 1996, showed that 3.9% of the patients were HIV-positive (11.5% in Phnom Penh). In Malaysia, HIV-related tuberculosis cases increased eight-fold from 31 cases in 1991 to 262 in 1996. In Viet Nam, only 0.9% of tuberculosis patients in 30 provinces were HIV positive in 1997 but HIV-related tuberculosis patients increased from 1% in 1994 to 6% in 1997 in Ho Chi Minh City.

WHO's strategy in tuberculosis control is to reduce its transmission through the DOTS programme. The target of the programme is to detect 70% of existing cases and to cure 85% of the detected new smear positive tuberculosis cases by the year 2000. The DOTS strategy was introduced in the Region in the early 1990s. Figure 2 shows the percentage of the population in selected countries in the Region with DOTS coverage. WHO has also established surveillance of drug-resistant tuberculosis in the Region and is collaborating with Governments to expand this. In countries where there is high tuberculosis/HIV co-infection, surveillance has been enhanced to monitor the number of HIV-positive cases among tuberculosis patients.
2.1.5 Poliomyelitis

Routine coverage with oral poliovirus vaccine has remained at over 90%. Most countries have sustained a high level of coverage for all EPI antigens, or consolidated recent gains, while simultaneously carrying out polio eradication activities (Figure 3). In 1997, a total of 5848 cases of acute flaccid paralysis were reported in the Western Pacific Region. Of these, 4854 (83%) had two stool specimens collected within two weeks of onset of paralysis. Wild poliovirus was isolated from only nine of these cases, eight from Cambodia and one from the central region of Viet Nam. In response, all out efforts were made to ensure that transmission ceased by the end of 1997. From November 1996 to April 1998, Cambodia and Viet Nam conducted eight rounds of supplementary immunization in high-risk areas and intensified their surveillance efforts. The last case of wild poliovirus associated poliomyelitis in the Region had onset of illness on 19 March 1997 in Cambodia.
As part of the process of certification of eradication, the Regional Certification Commission has reviewed the plans of action of non-endemic countries, including the Pacific Islands Subregion, and recently-endemic countries in its second and third meetings in November 1997 and August 1998 respectively.

All countries and areas are urged to ensure that acute flaccid paralysis (AFP) and virological surveillance are improved and sustained at the levels of quality required for certification. In addition, supplementary immunization must continue in high-risk areas to protect against the potential effects of importation of wild poliovirus from other Regions until global eradication is achieved.

2.1.6 Viral Hepatitis

Six hepatitis viruses (A, B, C, D, E, G) are known to exist today. Most recently, a seventh hepatitis virus was discovered in the Region from a patient with post-blood transfusion hepatitis. It has been tentatively named TTV. Among the hepatitis viruses, HBV is the major cause of chronic hepatitis in the world. In the Western Pacific Region, 150 million people are chronic carriers of HBV and 25 countries and areas are reported to have a carrier rate greater than 8%. In some countries and areas in the Region, between 10% and 30% of population are chronically infected with HBV. WHO has provided HB vaccines to Pacific island countries and has also collaborated with Japan, China and Viet Nam in technology transfer of HB vaccine production. The progress of HB immunization programmes in the Region is shown in Annex 9. A total of 34 countries and areas in the Region have already implemented an HB immunization policy and 30 have started newborn immunization programmes. The efficacy of HB immunization has been evident. For example, in China, prevalence of HBsAg among children five years of age was reduced from 10% to 1% in Beijing and Shanghai after introducing HB immunization with a locally produced vaccine.

Like HBV, the hepatitis C virus can cause serious liver diseases and has chronically infected approximately 170 million people at the global level. The scope of HCV infection in some countries has been recently surveyed and indicates that HCV is the second largest hepatitis problem in the Region (Annex 10). Strengthening hepatitis C surveillance is an urgent issue to be addressed in many countries in the Region. Introduction of routine screening for hepatitis C in blood transfusions should be established. For hepatitis G and TTV, the public health impact of the infection is not yet clear but epidemiological surveys are underway in some countries in the Region.

2.1.7 Dengue

The global prevalence of dengue has grown dramatically in recent decades, and the disease has been reported in more than 100 countries in the WHO Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific Regions. WHO estimates that some 2500 million people are now at risk from dengue and 20 million dengue cases occur worldwide each year. In the Western Pacific Region, dengue/dengue haemorrhagic fever is a serious public health problem in the tropical countries which include both developing and newly industrialized countries. The disease has been annually reported in roughly 15 countries and areas, such as Cambodia, China, the Lao People's Democratic Republic, Malaysia, the Philippines, Singapore, Viet Nam and the Pacific island countries and areas. Over the past two decades, 32 out of 37 countries and areas in the Region have reported dengue cases. During the 1993-1997 period, the total number of officially reported dengue cases in the Region was 87 147, 59 501, 122 593, 131 724 and 129 229, respectively (Annex 11). Of these, 70% of dengue cases
were reported form Viet Nam alone. The case-fatality rate (CFR) has been declining in most of the endemic countries in the Region over the last two decades and the overall CFR in the Region is now less than 1%.

In Cambodia, the Lao People’s Democratic Republic, the Philippines, Viet Nam and the Pacific island countries and areas, dengue control programmes have been established in collaboration with the Western Pacific Regional Office to promote vector surveillance, control, public education and case management. The Western Pacific Regional Office is also involved in emergency disease intervention activities for outbreaks that occur in the Region. In April 1996, the Outbreak Response Task Force (ORTF) was established in the Regional Office in response to an increasing potential of life-threatening outbreaks due to new, emerging and re-emerging communicable diseases. ORTF is involved in areas of surveillance, emergency preparedness, training and research on emerging and other communicable diseases, including dengue, in the Region. ORTF also established regional stockpiles for vectorborne diseases, including dengue, in Cambodia and Fiji in 1996. In the area of information exchange, PACNET (Pacific Health Surveillance Network), an Internet-based information network, was developed in 1996 to serve as a tool to quickly disseminate information to various countries and organizations on common public health issues that occur in the Pacific Islands, such as dengue outbreaks. In collaboration with the WHO South-east Asia Regional Office, the Western Pacific Regional Office is also publishing the annual Dengue bulletin which provides information on various achievements in dengue control activities.

2.1.8 Influenza

Influenza viruses are divided into types A, B and C, with subtypes of A. Among these, influenza A is known to have caused a number of pandemics in the past that have claimed millions of lives. During this century, three major influenza pandemics have occurred, in 1918, 1957 and 1968. Most recently, in 1997, influenza A(H5N1), previously identified only in birds, was isolated among humans for the first time. A total of 18 human cases of influenza A(H5N1), including 6 deaths, were identified in Hong Kong, China from May to December 1997 (more information under Annex 12). In relation to the outbreak, a WHO mission team visited Guangdong province in the southern part of China in January 1998 to assess the influenza surveillance system, with particular emphasis on H5N1. No human or poultry cases of H5N1 infection were found. WHO H5N1 diagnostic kits had earlier been distributed to surveillance laboratories to standardize laboratory diagnosis. The team recommended that intensified influenza surveillance should be implemented in January 1998 and maintained for at least six months with full support of the central and local government.

To effectively prepare for and address influenza epidemics and pandemics, WHO has been involved in the following activities since 1948: 1) global influenza surveillance, including the identification of influenza virus subtypes, 2) vaccine composition for influenza, 3) use of antivirals in the early phases of a pandemic, 4) promotion of national plans on the control of influenza epidemics and pandemics and 5) dissemination of timely and accurate information on influenza to the public through various channels (e.g. mass media).

2.2 Summary of country reports

2.2.1 China -Overview of notifiable infectious diseases (Ministry of Health)

The 1996 and 1997 data on notifiable infectious diseases for China is shown in Annex 13. By the end of 1997, there had been no indigenous wild poliovirus associated cases for three years and two months. A total of 9147 AFP cases were reported by the national polio surveillance system in 1996 and 1997. For cholera, a 60% decrease in the incidence rate was seen between 1996 (3646 cases with 36 deaths) and 1997 (1260 cases with 32 deaths). HIV/AIDS has become
a serious problem in recent years, and an estimated 250,000 HIV infections have occurred in the
were reported respectively. Sexually transmitted diseases have also been on the increase, with a
15.8% rise in incidence from 1996 to 1997. The Ministry of Health will continue to coordinate
activities and work with other related sectors on the prevention and control of such infectious
diseases.

2.2.2 Guangdong

The 1996 and 1997 data on notifiable diseases for Guangdong province is shown in Annex
14. In 1996 and 1997, 143 HIV-positive cases were detected among 327,443 serum samples
from different groups of the population in Guangdong. Intravenous drug users with a history of
extramarital sexual contacts are at greatest risk of acquiring HIV in the province. In 1996 and
1997, there were 6 and 13 AIDS cases respectively. In recent years, waterborne-related cholera
cases have decreased while foodborne cholera cases have led to cholera outbreaks in the
province. In 1996 and 1997, 52 and 155 cholera cases were reported respectively throughout the
province. Also, 3849 cases of malaria were reported in Guangdong over the last two years.
1147 cases were identified among the 'floating population' (i.e. those from other provinces who
became infected in Guangdong) in cities, such as Shenzhen, Dongwan, Zhuhai and Guangzhou.
Priority must be taken to target the floating population for malaria control in the province. A
total of 552 AFP cases were reported in 1996 and 1997 by the poliomyelitis reporting system for
the province. Of these, 48 strains of poliovirus were isolated which were confirmed to be
vaccine-related strains by the National Poliomyelitis Laboratory. Over the last four years, no
wild poliovirus-related AFP cases have been detected in the province. As for dengue, only two
cases were reported in the province in 1996. In August 1997, a dengue outbreak (DEN-I)
ocurred in Xiangqiao district of Chaozhou city (601 cases) and in November 1997, there were
sporadic cases in Jieyang city (31 cases). No deaths were reported. Tuberculosis has been on
the increase in the province with 25,259 cases and 29,930 cases in 1996 and 1997 respectively.
High incidence rates were reported in Shantou (71.82 per 100,000), Qingyuan (59.28 per 100
000) and Jiangmen (57.20 per 100,000).

2.2.3 Hainan

The incidence and mortality rates of some communicable diseases in Hainan Province are
shown in Annex 15. Malaria is a serious public health concern, especially among peasants in the
southern mountainous areas of Hainan Island. However, in recent years, the incidence of malaria
has declined due to the use of deltamethrin-impregnated bednets, administration of
chloroquine/primaquine or piperaquine/primaquine to those entering epidemic areas, and
combined treatments to chloroquine-resistant carriers. Reported incidence of viral hepatitis -
especially hepatitis B-is increasing annually in the province. However, this may be due to better
reporting of the disease and improvements in technique and sensitivity of test kits in laboratories.
Although cholera epidemics frequently occurred in the past, surveillance has been strengthened
and as a result, the incidence of cholera has declined, with only one case in 1996 and seven cases
in 1997 (Ogawa). As for dengue, a three-year project supported by the International
Development Research Centre in Canada was started in 1991 aiming to change people’s
behaviour to eliminate aedes aegypti vector breeding sites. Since 1992, there have been no
dengue outbreaks in the province.

2.2.4 Hong Kong

In 1996 and 1997, a total of 4 and 14 cholera cases were reported respectively from
Hong Kong, China. *Vibrio cholerae* O139, biotype El Tor, serotype Ogawa was the predominant
strain. For viral hepatitis, in 1996 and 1997, a total of 477 and 736 viral hepatitis cases were
reported. Hepatitis A constituted 66% of the reported hepatitis cases, hepatitis B 19%, non-A
non-B hepatitis 7% and unclassified hepatitis 8%. Malaria activity remained stable, with 97 cases notified in 1996 and 101 cases in 1997. All were imported except for one unclassified case. As with previous years, *Plasmodium vivax* was the most frequent strain, accounting for 76% of the cases, followed by *Plasmodium falciparum* (19%) and *Plasmodium malariae* (2%). As for poliomyelitis, the National Certification Committee for Wild Poliovirus Eradication for Hong Kong was established in 1996. In line with the WHO recommendations for certification of poliomyelitis in the Western Pacific Region, an AFP surveillance system was established in 1997. In 1997, there were 28 AFP cases investigated but none tested positive for poliovirus.

By the end of 1997, a cumulative total of 309 AIDS cases and 957 HIV infections had been reported in Hong Kong. During 1996-97, 133 AIDS cases and 315 HIV cases were reported. Heterosexual contact was the predominant route of transmission. As for STDs, a survey conducted in March 1997 showed that 80% of STD infections were identified and managed in the private sector and 20% in the public. A gradual rising trend in STDs have been noted in Hong Kong. Non-gonococcal urethritis was the most common condition seen. Tuberculosis notification figures for 1996 were 6501 with 292 deaths and for 1997, 7072 with 323 deaths, while the respective tuberculosis notification rates were 103 and 108.8 per 100,000 population. There were five cases of dengue in 1996 and ten cases in 1997. All were imported cases. Information on the influenza A(H5N1) outbreak is in Annex 12.

2.2.5 Macao

As with previous years, tuberculosis and viral hepatitis are the main public health problems in Macao. For the period 1996-1997, the main communicable diseases reported were pulmonary tuberculosis (957 cases), other forms of tuberculosis (188 cases), hepatitis C (92 cases), hepatitis B (86 cases), rubella (50 cases), HIV (40 cases) and other salmonellosis (25 cases) (Annex 16). Vaccine-preventable diseases, such as poliomyelitis, pertussis, neonatal tetanus and diphtheria, have sharply declined and since 1986, only two cases of pertussis (1988, 1996) and three tetanus cases (1991, 1996-1997) have been notified. One imported case of dengue was reported in both 1996 and 1997. Also, one imported case of malaria was reported during 1996-1997. No cholera cases have been reported since 1991.

HIV surveillance and control has been carried out through the screening of blood donors, testing of individuals, screening of high risk groups (e.g. intravenous drug users) and unlinked and anonymous serosurveillance. From June 1986 to December 1997, a cumulative total of 162 HIV cases was identified among 103,497 people who were screened. For the period 1996-1997, 21 and 19 new HIV cases were identified respectively among 28,862 samples. Since 1986, there have been 11 AIDS cases, 3 of which were diagnosed during 1996 and 1997.

Since 1975, no new cases of poliomyelitis have been reported. In October 1997, an active surveillance system for acute flaccid paralysis was established. In 1997, the vaccination coverage rate against the polio virus was 88%.

2.3 Strengthening of cooperation in the surveillance and control of communicable diseases, especially on information exchange-progress for influenza

The influenza surveillance system in China is made up of surveillance sites supervised by the National Influenza Centre with support from the Centres for Disease Control (CDC), USA in Harbin, Beijing, Shanghai, Wuhan, Shenzhen and Guangxi, and surveillance sites supervised by each Provincial Centre for Hygiene & Epidemic Prevention. Following the influenza A(H5N1) outbreak in Hong Kong, H5N1 surveillance has also been established in eight sites (Guangzhou, Shenzhen, Zhourui, Shaoguan, Shantou, Zhanjiang, Foshan and Yunfu) and 11 hospitals in Guangdong province. In addition, influenza surveillance sites have been established in Henan, Hubei, Guangdong, Guangxi, Hubei and the Yunnan provinces in collaboration with
the National Institute of Infectious Diseases (NIID), Japan. An influenza survey was carried out in 1998 using H5N3 and H5N1 methods to identify serum specimens that were collected. A total of 258 specimens were surveyed and there were no positive results. H1N1 and H3N2 viruses have been identified in some parts of China. Intensified influenza surveillance will continue until 31 October 1998.

3. CONCLUSIONS

General conclusions

Participants reviewed the regional, national and local situations on communicable diseases which include HIV/AIDS, cholera, poliomyelitis, malaria, tuberculosis, viral hepatitis, dengue/dengue haemorrhagic fever and influenza. The importance of antimicrobial resistance was also stressed. Since the previous meeting, disease control programmes for such diseases have been well implemented. However, the participants recognized that the above communicable diseases still remain a public health threat in Guangdong, Hainan, Hong Kong and Macao. This is particularly important given the large floating populations and the mobility of the population in the areas concerned.

The participants concluded that collaboration is essential in the control of communicable diseases, and should be continued and strengthened in the areas of disease surveillance, information exchange and standardization of laboratory techniques between Guangdong, Hainan, Hong Kong and Macao in cooperation with the Ministry of Health, China and WHO. The further strengthening of communicable disease information exchange on disease outbreaks, such as influenza outbreaks, is necessary. Current monthly disease information exchange should be continued. The meeting proposed that WHO prepare a standardized reporting form. If possible, the number of notifiable diseases may be increased. However, the information circulated in this system should be restricted for internal operational use. If and when it is necessary to release the information to the public, agreement for release from the health authorities concerned should be obtained prior to announcement of the data (e.g. national disease figures should be obtained from the Ministry of Health; provincial and municipal data should be obtained from provincial health authorities). During outbreaks, communication among concerned parties should be made via telephone, facsimile and electronic mail (e-mail). The telephone, fax numbers and e-mail addresses for contact points where such disease information should be sent to are listed in Annex 1 of the summary report of this meeting.

Exchange of expertise among the areas should be strengthened in collaboration with the Ministry of Health, China and WHO. In particular, clinical and laboratory training on dengue and influenza diagnosis needs to be considered. WHO training programmes and modules on clinical and laboratory diagnosis as well as case management should be actively utilized for selected communicable diseases.

Specific conclusions

(1) Increasing incidence of STD and HIV was reported in all areas, and is a serious public health concern. HIV transmission through injecting drug use is the major mode of HIV transmission in some areas. Heterosexual transmission of HIV is accounting for an increasing proportion of new HIV cases in all areas. The existing significant levels of STD infection show the potential for the sexual transmission of HIV.
Progress has been made in improving HIV surveillance, STD programmes and case management. However, urgent attention needs to be given to expanding and improving STD programmes, including the effective integration of STD services at the primary health care level. Technical guidance on improving STD programmes, including STD policies, need to be further developed. STD and HIV prevention programmes, including condom promotion, should be targeted to individuals at risk, including sex workers and their clients. Sexual health education, particularly in schools, should be reinforced. Harm reduction programmes, including "clean needle" and needle exchange programmes, should be established where needed. All efforts should be made to facilitate exchange of technical experience in STD and HIV/AIDS prevention and control between participating areas.

(2) A progressive decrease in the total number of reported cholera cases and deaths was noted in the Western Pacific Region since the previous meeting. However, concerns remain about the occurrence of *Vibrio cholerae* O139 which has the potential to spread quickly and cause large outbreaks due to lack of immunity in the community. Strong surveillance for O139 is emphasized as well as reporting of it in cases where this serogroup has been isolated. For prompt containment of cholera outbreaks and prevention of the spread of an outbreak, rapid information sharing and alerting of neighbouring areas remains crucial. To avoid panic and demystify cholera from its old fearful connotations, the public should be properly informed about the particular cholera situation as well as on actions to be taken for treatment and prevention. Travel and trade restrictions between countries or different areas within a country do not have any place in cholera control.

(3) Malaria continues to decline in China. There were approximately 35,000 cases reported in 1997 and 2,802 were imported. However, the problem of underreporting should not be neglected. An analysis of the different locations in China where the imported cases were detected and the source or country of infection would be helpful in strengthening surveillance and preventive measures. Only 100 imported cases were reported in Hong Kong and one in Macao.

Yunnan, Guangxi and Hainan provinces are the main malaria endemic areas in China. Multidrug-resistant falciparum malaria occurs in areas bordering Myanmar, the Lao People's Democratic Republic and Viet Nam. Drug resistance also occurs in Thailand and Cambodia. Foreign workers, visitors and residents returning to China from these countries may require special attention, particularly if fever or undiagnosed illness occurs within two weeks after arrival. Prompt treatment is essential to prevent mortality in persons diagnosed or suspected with severe falciparum malaria. Drug regimens for treating severe and also uncomplicated malaria should be routinely updated and made available to those involved in travel, diagnosis and treatment.

(4) Tuberculosis is still a major health problem in all areas. For the last several years, the number of newly registered cases has been increasing. The increase is mainly due to improved case detection and reporting. The directly-observed treatment, short course (DOTS) which saves lives and prevents multi-drug resistance has been implemented in most of the areas.

Drug resistance surveillance was carried out in one province in China in 1997 and showed a very high rate of primary multi-drug resistance. For a comprehensive figure on drug resistance for mycobacterium in the country, drug resistance surveillance is being expanded in three other provinces including Guangdong province, in collaboration with WHO. Hong Kong has already established a drug resistance surveillance system for tuberculosis and it should continue to analyse the drug resistance data every two to three years to assess the trends of drug resistance rate. Experiences and laboratory skills on drug resistance surveillance can be shared to facilitate surveillance activities in all participating areas.
Although the impact of HIV on tuberculosis does not yet seem to be serious, enhanced surveillance on HIV/tuberculosis is required.

(5) All areas are urged to ensure that acute flaccid paralysis and virological surveillance for poliomyelitis are improved and sustained at the levels of quality required for certification. In addition, supplementary immunization must continue in high-risk areas to protect against the potential effects of importation of wild poliovirus from other Regions. It is essential that current routine immunization programmes continue until global eradication is achieved.

(6) Notable progress in viral hepatitis surveillance has been seen, particularly in the area of laboratory confirmation. Laboratory-based differential diagnosis on hepatitis A, B and C has been introduced at national and local levels. The impact of hepatitis C infection has been well documented over the last two years.

Progress has also been seen in infant HB immunization programmes. In Hong Kong and Guangdong, a decline in the incidence of HB antigen-positive rates was reported among schoolchildren. The incidence rate of HAV infection continued to decrease during the 1996-1997 period. Outbreak information on foodborne hepatitis should be disseminated in a timely manner.

(7) Dengue/dengue haemorrhagic fever has become a major international public health concern and continues to be a serious problem in both developing and newly industrialized countries/areas in the Western Pacific Region. In China, some cases were reported in 1996-1997, primarily from the southern part of the country. However, in Hainan, disease prevention measures were effectively taken and no dengue cases were reported after the 1991 epidemic. Efforts should be continued to prevent and control dengue by identifying and eliminating mosquito larval habitats. Information on dengue outbreak occurrence in other countries and areas in South-East Asia should be disseminated to Guangdong, Hainan, Hong Kong and Macao as they are at potential risk of dengue outbreaks. This could be done in collaboration with the WHO Regional Office for the Western Pacific. WHO educational materials for health professionals and the public should be actively utilized and distributed.

(8) Influenza A(H5N1), previously identified only in birds, was isolated among humans for the first time in Hong Kong in 1997. Intensified influenza surveillance was implemented in Guangdong for six months starting in March 1998 with full support of the central and local government. This intensified surveillance will continue to be maintained until the end of October 1998 and longer if necessary.

Information exchange on influenza should be strengthened to ensure that influenza outbreaks are notified in the most rapid way possible (e.g. electronic mail, fax).

Other conclusions

The participants agreed that the meeting was an effective means to share information on communicable diseases relevant to the Region as well as to discuss ways in which to further improve the surveillance and information exchange on communicable diseases. It was agreed that at future meetings, specific topics should be determined in detail. WHO will consult with all parties concerned during preparations for the meeting. In line with this, the participants agreed that the next meeting should be conducted in two years' time to review the progress made in such activities. The next meeting is planned to be held in Zhuhai, China in 2000.
<table>
<thead>
<tr>
<th>FOCAL POINT</th>
<th>NAME</th>
<th>ADDRESS</th>
<th>TELEPHONE</th>
<th>FAX or E-MAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEIJING</td>
<td>Dr Su Chong-ao</td>
<td>Director of Disease Control Division, Chinese Academy of Preventive Medicine 27 Nanwei Road, Beijing 100050</td>
<td>8610 - 63022899</td>
<td>8610 - 63022899 Ext. 2311</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEIJING</td>
<td>Dr Li Jianguo</td>
<td>Director of First Division, Department of Diseases Control, Ministry of Health, 44 Houhai Beiyan, Beijing 100720</td>
<td>8610 - 64033135</td>
<td>8610 - 64033135</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:mddcep@40p.capm.ac.cn">mddcep@40p.capm.ac.cn</a></td>
</tr>
<tr>
<td>BEIJING</td>
<td>Dr Xu Jianguo</td>
<td>Director, Institute of Epidemiology and Microbiology, Chinese Academy of Preventive Medicine P.O. Box 5 Changping 102206, Beijing</td>
<td>8610 - 61739579</td>
<td>8610 - 61730233</td>
</tr>
<tr>
<td></td>
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<tr>
<td>GUANGDONG</td>
<td>Dr He Zhaofu</td>
<td>Director of Disease Control Division, Department of Health, Guangdong Province, Guangzhou City 510060</td>
<td>8620 - 83816625</td>
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<tr>
<td>GUANGZHOU</td>
<td>Dr Luo Bufan</td>
<td>Deputy Section Chief, Epidemic Prevention Station of Guangzhou, No. 23, 3rd Zhongshan Road, Guangzhou 510180</td>
<td>8620 83828958</td>
<td><a href="mailto:gzhp@gdm.gdyt.net.com">gzhp@gdm.gdyt.net.com</a></td>
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<tr>
<td>HAINAN</td>
<td>Dr Jian Liangsheng</td>
<td>Director-General, Provincial Health Department of Hainan Province, 42 Haifu Road Haikou Hainan Province 570203</td>
<td>86-898-5323506</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>Dr Pan Xian-Hai</td>
<td>Director, Hainan Provincial Epidemic Prevention Station, Haikou City Hainan Province 570203</td>
<td>86-898 534 9518</td>
<td>86-898 5333245</td>
</tr>
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<tr>
<td>SHENZHEN</td>
<td>Dr Li Liangcheng</td>
<td>Director, Shenzhen Anti-epidemic Station Tianbei 1st Road Shenzhen Guangdong 518020</td>
<td>86 755 5609536</td>
<td>86 755 5532 595</td>
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<tr>
<td>ZHUHAI</td>
<td>Dr Lin Honglie</td>
<td>Director, Health Bureau of Zhuhai, No. 5 Jiao Yu Road Zhuhai City</td>
<td>0756 2255706</td>
<td>0756 2233641 <a href="mailto:zhwsj@pub.zuhai.gd.cn">zhwsj@pub.zuhai.gd.cn</a></td>
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<tr>
<td>HONG KONG</td>
<td>Dr Mak Kwok Hang</td>
<td>Department of Health21/F, Wu Chung House213 Queen's Road East Wan Chai Hong Kong</td>
<td>(852) 2961 8918</td>
<td>(852) 2836 0071 <a href="mailto:drkhmak@hk.super.net">drkhmak@hk.super.net</a></td>
</tr>
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</tr>
<tr>
<td>MACAO</td>
<td>Dr Koi Kuok Ieng</td>
<td>Subdirector, Macao Health, Department Avenida Do Conselheiro Ferreira de Almeida (Tap Seac), Macau</td>
<td>(853) 569 011</td>
<td>(853) 568 859 <a href="mailto:kikoi@ssm.gov.mo">kikoi@ssm.gov.mo</a></td>
</tr>
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<tr>
<td>WHO/WPRO</td>
<td>Dr B.P. Kean</td>
<td>Director, Programme Management, World Health Organization, Regional Office for the Western Pacific, United Nations Avenue P.O. Box 2932, 1000 Manila, Philippines</td>
<td>(632) 528 8001</td>
<td>(632) 521 - 1036 <a href="mailto:postmaster@who.org.ph">postmaster@who.org.ph</a></td>
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MEETING ON THE CONTROL OF COMMUNICABLE DISEASES IN GUANGDONG, HAINAN, HONG KONG AND MACAO

Hong Kong, China 2-4 June 1998

AGENDA

1. Opening ceremony
2. Adoption of agenda
3. WHO programme on the control of communicable diseases
4. Progress reports on the epidemiological surveillance and control of communicable diseases
5. Strengthening of cooperation in the surveillance and control of communicable diseases, especially on information exchange
6. Conclusion
7. Closing ceremony
8. Field visit
INFORMATION BULLETIN NO. 2

FINAL LIST OF PARTICIPANTS, OBSERVERS AND SECRETARIAT

1. PARTICIPANTS

CHINA

Beijing

Dr Wang Zhao
Director-General
Department of Disease Control
Ministry of Health
Beijing 100725
Telephone No.: 8610 - 64015605
Facsimile No.: 8610 64033122

Dr Qi Qingdong
Deputy Director
Division of International Organizations
Department of International Cooperation
Ministry of Health
44 Houhai Beiyan
Beijing 100725
Telephone No.: 8610 - 64071739
Facsimile No. 8610 - 64014332
Guangdong

Dr Liu Zoulu
Deputy Director-General
Department of Health
Guangdong Province
17 Xianlie Rd. S.
Guangzhou 510060
Telephone No. 86 20 83820677
Facsimile No. 86 20 83816417

Dr Luo Huiming
Deputy Section Chief
Epidemic Prevention Station of Guangdong Province
176 Xingong Xi Road
Guangzhou 510300
Telephone No. 86 20 844 51507
Facsimile No. 86 20 844 51502

Guangzhou

Dr Luo Bufan
Deputy Section Chief
Epidemic Prevention Station of Guangzhou
No.23 3rd Zhongshan Road
Guangzhou 510080
Telephone No. 86 20 83828958
E-mail: gzhp@gdm.gdyt.net.com

Dr Zhang Wenshan
Vice Director
Guangzhou Municipal Health Bureau
No. 182 Dongfenxi Road
Guangzhou 510180
Telephone No. 020 81085091

Hainan

Dr Bai Mingzhu
Director, Division of Disease Control
Department of Health of Hainan Province
42 Haifu Road
Haikou
Hainan Province 570203
Telephone No. 86 898 5343668

Dr Jian Liangsheng
Director-General
Provincial Health Department of Hainan Province
42 Haifu Road
Haikou
Hainan Province 570203
Telephone No. 86-898-5332506

Shenzhen

Dr Hong Wangquan
Deputy Director
Shenzhen Health Bureau
No. 5 Tianbei 1st Road
Shenzhen
Guangdong 518020
Telephone No. 86 755 5535 987
Facsimile No. 86 755 5600 967
Annex 3

Zhuhai

Dr Lin Honglie
Director
Health Bureau of Zhuhai
No.5 Jiao Yu Road
Zhuhai City
Telephone No. 0756 2255706
Facsimile No. 0756 2233641
E-mail: zhwsj@pub.zhuhai.gd.cn

Dr Chen Qi
Deputy Section Chief
Zhuhai Health Bureau
No.5 Jiao Yu Road
Zhuhai City
Telephone No. 0756-2224594
Facsimile No. 0756-2233641
E-mail: zhwsj@pub.zhuhai.gd.cn

Hong Kong

Dr K.H. Mak
Consultant (Community Medicine)
Department of Health
21/F, Wu Chung House
213 Queen’s Road East
Wan Chai
Hong Kong
Telephone No. 2961 8918
Facsimile No. 2836 0071
E-mail: drkhmak@hk.super.net

Dr T. Tsang
Acting Principal Medical Officer
Department of Health
21/F, Wu Chung House
213 Queen’s Road East
Wan Chai
Hong Kong
Telephone No. 296-18897
Facsimile No.283-60071
E-mail: tsanghof@glink.net.hk
Dr S. S. Lee  
Consultant  
Department of Health  
21/F, Wu Chung House  
213 Queen’s Road East  
Wan Chai  
Hong Kong  
Telephone No. 852-2789 4390  
Facsimile No. 852-2780 9580  
E-mail: microssl@hkucc.hku.hk

Dr Chan Wai-Man  
Assistant Director (Personal Health Services)  
Department of Health  
21/F, Wu Chung House  
213 Queen’s Road East  
Wan Chai  
Hong Kong  
Tel: (852) 2961 8891  
Fax: (852) 2836 0071  
E-mail:

Dr Lo Kuen-Kong  
Consultant Dermatologist  
Department of Health  
21/F, Wu Chung House  
213 Queen’s Road East  
Wan Chai  
Hong Kong  
Telephone No. 2540 9804  
Facsimile No. 2857 9542  
E-mail: dhkklo@hk.super.net

Dr Koi Kuok Ieng  
Subdirector  
Macao Health Department  
Avenida Do Conselheiro Ferreira de Almeida (Tap Seac)  
Telephone No. (853) 569 011  
Facsimile No. (853) 522 013

Dr Fong Hou Meng  
Specialist of Family Medicine  
Director of Health Centre  
Health and Medical Department of Macao  
Ave. Sidonio Pais  
Nº 49-51 China Plaza  
3º Andas  
Telephone No. (853) 533 525  
Facsimile No. (853) 533 524
2. OBSERVERS

CHINA

Beijing
Dr Li Jianguo
Director of First Division
Department of Diseases Control
Ministry of Health
44 Houhai Beiyan
Beijing 100720

Miss Guo Wei
Programme Officer
Department of International Cooperation
Ministry of Health
44 Houhai Beiyan
Beijing 100720

Dr Su Chong-ao
Director of Disease Control Division
Chinese Academy of Preventive Medicine
27 Nanwei Road
Beijing 100050

Dr Xu Jianguo
Director
Institute of Epidemiology and Microbiology
Chinese Academy of Preventive Medicine
P.O. Box 5 Changping 102206
Beijing

Guangdong
Dr He Zhaofu
Director of Disease Control Division
Department of Health
Guangdong Province
Guangzhou City 510060

Hainan
Dr Pan Xianhai
Director
Hainan Provincial Epidemic Prevention Station
Haikou City 570003
Hainan

Hong Kong
Dr W. L. Lim
Consultant Medical Microbiologist
Department of Health
Wu Chung House, 17th & 21st Floors
213 Queen’s Road East
Wan Chai

Dr Teresa Choy
Senior Medical and Health Officer
Department of Health
Wu Chung House, 17th & 21st Floors
213 Queen’s Road East
Wan Chai
Annex J

Macao

Dr K.M. Kam
Consultant Medical Microbiologist (PHL)
Department of Health
Wu Chung House, 17th & 21st Floors
213 Queen's Road East
Wan Chai

Dr Gloria Tam
Assistant Director (Hygiene)
Department of Health
Wu Chung House, 17th & 21st Floors
213 Queen's Road East
Wan Chai

Dr W.S. Law
Medical and Health Officer
Tuberculosis and Chest Services
Department of Health
Wu Chung House, 17th & 21st Floors
213 Queen's Road East
Wan Chai

Dr Maria Marcelina Morais
Director of Public Health Laboratory
Department of Health Services
C. Postal 3002
Macao

Dr Tong Ka Io
Head of Primary Health Care Department
Department of Health Services
C. Postal 3002
Macao

3. SECRETARIAT

Dr B. P. Kean
Director
Programme Management
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932
1000 Manila
Telephone No. (632) 528-9921
Facsimile No. (632) 536-0362
E-mail: keanb@who.org.ph
Dr K. Morita
Regional Adviser in Communicable Diseases
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932
1000 Manila
Telephone No. (632) 528-9964
Facsimile No. (632) 536-0362
E-mail: moritak@who.org.ph

Dr G. Poumerol
Regional Adviser in Sexually Transmitted Diseases and AIDS
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932
1000 Manila
Telephone No. (632) 528-9966
Facsimile No. (632) 536-0362
E-mail: poumerolg@who.org.ph

Dr N. Emiroglu
Medical Officer
Expanded Programme on Immunization
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932
1000 Manila
Telephone No. (632) 528-8001 ext. 9466
Facsimile No. (632) 536-0362
E-mail: emiroglun@who.org.ph

Dr M. Virtanen
Short-term Professional
Diarrhoeal and Acute Respiratory Disease Control
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932
1000 Manila
Telephone No. (632) 528-9976
Facsimile No. (632) 536-0362
E-mail: virtanenm@who.org.ph
Dr Dong Il Ahn  
Medical Officer  
Tuberculosis  
World Health Organization  
Regional Office for the Western Pacific  
P.O. Box 2932  
1000 Manila  
Telephone No. (632) 528-9977  
Facsimile No. (632) 536-0362  
E-mail: ahnd@who.org.ph

Dr L. Self  
Regional Adviser in Malaria  
World Health Organization  
Regional Office for the Western Pacific  
P.O. Box 2932  
1000 Manila  
Telephone No. (632) 528-9945  
Facsimile No. (632) 536-0362  
E-mail: selfl@who.org.ph

Ms Reiko Muto  
Associate Professional Officer  
World Health Organization  
P.O. Box 2932  
1000 Manila  
Telephone No. (632) 528-9470  
Facsimile No. (632) 536-0362  
E-mail: mutor@who.org.ph

Dr R. Gee  
WHO Representative  
The Office of the WHO Representative  
9-2-151 Ta Yuan  
Diplomatic Compound  
1 Xindonglu  
Dongzhimen wai  
100600 Beijing  
China  
Telephone No. (86-10) 6532-5633 to 34  
Facsimile No. (86-10) 6532-2359  
E-mail: whochina@public3.bta.net.cn
MEETING ON THE CONTROL OF COMMUNICABLE DISEASES IN GUANGDONG, HAINAN, HONG KONG AND MACAO

Hong Kong, China
2-4 June 1998

PROGRAMME OF ACTIVITIES

2 June 1998, Tuesday

0830-0900 - Registration

0900-0930 - Opening ceremony
- Welcome remarks by Ms Catherine Fok, Secretary of Health, Hong Kong
- Opening remarks by Dr S.T. Han, Regional Director
- Group photograph

0930-1000 - Coffee break (Platform Party)

1000-1020 - Introduction of Participants, Observers and the Secretariat
- Designation of Chairman, Vice-chairman and Rapporteurs

1020-1040 - Adoption of Agenda

1040-1100 - Presentation of WHO Programmes
WHO Programme on Cholera Control (Dr M. Virtanen)

1100-1120 - WHO Programme on STD/AIDS (Dr G. Poumerol)

1120-1140 - WHO Programme on Malaria Control (Dr L.S. Self)

1140-1200 - WHO Programme on Tuberculosis control (Dr Dong Il Ahn)

1200-1400 - WHO Programme on Poliomyelitis (Dr N. Emiroglu)
3 June 1998, Wednesday

0900-0930 - Progress report - Zhuhai
0930-1000 - Progress report - Guangzhou
1000-1030 - Coffee break
1030-1100 - Progress report - Hainan
1100-1130 - Progress report - Hong Kong
1130-1200 - Progress report - Macao
1200-1400 - Lunch break
1400-1430 - Strengthening of cooperation in the surveillance and control of communicable diseases, especially on information exchange
5.1 Experience of influenza A (H5N1) outbreak in Hong Kong (Dr T. Tsang)
1430-1500 - 5.2 National influenza surveillance system of China, including the latest information on H5N1 surveillance (Dr Li Jianguo)
1500-1530 - Coffee break
1530-1700 - 5.3 Discussion on improvement of cooperation activities on communicable disease control particular emphasis on information exchange
- Dinner hosted by Ms Catherine Fok, Secretary of Health, Hong Kong
**4 June 1998, Thursday**

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Number of Reported Cholera Cases in WPR, 1991-1997
## ANNEX 6

### Cases of AIDS and HIV Infection in the Western Pacific Region by Year of Report

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**TOTAL:** 12 447 751 871 906 1 205 1 303 1 604 1 856 1 225 2 496 15 556

**HIV:** 12 232 2 322 2 847 1 359 1 608 2 060 2 746 3 172 15 485 16 217 3 43 84 913

**NOTE:** No cases of HIV infection or AIDS have been reported from American Samoa, Cook Islands, Niue, Tokelau or Vanuatu. HIV totals include AIDS cases.
TABLE 3. REDUCTION IN MORBIDITY IN COMPARISON TO 1992
(CASES DIAGNOSED BY MICROSCOPE IN THOUSANDS)

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<th>1992 Baseline No. of Cases</th>
<th>1995 No. of Cases</th>
<th>% Reduction</th>
<th>1996 No. of Cases</th>
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Table 1 Latest Notification of Tuberculosis Cases by Country

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* non bold figures means data of 1993, 1994 or 1995
** all types includes new smear-positive, relapse, smear negative and extrapulmonary tuberculosis cases
## Immunization coverage and prevalence of hepatitis B infection
### Countries and areas of the Western Pacific Region

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### Notes:
- Missing data indicates no report for that year.
- HB coverage data from China not reported, but estimated as 25-30% nation wide.
### Prevalence of HCV in the Western Pacific Region

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<th>HCV serological surveillance</th>
<th>Location</th>
<th>Sample</th>
<th>Year</th>
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<td></td>
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<tr>
<td>Vanuatu</td>
<td>19%</td>
<td>1%</td>
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**Notes:** HBsAg prevalence source WHO Geneva data base 14-Nov-97
Number of Reported Dengue Cases in WPR, 1991-1997
Influenza A (H5N1)
Border meeting between China, Hong Kong and Macao
2-4 June 1998

Introduction

1. The discovery of the first human cases of influenza A (H5N1) in Hong Kong in 1997 raised global concern about the pandemic potential of the virus, which was previously known to infect birds only. The Hong Kong Department of Health collaborated with the World Health Organisation (WHO) and other international health authorities in conducting investigations and putting up control measures against this novel pathogen.

Influenza surveillance in Hong Kong

2. Hong Kong has been appointed one of the 110 WHO Collaborating Centre for Influenza Surveillance for more than three decades. The Government Virus Unit (GVU) is a WHO accredited laboratory for influenza. Prior to the discovery of influenza A (H5N1), clinical surveillance of influenza-like-illnesses (ILI) was carried out in 9 government general outpatient clinics ( GOP), while laboratory surveillance was performed by the GVU receiving specimens from public hospitals and clinics.

The first case reported in August 1997

3. The discovery of human influenza A (H5N1) was an ample demonstration of the effectiveness of the WHO global influenza surveillance system. In May 1997, a 3-year-old boy was admitted to Queen Elizabeth Hospital with signs of respiratory infection. A tracheal aspirate was taken and sent to the GVU. A non-typable influenza A virus was found, and in accordance with the standard protocol, it was sent to WHO Reference Laboratories in the US and UK for further analysis. The specimen was also sent to the National Influenza Centre at Rotterdam as part of an international networking program. In August 1997, influenza A (H5N1) was confirmed independently by the Centres for Disease Control (CDC) at Atlanta, US and the Rotterdam laboratory. WHO was informed immediately about the results. Laboratory contamination was ruled out subsequently after joint investigations by the Hong Kong Department of Health and CDC.

More cases in November and December 1997

4. Further cases of influenza A (H5N1) appeared in November and December 1997. Four cases had their onset in November and 13 cases in December. Thus, a total of 18 cases were confirmed in 1997. The age of the cases ranged from one to 60. Nine of them were children under the age of 12. The male to female ratio was 8:10. Eight cases were pre-schoolers, four were students, one was an office worker, two were domestic helpers, two were housewives and one had retired. The cases were distributed throughout Hong Kong. The latest onset date of illness was 28 December 1997.

5. The initial presentations of influenza A (H5N1) were similar to those caused by
other influenza viruses, typically an upper respiratory tract infection with high fever, sore
throat, cough, headache, malaise and myalgia. Characteristically, the virus might cause a
rapid downhill course in some patients leading to complications such as pneumonia,
elevation of liver enzymes, impaired renal function and pancytopenia. The clinical course
appeared to be more severe amongst individuals above the age of five. The overall case
fatality ratio was 33%.

**Avian influenza H5N1 in poultry**

6. On the poultry side, infection with H5N1 avian influenza virus in Hong Kong was
first documented in 3 chicken farms in Yuen Long during March and April 1997. Mortality in the chicken farm outbreaks was high. In early December 1997, chickens
infected with H5N1 avian influenza were again found in a retail market and a poultry
stall. The latter was in close proximity with the residence of two confirmed human cases.
On 21 December 1997 the virus was detected among dead chickens in a large wholesale
market, and several days later, in another farm in the New Territories.

**Mode of transmission**

7. Extensive epidemiologic and genetic studies were performed by the Hong Kong
Department of Health and the CDC to investigate the mode of transmission of the virus.
Firstly, a serologic study examined 502 serum samples from an exposed group and 419
serums samples from a non-exposed group in relation to the first influenza A (H5N1)
case. The serum was tested for antibodies against influenza A (H5N1) using a micro-
neutralisation assay developed by the CDC. It was found that poultry workers were
more likely to test positive for the antibody. Secondly, a matched case-control study
showed that poultry shopping or visiting a poultry stall a week before onset of illness
were risk factors associated with infection. Eating poultry was not a risk factor however.
Thirdly, genetic sequencing of virus isolates showed completely avian gene sequences,
indicating that reassortment with human influenza virus genes had not occurred.

8. Collectively, these studies indicated that the main mode of transmission of influenza
A (H5N1) was from bird to human. The possibility of man-to-man transmission
remained open; but even if it occurred, the efficiency of transmission at this time was
low. Further studies are being conducted that would better define the risk of infection.

**Control measures in Hong Kong**

9. A Special Investigation Team was formed in August 1997 to conduct detailed
investigation on the first case. The public was informed of the discovery and surveillance
for influenza was heightened. On 16 December 1997, an Inter-departmental Committee
on influenza A (H5N1) was formed in Hong Kong to co-ordinate measures undertaken
by different departments and bodies in the control of the disease. The major control
measures are summarised as follows.

**A. Disease surveillance**

(i) Influenza surveillance was greatly extended to cover all 63 GOP clinics and 18
sentinel private medical practitioners since January 1998. It was also enhanced for
hospital in-patients. To support increased surveillance activities, the GVU increased the number of influenza isolates processed from 400 to about 2,500 per month. Diagnostic support was also given to private laboratories in subtyping influenza viruses.

(ii) Surveillance was also stepped up amongst local chicken and a system to report unusual chicken deaths in wholesale and retail markets was introduced.

**B. Poultry control**

(i) A poultry import control system was implemented to ensure the health status of poultry entering Hong Kong, including certification, quarantine, blood testing at the border and labelling for recall.

(ii) Poultry export was temporarily suspended by mainland authorities between 24 December 1997 to 7 February 1998 to allow time for the poultry control import system to be put in place.

(iii) A slaughtering exercise was carried out in local chicken farms and all poultry at wholesale markets and retail outlets in Hong Kong during 29-31 December 1997. About 1.5 million birds were killed. The massive scale of the exercise was justified by the considerable movement of birds between farms and between markets which facilitated the spread of the infection in the local production and distribution chain.

(iv) A segregation policy on poultry was adopted. The aim was to prevent transmission of the virus from live water fowls, which were natural reservoirs of avian influenza viruses, to live chickens. The policy required the separation of live chickens and water fowls at all levels including farming, transport, slaughtering and retail.

**C. Hygiene measures**

(i) Thorough cleansing was conducted repeatedly in all poultry farms, wholesale and retail markets as well as poultry stalls in fresh provision shops. To improve sanitary conditions in poultry farms, new requirements were incorporated into the licensing conditions of these farms.

**D. Publicity**

(i) Guidelines and information sheets on influenza A (H5N1) were designed and distributed to health care professionals, poultry workers, tourists schools and child care centres.

(ii) An open forum was organised for doctors to explain the clinical and epidemiological features of influenza A (H5N1).

(iii) Information was disseminated frequently through the internet, TV/radio, newspaper columns, exhibitions and health talks. A daily press release was issued to update the latest situation during the height of the outbreak.

(iv) A hotline on influenza A (H5N1) was set up for enquiry by doctors and the public.
E. Medical services

(i) Poultry workers were offered medical examinations to look for evidence of infection. Over 1,800 blood samples were collected and these were being analysed as part of a cohort study.

(ii) GOP clinics provided extended services to the public during Sundays and public holidays. Services on weekdays were also enhanced.

WHO mission to mainland

10. In January 1998, a joint Ministry of Health (China)-WHO mission was conducted to assess the influenza situation in China with emphasis on the possibility of H5N1 infection among the human population. Other objectives included the exchange of reagents to standardise influenza laboratory diagnosis, discussing further international collaboration on emergency influenza laboratory diagnosis and possible control measures to be taken.

11. The mission found no human or poultry cases of H5N1 infection in Guangdong province and Southern China during the visit. H5N1 surveillance activities which had been implemented by the Ministry of Health in December 1997 and January 1998 in Guangdong Province were found to be of high quality. Laboratory facilities were well equipped and staffing levels were found to be adequate for routine influenza surveillance. Since January 1998, intensified levels of influenza surveillance have been initiated with full support of the central and local government.

12. The mission made some specific recommendations on surveillance in humans and animals, including laboratory surveillance. The recommendations are shown in Annex 1.

Vaccine

13. Given there is no evidence of continuing human infection with influenza A (H5N1) or evidence of spread beyond Hong Kong at present, WHO expressed that the production an influenza A (H5N1) vaccine for general use is not currently recommended. Nonetheless, WHO encouraged the development and characterisation of reference strains for vaccine production and reagents for standardisation of vaccine. "Seed" vaccines are now being developed in some centres around the world.

Conclusion

14. The control measures implemented have effectively terminated the influenza A (H5N1) outbreak in Hong Kong. No new case in human or poultry has been found so far in 1998. Nonetheless, continued vigilance is required and intensified levels of surveillance will be maintained. Hong Kong will work closely with WHO and other health authorities in the global monitoring of influenza A (H5N1).
(2) Purpose
The aim of the surveillance programme is to collect epidemiological information on the H5N1 virus in Guangdong Province and to clarify the relationship between avian flu and humans.

(3) Target population
There are two target groups:
(a) hospital patients with severe upper respiratory diseases (e.g. fever with a temperature in excess of 38°C, cough, running nose, headache), complications of pneumonia and severe illness in Intensive Care Unit from whom throat or nasopharyngeal swabs should be taken; and
(b) workers in chicken farms and chicken slaughterhouses.

(4) Surveillance period
The surveillance period would be from December 1997 to March 1998.

(5) Surveillance sites
It was decided to expand the surveillance network by extending the number of influenza surveillance sites from four to six: Guangzhou, Shenzhen, Foshan, Dongguan, Zuhai and Yunfu. Each surveillance site should then choose a number of hospitals and chicken farms as sentinel influenza surveillance sites.

(6) Sampling method
(a) Each surveillance site should choose one to three sentinel surveillance hospitals. Each sentinel hospital should collect five to ten specimens (throat swabs or throat wash) per week from patients with influenza-like illnesses and pulmonary complications. The hospital is also required to keep statistics in the internal medicine and paediatric departments on the total number of attendances and upper respiratory infection cases.
(b) Each surveillance site should choose one to three chicken farms. Each chosen farm should collect blood samples (two to three ml each) from five to ten workers.
(c) Each surveillance site should designate one or two chicken slaughterhouse(s) and collect 10-20 blood samples (two to three ml each) from each.
(d) If a worker in a chicken farm or chicken slaughterhouse shows symptoms of influenza during the blood-taking exercise, a throat swab or throat wash specimen should also be collected from that worker.

(7) Laboratory investigation
(a) Isolation of H5N1 virus: each specimen should be inoculated into six chicken embryonated eggs and two sampled eggs at 24, 48, and 72 hours for one passage. An MDCK cell line can also be used for virus isolation. The HI test or neutralization assay should be used to identify any virus.
(b) The haemagglutination inhibition test should be used to detect antibody against H5N1 virus.

4. CONCLUSIONS AND RECOMMENDATIONS

Surveillance in humans
(1) Culturing of influenza-like illness in outpatient departments, as well as in inpatients with severe acute respiratory illnesses, should be continued for at least six months, or longer if H5N1 is detected. The level of surveillance for Shenzhen is good; an increase in specimens at
Annex 12

the provincial level from 20 to 40 per month per site to 100 per month per site is recommended. The mission also recommends that virus surveillance, which is already being conducted at the Children’s Hospital in Guangzhou, be included in provincial reports. Influenza viruses isolated at this hospital should be forwarded to the municipal and provincial Epidemic Prevention Station (EPS) and on to the National Influenza Centre in Beijing. Training for EPS personnel should also be offered.

(2) Surveillance for acute respiratory illnesses should be increased as follows:

(a) Morbidity from febrile upper and lower respiratory tract illness syndromes at the virus surveillance hospitals should be reported, by age and sex, to EPS every week. These reports should also include the number of cases who have been admitted as inpatients in order to gain a better understanding of why there appear to be so few patients admitted for acute respiratory illness.

(b) Deaths caused by pneumonia and influenza should be reported to the municipal and provincial EPS at two-weekly intervals for major cities and the province. Other respiratory diseases, such as bronchitis, should be included if these diagnoses are used by doctors to identify deaths caused by lung infections.

(c) Outbreaks of acute respiratory illnesses in schools in cities with surveillance sites should be reported. Reports should lead to the culturing of selected patients for virus isolation.

(3) The mission recommends that the city and provincial data on morbidity and mortality be integrated into the WHO influenza surveillance programme in Guangdong.

Laboratory surveillance

(4) Laboratories, especially those that are just beginning to isolate influenza viruses, should identify critical pieces of equipment and other needs that will make it possible to fully implement the planned enhanced influenza surveillance for H5N1 viruses.

(5) Staffing levels should be increased proportionately in order to handle the larger numbers of specimens that are being collected. Based on experience in other laboratories the mission suggests that three laboratory staff may be required to maintain and pass MDCK cells and to process samples at the rate of 100 per week. If eggs are used in parallel, then additional staff may be needed.
It may be necessary to move staff working on other tasks temporarily in order to provide sufficient technical support for enhanced influenza surveillance. Consideration should also be given to the use of rapid screening methods to detect specimens that are positive for influenza A.

(6) Transfer of technology and additional training of laboratory staff from Guangdong Province should be organized rapidly and coordinated carefully by WHO. Training should take place at the National Influenza Centre in Beijing, at the Department of Health in Hong Kong, at the Centers for Disease Control and Prevention (CDC) in the United States of America or at the National Institute for Infectious Diseases (NIID) in Japan. Laboratory staff from the Children's Hospital in Guangzhou must be included in these training exercises. In addition, epidemiological training exercises must be incorporated into the training programme in order to integrate laboratory and disease surveillance for influenza.

(7) Techniques for virus isolation should be expanded to include cell culture and detection of viruses using haemadsorption. Serologic techniques should also be expanded to include the micro-neutralization test developed at the WHO Collaborating Centre for Influenza in the United States of America, the fluorescent antibody test using HS HA expressed in vaccinia expression vector developed at the WHO Collaborating Centre for Influenza in Japan, or other simpler tests. If serum specimens from humans must be tested rapidly (before technology transfer can occur), then arrangements should be made jointly with WHO and the Ministry of Health for samples to be sent to CDC or NIH.

(8) Maximum efforts should be made to provide additional resources to shorten the time between specimen collection and receipt of virus isolates at the National Influenza Centre in Beijing and at one of the WHO Influenza Reference Centres to three weeks for influenza A (H5N1) viruses and six weeks for viruses identified during routine surveillance. This is crucial for H5N1 viruses, but is also extremely important for ongoing routine influenza surveillance. Electronic mail between the local, provincial, national and international influenza laboratories should be established in order to facilitate rapid exchange of laboratory protocols, technical information and surveillance data.

(9) Enhanced surveillance should be extended at least until July 1998 when influenza activity normally peaks in Guangdong Province. This is necessary to monitor possible co-circulation and reassortment of H5N1 viruses with other influenza A viruses that normally circulate in humans.

(10) Consideration should be given to collaborative and comparative international studies on the impact of influenza, such as determining total influenza-related excess deaths.

Animal surveillance

(11) In the light of the potential public health implications of H5N1 avian influenza infection in humans, for which the animal reservoir is still unknown, collaboration should be strengthened between agricultural/veterinary services and medical services.

(12) Imminent serological investigations of poultry farmers should be expanded from two to four farms per sentinel site and also include staff from duck and goose farms.

Coordination

(13) The influenza surveillance system in China should be coordinated by the Ministry of Health to ensure prompt and complete transmission of epidemiological and virological data and specimens.

(14) The Ministry of Health should coordinate international input into China's National Surveillance System within the context of the WHO global influenza surveillance system.
General conclusions and recommendations

(15) Coordination and communication should be strengthened among those involved in influenza surveillance in the Ministry of Health in Beijing, the Provincial Public Health Authorities, the National Influenza Centre in Beijing, the Provincial and Municipal Prevention Stations, and sentinel sites. This can be achieved by holding regular meetings on influenza surveillance whereby experts on surveillance can share their knowledge and information. Information can be disseminated through electronic mail.

(16) Education for medical staff advising on treatment should be continued. For severe influenza, treatment should be initiated immediately using amantadine, rimantadine or aerosol applications of ribavirin.

(17) Public health authorities in China should be alerted immediately if there is a case of H5N1 in humans in the country. Collaborative efforts can then be made to apply the most appropriate response and control measures.

(18) WHO’s existing recommendations for all governments to prepare an influenza pandemic plan should be rapidly implemented.

5. ACKNOWLEDGEMENTS

The mission acknowledges the collaboration and hospitality given by the authorities of the Ministry of Health, China; Guangdong Province; Guangzhou City; Donggan City; and Shenzhen City.
### Table 1. Reported Cases and Deaths of Notifiable Infectious Diseases, Class A & B, China, 1997

<table>
<thead>
<tr>
<th>Diseases</th>
<th>1997 Cases</th>
<th>1996 Cases</th>
<th>1997 Deaths</th>
<th>1996 Deaths</th>
<th>1997 Fatality Rate (%)</th>
<th>1996 Fatality Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Plague</td>
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<td>95</td>
<td>0</td>
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<td>0</td>
<td>4.211</td>
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<td>3646</td>
<td>32</td>
<td>36</td>
<td>2.540</td>
<td>0.987</td>
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</tr>
<tr>
<td>Viral Hepatitis</td>
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<td>754778</td>
<td>1099</td>
<td>958</td>
<td>0.137</td>
<td>0.127</td>
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<td>789281</td>
<td>355</td>
<td>385</td>
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<td>0.049</td>
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<tr>
<td>Typhoid</td>
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<td>66814</td>
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<td>112</td>
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<td>0.168</td>
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<tr>
<td>AIDS</td>
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<td>80</td>
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<td>0.001</td>
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<tr>
<td>Syphilis</td>
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<td>11920</td>
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<td>0.028</td>
<td>0.000</td>
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<tr>
<td>Poliomyelitis</td>
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<td>52</td>
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<td>0.000</td>
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<tr>
<td>Measles</td>
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<td>74682</td>
<td>250</td>
<td>156</td>
<td>0.302</td>
<td>0.209</td>
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<tr>
<td>Pertussis</td>
<td>9021</td>
<td>5056</td>
<td>18</td>
<td>9</td>
<td>0.200</td>
<td>0.178</td>
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<tr>
<td>Diphtheria</td>
<td>33</td>
<td>34</td>
<td>5</td>
<td>8</td>
<td>15.152</td>
<td>23.529</td>
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<td>ECM*</td>
<td>4979</td>
<td>6167</td>
<td>291</td>
<td>344</td>
<td>5.845</td>
<td>5.578</td>
</tr>
<tr>
<td>Scarlet Fever</td>
<td>14763</td>
<td>13200</td>
<td>3</td>
<td>1</td>
<td>0.020</td>
<td>0.008</td>
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<tr>
<td>EHF**</td>
<td>43465</td>
<td>43399</td>
<td>435</td>
<td>411</td>
<td>1.001</td>
<td>0.947</td>
</tr>
<tr>
<td>Rabies</td>
<td>222</td>
<td>159</td>
<td>218</td>
<td>158</td>
<td>98.198</td>
<td>99.371</td>
</tr>
<tr>
<td>Leptospirosis</td>
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<td>13664</td>
<td>416</td>
<td>387</td>
<td>3.955</td>
<td>2.832</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>1341</td>
<td>2519</td>
<td>1</td>
<td>6</td>
<td>0.075</td>
<td>0.238</td>
</tr>
<tr>
<td>Anthrax</td>
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<td>974</td>
<td>42</td>
<td>53</td>
<td>3.423</td>
<td>5.441</td>
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<td>2954</td>
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<td>0.000</td>
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<td>Encephalitis B</td>
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<td>10308</td>
<td>370</td>
<td>379</td>
<td>3.678</td>
<td>3.677</td>
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<tr>
<td>Kala-azar</td>
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<td>127</td>
<td>0</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Malaria</td>
<td>34650</td>
<td>36683</td>
<td>46</td>
<td>27</td>
<td>0.133</td>
<td>0.074</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>634</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Neonatal Tetanus</td>
<td>4394</td>
<td>3657</td>
<td>589</td>
<td>464</td>
<td>13.405</td>
<td>12.688</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>418234</td>
<td>-</td>
<td>815</td>
<td>-</td>
<td>0.195</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2403063</td>
<td>1977128</td>
<td>5149</td>
<td>3913</td>
<td>0.214</td>
<td>0.198</td>
</tr>
</tbody>
</table>

*Epidemic Cerebrospinal Meningitis*

**Epidemic Hemorrhagic Fever**

N.B.: Poliomyelitis - 3 imported cases in 1996
- 0 case in 1997

(Data from Chinese Academy of Preventive Medicine Surveillance Unit)
Table 1 Incidence Situation of Main Infectious Diseases in Guangdong Province in 1996 and 1997

<table>
<thead>
<tr>
<th>Diseases</th>
<th>1996 Case Number</th>
<th>Incidence Rate (1/100,000)</th>
<th>Death Number</th>
<th>1997 Case Number</th>
<th>Incidence Rate (1/100,000)</th>
<th>Death Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholera</td>
<td>52</td>
<td>0.08</td>
<td>1</td>
<td>166</td>
<td>0.23</td>
<td>1</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>31230</td>
<td>45.19</td>
<td>55</td>
<td>35714</td>
<td>49.38</td>
<td>61</td>
</tr>
<tr>
<td>AIDS</td>
<td>2</td>
<td>0.003</td>
<td>2</td>
<td>5</td>
<td>0.007</td>
<td>5</td>
</tr>
<tr>
<td>EHF</td>
<td>48</td>
<td>0.07</td>
<td>1</td>
<td>48</td>
<td>0.07</td>
<td>1</td>
</tr>
<tr>
<td>Malaria</td>
<td>2530</td>
<td>3.66</td>
<td>6</td>
<td>1319</td>
<td>1.82</td>
<td>1</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>2</td>
<td>0.003</td>
<td></td>
<td>632</td>
<td>0.87</td>
<td></td>
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<tr>
<td>Lung TB</td>
<td>25259</td>
<td>36.55</td>
<td>6</td>
<td>29930</td>
<td>41.38</td>
<td>38</td>
</tr>
</tbody>
</table>

*Epidemic Hemorrhagic Fever*
Table 1. The incidence and mortality rates of the total and some communicable diseases in Hainan, 1996-1997 (1/100 000)

<table>
<thead>
<tr>
<th></th>
<th>1996</th>
<th></th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incidence</td>
<td>Mortality</td>
<td>Incidence</td>
</tr>
<tr>
<td>Total</td>
<td>159.17</td>
<td>0.23</td>
<td>146.77*</td>
</tr>
<tr>
<td>Malaria</td>
<td>53.21</td>
<td>0.01</td>
<td>47.63</td>
</tr>
<tr>
<td>Viral Hepatitis</td>
<td>48.87</td>
<td>0.00</td>
<td>58.38</td>
</tr>
<tr>
<td>Cholera</td>
<td>0.01</td>
<td>0.00</td>
<td>0.05</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.04</td>
<td>0.01</td>
<td>0.05</td>
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<tr>
<td>Gonorrhea</td>
<td>17.01</td>
<td>0.00</td>
<td>12.60</td>
</tr>
<tr>
<td>Syphilis</td>
<td>3.39</td>
<td>0.00</td>
<td>4.86</td>
</tr>
<tr>
<td>Pulmonary TB</td>
<td>—</td>
<td>—</td>
<td>27.05</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* Not including Pulmonary TB
## Reported incidence of notifiable diseases.
### Macau 1996-1997**

<table>
<thead>
<tr>
<th>CID.9</th>
<th>Diseases</th>
<th>1996</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of cases</td>
<td>Incidence rate * (10^5 inhabitants)</td>
</tr>
<tr>
<td>002</td>
<td>Typhoid &amp; paratyphoid fever</td>
<td>7</td>
<td>1.7</td>
</tr>
<tr>
<td>003</td>
<td>Other salmonellosis</td>
<td>14</td>
<td>3.4</td>
</tr>
<tr>
<td>004</td>
<td>Shigellosis</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>006</td>
<td>Amebiasis</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>011</td>
<td>Pulmonary Tuberculosis</td>
<td>475</td>
<td>114.3</td>
</tr>
<tr>
<td>010,</td>
<td>Tuberculosis - other forms</td>
<td>93</td>
<td>22.4</td>
</tr>
<tr>
<td>012-017</td>
<td>Pertussis</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>034.1</td>
<td>Scarlet fever</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>037</td>
<td>Tetanus (non-neonatorum)</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>055</td>
<td>Measles</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>056</td>
<td>Rubella (non-congenital)</td>
<td>7</td>
<td>1.7</td>
</tr>
<tr>
<td>061</td>
<td>Dengue</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>070.1</td>
<td>Hepatitis A</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>070.3</td>
<td>Hepatitis B</td>
<td>54</td>
<td>13.0</td>
</tr>
<tr>
<td>070.5</td>
<td>Hepatitis C</td>
<td>38</td>
<td>9.1</td>
</tr>
<tr>
<td>070.79</td>
<td>Other viral hepatitis</td>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>072</td>
<td>Mumps</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>084</td>
<td>Malaria</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>097</td>
<td>Syphilis (other/unspecified)</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>098</td>
<td>Gonococcal infections</td>
<td>5</td>
<td>1.2</td>
</tr>
<tr>
<td>099</td>
<td>Other venereal diseases</td>
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</tr>
<tr>
<td>279.5</td>
<td>AIDS</td>
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<td>0.5</td>
</tr>
<tr>
<td>795.8</td>
<td>HIV carrier</td>
<td>21</td>
<td>5.0</td>
</tr>
</tbody>
</table>

* : Population as on December 31 = 1996 : 415850 inhabitants; 1997 : 422046
**: Zero cases are not considered