

**For Discussion  
on 14 March 2005**

**Legislative Council Panel on Health Services**

**Preparedness Plan for Influenza Pandemic**

**PURPOSE**

This paper seeks Members' views on the Administration's proposal to increase the stockpile of antiviral for dealing with a possible influenza pandemic from 3.7 million capsules to 20 568 000 in phases, having regard to the Framework of Government's Preparedness Plan for Influenza Pandemic (the Preparedness Plan) with particular reference to avian influenza, at Annex A.

**JUSTIFICATION**

***Influenza pandemics are sudden and inevitable events***

2. Influenza pandemics are sudden, unpredictable and yet inevitable events. Influenza has been the cause of several global health emergencies during the last century and experts anticipate that the next pandemic, whenever it happens, will produce a considerable strain on public health resources. Increasing globalization is likely to exacerbate the problem. The World Health Organization (WHO) has warned repeatedly in the past year that another influenza pandemic will most definitely occur and that it would affect medical services, essential community services and cause social and political disruption and economic losses. Only those who prepare well can respond well. Therefore it is imperative that a pandemic preparedness plan be drawn up to deal with the problem. While Preparedness Plans have been developed in the Mainland, United States and elsewhere, we consulted Members on our own draft Preparedness Plan on 13 December 2004. We have updated and refined the Preparedness Plan since then, and its final version is attached at Annex A.

3. Specifically, we have updated the possible scenarios under the Alert and Serious Response Levels. Under the Alert Response Level, we have included the scenario of and activities proposed to be undertaken when there is confirmation of highly pathogenic avian influenza (HPAI) in imported birds in quarantine, in wild birds, in recreational parks, in pet bird shops or in the natural environment. The first scenario under the

Serious Response Level now depicts confirmation of HPAI outbreaks in the environment of or among poultry population in retail markets, wholesale markets or farms in Hong Kong due to a strain with known human health impact. Under this scenario, the Secretary for Health, Welfare and Food will activate the Serious Response Level upon the advice of the Director of Agriculture, Fisheries and Conservation and the Director of Food and Environmental Hygiene. We will continue to update the Preparedness Plan on a continuous basis in the light of the WHO's advice and our operating experience.

4. Moreover, since late December 2004, cases of human infection of avian influenza in Vietnam have been reported to the WHO. In early January 2005, in the light of the confirmed human cases in Vietnam and in line with the provisions of the Preparedness Plan, we initiated the Alert Response Level and stepped up communication with medical professionals and other health care providers; and stepped up health advice to the public. We are closely monitoring the situation in Vietnam as well as our neighbouring places. Since late December 2004, Vietnam has 13 confirmed human cases of avian flu. Influenza viruses have the propensity to change very readily, therefore the emergence of new influenza strains that affect humans is possible. The WHO has expressed concern that avian influenza virus may reassort its genes with those from a human influenza virus, thereby acquiring the ability to move easily from human to human and thus triggering a pandemic.

***Adequate supply of antiviral drugs helps control the spread of a pandemic***

5. An integral part of the Preparedness Plan is to increase antiviral stockpile. This has been repeatedly confirmed by the WHO and the details are set out at Annex B. In a pandemic, antiviral agents are effective both for prophylaxis and treatment. To maintain health care and other essential public services, it is necessary to provide pre-exposure prophylaxis to health care workers and other essential service workers in the public sector. In addition, in the event when massive culling of live poultry is needed, antiviral should also be provided to workers involved in the culling operation. Prophylaxis should also be provided to high risk groups living in institutions. For treatment, the amount needed has a direct relationship with the rate of attack. However, as the specific characteristics of a future pandemic virus cannot be predicted, it is difficult to predict the attack rate. We propose to adopt a rate of 15%, which was reported to be the attack rate of Hong Kong during the recent pandemic in 1968. Besides, prophylaxis should also be given to contacts identified during

outbreak investigation and contact tracing during the pre-pandemic period.

6. In the light of the WHO's recommendations, recent developments in our neighbouring places, and the fact that proactive action is taken by other places to stepping up their antiviral stockpile, the Centre for Health Protection (CHP) has reviewed our current stockpile level in consultation with its Board of Scientific Advisors. Taking into account the requirements in paragraph 5 above, CHP has recommended maintaining a target level of 20 568 000 capsules of antiviral.

7. Antiviral drugs have a shelf life of three to four years and the current supplies of the drugs are very limited. It is impossible to predict when and where a pandemic flu would strike, nor is there any certainty on the attack rate. The attack rate would be affected by a number of factors including virulence of the virus, vulnerability of the population and the effectiveness of measures to slow down transmission of virus within the society. The impact of the pandemic would depend on how well we are prepared. We do not dispute the need to stockpile and recognize the limitations and uncertainties involved. A pragmatic approach is warranted. Increasing the stockpile level from 3.7 million capsules (by an additional 16 868 000 capsules) to a level of 20 568 000 capsules would incur additional expenditure of around \$254 million. While we would liaise closely with the relevant drug suppliers to secure delivery terms, which are to the best advantage of Government as far as possible, we would not underestimate the limitations in terms of competing demands from other jurisdictions. Our target is to ensure adequate supply of antiviral while minimizing wastage. In the light of competing demands from other jurisdictions, it is likely that the delivery of the antiviral would need to be phased out over a period of six to 12 months.

***The antiviral stockpile proposal contributes to a better living and business environment***

8. The antiviral stockpile proposal is in line with the recommendations made by the WHO and will contribute to a more favourable perception of Hong Kong as a safe place for the international community to do business. The proposed measure would also contribute to the sustainability principle of providing a living and working environment and pursuing policies which promote and protect the physical and mental health and safety of the people of Hong Kong.

## **BACKGROUND**

### **Pandemic Influenza Preparedness Plan (with particular reference to Avian Influenza)**

9. Drawing from our experience in handling the SARS outbreak in 2003 and taking into account the strategies and plans developed in other places, we have drawn up the Preparedness Plan. A clear command and response co-ordination structure is now in place to cater for different Response Levels. Major measures in relation to influenza illness that are already in place in peace times include –

- (a) The surveillance (local and global) network;
- (b) Investigation and control measures;
- (c) Laboratory support;
- (d) Infection control measures;
- (e) Antiviral stockpile;
- (f) Vaccination;
- (g) Port Health measures; and
- (h) Communication

10. In the context of surveillance, for example, notification requirements for influenza H5N1, sentinel surveillance system for human influenza covering outpatient clinics and private doctors, exchange of information with Guangdong and Macao health authorities, etc. are already in place. In relation to human influenza, an annual influenza vaccination programme has been organized. This year, for example, free vaccination is provided for targeted high risk groups including health care workers, poultry workers, the needy chronically ill, institutionalized elderly and elderly (aged over 65) with chronic diseases attending public clinics. In relation to the possible advent of pandemic influenza, antiviral agents are being stockpiled (current stock is 1.7 million and would increase to 3.7 million by mid 2005) and strategies for administration of the antiviral agents have been developed and prioritization of target groups for vaccination defined. As part of the Preparedness action, we conducted a drill on an infectious disease outbreak in November 2004 to test our co-ordination and response system.

11. Once a certain Response Level is triggered by the occurrence of a particular event, the relevant activities would be carried out as appropriate. Where necessary, we would also seek to enact legislation to empower the Department of Health (DH) to enforce the relevant port health measures. The details are set out in paragraphs 19-23 in Annex A. For example, when

there is evidence of efficient human-to-human transmission of novel influenza occurring overseas OR in Hong Kong (Emergency Response Level, paragraph 22 in Annex A) we would further enhance surveillance activities. In addition to the baseline sentinel activities, DH would also monitor daily the number of novel influenza isolates from its Public Health Laboratory Services Branch, and the daily number of patients seen at Accident and Emergency Departments of hospitals and hospital admissions due to influenza-like illness. Port Health measures would also be stepped up to require inbound travelers from affected areas to declare health status and undergo temperature checks and require transit travelers to have temperature screened. Contact tracing, medical surveillance and quarantine measures on contacts would be enforced. DH and Hospital Authority would also mobilize antiviral stockpile to provide treatment to patients in defined target groups. In terms of essential medical services, depending on the need, additional hospitals would be designated for isolation and management of confirmed and suspected cases; we would also monitor closely the territory-wide utilization of public hospitals services and further re-organize or reduce non-urgent services to meet the surge in workload and demand and, where necessary, more designated clinics and/or community centres would be mobilized. We would also assess the need for closure of schools, public places, stop public gatherings and curtail non-essential activities and services.

12. We envisage that even in an Emergency Response Level situation, the response actions and strategies would need to be reviewed and revised in the light of the development of the events to ensure the most efficient use of health resources. For example, if the situation were to evolve into an epidemic with multiple communities in the population being affected, there might be heavy burden of excessive morbidity and mortality overwhelming the health care system, shortage of medical supplies (antivirals), disruption of territory-wide infrastructures (including transport, utilities, commerce etc.). The emergency response at this stage will be targeted to slow down progression of the epidemic, minimize loss of human lives in order to buy time for the production of an effective vaccine against the novel pandemic influenza strain.

13. The Preparedness Plan sets out the framework of response actions. Corresponding detailed response operations would also be initiated by individual departments depending on the relevant scenario. In addition to the relevant response surveillance, investigation, infection control etc. measures set out in the Preparedness Plan (paragraph 20 of Annex A), culling operations may be initiated as necessary.

## **FINANCIAL IMPLICATIONS**

14. Raising the antiviral stockpile level to 20 568 000 capsules would cost around \$254 million. It is estimated that the delivery of the antiviral would need to be phased out over a period of six to 12 months. Subject to the Finance Committee's approval, a capital commitment would be created for this purpose.

## **ADVICE SOUGHT**

15. Members are invited to comment on the proposal to increase the antiviral stockpile level to 20 568 000 capsules. Subject to the views of the Members, we shall submit the proposal to the Finance Committee for consideration.

Health, Welfare and Food Bureau  
March 2005

**Framework of Government's  
Preparedness Plan for Influenza Pandemic**

**Hong Kong Government Response Systems**

The Government's plan includes a three-level response system (Alert Response Level, Serious Response Level and Emergency Response Level). These levels are based on different risk-graded epidemiological scenarios relevant to Hong Kong, and each of them prescribes a given set of public health actions required. They are designed to match with the World Health Organization (WHO)'s guideline<sup>1</sup> for pandemic influenza planning.

***Alert Response Level***

2. Alert Response Level depicts the scenarios of confirmation of highly pathogenic avian influenza (HPAI) outbreaks in poultry populations **outside** Hong Kong; confirmation of HPAI **in** Hong Kong in imported birds in quarantine, in wild birds, in recreational parks, in pet bird shops or in the natural environment. Upon the advice of the Director of Agriculture, Fisheries and Conservation (DAFC), the Secretary of Health, Welfare and Food (SHWF) will activate this Response Level.

3. Another scenario depicts confirmation of human case(s) of avian influenza **outside** Hong Kong. SHWF will activate this Response Level upon the advice of Director of Health (DoH).

***Serious Response Level***

4. Serious Response Level depicts two possible scenarios. The first scenario depicts confirmation of HPAI outbreaks in the environment of *or* among poultry population in retail markets, wholesale markets or farms **in** Hong Kong due to a strain with known human health impact. Upon the advice of DAFC or Director of Food and Environmental Hygiene, SHWF will activate this Response Level.

5. The second scenario depicts the confirmation of human case(s) of avian influenza **in** Hong Kong **without** evidence of efficient human-to-human transmission. Upon the advice of DoH, SHWF will activate this Response Level.

***Emergency Response Level***

6. Emergency Response Level depicts two possible scenarios. In the

---

<sup>1</sup> World Health Organization, Influenza Pandemic Plan. The role of WHO and Guidelines for National and Regional Planning. Geneva, Switzerland, April 1999. WHO/CDS/CSR/EDC/99.1

first scenario, there is evidence confirming efficient human-to-human transmission of novel<sup>2</sup> influenza occurring overseas or in Hong Kong.

7. Efficient human-to-human transmission is defined as the ability of the virus to readily spread from person to person in the general population and cause multiple outbreaks of disease leading to epidemics.

8. Clear evidence of human-to-human spread<sup>3</sup> in the general population may be inferred when secondary cases result from contact with an index case, with at least one outbreak lasting over a minimum 2-week period in one country. In confirming efficient human-to-human transmission, one must not overlook other possible explanations, such as acts of terrorism, or an unusual ecological situation with an animal vector spreading virus to humans in different locations.

9. The second scenario under Emergency Response Level is pandemic influenza. The declaration of pandemic comes from WHO. It means the influenza strain is beginning to cause several outbreaks in at least one country, and spread to other countries, with consistent disease patterns indicating serious morbidity and mortality is likely in at least one segment of the population.

10. SHWF will activate this Response Level upon the advice of DoH.

## **Command Structure**

### ***Alert Response Level***

11. At the Alert Response Level, a simplified emergency response command structure will be put in place. The Health, Welfare & Food Bureau (HWFB), Department of Health (DH), Hospital Authority (HA), Agriculture, Fisheries and Conservation Department (AFCD) and the Food & Environmental Hygiene Department (FEHD) are the main parties assessing the nature and level of risks.

### ***Serious Response Level***

12. At Serious Response Level, a Steering Committee chaired by SHWF will be set up to steer Government response.

13. The Steering Committee will have as its core members the Permanent

---

<sup>2</sup> Novel influenza refers to 'the emergence of an influenza A virus with different haemagglutinin sub-type than strains circulating in humans for many preceding years'.

<sup>3</sup> World Health Organization, Influenza Pandemic Plan. The role of WHO and Guidelines for National and Regional Planning. Geneva, Switzerland, April 1999. WHO/CDS/CSR/EDC/99.1



Secretary for Health, Welfare & Food (PSHWF), Permanent Secretary for Education and Manpower, Permanent Secretary for Economic Development and Labour (Economic Development), Director of Agriculture, Fisheries and Conservation, Director of Food and Environmental Hygiene, Director of Health, Controller, Centre for Health Protection (Controller, CHP), Director of Home Affairs, Director of Information Services (DIS), Director of Social Welfare, Commissioner for Tourism and Chief Executive of the Hospital Authority. The committee would co-opt other senior officials and non-Government experts as circumstances warrant.

### ***Emergency Response Level***

14. At Emergency Response Level, the Steering Committee will be chaired by the Chief Executive.

15. The Steering Committee will have the Chief Secretary for Administration, the Financial Secretary, the Secretary for Justice, SHWF, the Secretary for Economic Development and Labour, the Secretary for Education and Manpower, the Secretary for Environment, Transport and Works, the Secretary for Home Affairs, the Secretary for Housing, Planning & Lands, the Secretary for Security, Director of Chief Executive's Office, DoH and DIS as its members; and will co-opt other senior officials and non-Government experts as circumstances warrant.

### **Preparedness for an influenza pandemic**

16. According to WHO, preparedness activities for an influenza pandemic should include the following key areas:

- Surveillance
- Investigation and control measures
- Laboratory support
- Infection control measures
- Provision of essential medical services
- Antiviral stockpiling
- Vaccination
- Port health measures
- Communication

### **Normal Times**

17. The following describes major activities/measures in relation to influenza illness that are already in place:

#### *Surveillance*

- Influenza A (H5N1) has been a notifiable disease in Hong Kong since

30 January 2004 and all practitioners are required to report any suspected or confirmed cases to DH.

- Sentinel surveillance system is in place to monitor influenza-like illness (ILI). The system operates through the support of a network of 64 general outpatient clinics in the public sector and some 50 doctors in the private sector. Specimens are also collected from patients for isolation and typing of influenza virus.
- Infectious disease sentinel surveillance is set up in residential care homes for the elderly, which collects information on the number of residents with ILI on a weekly basis.
- Information on hospital discharges, admission to intensive care units and deaths due to diagnosis of influenza or pneumonia are collected from public and private hospitals on a weekly basis.
- Hospital admissions of elderly home residents with provisional diagnosis of pneumonia or chest infection are being monitored.
- Monthly figures on ILI are exchanged with Guangdong and Macao health authorities.
- Information on unusual patterns of infectious diseases is exchanged with Guangdong and Macao health authorities on an ad hoc basis.
- Ongoing surveillance programme at live poultry retail outlets and monitoring of poultry farms, pet bird traders, imported birds, recreational parks and wild birds.
- Close monitoring of the number of live poultry present in Cheung Sha Wan Temporary Wholesale Poultry Market and at retail outlets.

#### *Investigation & Control measures*

- Epidemiological investigation and control measures are being conducted and implemented respectively in institution outbreaks.

#### *Laboratory support*

- Confirmatory testing for influenza is being provided to both public and private sectors.
- Typing and subtyping of all influenza isolates are performed at the Public Health Laboratory Services Branch (PHLSB) of DH. Antigenically atypical isolates would be genetically characterized and forwarded to the WHO Collaborating Centres for further analysis.

#### *Infection control measures*

- Risk-based clinical management and infection control guidelines are provided to health care providers.
- Supplies of personal protective equipment (PPE) are being maintained.
- Trainings on infection control are being provided to community, government departments and healthcare workers in public and private sectors.

#### *Antiviral*

- Antiviral agents are being stockpiled.
- Strategies for administration of antiviral are developed and prioritization of target groups for antiviral administration is defined in the scenario of pandemic influenza.

#### *Vaccination*

- Annual influenza vaccination programme is being organized around November/December each year.
- Vaccination strategies for avian influenza epidemics are developed and prioritization of target groups for vaccine administration is defined, in case a vaccine is available for avian influenza.

#### *Port Health measures*

- Prepare strategies to prevent and control human cases of avian influenza at immigration control points.

#### *Other control measures*

- Agreed protocol with the Mainland on importation of live poultry.
- Control of live birds and poultry products imported into Hong Kong.

#### *Communication*

- Health education activities are organized and health advice on prevention of influenza is provided through various means to educate the public on personal and environmental hygiene.
- Working group on risk communication formed to develop risk communication strategy and action plan.
- Members of the medical profession are being informed through e-mails, fax and post.

18. On the occurrence of a particular event, a certain Response Level might be triggered off and the major activities/measures that will be carried out under different Response Levels by key departments/organizations are set out in the ensuing paragraphs below.

#### ***Alert Response Level***

19. When there is confirmation of HPAI outbreaks in poultry populations **outside** Hong Kong, or when there is confirmation of HPAI in imported birds in quarantine; in wild birds; in recreational parks, in pet bird shops or in the natural environment **in** Hong Kong, AFCD and FEHD will carry out the following activities:

- (1) *When there is confirmation of HPAI outbreaks in poultry populations outside Hong Kong and outside the Mainland:*

- AFCD will continue with all normal activities related to surveillance; farm and wholesale market bio-security measures; communication with farmers, poultry wholesalers, and poultry transporters); and strategic planning in medication, PPE, training & response.
  - In addition, AFCD will undertake further actions related to import control:
    - Monitoring of outbreaks of HPAI overseas.
    - Liaison with animal health authority of the affected countries, overseas authorities and international animal health authorities, e.g. World Organisation for Animal Health (OIE), to ascertain the latest surveillance and epidemiological information.
    - Suspension of imports of live birds from countries with outbreaks of HPAI in the past 6 months.
    - Increased vigilance and surveillance for imported birds depending on the geographical area of the outbreak.
  - FEHD will stay vigilant in surveillance of poultry population in retail outlets and review stock of PPE.
- *(2) When there is confirmation of HPAI outbreaks in poultry populations in the Mainland:*
- AFCD and FEHD will carry out the following activities:
    - Increase surveillance and monitoring of local chicken farms, particularly sentinel birds and retail outlets (AFCD & FEHD).
    - Strict enforcement of farm biosecurity measures (AFCD).
    - Issue reminder to all livestock farmers and retailers to immediately report the presence of sick and dead birds for collection and laboratory examination (AFCD & FEHD).
    - Increase monitoring of chicken numbers to ensure all birds are accounted for (AFCD).
    - Continuation of AI vaccination for local chickens (AFCD).
    - Re-issue guidelines to farmers to remind them of the importance of good biosecurity and penalties for non-compliance (AFCD).
    - Inspect and review stock of PPE for poultry culling operations (AFCD & FEHD).
    - Arrange for influenza vaccination for staff who might be potentially involved in culling operations (AFCD & FEHD).
    - Conduct appropriate culling drills and training exercises for AFCD and FEHD staff and CAS members.
    - Suspend import of live birds (including live poultry), poultry products and day old chickens from the Mainland (AFCD &

FEHD).

- *(3) When there is confirmation of HPAI in imported bird in quarantine in Hong Kong*
  - AFCD will carry out depopulation of all birds in the quarantine centre.
  
- *(4) When there is confirmation of HPAI in the natural environment in Hong Kong*
  - AFCD and FEHD will carry out the following activities:
    - Increase surveillance and monitoring of local chicken farms, particularly sentinel birds and retail outlets (AFCD & FEHD).
    - Strict enforcement of farm biosecurity measures (AFCD).
    - Issue reminder to all livestock farmers and retailers to immediately report the presence of sick and dead birds for collection and laboratory examination (AFCD & FEHD).
    - Increase monitoring of chicken numbers to ensure all birds are accounted for (AFCD).
    - Continuation of AI vaccination for local chickens (AFCD).
    - Re-issue guidelines to farmers to remind them of the importance of good biosecurity and penalties for non-compliance (AFCD).
    - Inspect and review stock of PPE for poultry culling operations (AFCD & FEHD).
    - Arrange for influenza vaccination for staff who might be potentially involved in culling operations (AFCD & FEHD).
    - Conduct appropriate culling drills and training exercises for AFCD and FEHD staff and CAS members.
  
- *(5) When there is confirmation of HPAI in wild birds in Hong Kong*
  - In addition to the activities carried out for local farms as in the case of confirmed HPAI in the natural environment (scenario 4 above), AFCD will undertake the following measures:
    - Increase monitoring and surveillance of wild birds
    - Consider closure of wild bird parks
    - Media message for public care to avoid wild bird faeces
  
- *(6) When there is confirmation of HPAI in recreational parks in Hong Kong*
  - In addition to the activities carried out for local farms and retail outlets as in the case of confirmed HPAI in the natural environment (scenario 4

above), AFCD will undertake the following measures:

- Increase monitoring and surveillance of birds
- Consider closure and quarantine of recreational park
- Media message for public care to avoid bird faeces

➤ *(7) When there is confirmation of HPAI in pet bird shops in Hong Kong*

- In addition to the activities carried out for local farms and retail outlets as in the case of confirmed HPAI in the natural environment (scenario 4 above), AFCD will undertake the following measures:
  - Increase monitoring and surveillance of pet bird shops
  - Quarantine and closure of affected shop as well as any adjacent pet bird shops
  - Depopulation of affected pet bird shop(s)
  - Trace back of pet bird sources and contacts

*Other measures:*

- When there is confirmation of HPAI in birds **in** Hong Kong, DH will conduct contact tracing and medical surveillance for persons who come into contact with sick or dead bird(s) confirmed to be HPAI positive. Depending on the risk assessment, antiviral chemoprophylaxis and home confinement may be considered for persons who have direct contact with the sick or dead bird(s).

*Communication*

- AFCD will liaise with veterinary professionals and other animal care providers (including poultry farmers, wholesalers and transporters), and liaise with NGOs involved in wild animal work, e.g. World Wide Fund for Nature (WWF), Ocean Park, etc.
- AFCD will inform local consulates, overseas authorities and international animal health authorities (e.g. the OIE) about the local situation.
- HAD will gauge community concerns with regard to the local situation.

➤ *When there is confirmed human case(s) of avian influenza occurring outside Hong Kong:*

*Surveillance*

- Enhance surveillance programmes. (DH & HA)
- Liaise with WHO and international health authorities to monitor the global spread and impact of the infection. (DH)
- Keep in view any new surveillance definitions issued by WHO and modify local surveillance activities accordingly. (DH)

### *Laboratory Support*

- All specimens positive for influenza A virus from cases with clinical/epidemiological suspicion of avian influenza would be forwarded to the PHLSB for identification and characterization. (DH)
- Review laboratory diagnosis strategy and enhance capacity in laboratory diagnostic services, with stockpile of reagents for rapid antigen testing. (HA)

### *Antiviral*

- Review stockpile of antiviral. (DH)

### *Vaccination*

- Liaise with WHO on latest development on avian influenza vaccine, with a view to examine and update vaccination strategies and prioritization for target groups, should the vaccine become available. (DH)

### *Infection Control measures*

- Issue guidelines and health advice to residential institutions and the general public. (DH & SWD)
- Review and promulgate enhanced infection control measures where necessary. (DH & HA). Update health care workers' knowledge on infection control measures for avian influenza. (DH)
- Inspect and review stock of PPE. (DH, SWD & HA)

### *Port Health measures*

- Liaise with tourist industry and disseminate health information to outbound travelers. (DH)

### *Medical Services*

- Stockpile appropriate medications for public hospitals and clinics. (HA)
- Formulate clinical management guideline on influenza-like illness and community acquired pneumonia. (HA)
- Monitor daily bed occupancy, and review bed mobilization and compliance with admission guidelines. Assess and plan for scaling down non-emergency activities. (HA)

### *Communication*

- Liaise with medical professionals and other health care providers. (DH, HA & SWD)
- Gauge community concerns with regard to the local situation. (HAD)
- Disseminate information and step up health advice to public through various means including press releases, pamphlets, APIs, website, and incorporate health messages in ongoing health education activities. (DH & HAD)

- Promulgate health advice to clients. (HA)

### ***Serious Response Level***

#### ***➤ Confirmation of HPAI outbreaks in the environment of or among poultry population in Hong Kong:***

20. When there is confirmation of HPAI outbreaks in the environment of *or* among poultry population in retail markets, wholesale markets or farms in Hong Kong due to a strain with known human health impact, in addition to the measures related to surveillance of farms and retail outlets as in the case of confirmed HPAI in the natural environment (i.e. scenario 4 under the Alert Response Level above), the following activities will be carried out:

- AFCD will:
  - Increase monitoring and surveillance of pet bird shops.
  - Increase monitoring and surveillance of birds in recreational parks in association with LCSO and country parks and wetland parks.
  - Quarantine and monitor pets in contact with infected poultry or human cases.
  - Monitor and test local pig farms.
  - Suspend export of non-food birds from Hong Kong.
- FEHD will suspend the import of all live poultry.

#### ***Major culling operation (Operation Season)***

- Upon activation of the operational order for the culling of live poultry in Hong Kong (Operation Season) by PSHWF, AFCD will implement the culling of live poultry in farms, wholesale markets and FEHD at retail outlets. DH, HA and EPD will also assist in the implementation of Operation Season.

#### ***Communication***

- AFCD will liaise with veterinary professionals and other animal care providers (including poultry farmers, poultry traders and poultry wholesalers), and liaise with NGOs involved in wild animal work, e.g. WWF, Ocean Park, etc.
- AFCD will inform local consulates, overseas authorities and international animal health authorities (e.g. the OIE); and also brief legislators, community, the media and relevant businesses about the local situation.



DH will carry out the following activities:

*Surveillance*

- Monitor hospital admission due to flu-like illnesses for poultry workers. (DH, HA)
- Conduct surveillance for poultry workers of affected farms. (DH)
- Conduct sero-prevalence study on poultry workers. (DH)
- Monitor health status of cullers. (DH)

*Laboratory support*

- Conduct laboratory testing for rapid detection of avian influenza, virus isolation and characterization on specimens from human cases with epidemiological links to infected poultry and with clinical features consistent with AI infection. (DH)

*Antiviral*

- Review stockpile of antiviral agents and other medications and make initial preparations for mobilizing stockpile. (DH)

*Communication*

- Set up telephone hotlines to answer enquiries from poultry workers and cullers. (DH)
- Inform WHO, other health authorities outside Hong Kong and medical professionals and health care workers of the updated situation of local infection among poultry. (DH)

➤ *Confirmed human cases in Hong Kong (without evidence of efficient human-to-human transmission)*

21. When there is confirmed human case(s) of avian influenza in Hong Kong without evidence of efficient human-to-human transmission, in addition to the activities conducted at Alert Level, the following activities would be carried out:

*Surveillance*

- Enhance surveillance activities, including zero reporting from public and private hospitals on cases due to influenza A (H5) or novel influenza virus. (DH)
- Review surveillance criteria. (DH & HA)
- Activate “e-flu” and other information systems to monitor cases and contacts in real-time. (DH & HA)
- Enhance surveillance of wild birds, recreational parks, pet bird shops and poultry. (AFCD & FEHD)

*Investigation and control measures*

- Conduct epidemiological investigation to determine whether the case is acquired locally or outside Hong Kong; identify the source of

infection and ascertain the mode of transmission. (DH)

- Conduct contact tracing, medical surveillance and enforce quarantine measures on contacts of cases as appropriate to the situation. (DH, SWD & HAD)

#### *Laboratory support*

- Conduct rapid avian influenza testing on ILI and pneumonia cases. (DH)
- Transfer of rapid test technology to the Hospital Authority. (DH)
- Increase laboratory capacity for rapid testing to assist diagnosis. (DH & HA)
- Confirmation of all rapid test positive test cases by PHLSB. (DH)
- Perform avian influenza specific serology on close contacts. (DH)
- Perform antiviral resistance testing on avian influenza isolates. (DH)
- Coordinate with universities to perform gene sequencing on all avian influenza isolates. (DH)
- Send isolates to WHO Collaborating Centres for further analysis and comparison and to discuss on diagnostic and vaccine development. (DH)

#### *Infection control measures*

- Review stock of personal protective equipment (PPE). (DH & HA)
- Review visiting policy in HA hospitals. (HA)
- Enhance and/or review infection control measures according to the latest knowledge on the transmission route of avian influenza. (DH & HA)

#### *Antiviral*

- Review stockpile of antiviral agents and other medications and make initial preparations for mobilizing stockpile. (DH)

#### *Port Health Measures*

- Review and modify port health measures and enact legislation, where necessary, in the light of WHO latest guidelines. (DH)

#### *Vaccination*

- Liaise with WHO on the latest development and supply of the new vaccine. (DH)

#### *Essential medical services*

- Set up designated clinics and protocol for triaging patients with influenza-like illness at primary care level. (HA)
- Isolate and treat confirmed cases in designated hospitals. (HA)
- Update / revise clinical guidelines on management and related admission criteria for various specialties. Further reduce non-urgent and non-emergency services where necessary. (HA)

- Start discussion with private hospitals on patients transfer/ diversion and sharing of clinical workload. (HA)

#### *Other measures*

- Provide relief measures, counseling services and temporary residential placement for needy persons. (SWD)

#### *Communication*

- Communicate with and disseminate information to hospitals, medical professionals in the private sector and other health care workers. (DH)
- Strengthen public communication including set up telephone hotlines, conduct regular press briefings, briefings to legislators and community leader, etc. (DH & HAD)
- Educate the public on use of personal protective equipment and practices. (DH & HA)
- Monitor community response and concerns. (DH & HAD)
- Brief Consulates and relevant businesses about the local situation. (DH)
- Liaise with WHO and other health authorities on the local situation. (DH)
- Liaise with WHO on international practice regarding travel advice. (DH)

#### *Culling Operation*

- On detection of a local human case of H5N1 infection which cannot be confirmed to be an imported case, PSHWF may activate the operational order (Operation Season). AFCD, FEHD, DH, HA and EPD will assist in the implementation of Operation Season. Depending on circumstances, pet birds may also be included in the culling operation.

### ***Emergency Response Level***

22. When there is evidence of efficient human-to-human transmission of novel influenza occurring overseas OR in Hong Kong, in addition to the measures taken at Serious Response Level, the following activities would be conducted:

#### *Surveillance*

- Monitor daily the number of novel influenza isolates from PHLSB. (DH)
- Monitor daily number of patients seen at Accident & Emergency Departments of hospitals and hospital admissions due to influenza-like-illness. (DH & HA)

### *Laboratory support*

- Perform vaccine efficacy study if vaccine is available. (DH)

### *Port Health Measures*

- Require inbound travelers from affected areas to declare health status and undergo temperature check, and require transit travelers to have temperature screened. (DH)
- Require outbound travelers to declare health status and undergo temperature check. (DH)

### *Antiviral*

- Mobilize antiviral stockpile to provide treatment to patients in defined target groups with presumptive diagnosis of novel influenza and administer chemoprophylaxis for defined target groups. (DH & HA)

### *Vaccination*

- Liaise with WHO regarding the latest development in vaccine production and supply. (DH)
- When new influenza vaccine is available, set up vaccination posts and administer vaccine according to defined priorities. (DH)
- Monitor vaccination reactions and adverse effect. (DH)

### *Essential medical services*

- Designate additional hospitals for isolation and management of confirmed and suspected cases. (HA)
- Monitor closely the territory-wide utilization of public hospital services and further re-organize or reduce non-urgent services to meet the surge in workload due to the influenza epidemic. (HA)
- Mobilize convalescent hospitals/wards and private sector to increase capacity to treat acute cases. (HA).
- Review and promulgate updated guidelines and protocols on diagnosis, treatment and admission criteria. (HA)
- Mobilize more designated clinics and/or community centres in collaboration with the private sector and voluntary agencies where necessary. (DH, HA & HAD)
- Review and update protocols on research projects in collaboration with academia, private sectors and international organizations. (DH & HA)

### *Public Health Measures*

- Assess the need for closure of schools, public places, stopping public gatherings & curtailing non-essential activities & services. (DH)
- Enact legislation to enable enforcement of control measures. (DH)
- Prepare for the 24-hour operation of the six crematoria. (FEHD)

### *Other measures*

- Handle animals abandoned by households who are concerned about

animal involvement and conduct surveillance and monitoring on animal populations which have not yet been shown to be significant in disease transmission. Should novel animal populations become implicated in disease transmission, these will have to be dealt with on a case by case basis. (AFCD)

*Communication*

- Provide daily updates of the course of the epidemic and governmental response plans and actions. (DH)
- Step up public education on use of personal protective equipment and practices. (DH)
- Educate the public on the use of chemoprophylaxis and vaccination programmes. (DH)
- Educate the public regarding self-management of influenza like illness and when and how to seek treatment. (DH)
- Communicate closely with private health sector for sharing of expertise and workload. (HA)

23. When there is efficient human-to-human transmission occurring locally resulting in high attack rate among the population, actions taken at Emergency Response Level would be reviewed and the strategy revised as appropriate to ensure the most efficient use of health resources. As the situation evolves to epidemic with multiple communities in the population being affected, the following scenarios might occur: heavy burden of excessive morbidity and mortality overwhelming the health care system; shortage of medical supplies (e.g. antiviral); disruption of territory-wide infrastructures (including transportation, utilities, commerce and public safety). The purpose of emergency response at this stage will be to slow down progression of the epidemic, minimize loss of human lives, in order to buy time for the production of an effective vaccine against the novel pandemic influenza strain. Specifically, surveillance activities would be limited to essential elements, case investigation and quarantine measures would be scaled down or abolished, and avian influenza testing would not need to be performed on all patients with influenza symptoms. Antigenic analysis would be carried out on all isolates while gene sequencing would be performed for selected isolates.

**WHO Recommendation on  
the Stockpiling of Antivirals for Influenza Pandemic**

**WHO meeting in Geneva: influenza pandemic response**

1. On December 13-15, 2004, the World Health Organization (WHO) convened a meeting in Geneva: *“Consultation on WHO Recommended National and International Measures Before and During Influenza Pandemics”*. Public health officials from many countries were invited to participate and share their views on preparation for pandemic influenza. The Controller of CHP and a Consultant from CHP attended this meeting.
2. The consultation aimed to update the WHO influenza pandemic plan dated 1999, entitled *“Influenza Pandemic Plan. The Role of WHO and Guidelines for National and Regional Planning”*. The new WHO influenza pandemic plan arising from the Geneva meeting in December 2004 is expected to come out in a few months’ time. In this plan, WHO will specify a set of actions that all countries should take in different phases of an influenza pandemic. WHO strongly urges that each country develop its own national influenza pandemic plan with reference to this document.

**WHO recommendations**

3. Previous WHO documents have repeatedly emphasized the important role of maintaining an antiviral stockpile against pandemic influenza. WHO recommends that antivirals are effective for both treatment and prophylaxis. They have a significant beneficial impact in reducing morbidity and mortality during a pandemic. In its *“Influenza Pandemic Plan. The Role of WHO and Guidelines for National and Regional Planning”* (1999), WHO states that as part of pandemic planning, it would be appropriate to ensure that mechanisms exist to import, license and use those drugs (antivirals) already approved in some countries, and to maintain a supply adequate for critical needs which might arise, such as protection of health care staff and laboratory workers who may be exposed to a new virus.

4. In “*WHO consultation on priority public health interventions before and during an influenza pandemic*” (16-18 March 2004), the following conclusions regarding antivirals were made:
  - ◆ Stockpiling of drugs (antivirals) in advance is currently the only way to ensure sufficient supplies at the start of a pandemic. Governments with adequate resources should consider pursuing this option as a precautionary measure
  - ◆ Establishment of an international stockpile of antivirals should be considered for use for specific objectives in the pre-pandemic period, when opportunities for averting a pandemic or delaying its further spread are likely to be greatest. An international stockpile could not be used to meet the needs of individual countries once a pandemic is fully under way
5. WHO further issued a “*WHO Guidelines on the Use of Vaccines and Antivirals during Influenza Pandemics*” in 2004 that antivirals constitute a key component for a comprehensive pandemic response for countries that possess the necessary resources. WHO recommends national authorities should consider developing plans for ensuring the availability of antivirals and stockpiling antivirals in advance. WHO further said that “*the influenza antivirals currently in use will likely be effective in the prophylaxis and therapy of illness caused by a new pandemic virus. However, supplies would quickly be exhausted in the first part of the pandemic, when vaccine is not yet available and demand for an alternative control tool would be greatest. Advance stockpiling of the drugs for special purposes or special populations is one solution. As the drugs are relatively stable, stockpiling is feasible.*”
6. The recent WHO consultation in Geneva in December 2004 reiterated the importance of national authorities to consider the development and use of a domestic stockpile of antivirals in their national actions, in accordance with the new WHO pandemic plan which will be release soon. WHO has warned recently that the world is closer than ever to a new influenza pandemic, which can kill an estimated 2 million to 50 million people. Moreover, there is international consensus that a vaccine effective against a novel pandemic influenza strain will not be readily available during the first wave of the pandemic, and that antivirals represent the only specific intervention during the initial response.