



ALERT, ENHANCED SURVEILLANCE AND MANAGEMENT OF AVIAN INFLUENZA IN HUMAN

Coordinated by:

**Communicable Disease Surveillance Section,
Disease Control Division
MINISTRY OF HEALTH MALAYSIA**

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These general guidelines aim to provide a basis for responding to an outbreak of avian influenza in a locality in Malaysia. They take into consideration the WHO recommendations as stated in the press statement of 27 January 2004, which were

- i. containment of the outbreak in poultry by identifying affected areas and implementing appropriate control measures.
- ii. strengthening surveillance to detect H5N1 in humans and poultry.
- iii. protecting those who are at risk of acquiring H5N1 infection – health care workers and those in contact with infected animals.

These guidelines are partly based on the previous guidelines for managing and investigation of SARS. The guidelines include an overall approach to the enhanced surveillance and alert level for avian influenza, public health response, managing a case of avian influenza and laboratory investigations protocol.

The guidelines were prepared from contributions by multi disciplinary groups - epidemiologists, infectious disease physicians, virologists and public health physicians from Hospital Division and Disease Control Division.

It is hoped that these guidelines will be beneficial to the implementers at all levels when an outbreak of avian influenza occurs. It is hoped that with the same spirit of collaboration, a more coordinated rapid response mechanism can be achieved and the outbreak can be contained in an organised manner.

1.0 INTRODUCTION

1.1 Background

Fowl plague was first described in 1878 as a serious disease of chickens in Italy. It was determined in 1955 that fowl plague virus is actually one of the influenza viruses (Beard). Highly pathogenic avian influenza viruses have periodically occurred in recent years in Australia, England and Pakistan with H7; and South Africa, Scotland, Ireland, Mexico and the United States with H5. In 1961, a strain designated H5N1 was discovered in some birds from South Africa but it was harmless to human (Love, 1998).

Avian influenza does not normally infect species other than birds. The first documented infection of humans with an avian influenza virus occurred in Hong Kong in 1997, where the H5N1 strain caused severe respiratory diseases in 18 humans of whom 6 died. The recent outbreak in Viet Nam and Thailand showed that close contact with infected poultry was the source of human infection.

1.2 Pathogenesis of the disease

Avian influenza (AI) is caused by influenza virus type A. The waterfowls act as reservoirs for the virus. Migrating waterfowls are significant sources of the AI viruses by carrying them in their intestinal tract and shedding them in their faeces. The birds contaminate the water and environment of their resting places; especially along their migrating routes. Viruses in faeces and water can remain viable for up to 32 days (Anonymous, 2003).

The domestic poultry can be infected when they drink the contaminated water. The infected poultry shed virus in saliva, nasal secretion and faeces in the first two weeks of infection (Cardona). Influenza A can infect other mammals as the virus gain entry using receptors common to many species (Love, 1998).

The exact mode of transmission of avian influenza virus to human is not known. Limited studies in Hong Kong during 1997 outbreak showed that human was infected through close contact with the infected poultry. Poultry kept in wet markets was considered the source of infection for 17 of the 18 human cases in this outbreak (WHO 2004). Human-to-human transmission of avian influenza has never been demonstrated (WHO, 2004)

Man inhales the influenza virus from the infected poultry and reproduces it in the lining of the lungs. The tissues then become swollen and inflamed. Young children and old people are at a higher risk of getting symptoms and complication because their immune system are slower to respond to the replication rate of the virus.

However influenza viruses are very sensitive to most detergents and disinfectants and are killed by them (Cardona).

1.3 Brief epidemiology of recent outbreaks

On December 15, 2003, South Korea confirmed a highly contagious type of AI in a chicken farm near Seoul and began a mass culling of poultry when the virus rapidly spread across the country. In late December, 2003 and early January 2004, Taiwan, Viet Nam and Japan reported AI and destroyed their infected poultry. In late January, Cambodia, Thailand, Indonesia, Pakistan, Laos and China reported AI outbreaks among their chickens. All countries reported influenza virus A H5N1 except Pakistan (H7) and Taiwan (H5N2). More than 100 million birds either died from the disease or were culled in efforts to contain the outbreaks.

On January 11, 2004, World Health Organisation (WHO) confirmed that three (3) human deaths in Viet Nam were linked to AI. On January 26, 2004, Thailand reported its first human death from AI. When the outbreaks were over in February 2004, there were 24 deaths due to AI / H5N1.

In late June 2004, a second wave of H5N1 infection among poultry occurred in China, Indonesia, Thailand and Viet Nam. The second wave claimed five human victims, four in Viet Nam and one in Thailand. Since December 2003 until September 21, 2004, WHO had reported 40 cases of avian influenza in man (Table 1). Twenty nine of them succumbed to the disease.

Table 1: number of avian influenza cases in the present AI outbreak

Countries	Case	Death
Thailand	13	9
Viet Nam	27	20
TOTAL	40	29

On 27 January 2003, WHO in its press statement recommended that countries should consider these issues as priorities in dealing with avian influenza. They are

- i. containment of the outbreak in poultry by identifying affected areas and implementing appropriate control measures.
- ii. strengthening surveillance to detect H5N1 in humans and poultry.
- iii. protecting those who are at risk of acquiring H5N1 infection – health care workers and those in contact with infected poultry.

2.0 OBJECTIVE

This document provides a guide in surveillance and management of avian influenza case(s) in human.

The approach is quite similar to SARS management but less intensive in the level of infection control. Even though there is no evidence yet to prove human-to-human spread, cases are, as a precaution, to be treated in an isolation ward.

3.0 ALERT MECHANISM

3.1 Risk assessment

The State Health Departments are to collaborate with their respective State Veterinary Departments for information / status of avian influenza in their state.

3.2 Alert criteria.

Alert criteria is an operational definition to ensure that appropriate infection control and public health measures are implemented until avian influenza has been ruled out.

The criteria include situations where:

- i. there is more than 3 % unexplained deaths among chicken occurring in a poultry farm as informed by Department of Veterinary Services (DVS).
- ii. a suspect case of A / H5 in poultry / bird without human case
- iii. a suspect case of A / H5 in poultry / bird **AND** human
- iv. an unusual increase of influenza-like illness (ILI) cases in a locality.
- v. a cluster (two or more) unexplained death(s) due to respiratory disease (acute respiratory syndrome / atypical pneumonia) in children from the same locality.

3.3 CASE DEFINITION FOR AI SURVEILLANCE

This case definition is based on the Kelantan experience in the recent AI outbreak in poultry. This case definition has been agreed upon by the national technical committee.

3.3.1 Patient under Investigation

Patient under investigation is any individual presenting with **fever (temperature >38°C)**

AND

one or more of the following symptoms: **cough; sore throat; shortness of breath;**

AND

having been in direct contact with dead poultry or birds during the last 7 days prior to the onset of symptoms.

3.3.2 Suspect influenza A/H5 case

1(a): Any individual presenting with **fever (temperature >38°C)**

AND

one or more of the following symptoms: **cough; sore throat; shortness of breath;**

AND

Living within / history of visiting to **300 meter radius** from the index house / farm of the confirmed A/H5 among birds/chickens in an affected area gazetted by DVS **AND** having been in direct contact with **birds / poultry** during the last 7 days prior to the onset of symptoms

OR

Living outside the 300 meter radius but within **10 kilometer radius** from the index house / farm of the confirmed A/H5 among birds/chickens in an affected area gazetted by DVS **OR** history of visiting that area **AND** having been in direct handling with **dead or ill birds / poultry** in that area during the last 7 days prior to the onset of symptoms

OR

having **worked in a laboratory** during 7 days prior to the onset of symptoms where there is **processing** of samples from human or animals that are **suspected of having highly pathogenic avian influenza (HPAI)** infection.

1(b): Death from an **unexplained acute respiratory illness**

AND

one or more of the following:

- a. residing within **1 kilometer area** where **HPAI is suspected or confirmed** in human or animal;
- b. having been in **direct contact** during the last 7 days prior to the onset of symptoms with a **confirmed case of Influenza A/H5** among poultry or human during its infectious period (starting from a day before the onset of symptoms up to 7 days after onset of symptoms).

3.3.3 Confirmed influenza A/H5 case

An individual for whom laboratory testing demonstrates one or more of the following:

- a. positive viral culture for Influenza A/H5;
- b. positive PCR for Influenza A/H5;
- c. immunofluorescence antibody (IFA) test positive using Influenza A/H5 monoclonal antibodies;
- d. 4-fold rise in Influenza A/H5 specific antibody titre in paired serum samples.

4.0 MEDICAL RESPONSE OF AVIAN INFLUENZA CASE(S)

4.1 Patient management

4.1 (a) Suspect influenza A/H5 Case

See **Annex 1** for clinical case description and management of AI case.

Any case diagnosed or treated as suspect avian influenza (fulfil the criteria) must be notified to the nearest District Health Office (DHO) for action and the patient is to be admitted into an isolated ward / room in a designated hospital / district hospital as the

situation warrants (see paragraph 5.1, 4 (i)) Please refer to the flow chart of case notification in figure 1.

The patient's daily progress while in ward should be sent to Disease Control Division, Ministry of Health (MOH) at or before 10.00 am until the patient is discharged using format in **Annex 3**.

4.1 (b) Patient under Investigation

These patients **might not be admitted**. Laboratory investigations including PCR for influenza should be done for these cases. The virological investigations should be done and coordinated by the staff in isolation ward. Patients **need not be notified but report should be sent** to the nearest Health Office. The patient should be put under **active daily home surveillance** (ADHS) for a week or until the virological investigation result comes back.

If the PCR result is positive for H5, case must be admitted to isolation ward for further management and do contact tracing. If it is negative, the ADHS can be stopped.

4.2 Laboratory management

Refer **Annex 4**, prepared by Institute for Medical Research (IMR). Please contact Virology Unit, IMR for further clarification at 03-40402346.

History of exposure **MUST** be written in all request form for AI test.

4.3 Feedback

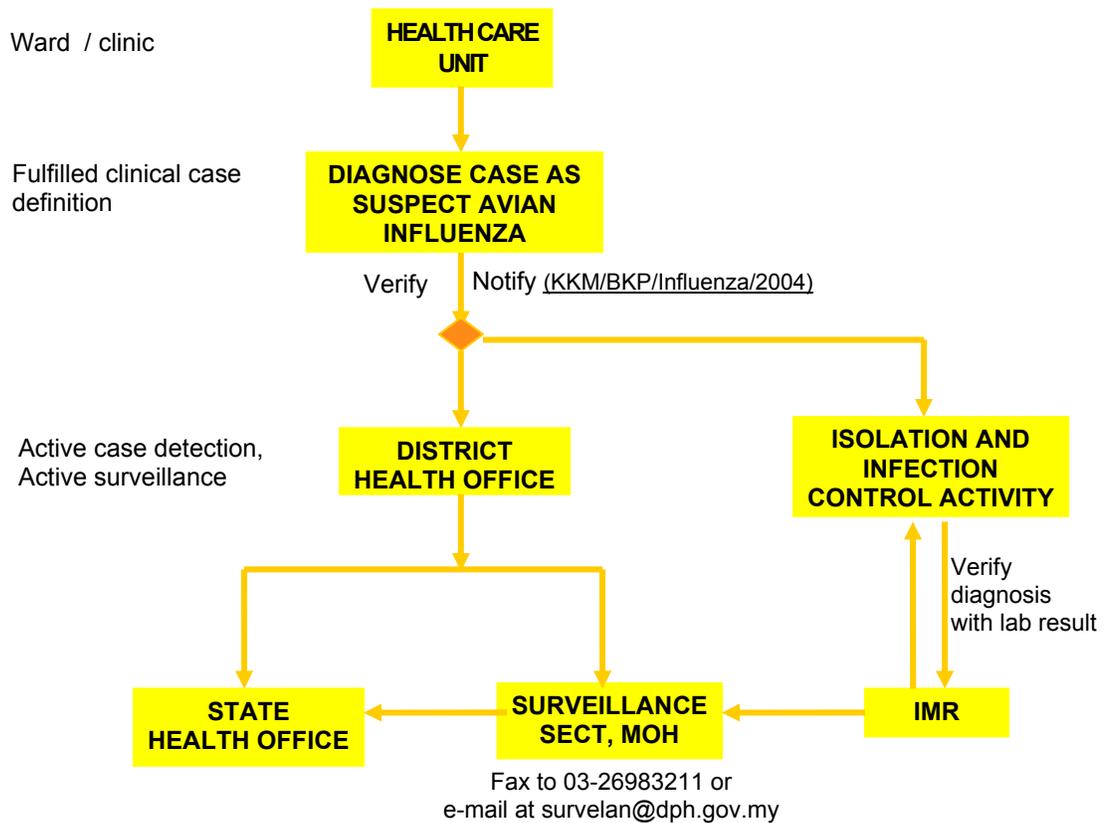
Report of avian influenza surveillance will be incorporated in "*Laporan Harian Avian Influenza*" and disseminated to the State Deputy Health Director (Health) and State Health Epidemiologist.

4.4 Role of General Practitioners (GPs)

All Medical Officers of Health (MOHs) are requested to inform the private general practitioners (GPs) in their respective districts to be more vigilant on influenza and acute respiratory syndrome cases; and to refer any suspect case of avian influenza according to the case definition to the nearest government hospital for further management / transport arrangement to the designated hospitals.

The general practitioners should take a history of travel to and/or contact with poultry in HPAI affected areas within the country or outside the country if the patient(s) has symptoms suggestive of avian influenza. This is to increase the index of suspicion for picking up AI cases amongst the patients with clinical symptoms of influenza.

Figure 1: Notification Process of AI suspect case



District Health Office (DHO) should be in contact with the local Veterinary Services Department for prevalence / incidence of infected or dying birds and poultry or of confirmed HPAI among them in the district in order to be able to delineate the affected areas of HPAI transmission.

5.0 PUBLIC HEALTH RESPONSE

5.1 When virus A/H5 in poultry is detected in an area:

1. The District Health Office should carry out **active case detection (ACD)** immediately in humans within the area of **300 meter radius (within the affected area)** from the place where virus A/H5 was detected in poultry/birds. ACD is to be carried out until all houses in the area are covered. Health Alert Card should also be given to those not having any symptoms, advising them to seek treatment if they have influenza symptoms (**annex 5**). Mopping up ACD can be carried out if there is enough manpower to do the activity.

2. In the area between **300 meters to 10 km (within affected area)** from the place where virus A/H5 was detected in poultry / birds, public announcement and mass **health education** on avian influenza should be carried out to advise people to seek early treatment at nearby health clinic/hospital. **Active Case Detection (ACD) is not necessary.** Intensive health education activities should be carried out in the area between 300 meters to 1 km.
3. In both areas, health education materials should be distributed, and where necessary, **Health Alert Cards** should be given for guidance of the people.
4. When a patient is **suspected** of having influenza A / H5:
 - i. He/she should be admitted to the **designated hospital. Isolation requirements are to be carried out as for SARS patient without the need for negative pressure room. If the number of suspect cases is large, for logistics purposes, the patients may be isolated and managed in the nearest district hospital. Only patients who are too ill to be managed at district hospitals, should be referred for management in the designated hospital.**
 - ii. The Medical Officer in the ward is to notify all suspect AI cases to the State AI Operational Room immediately.
 - iii. Clinical specimens are to be taken according to the laboratory guidelines given, while patient is in the ward. Sending of specimens to reference laboratory (IMR) for confirmation of influenza virus A / H5 should be coordinated by Microbiology Department at state hospital (in collaboration with State Health Department AI Operation Room). See laboratory guidelines in Annex 4
 - iv. All family members of the suspect AI case are to be placed on one week **active daily house surveillance.**
5. If patient stays within **300 meter radius of the index house/farm (within affected area)**, has fever **>38°C** with **ANY** of the following symptoms: **cough; sore throat; difficulty in breathing;** but **WITHOUT** the history of close contact with dead chicken during 7 days prior to the onset of symptoms, they should be put on one week **active daily house surveillance**
6. One week **active daily house surveillance** should be applied to those families who stayed within 300 meter radius (affected area) **WITH unexplained death** among poultry / birds at their residences.
7. **Chicken death exceeding 3% of the total chicken in the farm** in the area (as verified by the Veterinary Department) but virus A/H5 infection still not detected:

- i. public education to general public on avian influenza advising people to seek early treatment if symptoms develop
- ii. Daily active house surveillance for a week on people in the area who had **fever >38°C** with **ANY** of the following symptoms: **cough; sore throat; difficulty in breathing; AND** with the history of having been in close contact with dead birds/chickens during 7 days prior to the onset of symptoms.

5.2 Enhanced Influenza Surveillance

The two existing surveillance systems should be enhanced.

1. **Lab-based surveillance** of influenza virus which involved sentinel sites in a few states. Institute for Medical Research (IMR) and Microbiology Department of University Malaya Medical Centre (UMMC) are the 2 designated National Influenza Centre (NIC) which formed part of the WHO global network of laboratories for influenza surveillance set up with the purpose to track the emergence of any new or novel strains of influenza virus that may spark a pandemic. All isolates are sent by IMR to the WHO Collaborating Reference Influenza Laboratory for subtyping. The NICs also report the types of the circulating influenza virus to World Health Organisation (WHO) for vaccine formulation. So far no H5N1 was reported in human.

It is the responsibility of these two designated laboratories to report to the requesting hospitals and Disease Control Division, MOH the result of the test.

2. **Monitoring of influenza-like-illness (ILI), pharyngitis and common cold.** The three illnesses are monitored as it is difficult to differentiate between these illnesses based on symptoms alone. In general, the influenza is worse than the others and the symptoms such as fever, body aches, extreme tiredness and dry cough are more prominent in influenza.

Surveillance should be enhanced in the affected area / district and might be extended to the whole state. Data should be analysed daily for abnormal trend for at least 14 days from the day of chicken culling activities.

Investigation should be initiated if there is any unusual increase of ILI consultation rate in the district.

5.3 Atypical Pneumonia / Acute Respiratory Distress Syndrome (ARDS) Surveillance

Emerging pathogens for respiratory tract infection can present as atypical pneumonia, as in the case of SARS infection. Any **case or death of atypical pneumonia or ARDS** coming from the affected area with history of close contact with influenza A / H5 infected poultry or dead poultry should be notified and investigated for AI and SARS; beside the investigation for the usual respiratory pathogens.

5.4 Definition of Avian Influenza H5N1 outbreak

Epidemiologically, an outbreak of H5N1 among human occurs when there is a positive H5N1 in a human; **BUT** the declaration of an outbreak can only be made by the Health Minister.

5.5 Activation of the Alert Mechanism and Response

5.5.1 When there is a positive A/ H5 or H5N1 in poultry

- Culling of poultry according to Department of Veterinary Services Guidelines
- If the case is detected in a poultry farm, enforce strict infection control including movement of poultry and use of PPE by farm workers. Human movement into the farm should also be restricted.
- Active case detection (ACD) in human within 300 meter radius from index house/farm with HPAI confirmed poultry.
- Home surveillance for high risk groups (as explained in para 5.1: 4iv,5 & 6) for symptoms of influenza for 7 days.
- Refer human case to hospital if man develops symptoms and fulfils the case definition of suspect case (para 3.3)
- Risk communication to general public living within 1 km radius from index house/farm.
- Enhanced ILI surveillance.
- Activate the AI Operations Room
- Health surveillance on staff involved in poultry culling and surveillance activities and active case detection among human.

5.5.2 When there is a positive A / H5 or H5N1 in human

- The case must be isolated in the designated hospital
- Verify with the State Veterinary Department the presence of avian influenza among birds / poultry.
- Initiate epidemiological investigation.
- Active case finding among close contacts of human case
- Home surveillance of close contact of human case
- Activate the Operations Room
- Enhanced ILI surveillance.

In situation when influenza virus A/H5 is **positive both in human and birds / poultry**, then activities mentioned in **para 5.5.1 and 5.5.2 should be carried out concurrently**.

See Summary of the alerts and their response in table 1 (**annex 6**).

5.6 Active Daily House Surveillance (ADHS)

ADHS is done for persons fulfilling the criteria in para 5.1 number 4(iv), 5 and 6. The activity consists of:

- i. daily monitoring of temperature
- ii. asking for the other symptoms of avian influenza viz. cough, sore throat or difficulty in breathing

This activity should be carried out for 7 consecutive days.

If the person is fulfils the suspect AI case definition, he/she should be referred to the designated hospital.

If the condition of the person is deteriorating, case should be referred to the hospital.

5.7 Active Case Detection

Active case detection is done by public health workers. It is done within 300 meter radius from index house/farm with HPAI positive in poultry to search for persons who fulfill the case definition of avian influenza.

Activities carried out during ACD are

- i. getting information from the people as regards to having influenza symptoms.
- ii. measuring body temperature if the person complains of having fever
- iii. distributing Health Alert Card to them.

If the person has temperature more than 38 °C and fulfils the criteria of suspect AI case, then he / she should be referred to hospital. Otherwise, the active daily house surveillance should be done for consecutive 7 days for each person.

Health staff involved in these activities must use proper PPE and to undergo decontamination after each activity is done for the day before going home (refer **annex 7**).

5.8 Health Education

Intensive health education should be carried out within 1 kilometer radius from index house/farm having positive HPAI in poultry. The following should be emphasized during the health education session:

- a. contact the health office if humans develop the avian influenza symptoms.
- b. inform the veterinary department / health office if poultry death occurs

- c.. avoid contact with dead poultry / birds. Should the owner wants to bury the dead birds / poultry, they can do so without direct handling of the dead birds / poultry or to use appropriate PPE.
- d. children are advised to wear footwear when playing outdoor.
- e. follow instruction from DVS as regards their poultry.
- f. practice good personal hygiene e.g. proper hand washing, wearing slippers etc.
- g. good husbandry practices should be followed in all poultry farms including ensuring good occupational & safety measures by the workers on the farm.

5.9 Staff monitoring

The monitoring of the health status of the following staff should be carried out:

- staff involved in culling activities,
- staff involved in surveillance activities in poultry / birds,
- laboratory staff involved with processing of clinical specimens of suspect AI cases in human and poultry / birds,
- health staff involved in ACD activities and
- medical staff involved in managing suspect AI cases in the ward.

The monitoring should be carried out for 14 days from the last date of doing the related activities.

All the activities should be documented in the return format as in annex 8. Summary of public activities carried out is as in **annex 9**.

6.0 GOOD ANIMAL HUSBANDRY

People working in the poultry farm should practice good animal husbandry such as wearing of mask, gloves, gown and boots while in the farm. They must wash their hands frequently, preferably with detergent and running water. Good hygiene should also be practiced during handling of raw poultry meat.

Take a bath before going home after working in the animal farm. **DON'T EVER TAKE HOME A CONTAMINATED CLOTHING OR /AND EQUIPMENT.**

Refer to DVS guidelines.

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

7.1 Poultry farming

As this virus can infect man especially those at risk, PPE should be worn at all times by those who are in direct contact with poultry. Refer **Annex 10** for details. Good husbandry practice is highly recommended.

7.2 Health care worker (HCW)

Even though there is no documented human-to-human transmission, stringent infection control measures should be instituted. The fact that this virus can undergo re-assortment of genes if a person is infected with both human and avian influenza virus could enable this new strain to have the ability to transmit among human.

Nursing barrier should be practiced at all times as outlined in **Annex 11**.

Field workers involved in active case detection should be protected as outlined in **Annex 7**.

8.0 DECONTAMINATION

Any equipment and clothing (shoes, coverall etc) taken back from the infected farm should be disinfected. The storage place should be decontaminated too (refer **annex 7**).

Any vehicle used by the workers in the infected farm should be decontaminated before it can be driven out of the farm.

9.0 CONTACT/FOCAL POINT

For any queries or clarification please contact

**Pengarah Kawalan Penyakit
Blok A Kompleks Pejabat Kesihatan
Kementerian Kesihatan Malaysia
Jalan Cenderasari
50590 Kuala Lumpur
Tel: 03-26946601 Fax: 03-26983211
Email: survelan@dph.gov.my**

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GUIDELINES ON THE MANAGEMENT OF AVIAN INFLUENZA

1. SYMPTOMS OF AVIAN INFLUENZA

Published information about the clinical course of human infection with H5N1 avian influenza is limited to studies of cases in the 1997 Hong Kong outbreak and in the recent outbreaks in Vietnam and Thailand in 2004. During these outbreaks, patients developed symptoms of fever, sore throat, and cough and, in several of the fatal cases, severe respiratory distress secondary to viral pneumonia. Previously healthy adults and children, and some with chronic medical conditions, were affected. The current outbreaks have seen a higher mortality among children

The reported symptoms of avian influenza in humans have ranged from typical influenza-like symptoms (e.g., fever, cough, sore throat and myalgia) to eye infections, pneumonia, acute respiratory distress and other severe and life-threatening complications. The illness tends to progress rapidly with the peak severity seen within 3-4 days of onset. In children, otitis media, nausea, and vomiting are more commonly reported.

The incubation period for avian influenza is 1-4 days, with an average of 2 days. There has been no documented human-to-human transmission during this current outbreak.

Respiratory illness caused by avian influenza is difficult to distinguish from illness caused by other respiratory pathogens on the basis of symptoms alone. It is important to remember that among persons with concurrent illnesses (e.g., pulmonary or cardiac disease) influenza can exacerbate the underlying medical conditions, can lead to secondary bacterial pneumonia or primary influenza viral pneumonia, or can occur as part of a co-infection with other viral or bacterial pathogens. Influenza infection has also been associated with encephalopathy, transverse myelitis, Reye syndrome, myositis, myocarditis, and pericarditis.

2. REFERAL OF PATIENTS

All patients with **suspected avian influenza** should be **referred and admitted** to the designated hospital. **If the number of suspect cases is large, for logistics purposes, the patients may be isolated and managed in the nearest district hospital. Only patients who are too ill to be managed at district hospital without specialists, should be referred for management in the designated hospital.**

Patients admitted are to be isolated. Isolation requirements are as for SARS patients but without the need for negative pressure room/ward.

For patients who are referred, they should be sent to the hospital in an ambulance. The health care worker accompanying the patient should wear a surgical mask and gown.

The ambulance and other items used during transportation should be disinfected on returning to the district hospital/clinic.

3. ADMISSION

Special counters at the Accident & Emergency (A&E) Department should be set up to handle suspected cases (triage). Patients who have signs & symptoms of influenza are to be diverted to a separate designated waiting and examination area to minimise patient mix.

Patients are examined in the special triage examination room. The health care workers assessing the patient should wear surgical mask, gown and gloves. Preferably the chest x-ray (CXR) should be taken in the triaging area itself. If patient has to be transferred for chest x-ray, patient should wear a surgical mask. If admission criteria are fulfilled, they should be admitted to the designated isolation ward/area in the hospital.

Admission criteria

All suspect cases of AI must be admitted for isolation and further management.

4. INVESTIGATION

A **chest radiograph (CXR)** should be done soon after admission and the appropriate **clinical specimens** for screening of avian influenza should be taken. (Refer to guidelines by IMR on collection of specimens for screening of avian influenza) Other laboratory tests e.g. haematology, biochemistry, blood gases, etc should be sent as deemed appropriate by the attending physician(s).

Note: in situation where CXR cannot be done immediately, it could be done after admission.

4. ISOLATION

Patients who are admitted are to be isolated as follows in order of preference;

- (i) Single room (with attached bathroom facilities)
- (ii) Single room without attached bathroom facilities
- (iii) Cohorting in the ward with at least 3 feet distance between each bed

For (ii) and (iii) a separate toilets must be identified for patient use

A surgical mask should be worn before entering the room or when within 3 feet of the patient. Use N95 mask when performing higher risk procedures such as oral toilet, insertion of ryles tube, intubation, resuscitation etc.

Face shields/eye protection are to be used for all procedures that are likely to generate splashes/spray of blood, body fluids, secretions, excretions use face shields and eye protection.

A gown should be worn before entering the room/attending to the patient.

Disposable gloves should be worn before entering the room/attending to the patient. Change gloves between patients.

Hand washing must be done immediately after glove removal and between patients

Visitors should be kept to the minimum. Visitors entering the room have to use the same level of personal protection as staff.

Transfer of patient within the hospital should be kept to the minimum. If transfer is necessary patient must wear a surgical mask.

Cleaning of the common areas and common facilities should be done regularly i.e. every 4 hours.

5. TREATMENT

If CXR reveals pneumonic infiltrates, **empirical antibiotics** as recommended for community acquired pneumonia should be started. (options would include: 2nd/3rd.generation cephalosporins + macrolide, β lactam/ β -lactamase inhibitors, doxycycline or the respiratory fluoroquinolones)

Antiviral Therapy:

If the patient has symptoms of respiratory distress e.g. tachypnoea (respiratory rate > 25/min), shortness of breath, hypoxemia with pulmonary infiltrates, influenza antiviral therapy should be given immediately. Ideally, influenza antiviral therapy works best when given early. Hence when there is a high index of suspicion, antiviral drugs can be given early at the discretion of the attending physician.

The preferred agent is **oseltamivir 75 mg bid**. The recommended dose for children who weigh ≤ 15 kg is 30 mg bid, for children >15 to 23 kg the dose is 45 mg bid, for children >23 to 40 kg the dose is 60 mg bid, and for children >40 kg, the dose is 75 mg bid.

The duration of therapy is usually 5 days. Because of the unknown effects of influenza antiviral drugs on pregnant women and their foetuses, oseltamivir should be used during pregnancy only if the potential benefit justifies the potential risk to the foetus.

Supportive care

Supportive care should also be provided when necessary i.e. oxygen and ventilation support, hydration, blood gas monitoring, nutrition, etc. To reduce possible spread to healthcare workers (although no human-to-human spread has been documented during this current outbreak) nebuliser use should be avoided (if possible).

On monitoring of cases admitted in the **district hospitals**, and if noted that the patient condition is **deteriorating** or if the Medical Officer in charge has **doubt** in the management of the case, the patient should be **referred to designated hospital** as listed below as these hospitals have experts and the facilities for managing complicated cases.

List of hospitals with isolation facilities

NEGERI	HOSPITAL
PERLIS	Kangar
KEDAH	Alor Setar
	Langkawi
PULAU PINANG	Pulau Pinang
PERAK	Ipoh
SELANGOR	Klang
N SEMBILAN	Seremban
MELAKA	Melaka
JOHOR	Johor Bharu
PAHANG	Kuantan
TERENGGANU	Kuala Terengganu
KELANTAN	Kota Bharu
W.P. KUALA LUMPUR	Kuala Lumpur
SARAWAK	Kuching
	Sibu
	Miri
	Bintulu
SABAH	QE, Kota Kinabalu
	Sandakan
	Tawau
W.P. LABUAN	Labuan



**NOTIFICATION FORM
FOR INFLUENZA CASE**

Disease Control Division
Ministry Of Health Malaysia

KKM/BKP/Influenza

For Disease Control
Division use only
IDNo:

1. Reporting Centre		Name of Hospital / Clinic:		State:	
Phone		Fax: ---		E-mail: ---	
2. Information of Patient	Name:			Age:	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female
Address:			Phone (Home):		RN No:
Nationality:		Ethnicity: <input type="checkbox"/> Malay <input type="checkbox"/> Chinese <input type="checkbox"/> Indian <input type="checkbox"/> Other, specify:			IC No:
<input type="checkbox"/> Malaysian <input type="checkbox"/> Non Malaysian		Country of Origin: ---		Passport No: ---	
Occupation: <input type="checkbox"/> HCW <input type="checkbox"/> Poultry Farmer <input type="checkbox"/> Other, please state:				Date of symptom onset [dd/mm/yy] :	
3. Signs and Symptoms	<input type="checkbox"/> Fever <input type="checkbox"/> Cough <input type="checkbox"/> Sorethroat <input type="checkbox"/> Myalgia <input type="checkbox"/> Headache		<input type="checkbox"/> Shortness of breath/difficulty breathing		
	Temperature on admission: ____°C		<input type="checkbox"/> Other symptom, specify :		
4. Chest X-Ray finding	Evidence of lung infiltrates consistent with pneumonia		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not done		
5. Is there any alternative diagnosis that can fully explain patient's illness?	<input type="checkbox"/> Yes <input type="checkbox"/> No				
6. Clinical status at time of report	Was patient hospitalized? <input type="checkbox"/> Yes, Date: _____ <input type="checkbox"/> Brought In Dead (BID) Date: _____		Ward: <input type="checkbox"/> Isolation ward <input type="checkbox"/> General ward <input type="checkbox"/> ICU		Progress: <input type="checkbox"/> On treatment, specify: _____ <input type="checkbox"/> Died Date : _____
<i>If patient died:</i> Was an autopsy performed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending				
7. Exposure History	i. Did patient visit any poultry farm? ii. Did patient had history of contact with birds? iii. Did patient had history of contact with diseased birds?		<i>If yes, please state the name and address</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Name: Address: LOT 47, KG. PAUH, BADANG, 15350 KOTA BHARU, KELANTAN				
8. Similar illness	Anybody in the neighbourhood had similar illness? <input type="checkbox"/> Yes <input type="checkbox"/> No				
9. Diagnostic Evaluation	Date Taken	Date send to lab	Name of laboratory	Result	
Virology					
10. Working diagnosis: (please state)					
11. Reporting Officer:			Signature: ---		
Designation:		Date:		H/phone No:	
For District Health Office use only					
12. Contact Tracing	Has contact tracing been done? <input type="checkbox"/> Yes <input type="checkbox"/> No Date of contact tracing done: Number of contacts examined:		Number of contact with similar illness: Number of contact quarantined: Number of contact referred to hospital:		
13. Active case finding	Has active case finding been initiated? <input type="checkbox"/> Yes <input type="checkbox"/> No Number of people with similar illness:		No. of cases referred to hospital: Number of cases quarantined:		
14. Investigating Officer:			Signature: ---		
Designation:		Date:		H/Phone No:	
For Disease Control Division use only					
Comments:	NIL				

Note: Please fax this form within 24 hours to District Health Office

Format for informing daily progress of inpatient suspect AI case

KKM/BKP/SARS/2003/7

NO. TEL: 03-26949436

NO. FAX: 03-26983211

PERKEMBANGAN PESAKIT YANG MASIH BERADA DI WAD

NAMA PESAKIT: _____

ARIKH: _____

KUARANTIN

- DI RUMAH
 WAD ISOLASI
 WAD UMUM(GENERAL)

RUJUKAN KKM: KESNO

KEADAAN FIZIKAL PESAKIT	Demam	<input type="checkbox"/> Ya(Temp _____°C) <input type="checkbox"/> Tidak
	Batuk	<input type="checkbox"/> Ya, tetapi bertambah baik <input type="checkbox"/> Ya, seperti sebelum ini <input type="checkbox"/> Tidak
	Sesak / susah nafas	<input type="checkbox"/> Ya, tetapi bertambah baik <input type="checkbox"/> Ya, seperti sebelum ini <input type="checkbox"/> Tidak
UJIAN MAKMAL	CXR (sila tuliskan hasil reporting)	
	FBC	WBC _____ Platelet _____
	Hasil ujian Bacteriologi (sila tuliskan hasil)	
RAWATAN	Sama ada pesakit diberi antibiotic. Jika ya, sila nyatakan nama antibiotik	
KELUAR WAD	Nyatakan tarikh keluar wad	
FINAL DIAGNOSIS	Nyatakan	

Sila fakskan maklumat ini kepada Bilik Operasi KKM (no. 03-26983211) setiap hari pada pukul atau sebelum 10.00 pagi

**COLLECTION AND HANDLING OF SPECIMENS FOR THE EVALUATION
OF POTENTIAL CASES OF AVIAN INFLUENZA**

RESPIRATORY TRACT SPECIMENS

Respiratory specimens should be collected as soon as possible in the course of the illness. The likelihood of recovering most viruses and many bacteria diminishes markedly > 72 hours after symptoms onset. Some respiratory pathogens may be isolated after longer periods.

Three types of specimens may be collected for viral or bacterial isolation and PCR. These include:

1. nasopharyngeal wash/aspirates
2. nasopharyngeal swabs
3. oropharyngeal swabs
4. Throat gargle
5. Sputum

Nasopharyngeal aspirates are the specimen of choice for detection of respiratory viruses and are the preferred collection method among children aged <2 years.

1 Collection of nasopharyngeal wash/aspirates

Have the patient sit with the head tilted slightly backward. Instill 1-1.5 ml of sterile, physiological saline (pH 7.0) into one nostril. Flush a 3cc syringe with 2-3 ml of saline. Insert the syringe into the nostril parallel to the palate. Flush in and out few times. Aspirate nasopharyngeal secretions. Collect specimens in sterile vials. Transport on wet ice. * If nasopharyngeal wash is not feasible, please do throat swab and nasal swab. Smear each swab onto glass slide for direct Ag antigen. This is for diagnostic EM.

2 Collection of nasopharyngeal or oropharyngeal swabs

Use only sterile Dacron or rayon swabs with plastic shafts. DO NOT use calcium alginate swabs or swabs with wooden sticks, as they may contain substance that inactivate some viruses and inhibit PCR testing.

- Nasopharyngeal swabs – insert swab into nostril parallel to the palate and leave in place for a few seconds to absorb secretion. Swab both nostrils.
- Oropharyngeal swabs - swab both posterior pharynx and tonsillar areas, avoiding the tongue.

Place swabs immediately into sterile vials containing 2 ml of viral transport media or a bacterial transport media, such as serum tryptone glucose glycerol (STGG) media. Break applicator sticks off near the tip to permit tightening of the cap. These swabs are for viral culture. Transport on wet ice.

3 Lower respiratory tract

Collection of bronchoalveolar lavage, tracheal aspirate, pleural tap: If these specimens have been obtained, half should be centrifuged and the cell-pellet fixed in formalin. Remaining unspun fluid should be placed in sterile vials with external caps and internal O-ring seals. Transport on wet (4°C).

BLOOD COMPONENTS

- A. Collection of leukocytes: If available, collect 8 ml whole blood in CPT-citrate (Becton Dickinson) tube. Specimens should be centrifuged at 1500—1800 relative centrifugal force. Ship on wet ice.
- B. Collection of serum: Acute serum specimens should be collected and submitted as soon as possible. When applicable, convalescent specimens should be collected and submitted in 3-4 weeks

Collect 5-10 ml of whole blood in a serum separator tube. Allow blood to clot, centrifuge briefly and collect all resulting sera in vials with external caps and internal O-ring seals minimum of 200 microliters of serum is preferred for each test. If unfrozen, transport on wet ice(4°C).If frozen, transport on dry ice.

- C. Collection of EDTA blood: Collect 5-10 ml of whole blood in an EDTA (purple-top) tube. Transfer to vials with external caps and internal O-ring seals. If shipped domestically, blood specimens should be stored and transported on wet ice (4°C).

TISSUE SPECIMENS

- I. **Fixed tissue** (formalin fixed or paraffin embedded) from all major organs (e.g. lung, trachea, heart, spleen, liver, brain, kidney, adrenals)

Formalin fixed tissue is not considered a biohazard or chemical hazard.

Store and ship at room temperature. **DO NOT FREEZE FIXED TISSUES.**

- II. **Fresh frozen tissues** from lung and upper airway (e.g. trachea, bronchus)

Specimens should be collected aseptically as soon as possible after death. Technique and time will impact risk of post mortem contamination. Use separate sterile instrument for each collection site. Place each specimen in separate sterile containers containing small amounts of viral transport media or saline.

Store and ship frozen at -70°C and shipping on dry ice is preferable.

LABELING AND DOCUMENTATION

- A. Specimen labeling: **Each specimen should be labeled with the patient ID number and date collected.**
- B. **Accompanying documentation:** The package should include a line listing for all specimens including patient's name and ID number, date samples collected,
- C. **Clinician's name and contact** phone number, and specimens submitter's name and contact phone number.

PACKAGING

Packing of samples from patients with suspected AI should be treated as biohazard.

Samples should be packaged in three layers:

- A. **a primary watertight non breakable container** containing the sample
 - it must be firmly capped and the cap should then be sealed with parafilm, adhesive cloth or zinc oxide tape (not cellulose tape)
 - the container must then be cocooned in absorbent material (e.g. cotton)
 - several primary containers may be packed in one secondary container
- B. **a secondary watertight non breakable container** enclosing enough absorptive material (e.g. sponge)
 - between it and the primary container to absorb all of the fluid in the specimen in case of leakage
 - it must be firmly capped and sealed in the same way as the primary container
 - the secondary container must then be packed firmly with absorbent material into the outer container
 - several secondary containers may be packed in one outer container
- C. **an outer container** which is intended to protect the secondary package from outside influence, such as physical damage and water, during transportation
 - absorbent, shockproof packing between the secondary and outer containers
 - the lid is again sealed with tape
- D. **separate the request form** from the ice box / secondary / tertiary container.

TRANSPORTATION

A **DIAGNOSTIC SPECIMEN** is defined as any human or animal material being transported for diagnostic or investigational purposes, **BUT** excluding live infected animals.

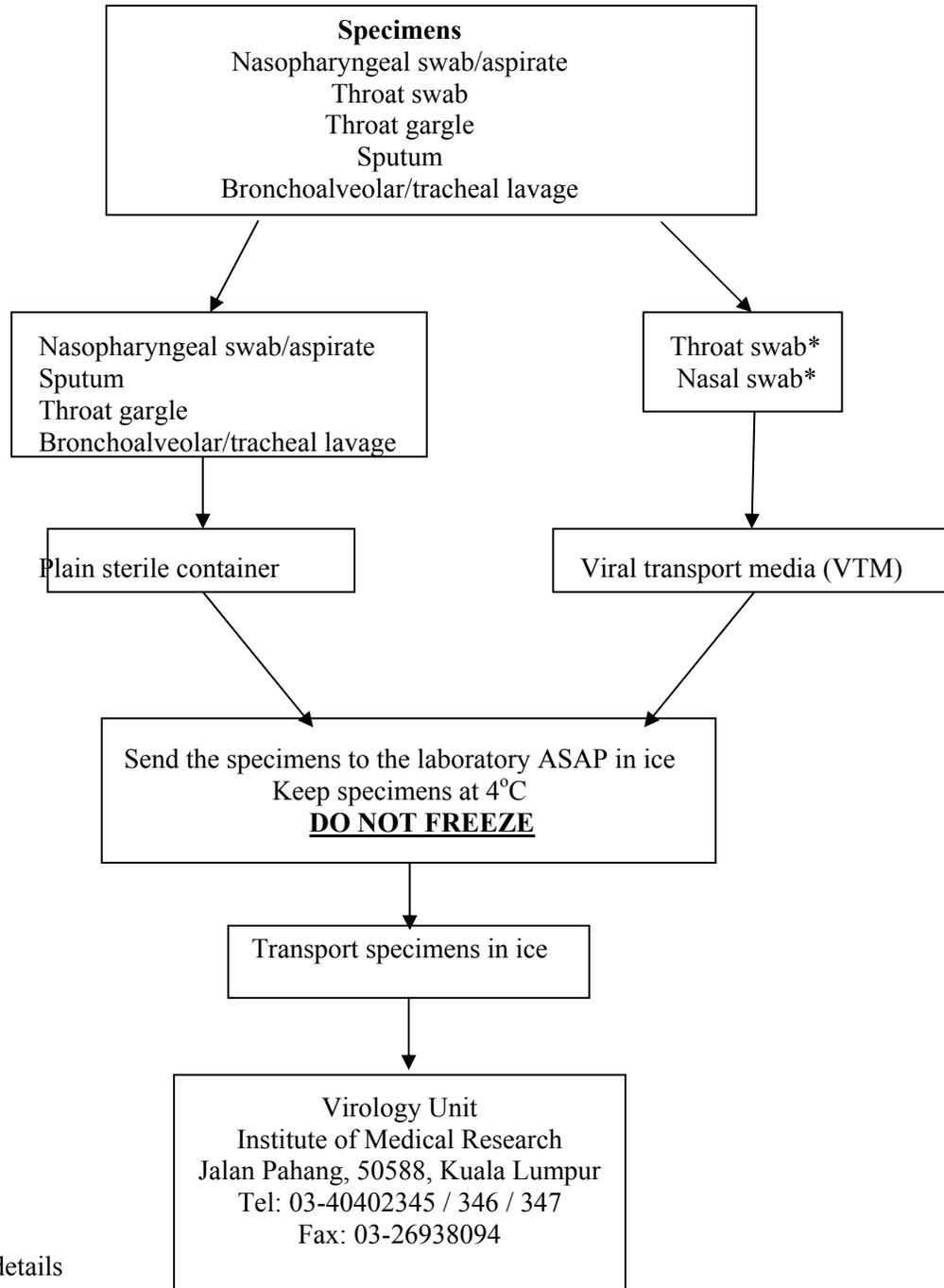
- **Specimens from district hospitals should be coordinated by the state Pathology laboratory (with collaboration of State Health Department Operation Room) for sending the specimens to IMR.**
- **For Malaysian domestic transportation, store and ship all non-tissue specimens on wet ice. Frozen tissues should be sent on dry ice.**
- Address the packages to:

Virology Unit
Institute of Medical Research
Jalan Pahang, 50588, Kuala Lumpur
Tel: 03-40402346 / 03-40402347 / 03-40402350

Diagrams below show the flow of specimens collection from the health facilities to reference laboratory (IMR) for viral laboratory diagnosis (figure 2), the flow of work process on the clinical specimens sent to IMR for avian influenza (figure 3) and flow of information (test result) from IMR (figure 4).

Attached with these guidelines is the laboratory request form for AI as proposed by IMR..

**Figure 2: Flow Of Specimen Collection
For Viral Laboratory Diagnosis**



*Please see details

<u>VIROLOGY UNIT</u> INSTITUTE FOR MEDICAL RESEARCH JALAN PAHANG 50588 KUALA LUMPUR		FOR LAB USE
		LAB NO.
LAB REQUEST FORM FOR AVIAN INFLUENZA (AI) HOSPITAL _____		
1. Name:		2. Reg. No:
3. NRIC:		4. Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female
5. Age:	6. Race:	7. Occupation:
8. Marital Status:		12. Type of specimen: <input type="checkbox"/> Nasopharyngeal Asp/wash <input type="checkbox"/> Throat swab <input type="checkbox"/> Throat gargle <input type="checkbox"/> Nasal swab <input type="checkbox"/> Sputum <input type="checkbox"/> Blood <input type="checkbox"/> Serum <input type="checkbox"/> Urine <input type="checkbox"/> Others: _____ Doctor's Name: _____ Contact No.: _____ Signature: _____
9. Clinical Findings: date of onset (dd/mm/yr) • Symptoms:		
<input type="checkbox"/> Cough	_____	
<input type="checkbox"/> Shortness of breath	_____	
<input type="checkbox"/> Difficulty in breathing	_____	
<input type="checkbox"/> Hypoxia	_____	
<input type="checkbox"/> Fever	_____	
<input type="checkbox"/> Runny nose	_____	
<input type="checkbox"/> Acute respiratory distress syndrome	_____	
• Signs:	• Investigation:	
Temperature: _____	WBC _____	
Lung: _____	Platelet _____	
10. History of exposure / contact with infected poultry.	Chest x-ray _____	
<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. History of contact with case of /suspect of avian influenza.	:	
<input type="checkbox"/> Yes <input type="checkbox"/> No		

Figure 3: Flow Of Work On The Clinical Specimens For Avian Influenza

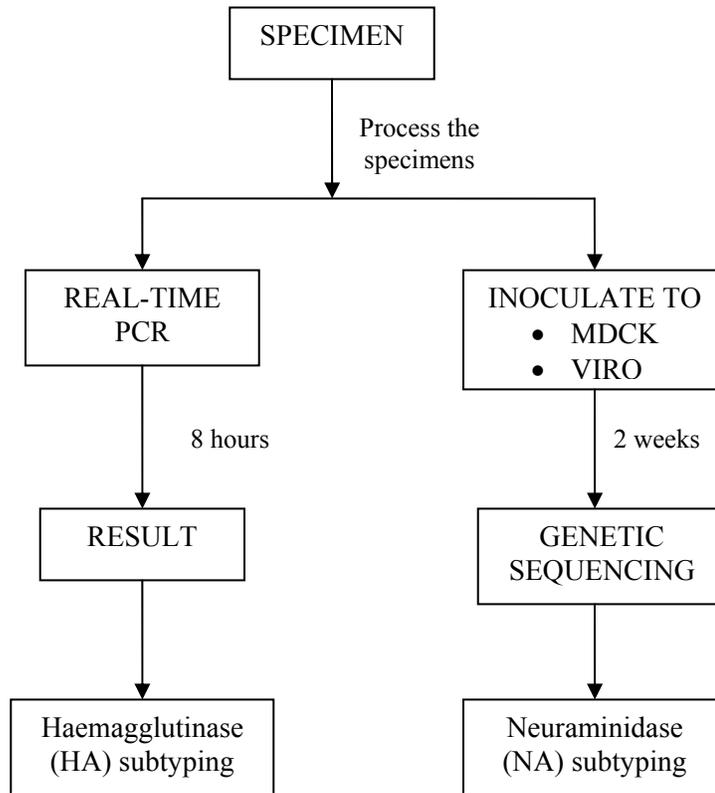
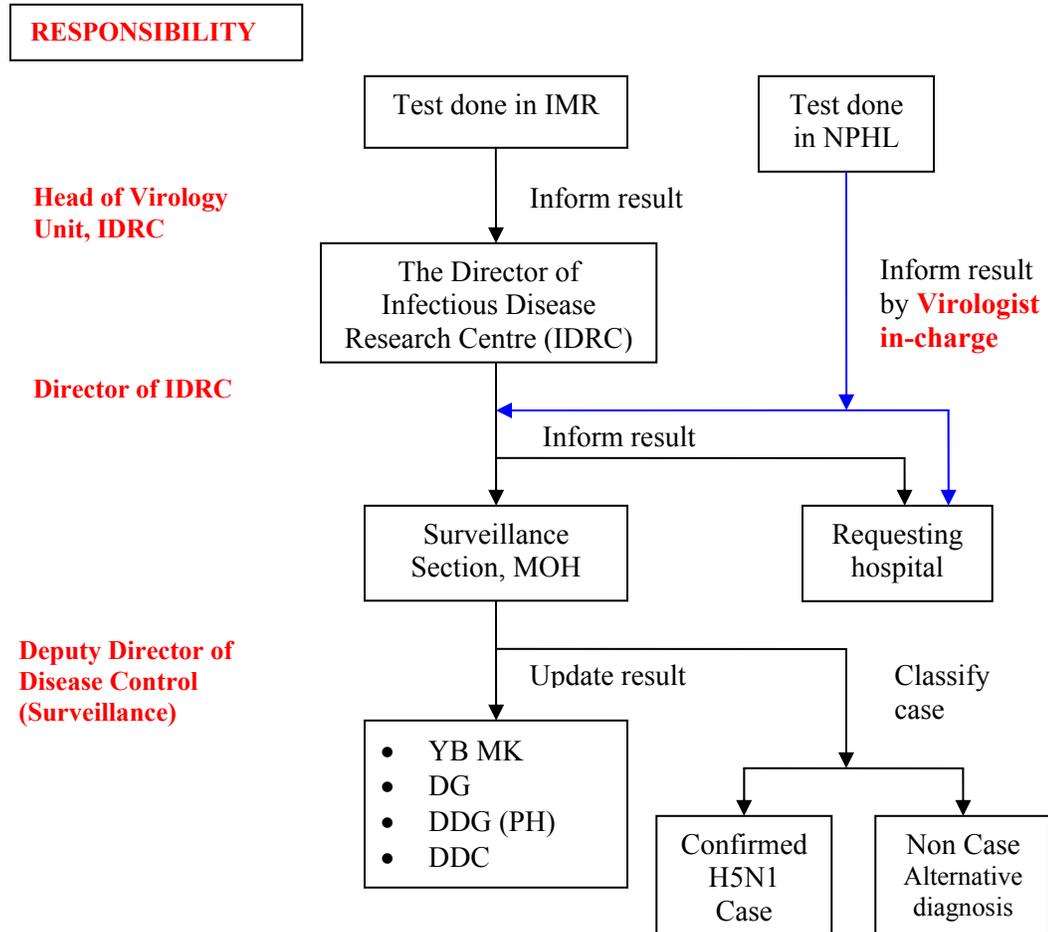


Figure 4: Flow Of Information From Reference Laboratories



INDICATOR:
 YB MK – Yang Berhormat Menteri Kesihatan
 DG – Director-General of Health
 DDG (PH) – Deputy Director-General of Health (Public Health)
 DDC – Derector of Disease Control
 MOH – Ministry of Health
 IMR – Institut For Medical Research
 NPHL – Natioanl Public Health Lanoratorv



Sample of *Health Alert Card*



AWAS
Penyakit Selsema Burung

Penyakit selsema burung telah dikesan di kalangan unggas (ayam, itik dan burung) di negeri ini. Penyakit ini amat merbahaya kepada manusia dan boleh membawa maut jika lewat dirawat.

Tanda-tanda penyakit ialah

Demam, batuk, sakit tekak, susah nafas dan selsema.

Jika tuan/puan atau ahli keluarga mengalami gejala di atas, terutama mereka yang ada menyentuh ayam / itik / burung mati atau terkena najis haiwan tersebut dalam masa 7 hari sebelum sakit, sila dapatkan rawatan di mana-mana klinik kesihatan atau hospital berhampiran dengan segera; atau hubungi pejabat kesihatan terdekat di talian nombor telefon: _____

Jagalah kebersihan diri dan persekitaran anda.

Pesanan dari
Kementerian Kesihatan Malaysia.

Table 1: Summary of responses involve in the alert level of avian influenza surveillance

LOCAL ALERT LEVEL		PUBLIC HEALTH RSEPONSE	CLINICAL RESPONSE	LABORATORY RESPONSE
LEVEL 0	No human and poultry case	Continue influenza-like-illness (ILI) surveillance.		
LEVEL 1	Has case in poultry BUT NOT in man	<ul style="list-style-type: none"> • Enhanced ILI surveillance • Activate operation room • Active and passive case finding • Home surveillance for high risk groups and those with AI symptoms but does not fit the case definition criteria • Refer case to hospital if man develops symptoms • Restrict human movement into affected area farm 	Activate triaging system and isolation ward	Enhanced influenza surveillance

LOCAL ALERT LEVEL		PUBLIC HEALTH RESPONSE	CLINICAL RESPONSE	LABORATORY RESPONSE
LEVEL 2	Has case in man but not in poultry (IMPORTED)	<ul style="list-style-type: none"> • the case must be isolated in the designated hospital • epidemiology investigation should be initiated • refer to veterinary department to determine presence of avian influenza among chickens • Activate the Operations Room • Active case finding among close contacts of human case • Home surveillance among close contact of human case • Passive case finding 	<ul style="list-style-type: none"> • Case admission for isolation and management • Practice barrier nursing 	<ul style="list-style-type: none"> • Diagnostic workout • Enhanced influenza surveillance
LEVEL 3	Has case in poultry AND human (Local transmission)	<ul style="list-style-type: none"> • All of the above for Level 1 and 2 	<ul style="list-style-type: none"> • Case admission for isolation and management • Practice barrier nursing 	<ul style="list-style-type: none"> • Diagnostic workout • Enhanced influenza surveillance

**PROVISIONAL ADVISORY FOR
HEALTH CARE WORKERS IN THE FIELD
FOR PROTECTION AGAINST AVIAN INFLUENZA**

1. Health care workers going into the field should be adequately protected at all times by the following methods:
 - a. PPE: 3 ply surgical mask should be worn at all times during ACD
 - b. Boots must be worn at all times during ACD
 - c. Full body gown and N95 mask must be worn during culling operation
 - d. Apron is optional
2. Disinfection of the following articles must be done
 - a. boots must be disinfected before entering the vehicle during ACD
 - b. the tyres of the vehicle must be disinfected before leaving the operation area.
 - c. handwashing with soap before and after the operation
3. All disposable items must be disposed by using biohazard bag for incineration by the hospital
4. All reusable items must be disinfected properly after usage
5. Disinfectant solution recommended are:
 - a. **Sodium hypochlorite** 1% in dilution, 5% solution to be diluted **1:5** in clean water
 - b. **Bleaching powder** 7g/litre with 70% available chlorine
 - c. **Alcohol** (70%) Isopropyl, ethyl alcohol, methylated spirit.

**RETURN FORMS FOR ACTIVITIES CARRIED OUT
BY PUBLIC HEALTH**

**PENCAPAIAN HARIAN PEMANTAUAN TAHAP KESIHATAN
PETUGAS DAN PENDUDUK BERISIKO_{DI} (*daerah*) PADA (*tarikh*)**

TEMPAT	Petugas Kesihatan di Lapangan		Petugas Jabatan Perkh. Haiwan di Lapangan		Hospital (Wad Isolasi)		Penduduk Berisiko		Jumlah di-pantau	Jumlah ada gejala dan dirujuk
	Jumlah	Ada Gejala dan Dirujuk	Jumlah	Ada Gejala dan Dirujuk	Jumlah	Ada Gejala dan Dirujuk	Jumlah	Ada Gejala dan Dirujuk		
PKD 1										
PKD 2										
PKD 3										
Wad isolasi										
Jabatan Haiwan										
JUMLAH										

**PENCAPAIAN HARIAN KERJA-KERJA ACD DAN PENDIDIKAN
KESIHATAN DI LOKALITI WABAK
DI (negeri) PADA (tarikh)**

Daerah	Lokaliti / Kampung	Bilangan Rumah Diperiksa	Bil. Penduduk Diperiksa	Bilangan Dengan Gejala URTI	Bilangan Dirujuk	Jum Risalah Diedarkan	Jum Kad Amaran Diedarkan
JUMLAH							

PUBLIC HEALTH ACTIVITIES IN AVIAN INFLUENZA OUTBREAK

Before the investigation of any outbreak Rapid Assessment Team (RAT) must verify the presence of an outbreak and shall undertake risk analysis and needs assessment if necessary.

1. Operation Room

Operation room is activated beginning at level 1 and 2 of outbreak. The operation room may be at national, state or district levels.

The terms of reference of this Operation room are:

- i. To compile and monitor all information on activities concerning the outbreak.
- ii. To coordinate all activities involving inter-agency cooperation and collaboration
- iii. Updating information concerning the outbreak:
 - number of cases reported
 - control activities
 - health education activities
 - current situation of the outbreak
- iv. To manage the hotline
- v. To prepare the daily report
- vi. To prepare information for dissemination to relevant parties

Equipments required for Operation Room:

- i. Telephone and fax line
- ii. Computer and printer
- iii. Internet accessibility
- iv. Map
- v. Soft or white board

2. Investigation teams

Investigation teams should consist of:

- i. Health Inspector
- ii. Public Health Assistant
- iii. Nurse
- iv. Driver

Functions of the teams:

- i. Assess the outbreak site and the required logistics

- ii. Active case detection
- iii. Home surveillance
- iv. Case investigation

3. Logistic and Communication Team

Communication teams should consist of:

- i. Health Inspector
- ii. Public Health Assistant

Functions of the communication team:

- i. To liaise with health facilities for PCD
- ii. To receive notifications, writtens and calls from outside
- iii. To ensure adequate stock of PPE, disinfectants, instruments and forms
- iv. To ensure availability of transport
- v. To ensure availability of on-call schedule, guidelines and others

Please refer to Infectious Disease Outbreak Rapid Response Manual (Appendix 5) and Standard Operating Procedure for Potential Infectious Disease (page 17 – 43).

**ADVISORY FOR EMPLOYERS AND EMPLOYEES
FOR PREVENTION OF AVIAN FLU**

1. INTRODUCTION

This advisory is intended to explain the roles and responsibilities of the employers and employees of poultry farms in an effort to assist the Ministry of Health in managing issues related to avian influenza occurrence in the workplace.

2. RESPONSIBILITIES OF EMPLOYERS

1. Instruct employees displaying symptoms of fever, cough or running nose to undergo medical examination immediately.
2. Report to the nearest Health Office or the Department of Veterinary Services if there is a suspect avian influenza case among the employees.
3. Disseminate regularly avian influenza related health information and materials to all employees.
4. Cooperate with the authorities from the Ministry of Health, Department of Veterinary Services or Department of Occupational Safety and Health if needed, in the investigation of employees suspected with AI.
5. Provide personal protective equipment, PPE (masks, gloves, apron, boots) to all employees as recommended by the Ministry of Health/WHO. All reusable PPE must be disinfected before and after usage.
6. Provide adequate facilities for employees to practice good personal hygiene.
7. Ensure that all changing rooms, toilets, canteens and rest room are kept clean.
8. Ensure that employees do not take out uniforms/protective cloth after work.
9. Review and update the work process related to health risk periodically

10. Comply with any directives related to AI issued by Ministry of Health, Department of Veterinary Services or Department of Occupational Safety and Health from time to time.

3. RESPONSIBILITIES OF EMPLOYEES

1. Report immediately to employers if having any symptoms of fever, cough or running nose.
2. Abide by the directives given by employers to undergo medical examination at the nearest clinic or hospital.
3. Practice strict personal hygiene at all times at the workplace.
4. Wash hands properly and regularly after handling animals.
5. Utilize and maintain all PPE provided by employers at all times at the workplace. All PPE and clothing used must be kept at workplace. **DO NOT BRING THEM HOME.**
6. Cooperate with the Health Department and the Veterinary Services Department if there is a need for investigation of avian influenza cases.
7. Abide with work procedures as established by the management related to control of avian influenza.
8. Obtain information on avian influenza provided by the employers at the workplace
9. Render any form of cooperation as directed by employers in assisting to prevent the outbreak of avian influenza at the workplace.

**PROVISIONAL ADVISORY FOR HEALTH CARE WORKERS IN THE
HOSPITAL FOR PROTECTION AGAINST
AVIAN INFLUENZA**

1. Maintain high vigilance and practice infection control (IC) precautions in all healthcare settings according to risks of avian influenza. Each hospital must categorize its clinical settings by risks and implement corresponding levels of infection control precaution and personal protective equipment (PPE) standards.

Risk Assessment

- Patient related risks (confirmed / suspected influenza cases, triage areas such as A&E and triage ward, patient with fever of unknown origin, etc.)
 - Procedure-related risks (ICU, procedure room such as bronchoscopy room or X-Ray department area serving avian influenza patients, dirty utility room, etc.)
2. All persons coming into contacts with confirmed or suspected avian influenza patient or the immediate environment must practice infection control precautions according to the risk of exposure as judged by patient and procedure-related risks.

3. RECOMMENDED STANDARDS OF PPE

I. High-risk patient areas (Fever triage wards / cubicle, cohort wards, avian influenza screening areas)

a. No direct patient contact

- Surgical mask
- A linen or disposable gown

The following are optional:

- Eye shield / Full-face shield, Disposable cap

b. Direct patient contact or activities with risk of exposure to blood, body fluids, secretions, excreta and contaminated items

- 3-ply surgical mask
- A linen or disposable gown
- Full-face shield or eye shield

- Latex gloves

The following are optional:

- Disposable cap, goggles.

c. Procedures with high risk of generating aerosols e.g. resuscitation, high flow oxygen) and requiring prolonged very close contact with affected patients.

- N95 respirator
- A linen gown if no uniform / working clothes
- Disposable gown
- Latex gloves
- Full-face shield
- Goggles

The following are optional:

- Disposable cap

II. Other patients areas

a. No direct patient contact

- surgical mask

The following are optional:

- A linen or disposable gown

b. Direct patient contact or activities with risk of exposure to blood, body fluids, secretions, excreta and contaminated items

- surgical mask
- a linen gown or disposable gown
- latex gloves

The following are required for procedures with exposures to blood, body fluids, secretion, excreta and contaminated items.

- Surgical mask
- A linen gown or disposable gown
- Latex gloves
- Full-face shield or eye shield

c. Procedures with high risk of generating aerosols (e.g.resuscitation high flow oxygen) and requiring prolonged very close contact with affected patients.

- N95 or 3-ply surgical mask
- A linen gown or disposable gown

- Latex gloves
- Full-face shield

The following are optional:

- Disposable cap, goggle

5. GENERAL ADVICE IN USING PPE

- Latex gloves provide protection against gross contamination of patient's secretions, body fluid and excretions during procedure or contact with the immediate environment and equipment used by a high-risk patient
- To avoid cross infecting other patients and contaminating the environment, healthcare workers must change gloves after procedures and in between patients. They must wash hands or use hand rub before putting on a pair of new gloves.
- Gloves do not replace hand washing. Washing gloves for continual use is not allowed and double gloving is not recommended.
- When the supply of N95 respirator of tight (especially small size models), reuse may be necessary despite an increased potential of contamination. This risk should be balanced against the benefit of ensuing supply of N95 respirator to healthcare workers. In reusing a N95 respirator, all of the following conditions must be fulfilled.
 - The N95 respirator (i) is always protected by an overlying surgical mask or full-faced shield, (ii) has not been exposed to gross contamination, (iii) is not wet, (iv) has no visible soiling, and (v) is not deformed.
 - Used N95 respirator should be stored in a single use clean paper bag labeled with the user name.
 - After wearing a used N95 respirator, user must wash hands thoroughly.
- Remove / change PPE when moving from a high to a low risk area as defined in your hospital.
- Careful gowning down is crucial in avoiding contamination. Do not gown together in close proximity to another person.

- Used PPE should be treated as contaminated and should not be taken out of the workplace into non-clinical areas except in brief transit and adequately protected.
- Reusable PPE must be properly maintained and disinfected after use.
- Wearing of PPE except surgical masks outside clinical area is not allowed.
- Full-face shield is used for situation where there is a chance of splashing during the procedure, otherwise eye shield is adequate.

5. PRECAUTIONARY MEASURES AT OUT-PATIENT SETTING

- Avoid overcrowding in the waiting areas, schedule patient appointment and remind patients to adhere to it.
- Require all patients and accompanying persons to wear surgical masks if they have respiratory symptoms.
- Request patients and accompanying patients to notify staff when they have fever, cough or running nose and arrange medical assessment accordingly.
- Clean and disinfect the environment at least once daily or more frequently as indicated for places such as patient lavatories.