DOCUMENT B

MEDICAL STRATEGIES IN MANAGEMENT OF PANDEMIC INFLUENZA (PI)

and

GUIDELINES OF INFLUENZA PANDEMIC MANAGEMENT

i. **IN DESIGNATED HOSPITALS**
ii. **IN DISTRICT HOSPITALS**
iii. **IN PRIVATE HOSPITALS**

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PART 1: MEDICAL STRATEGIES IN MANAGEMENT OF PANDEMIC INFLUENZA (PI)

1. Health System infrastructure

- In phase 1 & 2; designated hospitals (as in the SARS outbreak) will be used as the frontline for triaging and managing patients with suspected of confirmed PI.
- In Phase 3 & 4; an expanded group of hospitals (to be decided by the Director-General of the Ministry of Health) will be assigned to provide treatment of PI cases due to the expected large number of patients.

2. Isolation facilities

- Currently, isolation rooms used for the recent SARS epidemic will be used. A total of 24 negative pressure machines have been installed in Hospital Kuala Lumpur (HKL) and all state hospitals (varying from 2-4 rooms each hospitals)
- In preparation for a major outbreak**, suitable existing wards should be identified and refurbished to function as the main isolation facilities**. Such facilities should be made available in all states. Each room should have an anteroom and en-suite bath and fitted with negative pressure facilities. Each ward should have 10-15 such rooms. Effluent air should be HEPA-filtered to minimize environmental contamination. These isolation wards should have support facilities available esp. radiology, ventilatory support, etc.
- Possible cohort wards should also be identified in each state as contingency for widespread pandemic

3. Anti-viral agents

- **Oseltamivir** will be the preferred antiviral agent. The amount to be stockpiled is based on the PI attack rate of 25%. The quantum of drug for stockpile would therefore be **6 million courses** (each course is 75 mg bd for 5 days)
- **Zanavir** will be made available as an alternative. It is not recommended for young children and those with history of asthma or chronic obstructive pulmonary disease due to possibility of bronchospasm. The amount stockpiled will be dependant on the amount that is available for purchase.

4. Personnel

- More **Infectious diseases (ID) physicians** needed to coordinate management of PI cases during pandemic. Currently 4 trained ID physicians in MOH hospitals. 2 are currently doing their final year training in Australia. 5 are undergoing their 1st and 2nd. year training in HKL while 5 are waiting to start their training (a total of 16 ID physicians in ID discipline) **2 overseas scholarships needed yearly for the**

final year fellowship training; currently only one ID scholarship available per year.

- Scaling up training of pediatricians in PI management & infection control
- An on-going training program within Ministry of Health needed to continuously trained (medical officers) doctors and allied health professionals in PI management and infection control. See document on training program for PI management.

5. Personal Protective Equipment (PPEs)

- **Adequate stockpiling of PPEs is crucial;** estimates should be obtained from all states and should include use by public health officers and their staff.
- PPEs include: N95 masks, gloves, gowns, eye protection (visors / goggles), PAPRs (at least 10 in each state hospital)

6. Antiviral Drugs For Preventing And Treating Influenza

Two classes of drugs - adamantines (amantadine and rimantadine) and neuraminidase inhibitors (NI - anamivir and oseltamivir) are currently available for prevention and treatment of influenza.

Adamantanes act by inhibiting the activity of the M2 protein required for the release of viral genetic material inside the cells. These drugs reduce viral shedding and decrease the duration of illness by approximately one day if started within 48 hours of illness onset. Adamantines are effective as prophylaxis and have been shown to decrease the duration of illness when used for treatment of susceptible viruses. However, reduction of complications or improved outcomes for hospitalized patients has not been adequately evaluated yet. Resistance often develops during therapy. The admantines are available from proprietary and generic manufacturers

Neuraminidase inhibitors (NI - oseltamivir and zanamivir) are also effective for prophylaxis and treatment of susceptible strains. New data suggests that NI treatment can decrease complications such pneumonia and bronchitis, and decrease hospitalizations. The development of antiviral resistance, to date, has been uncommon.

Amantadine and the neuraminidase inhibitors drugs are approved for prophylaxis and treatment of influenza in Malaysia; but only amantadines are registered in the MOH Blue Book**. Oseltamivir is not listed on the Ministry of Health's formulary but will be released for use from the Ministry's stockpile during an influenza outbreak on the Director General's orders.**

The objective of antiviral prophylaxis is to prevent influenza illness. Prophylaxis will need to continue throughout the period of exposure in a community. On the other hand, the objective of treatment is to decrease the consequences of infection. For optimal impact, treatment needs to be started as soon as possible and within 48 hours of the onset of illness.

Prophylaxis and Treatment with Antiviral Drugs: Indications, Doses, Toxicity

The current indications (year 2004) for the use of antivirals in the prophylaxis and treatment of influenza in Malaysia are:

1. **Amantadine (SymmetrelR):**

Prophylaxis: Prevention of respiratory infections caused by influenza A virus strains.
Treatment: Treatment of respiratory infections caused by influenza A strains.

2. **Zanamivir (RelenzaR):**

Treatment of **uncomplicated acute illness due to influenza virus in patients 12 years and older who have been symptomatic for no more than 2 days**.

3. **Oseltamivir (TamifluR):**

Prophylaxis: Oseltamivir can be used for prophylaxis in adults and adolescents 13 years of age and older. The safety and efficacy of oseltamivir for prophylaxis in pediatric patients younger than 13 years of age have not been established..
Treatment: of uncomplicated acute illness due to influenza infection in adults who have been symptomatic for no more than 2 days.

Amantadine is protective when used for prophylaxis up to a 6-week period. When used for treatment, the drug does not interfere with the development of protective antibodies. Drug resistance has been induced with amantadine, when used for prophylaxis and concurrent treatment in outbreaks. Special issues need to be considered when amantadine is used for prophylaxis, especially for a long period (6 weeks was the longest period formally studied in controlled trials.

Neuraminidase inhibitors showed efficacy for post-exposure prophylaxis and for treatment of influenza infections. To date, resistance to zanamivir and oseltamivir has been shown to occur infrequently in normal hosts. Since the functional groups of the two neuraminidase-inhibitors have some differences in their binding sites, mutants resistant to one drug may be susceptible to the other.

Table 5.2. Recommended doses* [1,152]

Drug (trade name)	Prophylaxis (P)*, Doses	Treatment (T)*[c], Doses	Level of evidence and Grade of Recommendation**
Amantadine (Symmetrel[R])	Children: 1-9 years, according to their weight[a]	Children: 1-9 years, according to their weight[a]	Children: Prophylaxis: I/A Treatment: I/A
	Adults: 100 mg2 times per day[a]	Adult: 100mg twice daily, 5 days[a] 65 years: 100 mg day[a]	Adult: Prophylaxis: I/A Treatment: I/A
Zanamivir[b] (Relenza[R])	Not yet approved	Children: 7 years, 10 mg/2 times per day, 5 days[b]	Children: Prophylaxis: no data Treatment: I/A
		Adult: 10 mg (2 puff)/2 times per day, 5 days[b]	Adult: Prophylaxis: I/A Treatment: I/A
Oseltamivir (Tamiflu[R])	Adult and adolescent older than 13 years of age[d]	Children: (1 year according to their weight[a]	Children: Prophylaxis: no data Treatment: I/A
		Adult: 75 mg/2 times per day, 5 days	Adults/adolescents: Prophylaxis: I/A Treatment: I/A

* Please refer to the current product monographs for dosage recommendations.
** Level of evidence (I-V) and Grade of Recommendation (A-C)3. Grade A recommendation for therapy (i.e., good support) requires the support of level I evidence (i.e., evidence from at least one properly randomized controlled trial, or from trials with large samples, or from meta-analysis of multiple smaller studies with consistent results).

a For children 1-9 years of age the recommended doses of amantadine are: 5.0 mg/kg per day, up to a maximum of 150mg/day, in two divided doses. For children (10 years old, who weigh > 40 kg, the recommended doses are 200 mg/day in two doses. Treatment will continue until defervescence, up to a maximum of 3-5 days.

For prophylaxis up to 6 weeks. Doses have to be reduced and monitored in individuals with seizures (100 mg/day) and in individuals with renal dysfunction. The amantadine hydrochloride dosages recommended by NACI for patients of different ages, and according to renal status:

b Zanamivir is inhaled orally; therefore, children younger than 5 years and elderly adults may require assistance in the use of the DiskhalerTM provided by the manufacturer.

c Treatment should be initiated as soon as possible and no more than 48 hours after onset of symptoms (better after 36 hours or less), because the earlier is the start the more effective are the results.

d Please refer to the current product monograph for dosage recommendations.

e Recommended dose of oseltamivir oral suspension for pediatric patients 1 year.

Table 5.3. Amantadine dosage

No renal impairment		
Age	**Dosage**	
1-9 years	5 mg/kg once daily, or divided twice daily, total daily dose not exceed 150 mg	
10-54 years	200 mg once daily, or divided twice daily	
65 years	100 mg once daily	
Renal impairment		
Creatinine clearance ml/min/1.73m^2	**Dosage for those 10-64 years of age**	**Dosage for those ≥ 65 years of age**
80 ml/min	100 mg twice daily	100 mg once daily
60-79 ml/min	Alternating daily doses of 200 mg and 100mg	Alternating daily doses of 100 mg and 50 mg
40-59 ml/min	100 mg once daily	100 mg every two days
30-39 ml/min	200 mg twice weekly	100 mg twice weekly
20-29 ml/min	100 mg three times/week	50 mg three times/week
10-19 ml/min	Alternating weekly doses of 200 mg and 100mg	Alternating weekly doses of 100 mg and 50mg

Table 5.4. Doses of oseltamivir in children

Body Weight in kg	Recommended dose for 5 days
15 kg	30 mg twice daily
> 15 to 23 kg	45 mg twice daily
> 23 to 40 kg	60 mg twice daily
> 40 kg	75 mg twice daily

Table 5.5. Side effects and adverse reactions

Side effects	Amantadline*	Zanamivir**	Oseltamivir
Gastrointestinal	Vomiting Nause Anorexia		Nausea Vomiting (less severe if taken with food)
CNS	Nervousness Anxiety Insomnia Seizures Delirium Hallucinations		
Cardiovascular	Arrhythmias, in over dosage		
Respiratory		Bronchospasm Exacerbation of underlying chronic respiratory disease	

* Side effects are usually mild and diminish or disappear after one week taking the drug. Serious effects have been observed, however, associated with high plasma concentrations of the drug. Toxicity is observed more frequently in individuals with renal insufficiency, seizures, in the elderly, or after higher doses.

** Zanamivir is not recommended in individuals with asthma or chronic obstructive pulmonary disease; however, if the benefits surpass the risks, the drug should be used with caution and under proper monitoring and supportive care.

Drug interactions

Limited clinical data are available regarding drug interactions and careful observation is recommended when administered concurrently with drugs that affect the nervous system, antihistamines, or drugs that may interfere with the excretion by the kidneys (i.e., probenecid).

Package inserts should be consulted.

New developments

New drugs are being developed for the prevention and treatment of influenza infections, and such developments may change the existing guidelines. Particularly, a single dose dimerized zanamivir 177 is presently in early trials, and may be a good candidate in case of a pandemic.

Pandemic use of antivirals

Limited data are available about the potential of antivirals to prevent infection and/or treat disease in pandemic situations. Amantadine was observed to be efficacious and safe for prevention and treatment of infection due to influenza A/Hong Kong/68 in the year after its appearance in 1968.

During a pandemic, the antiviral strategy should utilize all anti-influenza drugs available. Either M2 ion channel inhibitors (e.g., amantadeine) or neurominidase inhibitors (e.g., oseltamivir) can be used for prophylaxis but only neuraminidase inhibitors should be used for treatment.

Rationale for the roles of amantadine and neuraminidase inhibitors:

1. Rapid emergence of resistance has been observed during amantadine treatment but resistance has been uncommonly observed during therapy with neuraminidase inhibitors.
2. Neuraminidase inhibitors are currently approved for treatment. Oseltamivir is now licensed for prophylaxis in adults and adolescents over 13 years of age.
3. Although neuraminidase inhibitors are associated with fewer side effects and viral resistance may be less likely to develop as compared to amantadine, evidence that they have a greater efficacy than amantadine for prophylaxis is still required. The cost of these drugs is substantially greater than that of amantadine.

Chemoprophylaxis is not a substitute for vaccination; however, it is expected that vaccines are not going to be available (or will be available only in limited amounts), during the first months of a pandemic. In addition, not all patients can be vaccinated and some individuals may need supplementary protection until their antibodies reach a protective level or because their immune system is defective. Since the pandemic strain will be new for the population, a second dose of the vaccine may be required before protective immunity is developed; therefore, protective prophylaxis may be needed for up to 6 weeks: 4 weeks after the first dose and 2 after the second dose1.

It is expected that there will be a limited supply of anti-influenza drugs available during a pandemic; therefore, priorities for the use of these agents have been established.

Epidemiological surveillance during the pandemic will confirm these priorities or identify new priority groups.

(Preliminary) priority groups:

The following groups, in descending order of priority, are offered as planning guidance but will need to be re-examined at the time of a pandemic alert when epidemiologic data about the pandemic virus is available.

1. Treatment of persons hospitalized for influenza
2. Treatment of ill health care and emergency services workers
3. Treatment of ill high-risk persons* in the community
4. Prophylaxis of health care workers
5. Control outbreaks in high-risk residents of institutions (nursing homes and other chronic Care facilities)
6. Prophylaxis of essential service workers
7. Prophylaxis of high-risk persons* hospitalized for illnesses other than influenza
8. Prophylaxis of high-risk persons* in the community

***Note**: during a pandemic the definition of high risk persons may change based on epidemiologic evidence.

The mass prophylaxis of children to control a pandemic is currently not recommended

PART I1: GUIDELINES ON HOSPITAL MANAGEMENT OF INFLUENZA PANDEMIC

1. CASE DEFINITIONS:

1.1. Suspected case

- A person presenting with history of an acute onset of; High fever (> 38º C)
  AND
  Dry cough,
  AND
  one or more of the following: sore throat, nasal congestion/blockage, myalgia, headahce, vomiting (infant), fits (infant); ***with / without***

- Close contact* with a person diagnosed with PI within 10 days of the onset of symptoms or recent history of travel to areas** reporting cases of PI

1.2. Probable case

- ♦ A suspected case with limited laboratory confirmation of Influenza A / sub-type
  OR
- ♦ A person with an unexplained respiratory illness resulting in death with history of close contact with a person diagnosed with PI within the last 10 days or recent history of travel to areas reporting cases of PI.

** Close contact means having cared for, having lived with, or having had direct contact with secretions and body fluids of person with PI*
*** Countries identified as affected areas thus far: …….*

Exclusion criteria

A case should be excluded if an alternative diagnosis can fully explain their illness.

Reclassification of cases

As more epidemiological data be made available during the influenza pandemic, WHO may provide new case definitions for pandemic influenza. Thus the status of a reported case may change over time. A patient should always be managed as clinically appropriate regardless of their case status.

- A case initially classified as suspect or probable, for which an alternative diagnosis can fully explain the illness, should be discarded.
- A suspect case who, after investigation, fulfil the probable case definition should be reclassified as "probable".

- A suspect case who dies, on whom no autopsy is conducted, should remain classified as "suspect". However, if this case is identified as being part of a chain transmission of PI, the case should be reclassified as "probable".
- If an autopsy is conducted and no pathological evidence of PI is found, the case should be "discarded".

2. SCREENING & TRIAGE OF PATIENTS AT A AND E

- A special counter should be set up in the A and E of all hospitals for suspected PI patients to whom patients can come directly. This counter should be manned by dedicated staff specially for PI
- All patients who come to A and E should also be screened for suspected PI
- All patients with symptoms of PI should be rapidly diverted to designated examination rooms to minimize transmission to others.
- Those patients should be given a surgical mask to wear
- Staff involved in the triage process (at the counter) should wear surgical mask with face shield and wash hands before and after contact with any patient.
- Staff in close contact with suspected PI patients (e.g. examination of the patient) must also wear disposable gowns and gloves
- If a patient is admitted, he/she must be taken to the dedicated isolation room/ward via a route identified only for these patients
- The trolley or wheelchair used to transport the patient needs to be disinfected with Sodium hypochlorite 1000 ppm and left to dry for 3 hours
- These recommendations will need to be modified in the event of widespread community involvement.

3. ADMISSION

Special counters at the Accident & Emergency (A and E) Department should be set up to handle suspected cases (triage). Patients are to be diverted to a separate designated waiting and examination area to minimize 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 designated hospital.

3.1 Admission criteria

- In phase 3 and and above: All suspected PI cases, will be admitted. Asymptomatic household contacts or other close contacts of the case will be quarantined at home.

- In phase 3 and above, only those with co-morbidities and complications (see list below) will be admitted
- All children younger than 2 years of age should be considered for admission regardless of co-morbidities and complications.

Co-morbidities would include

- older age group > 65 yr
- pregnancy
- chronic lung disease (e.g., chronic obstructive pulmonary disease, cystic fibrosis,asthma)
- congestive heart failure
- renal failure
- immunosuppression (due to underlying disease or therapy)
- haematological abnormalities (anemia, haemaglobinopathies)
- diabetes
- hepatic disease
- socially unable to cope (i.e., without personal support at home, such patients may need an alternative centre of care). An alternate care arrangement may also be considered if a high-risk individual lives in the same household as the influenza patient.
- patients on long-term acetylsalicylic acid therapy (increased risk of Reye's syndrome).

Complications would include:

- Pneumonia
- Acute Confusion
- Metabolic derangement
- Respiratory failure
- Acute Cardiac deterioration

4. MANAGEMENT OF SUSPECTED AND CONFIRMED CASES

- A detailed history of the following should be obtained: clinical, travel and contact history including occurrence of respiratory disease in contact patients during the last 10 days.
- The clinical workup of the case should follow the measures stated in the Syndromic Approach Protocol for acute respiratory syndromes.
- Virology samples should be sent to the Virology Unit, IMR.
- Bacteriology samples are processed in the respective hospitals (if assistance is required, the nearest Public Health Laboratories can be approached).
- All specimens from patients should be transported in accordance to KKM Guidelines of Transport of Infectious Material.
- In the event of death, post-mortem should be performed in accordance with the KKM Guidelines For Post-Mortems Involving Unknown/Uncertain Infectious Agents.

- Dead bodies should be handled as per KKM Guidelines on Handling of Bodies with HIV/AIDS.

4.1. Notification Requirements

- All suspected cases of PI should be notified to the State Health Department
- Daily census of all PI admissions and discharges should be sent to the Health Office by 10.00 a.m using format as in Appendix 1.

4.2. Treatment

Antiviral Therapy:

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

Indications for antiviral therapy:

During Phase 1 and 2 of the PI, treatment is suggested for all patients admitted. The family contacts of the index case are put on house quarantine for 10 days and IF ANY one of them manifest with flu-like disease, ALL household contacts will then be provided treatment on-site. If the contacts have any of the co-morbidities listed above or have severe symptoms, they will be admitted.

During Phase 3 and above: Since supply is expected to be limited, drugs may be reserved for patients who are ill or those with high risks for influenza-related complications (co-morbidities and complications listed above)

Antiviral agents:

Preferred Option:

For Adults: ***Oseltamivir 75 mg bid***.
For Children: ***Oseltamivir*** depending on weight. Weight ≤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.

Alternative Option:

Zanavir: 10 mg bid via inhalation for 5 days.

Difficult to use in children and in the elderly due to difficulties with inhalational technique. Contraindicated in those with asthma, chronic obstructive pulmonary disease or severe chronic lung disease, due to increase risk of bronchospasm; has not been licensed for use as prophylaxis.

Zanavir can be used as an alternative to oseltamivir for treatment of pandemic influenza. The quantum of zanavir used in relation to oseltamivir will be depandant on the amount available in the country.

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, nebuliser use should be avoided (if possible).

If CXR reveals pneumonic infiltrates, empirical antibiotics as recommended for community acquired pneumonia should be commenced. (options would include: $2^{nd/3rd}$.generation cephalosporins and macrolide, ß lactam/ß-lactamase inhibitors, doxycycline or the respiratory fluoroquinolones)

i. DISCHARGE OF PATIENTS

The following criteria are to be considered prior to making a decision regarding discharge from hospital regarding a convalescent case:

Clinical symptoms/findings

- Clinically stable for 48 hours
- Afebrile for >24 hours
- Able to tolerate orally

Laboratory tests: if previously abnormal

- White cell count returning to normal
- Platelet count returning to normal
- Creatine phosphokinase returning to normal
- Liver function tests returning to normal
- Plasma sodium returning to normal

Radiological findings

- Improving chest x-ray changes

Follow-up for convalescent cases

- Discharged convalescent patients should monitor and record their temperature twice daily

- If they have an elevated temperature of 38 degrees Celsius or above on two consecutive occasions they should report to the health care facility from which they were discharged

- On discharge, a designated ambulance should send the patient home

- As there is a potential for continued carriage (and hence the risk of continuing transmission) a precautionary approach is warranted. Therefore, following discharge from hospital, convalescent cases should remain at home for 7 days. During this period they should stay indoors, keeping contact with others to a minimum. This prerequisite will be reviewed in Phase 3 and above.

The patient should be followed up by the health care facility from which they were discharged after their home quarantine period (7 days).

ii. ISOLATION AND INFECTION CONTROL

- Newly diagnosed cases of PI are potentially infectious and should be isolated and accommodated as follows in descending order of preference:

  i. Negative pressure rooms with the door closed
  ii. Single rooms with their own bathroom facilities. Single rooms can be fitted with extractor fans.
  iii. Cohort placement (if there are a large number of similar cases) in an area with an independent air supply, exhaust system and bathroom facilities

- Turning off air conditioning and opening windows for good ventilation is recommended if an independent air supply is unfeasible. Windows and extractor fans (if used) should not open directly into public places. Patients should be nursed according to the Isolation Procedures as for airborne infections.

- Guidelines for Cohorting:

  - Suspect and probable cases should not be nurse together.
  - Beds should be placed more than 3 feet apart

- Patients should use a surgical mask when using common areas in the cohort area (eg. Toilets, etc)
- Common areas should be regularly cleaned using standard hypochlorite solutions to reduce cross contamination.
- Good ventilation should be encouraged with air exchanges of at least 6 cycles/min; an exhaust extractor fan maybe useful.
- Good hand and personal hygiene is encouraged among patients including regular hand washing or use of alcohol hand gels.

♦ Strict adherence to the barrier nursing of patients with PI, using precautions for airborne transmission.

♦ All Health Care Workers (HCW) attending to the patient should adhere to the MOH Infection Control Policy at all times

♦ All staff, including ancilliary staff should be trained in the infection control measures required for the care of such a patient.

♦ There should be designated ancilliary staff.

♦ Suspected and Probable cases as well as contacts should not be nursed next to each other.

♦ Movement of patients outside of the isolation unit should be avoided. If moved the patients should wear a surgical mask.

♦ Visitors should not be allowed into the isolation wards except in very extraordinary situations. If they are allowed entry, they should be issued with personal protective equipment (PPE) and their visit supervised.

♦ All non-essential staff (including students) should not be allowed into the unit/ward.

iii. Standard Precautions and Additional Precautions

Standard Precautions are considered the most important strategy for successful infection control in the health care setting. They are used for the care of all patients regardless of their diagnosis and perceived infection status. Therefore standard precautions apply to all patients who are assumed to be infectious and to:-

- Blood
- All body fluids, secretions and excretions, except sweat, regardless of whether they contain visible blood
- Non-intact skin
- Mucous membranes

Standard Precautions involve work practices which avoid direct contact with blood and body fluids. The infection control practices should include:

1. Hand washing. **Hands should be washed before and after contact** with any patient, after activities likely to cause contamination and **after removing gloves**
2. Appropriate use of personal protective equipment (PPE) including gloves, masks, eye goggles, face shields and gowns.
3. Use of disposables and proper cleaning, disinfection and sterilization of patient care equipment.
4. Proper housekeeping and management of spillage.
5. Management of soiled / contaminated laundry.
6. Disposal of sharps and infectious wastes.

ACTIVITIES	ACTION
iv. Hand washing	- Before and after coming into contact with patient - In between procedures to patient e.g.: after measuring urine followed by changing IV drip etc. v. After removing gloves
2. Hand rub	Alcohol Hand rub may be used when there is no water supply, when hand washing facilities are far away - in between patient during rounds when hands are not soiled. - Alcohol hand rub cannot replace hand washing

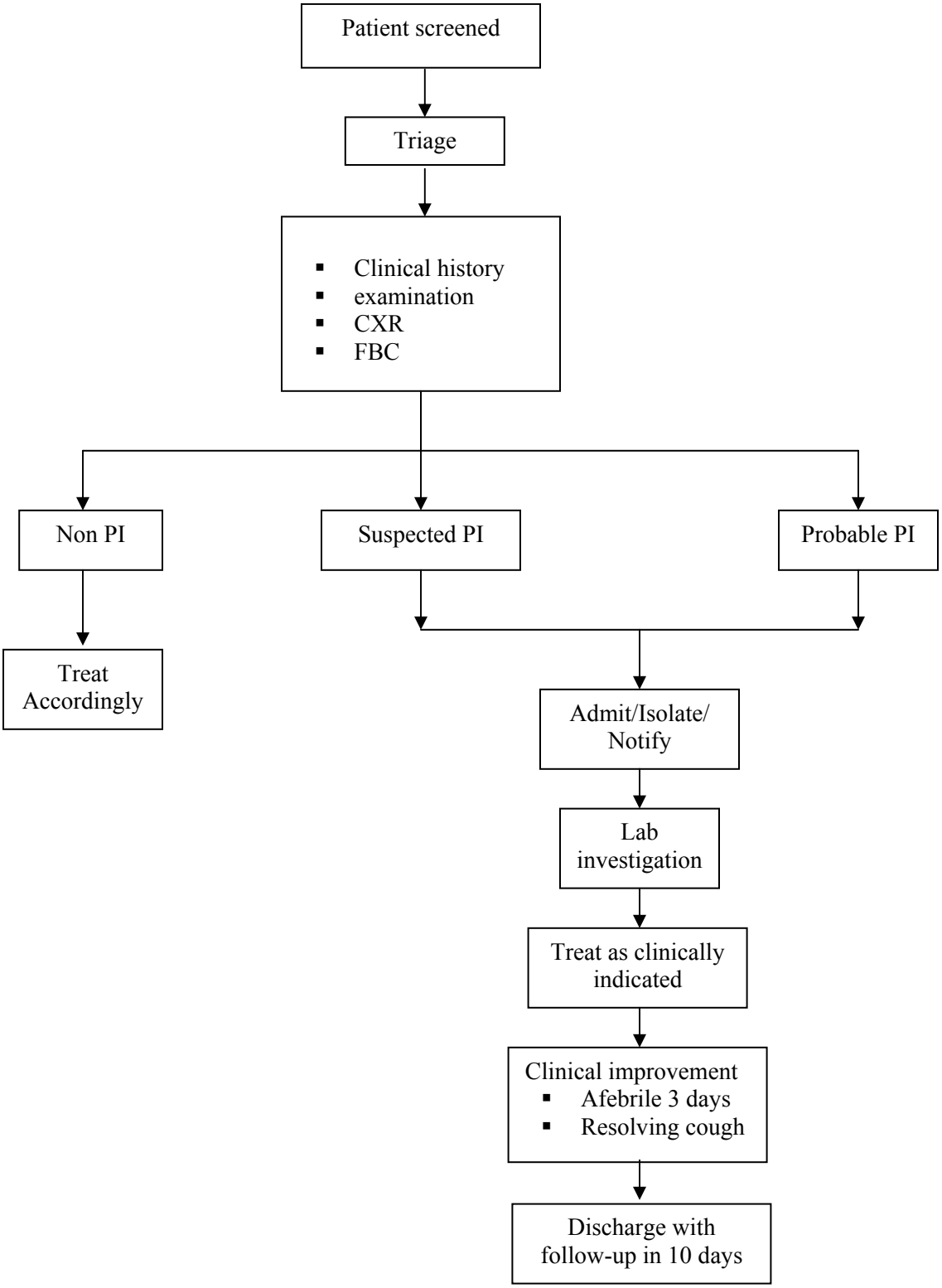
vi. Appropriate use of Personal Protective Equipment (PPE)

TYPE OF PPE	ACTION
vii. Gloves	▪ use gloves when anticipating handling blood, body fluids, secretions, excretions ▪ patient contact and droplet precaution, isolation and highly infectious cases. <u>Sterile Gloves</u> ▪ for sterile invasive procedures ▪ discard after each procedure <u>Non Sterile Gloves</u> ▪ when touching blood, body fluids, secretions, mucous ▪ removed after touching these materials ▪ change in between procedures and patient contact ▪ discard after each procedure ▪ when doing cleaning and disinfection
2. Mask / face shield	<u>N95</u> When doing aerosol generating procedures such as : ▪ intubation ▪ suctioning ▪ bronchoscopy with and addition of face shield
	Surgical Mask; <u>Triage Counter A AND E</u> i. staff to wear surgical mask ii. when handling the infected or suspected patient iii. when performing procedure on patient (2 & 3 needed additional face shield) iv. patient need to use surgical mask during transportation.
3. Gown	<u>Triage Counter A AND E</u> Staff to wear long-sleeved plastic gown <u>In the ward</u> ▪ staff to wear disposable long-sleeved plastic gown, change after each patient / procedure ▪ when doing cleaning and disinfection
xii. Rubber boots overshoes	▪ for area grossly contaminated with spillage

ACTIVITIES	ACTION
5. Housekeeping	Triage A AND E Areas and Isolation Room ▪ clean with detergent followed by disinfecting. Freshly prepared sodium hypochloride 0.05 % - 0.1 % available chlorine with 1:100 dilution every shift and when required ▪ articles used for patient must be disinfected before leaving the room with sodium hypochloride 1:100 dilution e.g.: stethoscope, x-ray machine ext. Spillage ▪ pour sodium hypochloride 0.1% - 0.5% available chlorine with 1:10 dilution over the spillage, leave for 10 minutes, wipe up the whole spill with fresh absorbent material and place in a clinical waste container ▪ wear PPE when handling spillage

ACTIVITIES	ACTION
1. Disinfection and Sterilization	▪ use disposable single use instruments if possible ▪ for reusable items-pack in the yellow plastic bag, label BIOHAZARD, sent to CSSD disinfect, clean and dry thoroughly and sterilize after each use
2. Management of soiled linen	▪ all linen used by patient needs to be placed in alginate laundry bags ▪ tightly tied & placed in container with cover before sending to laundry
3. Disposal of sharps	▪ all sharps must be disposed into sharps bin ▪ the user must be responsible to dispose all sharps used ▪ don't recap or manipulate sharps ▪ sharp bin should not be more than ¾ full ▪ must be placed at work site
4. Disposal of infectious wastes	▪ all disposable items used on patient should be discarded in the clinical waste ▪ faeces and other body fluids can be discarded in the sluice and flush. Care must be taken to avoid being splashed ▪ plastic bag should be tightly tied and placed in covered container before sending to ▪ disposal area

5. FLOW CHART OF MANAGEMENT OF PANDEMIC INFLUENZA



Note: Try to limit patient's movements within the hospital and try and reduce waiting time while undergoing preliminary investigations to limit possible exposure to others.

6. IDENTIFICATION OF HEALTH CARE WORKERS TO MANAGE SUSPECTED PI

Hospitals must identify dedicated teams who will manage suspected PI patients when they are admitted. These teams should comprise of physicians, paediatricians and nurses. The doctors from these teams should also be available to review suspected PI patients at A AND E.

6.1. Guideline on Staff Monitoring For PI

6.1.1 Monitoring of staffs handling PI patient.

1. A register of staffs attending to cases of PI should be created. Data required includes:
   i. Identification data
   ii. The dates when they start and stopped nursing/handling the patients.

2. The number of staff directly involved in nursing/handling the patient should be kept to the minimum and should only be from the dedicated team identified.

3. Staffs handling PI patient are to monitor their body temperature twice a day (morning and evening). Any HCW who develops fever within one month of nursing or handling the patient should report to Physician-in-charge/Infectious Disease Specialist as soon as possible. The team leader is to note if any designated staff managing PI patients develop fever. The staff member will then be taken out of the team and treated as a suspect.

4. Details of all HCW who fulfill the criteria for suspected/probable cases of PI should be notified to the Hospital Director and the district health officer for further action as part of the hospital surveillance of PI

5. The monitoring forms for staff handling patient with Pandemic Influenza is a shown in Appendix 2.

7. STEPS TO BE TAKEN IN THE MANAGEMENT OF PI INCLUDING THOSE REFERED FROM DISTRICT HOSPITALS AT DESIGNATED HOSPITALS

1. All cases of suspected/probable PI from district hospitals will be referred to the designated PI hospitals as per Appendix 3 for management.

2. Patients referred from district hospitals must be sent directly to the isolation ward. Admission must be done in the ward by the staff. History and clinical examination and chest x-ray is to be done at the isolation ward.

3. If there is no specific ward with isolation rooms (isolation ward) in the hospital, then the 1st class wards must be converted to isolation wards. One ward should be for suspected cases and another for probable cases. In the event that contacts are admitted, they should not be placed next to these patients. However they should also be kept in isolation.

4. As stated in the MOH guidelines (Hospital Management of PI) a dedicated team must manage PI patients. The number of staff managing should be kept to a minimum. Two shifts would be sufficient. These staff must only attend to PI patients and not other patients.

5. Other health care workers should also be designated for PI e.g. radiographers, concession company workers.

6. Isolation rooms must have individual BP sets, stethoscopes, thermometers, other required equipment and consumables and these should not be removed from the rooms.

7. A Portable X-ray machine must be placed at the isolation ward where suspected cases are admitted.

8. PI staff should be provided food from the hospital kitchen and should not go to the canteen. There should be a provision for staff recreation in the ward e.g. television.

9. A team leader must be identified amongst the staff in the A AND E and in the wards and he/she is to monitor staff attendances and their health status. The team leader is also to ensure that the barrier nursing protocol is adhered to strictly.

10. Hospital must notify the PI cases to the State Health Office as they are currently doing. A copy of this is to be faxed to 03-88831155 (Bhg. Perkembangan Perubatan) by 8 a.m. each morning.

11. The Hospital Director must verify that the notification complies with the WHO guidelines on PI before it is sent to the State Health Office.

12. Should the number of suspected/probable PI cases admitted be on the rise, elective surgeries should be postponed to a later date. More 1st class wards can then be converted to isolation wards.

13. A PI Operations Room must be opened in the hospital. The Deputy Director of the hospital is to be in charge of this. All enquiries pertaining to PI should be directed to this room including those calls made to the wards.**

14. The Deputy Director of the hospital in charge of the Operations Room is also the liason person who can be contacted by the Ministry of Health.

15. Hospital Directors are advised to update themselves on the latest developments of PI e.g. from WHO/MOH website.

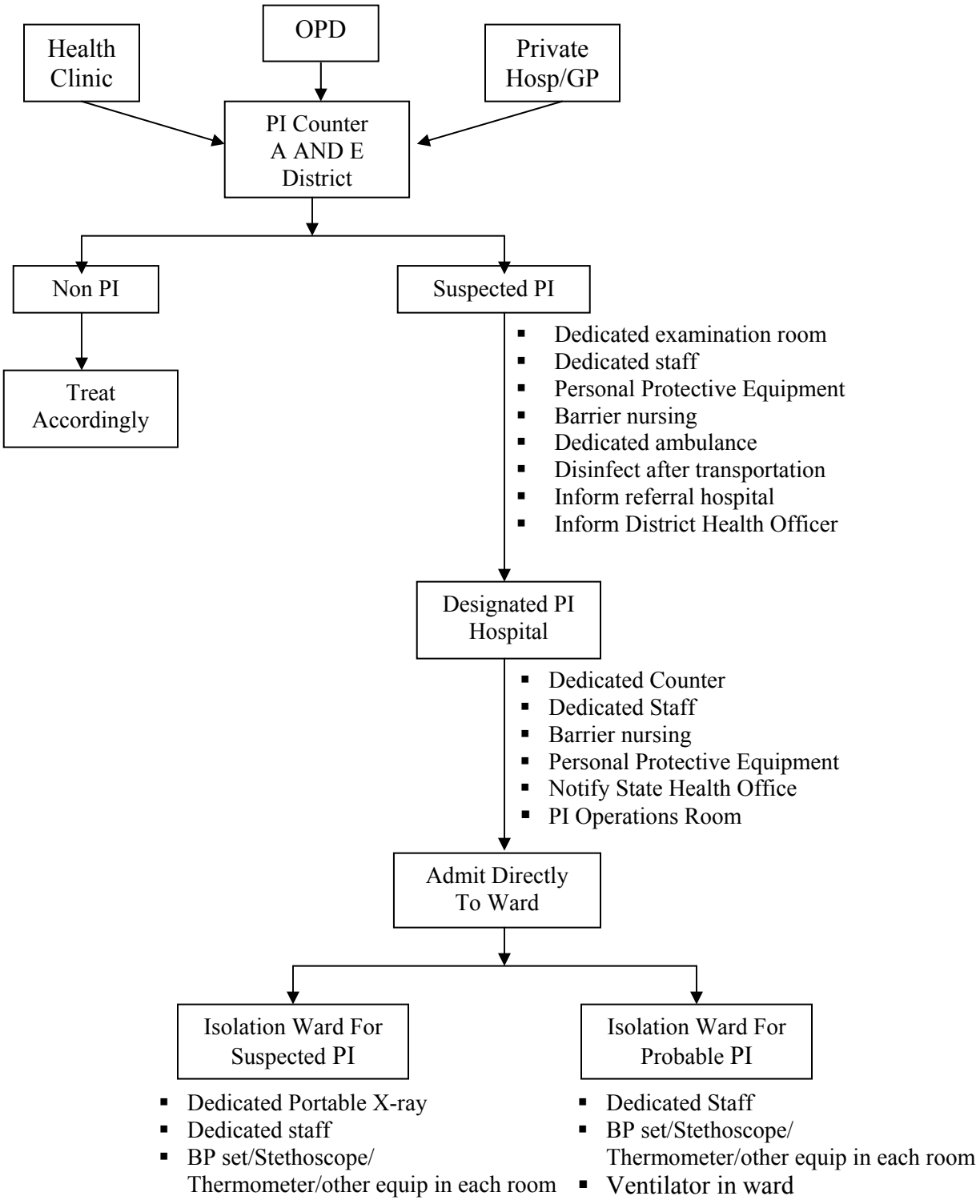
*** Only the Minister of Health and Director General of Health are authorised to make statements concerning PI.*

8. CHECKLIST FOR HOSPITALS DESIGNATED TO MANAGE PANDEMIC INFLUENZA

The checklist for hospitals designated to manage Pandemic Influenza is as given in appendix 4.

PART III: GUIDELINES ON THE HOSPITAL MANAGEMENT OF PANDEMIC INFLUENZA (PI) IN DISTRICT HOSPITALS

1. Flow Chart Of Referral From District Hospital And Admission In Designated PI Hospital For Patients With Suspected/Probable Pandemic Influenza (PI)



2. Steps To Be Taken In The Management Of Patients With Suspected/Probable Pandemic Influenza (PI) At District Hospitals

1. There should be signage at the hospital regarding PI and also to direct patients to the PI counter.

2. A special counter should be set up in the A AND E of all hospitals for suspected PI patients to whom patients can come directly. Dedicated staff especially for PI should man this counter.

3. The designated staff should only attend to PI patients. Other staff must attend to other cases. The number of dedicated staff must be kept to a minimum to avoid the risk of transmission to more staff. Dedicated staff (including ambulance drivers) should be on call at all times.

4. A team leader must be identified amongst the staff.

5. Other patients who come to A AND E should also be screened for suspected PI.

6. All patients with symptoms of PI should be rapidly diverted to a designated examination room not connected to the central air-conditioning system to minimize transmission to others

7. These patients should be given surgical masks to wear.

8. Staff involved in the triage process (at the counter) should wear mask (surgical) with face shield and wash hands before and after contact with any patient.

9. Staff in close contact with suspected/probable PI patients (e.g. examination of the patient) must also wear disposable gowns and gloves.

10. After the clinical history and examination is completed and if a patient is diagnosed as a suspected or probable case of PI, he/she is referred to the designated hospital for PI during phase 3, 4 and 5. When there is widespread local transmission (Phase 6), all suspect or probable cases are to be treated at the nearest district hospitals. Only cases needing specialist care or those who cannot be managed at the district hospital level are to be refered to designated hospitals. The receiving hospital is to be informed of the case referred by the referring hospital.

11. The patient is sent to the hospital by designated staff in a designated ambulance. The staff number should be kept to a minimum, e.g. a staff nurse and driver who sit at the front of the ambulance unless the patient is ill and needs monitoring. In such instances, barrier nursing must be practised at all times.

12. No relatives should accompany the patient in the ambulance unless the patient is a child. Then one parent accompanies.

13. The ambulance should not stop on the way and should not transport back any other patient from the referral hospital. On returning after sending the patients to the designated hospital, the ambulance should be cleaned and disinfected as given by the guideline in appendix 5.

14. The trolley or wheelchair used to transport the patient needs to be disinfected with Sodium hypochlorite 1000 ppm and left to dry for 3 hours and the ambulance is also disinfected on return to the district hospital.

15. The Hospital Director should keep a staff register with data of the dedicated PI staff.

16. A team leader must be identified amongst the staff in A and E and he/she is to monitor staff attendances and their health status. The team leader is also to ensure that the barrier nursing protocol is adhered to strictly.

17. Staff managing PI patients are to monitor their temperature three times daily and chart it. The team leader is to note if any PI staff develops fever. The staff member will then be taken out of the team and treated as a suspect.

18. The Director of the hospital is also the liason person who can be contacted by the Ministry of Health.

19. Hospital Directors are advised to update themselves on the latest developments of PI e.g. from WHO / MOH website.

20. The listing of hospitals designated to manage pandemic influenza cases is as per Appendix 3.

21. The Pandemic Influenza checklist for district hospitals/other hospitals is as per Appendix 4.

22. The suspect or probable PI cases admitted to the districts should be managed as per this guidelines unless they are to be refered as per para 10 above.

PART IV: GUIDELINES ON MANAGEMENT OF PANDEMIC INFLUENZA (PI) AT OUTPATIENT CLINIC

1. BASIC PRINCIPLE

Minimise contact with any suspect and probable cases.

2. CASE DEFINITIONS

2.1. Suspected case

A person presenting with history of acute onset of:

- High fever (> 38º C)
  AND
  Dry cough,
  AND one or more of the following: sore throat, nasal congestion/blockage, myalgia, headahce, fits (infant), vomiting (infant); ***with or without***

- Recent history of travel to affected areas** reporting cases of PI; ***and/or***

  Close contact* with a person diagnosed with PI within 10 days of the onset of symptoms

b) <u>Probable case</u>

- A suspected case with limited laboratory confirmation of Influenza A / sub-type
  OR
- A person with an unexplained respiratory illness resulting in death with history of close contact with a person diagnosed with PI within the last 10 days or recent history of travel to areas reporting cases of PI.

* **Close contact:** having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a suspect or probable case of PI

** **Affected area:** an area in which local chain(s) of transmission of PI is / are occurring as reported by the national public health authorities.

Exclusion criteria

A case should be excluded if an alternative diagnosis can fully explain their illness.

Reclassification of cases

As more epidemiological data made available during the influenza pandemic, WHO may provide new case definitions for pandemic influenza. Thus the status of a reported case may change over time. A patient should always be managed as clinically appropriate regardless of their case status.

- A case initially classified as suspect or probable, for which an alternative diagnosis can fully explain the illness, should be discarded.

- A suspect case who, after investigation, fulfill the probable case definition should be reclassified as "probable"

- A suspect case who dies, on whom no autopsy is conducted, should remain classified as "suspect". However, if this case is identified as being part of a chain transmission of PI, the case should be reclassified as "probable".

- If an autopsy is conducted and no pathological evidence of PI is found, the case should be "discarded".

3. POLICIES AND PROCEDURE AT OUTPATIENT DEPARTMENT (OPD)

3.1 At the Clinic Entrance

Create a triage corner / area / room before the registration counter. This must be manned by trained doctors/paramedics.

a) All patients presenting to health care facilities should be screened for suspect PI at this area.
b) Those who require assessment for PI should be rapidly diverted by triage paramedics to a triage corner / area/ room to minimize transmission to others.
c) The health staff conducting the triage must wear a surgical mask and wash hands before and after contact with any patient.
d) Those patients should be given a mask to wear.
e) The body temperature of the patient must be taken.
f) This area must be an air-cond free, window open and well ventilated.
g) Display Information and Instruction including Poster should be displayed at all entrance.
h) Staff is to medically examine the triaged patients (before registration) for suspect PI cases whom upon diagnosis as such are to be referred straight to PI designated hospital.

i) Create special route (where possible) for transfer of suspect cases direct to PI designated hospitals with a referral letter according to the para 3.3 and 3.4.

j) Keep a registry of these cases;

a. Name
b. I/C
c. Address
d. Contact number/Hand-phone numbers
e. Signs and Symptoms
f. History of travel, where and contacts
g. Who are their immediate contacts

k) When a suspect case is detected, the triage area / room must be disinfected.

3.2 Guideline on Room Disinfection

a) Compressed air that might re-aerosolize infectious material should not be used for cleaning.

b) Persons doing the cleaning should wear mask, gown and glove..

c) All spillage must be dealt with as soon as possible. Disinfect spillage with sodium hypochlorite 10,000 ppm and leave for 5-10 minutes contact time. Wipe spillage with absorbent materials and discard as clinical waste. Decontaminate area by wiping with sodium hypochlorite. Mops and buckets should be disinfected after removal of the spills.

d) All surfaces should be wiped with sodium hypochlorite 1,000 ppm and left to air-dried for at least three hours.

3.3 Referral Policy

All State Health Directors must ensure that the referring Health Workers and Doctors speak directly with the receiving Specialist in the PI Designated Hospital before sending patients.

3.4 Guideline on Transportation of suspect cases

Transport guideline of such patients must be strictly followed:

a) Designate one vehicle as far as possible.
b) Park in a designated lot when not in use.
c) During transporting of patients, off the air-con and wind down all the windows
d) If possible not more than one staff who is **fully protected*** to accompany a suspect case. Relatives should not accompany in the same vehicle.

e) Drivers must also be **fully protected***.
f) Other non PI patients shall not share this vehicle.
g) This vehicle must be disinfected after every case and air dried with windows wound down.
h) Guideline on cleaning and disinfection ambulance after transporting a possible patient is to be followed (refer appendix 5)

*** Fully protected:** Wearing gloves, a surgical mask and apron and wash hands before and after contact with any patient, after activities likely to cause contamination and after removing gloves.

3.5 Health Education and Information

Provide information and health education on PI to all who come into the clinic. Please get the health education materials from State Health Education office.

4. FOLLOW-UP OF SUSPECT CASES

Any clinic that has referred any suspect cases to the designated PI hospital is required to follow-up with that hospital (by telephone, daily) on the diagnostic outcome of the case. If the case is diagnosed as a "probable case", all his or her contacts at the clinic will be placed in **quarantine***. Guideline on staff monitoring for PI is to be strictly followed (refer appendix12).

***Quarantine:** Quarantine for a clinic staff means isolation in his or her home for a period of 10 days since last contact with a "probable case".

5. PRIMARY PREVENTION FOR HEALTH STAFF

Besides the usual measures under "Universal Precaution", health staff is required to take the following measures:

a. Personal Hygiene; Proper hand washing before and after handling of each patient

- Frequent hand washing (before and after contact and after removing gloves)
- Use alcohol-based skin disinfectants
- Avoid touching mucosal surfaces such as nose and eyes (it can be route of infection)

b. Personal Protection; Wear Personal Protection Equipment (PPE) when handling suspected cases:

- Disposable Gloves

- Mask (surgical)
- Disposable Gown
- Apron
- Footwear that can be decontaminated

c. Advise to take bath and change clothing before going home (Clinic to provide these facilities)

d. Ensure good diet

e. Daily and frequent monitoring of all health workers involved in the triaging.

- Look out for early signs and symptoms
- Temperature recording twice daily

f. Avoid traveling to Affected areas (where relevant)

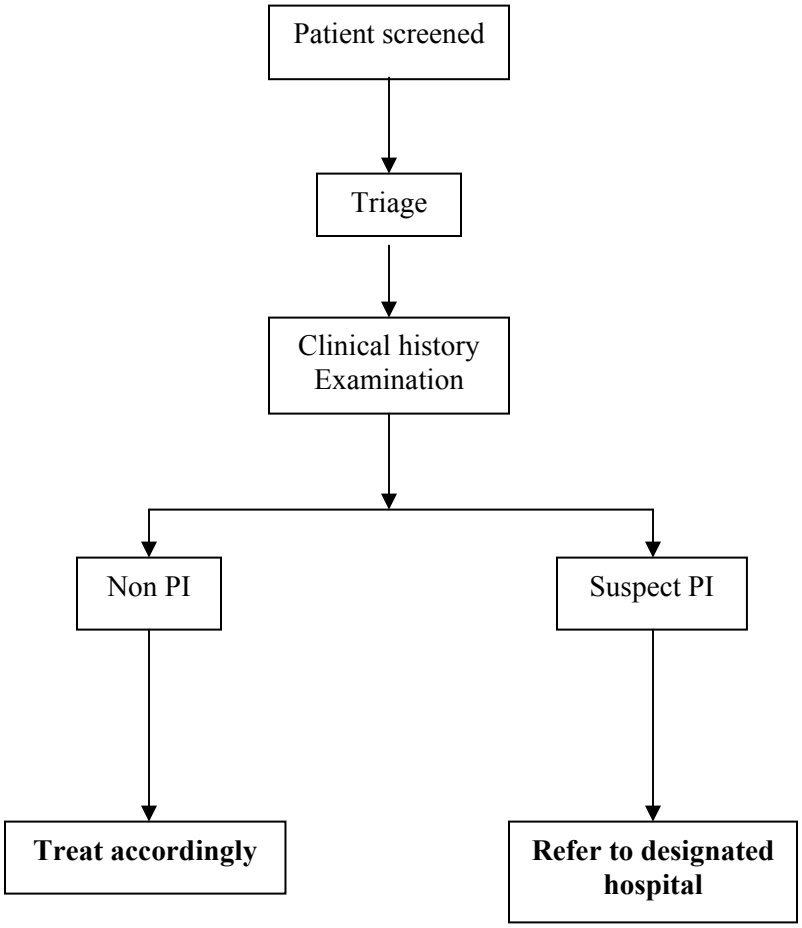
g. Health care workers exposed to direct contact with suspect PI patient should be monitored more closely. Provide early treatment where necessary.

h. Monitoring and Follow-up

- Guideline on staff monitoring for PI is to be strictly followed (refer appendix 2).
- A register of staff attending to cases of PI should be created. Data required includes; identification data and the dates when they started and stopped nursing the patient
- The number of staff directly involved in nursing the patient should be kept to minimum.

i. All disposal items must be regarded as clinical waste and disposed in the proper clinical waste disposal bin.

6. FLOW CHART OF MANAGEMENT OF PANDEMIC INFLUENZA (PI) AT OUTPATIENT CLINIC



PART V: GUIDELINES ON MANAGEMENT OF PANDEMIC INFLUENZA (PI) FOR OUTPATIENT UNIT IN PRIVATE HOSPITALS AND PRIVATE CLINICS

1. BASIC PRINCIPLE

Minimise contact with any suspect and probable cases.

2. CASE DEFINITIONS

2.1. Suspected case

A person presenting with history of:

- High fever (> 38º C)

AND
Dry cough,
AND one or more of the following: sore throat, nasal congestion/blockage, myalgia, headache; ***with or without***

- Recent history of travel to affected areas* reporting cases of PI; ***and/or***

Close contact** with a person diagnosed with PI within 10 days of the onset of symptoms

2.2. Probable case

- A suspected case with limited laboratory confirmation of Influenza A/sub-type
  OR
- A person with an unexplained respiratory illness resulting in death with history of close contact with a person diagnosed with PI within the last 10 days or recent history of travel to areas reporting cases of PI.

Exclusion criteria

A case should be excluded if an alternative diagnosis can fully explain their illness.

Reclassification of cases

As more epidemiological data made be made available during the influenza pandemic, WHO may provide new case definitions for pandemic influenza. Thus the status of a reported case may change over time. A patient should always be managed as clinically appropriate regardless of their case status.

- A case initially classified as suspect or probable, for whom an alternative diagnosis can fully explain the illness, should be discarded.
- A suspect case who, after investigation, fulfill the probable case definition should be reclassified as “probable”.
- A suspect case who dies, on whom no autopsy is conducted, should remain classified as "suspect". However, if this case is identified as being part of a chain transmission of PI, the case should be reclassified as "probable".
- If an autopsy is conducted and no pathological evidence of PI is found, the case should be "discarded".

* **Affected area:** an area in which local chain(s) of transmission of PI is/are occurring as reported by the national public health authorities.
** **Close contact:** having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a suspect or probable case of PI.

3. POLICIES AND PROCEDURE

3.1. At the Clinic Entrance

Create a triage corner / area / room before the registration counter. This must be manned by trained personnel.

a) All patients presenting to health care facilities should be screened for suspect PI at this area.
b) Those who require assessment for PI should be rapidly diverted by triage paramedics to a triage corner / area/ room to minimize transmission to others.
c) The staff conducting the triage must wear gloves, a surgical mask and apron, and wash hands before and after contact with any patient, after activities likely to cause contamination and after removing gloves.
d) Those patients should be given a mask to wear.
e) The body temperature of the patient must be taken from the armpit and not orally.
f) This area must be an air-cond free, window open and well ventilated.
g) Display Information and Instruction including Poster should be displayed at all entrance.
h) Suspect cases to be sent straight to PI Designated Hospital (**Refer Appendix 3)**
i) Create special route (where possible) for transfer of suspect cases direct to PI designated hospitals with a referral letter according to the procedures spelt out in the transportation of PI patients guidelines.
j) Call the nearby health clinics/designated hospitals for ambulance/designated vehicles assistance.

- **DO NOT ALLOW SUSPECT CASES TO GO TO HOSPITAL ON THEIR OWN.**
- **DO NOT USE PUBLIC TRANSPORT.**

k) Notify any suspect cases to Medical Officer of Health of the District IMMEDIATELY for further follow-up.

l) Keep registry of these cases;

a. Name
b. I/C
c. Address
d. Contact number/Hand-phone numbers
e. Signs and Symptoms
f. History of travel, where and contacts
g. Who are their immediate contacts

m) When a suspect case is detected, the triage area / room **must be disinfected**.

3.2 Guideline on Room Disinfection

a) Compressed air that might re-aerosolize infectious material should not be used for cleaning.
b) Persons doing the cleaning should wear mask, gown and glove.
c) All spillage must be dealt with as soon as possible. Disinfect spillage with sodium hypochlorite 10,000 ppm and leave for 5-10 minutes contact time. Wipe spillage with absorbent materials and discard as clinical waste. Decontaminate area by wiping with sodium hypochlorite. Mops and buckets should be disinfected after removal of the spills.
d) All surfaces should be wiped with sodium hypochlorite 1,000 ppm and left to air-dried for at least three hours.

3.3 Referral Policy

All clinic/hospitals must ensure that the referring doctors speak directly with the receiving Specialist in the PI Designated Hospital before sending patients.

3.4 Guideline on Transportation of suspect cases

Transport guideline of such patients must be strictly followed:

a) During transporting of patients, off the air-con and wind down all the windows
b) If possible not more than one staff who is **fully protected*** to accompany a suspect case. Relatives should not accompany in the same vehicle.
c) Drivers must also be **fully protected***.
d) Other non PI patients shall not share this vehicle.

e) This vehicle must be disinfected after every case and air dried with windows wound down.
f) Guideline on cleaning and disinfection ambulance after transporting a possible patient is to be followed (refer appendix 6)

*** Fully protected;** Wearing gloves, a surgical mask and apron and wash hands before and after contact with any patient, after activities likely to cause contamination and after removing gloves.

3.5 Health Education and Information

Provide information and health education on PI to all who come into the clinic/hospitals. Please get the health education materials from the respective District Health Office.

4. FOLLOW-UP OF SUSPECT CASES

Any clinic/hospital that has referred any suspect cases to the PI designated hospital is required to follow-up with that hospital (by telephone, daily) on the diagnostic outcome of the case. If a patient is diagnosed as a "probable case", all his or her contacts at the clinic concern will be placed under **quarantine*** for 10 days, if the clinic has not complied adequately as stipulated in this guidelines. However if the clinic has followed the stipulated procedures, the doctor as well other medical personnel will undergo surveillance for 10 days. Guideline on staff monitoring for PI is to be strictly followed (refer appendix 2).

***Quarantine;** Quarantine for a clinic staff means isolation in his or her home for a period of 10 days since last contact with a "probable case".

5. PRIMARY PREVENTION FOR THE STAFF

Besides the usual measures under "Universal Precaution", all staff are required to take the following measures:

a. Personal Hygiene; Proper hand washing before and after handling of each patient

- Frequent hand washing (before and after contact and after removing gloves)
- Use alcohol-based skin disinfectants
- Avoid touching mucosal surfaces such as nose and eyes (it can be route of infection)

b. Personal Protection; Wear Personal Protection Equipment (PPE) when handling suspected cases:

   - Disposable Gloves
   - Surgical mask
   - Disposable Gown
   - Apron
   - Footwear that can be decontaminated

c. Advise to take bath and change clothing before going home (clinic/hospital to provide these facilities)

d. Ensure good diet

e. Daily and frequent monitoring of all staff involved in the triaging.

   - Look out for early signs and symptoms
   - Temperature recording twice daily

f. Avoid traveling to affected areas (where relevant)

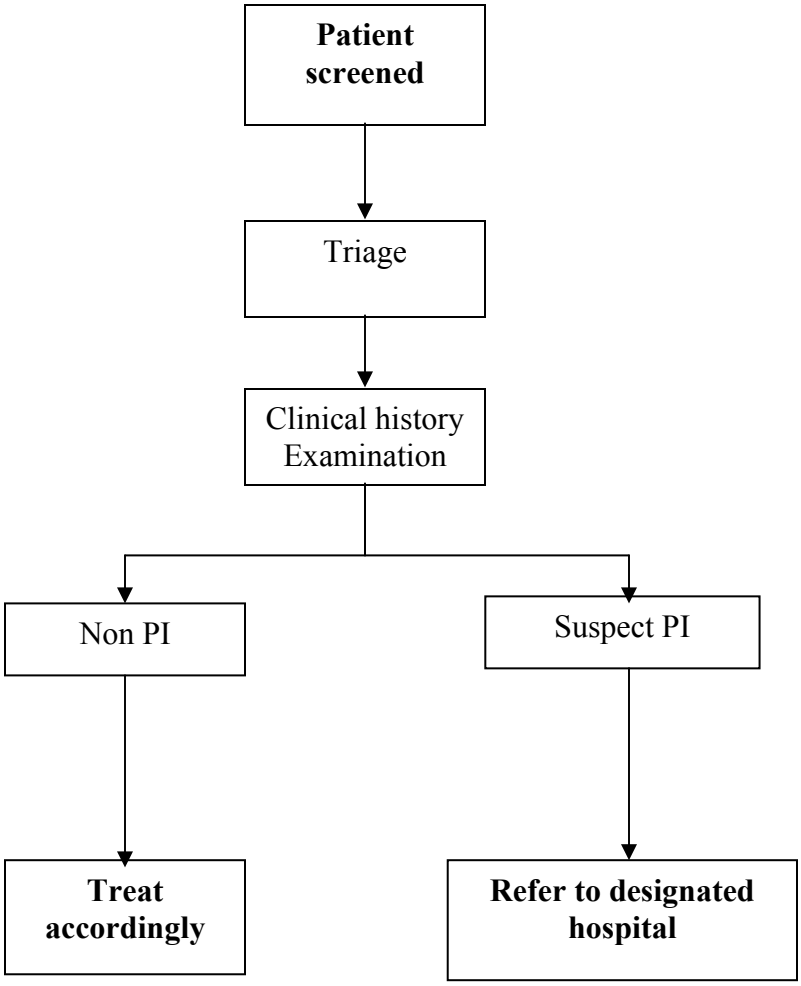
g. Any staff exposed or having direct contact with suspect PI patient should be monitored more closely. Provide early treatment where necessary.

h. Monitoring and Follow-up;

   - Guideline on staff monitoring for PI is to be strictly followed (refer appendix 2).
   - A register of staff attending to cases of PI should be created. Data required includes; identification data and the dates when they started and stopped nursing the patient
   - The number of staff directly involved in nursing the patient should be kept to minimum.

i. All disposal items must be regarded as clinical waste and disposed in the proper clinical waste disposal bin.

7. FLOW CHART OF MANAGEMENT OF PANDEMIC INFLUENZA (PI) AT OUTPATIENT UNIT



Appendix 1

KKM/BKP/InfDis/2004

NO. TEL: 03-88834327
NO. FAX: 03-88886271

PERKEMBANGAN PESAKIT YANG MASIH BERADA DI WAD

NAMA PESAKIT:_____
TARIKH:_____
KUARANTIN DI RUMAH ☐
WAD ☐ ISOLATION
☐ GENERAL

RUJUKAN KKM: KES NO

KEADAAN FIZIKAL PESAKIT	Demam	☐ Ya (Temp _____°C) ☐ Ya, tetapi bertambah baik
	Batuk	☐ Tidak ☐ Ya, bertambah baik. ☐ Ya, sama seperti sebelum ini ☐ Ya, tetapi bertambah teruk.
	Sesak / susah nafas	☐ Tidak ☐ Ya, bertambah baik. ☐ Ya, sama seperti sebelum ini ☐ Ya, tetapi bertambah teruk.
UJIAN MAKMAL	CXR (sila tuliskan hasil reporting)	
	FBC	WBC_____ Platelet
	Hasil ujian Bacteriologi (sila tuliskan hasil) Virologi (sila tuliskan hasil)	
RAWATAN	Sama ada pesakit diberi antibiotic. Jika ya, sila nyatakan nama antibiotik	
DISCHARGE	Nyatakan tarikh discharge	
FINAL DIAGNOSIS	Nyatakan	

Sila fakskan maklumat ini kepada Bilik Gerakan Survelan, KKM (no. 03-8888 6271) setiap hari pada pukul atau sebelum 10.00 pagi

Appendix 2

MONITORING OF STAFFS HANDLING/NURSING PI PATIENT.

1. A register of staffs attending to cases of PI should be created. Data required includes:
   i. Identification data
   ii. The dates when they handle the patient/transport patients.

2. The number of staff directly involved in handling the patient should be kept to minimum and should only be from the dedicated team identified.

3. The following personnel protective equipment (PPE) should be made available at health center;
   i. Surgical mask
   ii. Gloves
   iii. Disposable apron

4. The health care workers (HCW) are to wear protective masks, gloves and disposable apron if they have to handle any of the patients/utensils used by them. Protective equipment may not be removed during PI patient transport.

5. Staffs handling PI patient are to monitor their body temperature twice a day (morning and evening). Any HCW who develops fever within one month of nursing or handling the patient should report to Medical Officer of Health in their district.

6. The HCW should immediately refer to physician-in-charge/infectious disease Specialist at designated hospital as soon as possible. Details of all HCW who fulfill the criteria for suspected/probable cases of PI should be notified to the district health office for further action.

MONITORING FORM FOR
HEALTH STAFF HANDLING/NURSING PI PATIENTS

Name of clinic:

District:

State:

Date:

Health Staff Particulars

Name:

Sex:

Age

Ethnic group:

Category (eg: Dr, S/N, MA etc):

Place of contact with PI patient:

Triage area/room	
Physical Examination Room	
Transportation	

Date of contact with PI patient:

Date of presenting symptoms:

Presenting symptoms:

Fever	
Cough	
Breathing difficulty	
Others	

	Date	Temperature (Morning)	Temperature (evening)

- Body temperature must be recorded from the armpit

REGISTRY OF HEALTH CARE WORKERS HANDLING INFLUENZA PATIENT

No.	Name	IC. No	Age	Sex	Ethnic	State	Category	Place of work i. Unit / Ward / Clinic / Entry point ii. Hospital / KK / PKD / Institution (laboratory)	Date Health status ▪ Healthy ▪ Had illness	Type of illness ▪ PI ▪ Not PI
1.										
2.										
3.										
4.										
5.										
6.										

Appendix 3

DESIGNATED HOSPITALS FOR MANAGING INFLUENZA CASES DURING THE PANDEMIC

NEGERI	HOSPITAL
PERLIS	Hospital Tengku Fauziah Kangar, 01000 Kangar,Perlis Tel: 04-9763333 Faks: 04-9767237
KEDAH	Hospital Alor Setar, 05100, Alor Setar, Kedah Tel: 04-7303333 Faks: 04-7303770 Hospital Langkawi, 07000 Langkawi, Kedah Tel: 04-9663333 Faks: 04-9660121
PULAU PINANG	Hospital Pulau Pinang, Jalan Radensi, 10450, Pulau Pinang. Tel: 04-2293333 Faks: 04-2281737
PERAK	Hospital Ipoh, Jalan Hospital, 30450, Ipoh, Perak. Tel: 05-2533333 Faks: 05-2531541
SELANGOR	Hospital Tengku Ampuan Rahimah Klang, 41200 Klang Selangor. Tel: 03-3323333 Faks: 03-3329089

N SEMBILAN	Hospital Seremban, Jalan Rasah, 70300, Seremban, Negeri Sembilan. Tel: 06-7623333 Faks: 06-7625771
MELAKA	Hospital Melaka, Jalan Mufti Haji Khalil, 75499, Melaka Tel: 06-2822344 Faks: 06-2841590
JOHOR	Hospital Sultanah Aminah, 80100 Johor Bharu, Johaor: Tel: 07-2822344 Faks: 07-2841590
PAHANG	Hospital Tengku Ampuan Afzan, Jalan Tanah Putih, 25100, Kuantan, Pahang. Tel: 09-5133333 Faks: 09-5142712
TERENGGANU	Hospital Kuala Terengganu, 20400, Kuala Terengganu. Tel: 09-6233333 Faks: 09-6221820
KELANTAN	Hospital Kota Bharu, Jalan Hospital, 15000, Kota Bharu, Kelantan. Tel: 09-7485533 Faks: 09-7486951
W.P. KUALA LUMPUR	Hospital Kuala Lumpur, Jalan Pahang, 50586, Kuala Lumpur. Tel: 03-26915555 Faks: 03-26911681

SARAWAK	Hospital Kuching, Jalan Tun Ahmad Zaidi Adruse, 93586, Kuching, Sarawak. Tel: 082-257555 Faks: 082-242751
	Hospital Sibu, Batu 5 ½, Jalan Ulu Oya, 96000 Sibu, Sarawak. Tel: 084-343333 Faks: 084-337354
	Hospital Miri 96700, Miri, Sarawak. Tel: 085-420033 Faks: 085-416514
SABAH	Hospital Queen Elizabeth, 88586 Kota Kinabalu, Sabah. Tel: 088-218166 Faks: 088-211999
	Hospital Duchess of Kent, 90007 Sandakan, Sabah: Tel: 089-212111 Faks: 089-213607
	Hospital Tawau 91000 Tawau, Sabah. Tel: 089-773533 Faks: 089-778626
W.P. LABUAN	Hospital Labuan 87007 Labuan W.P. Labuan Tel: 087-423919 Faks: 087-423928

Appendix 4

PANDEMIC INFLUENZA CHECKLIST
FOR HOSPITALS DESIGNATED TO MANAGE PI

Hospital: _____

State: _____

No.	STEPS TAKEN	YES (√)	NO (×)	DETAILS (Wherever applicable)
1	Signage (include symptoms, visit to countries identified)			
2	PI counter at A AND E for patients			
3	Designated staff solely for the handling of PI patients at counter in A AND E *State:* *a) Name of team leader at A AND E* *b) Names of other doctors, nurses and other health care staff*			
4	Designated staff for the PI examination room *a) State names*			
5	Room at A AND E not connected to the central air-con for taking of clinical history/examination of PI patients			
6.	Availability at A AND E: *a. Surgical masks* *b. Gloves* *c. Disposable gowns* *d. Aprons* *e. Goggles/Face masks*			
7.	Designated route/lift for transfer of patients to ward			

No.	STEPS TAKEN	YES (√)	NO (×)	DETAILS (Wherever applicable)
8.	Designated wheelchair/ trolley for the transport of patients if required			
9.	Availability of disinfectant for disinfection of surfaces, trolley at A AND E			
10.	A register of staff attending to PI patients at A AND E (including concession company staff)			
11	1st class ward identified for suspected PI			
12	1st class ward identified for probable PI			
13	Number of isolation rooms in designated ward for suspected PI			
14	Number of isolation rooms in designated ward for probable PI			
15	Designated staff solely for the management of PI patients in the ward *(State names of doctors, nurses, other healthcare staff)*			
16	Placement of portable x-ray in the isolation ward only for PI patients			
17	Availability of BP set, stethoscope, thermometer, other equipment/consumables placed in each individual room			
18	Availability of Personal Protective Equipment (PPE) in isolation wards: *a) Surgical masks* *b) Gloves* *c) Disposable gowns* *d) Aprons* *e) Goggles/Face Masks*			

No.	STEPS TAKEN	YES (√)	NO (×)	DETAILS (Wherever applicable)
19	Availability of ventilators in the isolation ward *(state numbers)*			
20	Availability of disinfectant for disinfection of surfaces, spillage in the ward			
21	A register of staff attending to PI patients in the ward (including concession company staff)			
22	Designated ambulance for transport of patients home on discharge			
23	Designated van for transport of dead bodies for post mortem to identified hospitals (HKL, Kuantan)			
24	Team leader of PI ward staff **State name**			
25	PI Operation room in hospital **State phone number**			
26	*Name & phone number* (*including hand phone*) of Deputy Director of hospital who can be contacted by Ministry of Health			

Sila faxkan kepada no:**03-88831155**
(u.p. Pengarah Perkembangan Perubatan)

Appendix 5

CLEANING AND DISINFECTION AMBULANCE AFTER TRANSPORTING A POSSIBLE PI PATIENT

1. Compressed air that might re-aerosolize infectious material should not be used for cleaning the vehicle or reusable equipment.

2. Non-patient-care areas of the vehicle should be cleaned and maintained according to vehicle manufacturer's recommendations.

3. Cleaning personnel should wear non-sterile gloves, disposable gowns and face shields while cleaning the patient care compartment.

4. Patient care compartments (including stretchers, railings, medical equipment control panels and adjacent flooring, walls and work surfaces likely to be directly contaminated during care) should be cleaned using sodium hypochlorite 1 in 10 dilution in accordance with manufacturer's recommendations.

5. Spills of body fluids during transport should be cleaned by placing absorbent material over the spill and collecting the used cleaning material in biohazard bag. The area of the spills should be cleaned using sodium hypochlorite 1 in 10 dilution. Cleaning personnel should be notified of the spill location and initial location clean-up performed.

6. Contaminated reusable patient care equipment should be placed in biohazard bags and labeled for cleaning and disinfection.

7. Personnel should wear non-sterile gloves, disposable gowns and face shields while cleaning reusable equipment.

8. Reusable equipment should be cleaned and disinfected according to manufacturer's instruction.

9. All the waste disposal from the affected patients should follow guideline of Clinical Waste Management.