

**State of Kuwait
Ministry of Health
Infection Control Directorate**

**Infection Control Emergency plan for
Pandemic Influenza**

November 2005

Infection Control Emergency plan for Pandemic Influenza

Objectives of the emergency plan

1. Set up a system for flexible response for unpredictable events in healthcare facilities.
2. Minimize/control the spread of outbreaks of a new pandemic strain of influenza virus in health care facilities.
3. Protect health care providers from acquiring infection while caring for infected patients.
4. Rapidly assess the emerging epidemiology of the pandemic strain.
5. Limit morbidity and mortality due to infection with the pandemic strain.
6. Provide safe care for large numbers of people ill from influenza and its complications.
7. Cope with of the situation of large number of people dying.
8. Reduce the impact on health services including any consequences for other patients as a result of reprioritization of services or cancellation of routine work.
9. Anticipate and plan for other consequences.

Elements of the plan

1. Leadership, organization and coordination.
2. Surveillance, information gathering, situation reporting and risk assessment.
3. Measures to reduce health impact.
4. Infection control issues.
5. Staff education and training.
6. Essential preparatory work.
7. Financial requirements

The role of the Directorate of Infection Control with respect to the plan

1. Planning, initiation, direction and central coordination of the infection control:

- Develop and ensure ongoing revision of the plan
- Improve preparedness Kuwait-wide
- Oversee implementation of the plan.
- Provide policy direction and develop strategies to reduce impact of the health of the population.
- Provide the information and guidance in infection control at national, and regional levels.

2. Other specific roles of the Directorate of Infection Control

- Partnership and liaising closely with other Kuwait Health Departments.
- Ensure providing and monitoring the essential supplies for infection control.
- Coordinate provision of consistent, accurate advice to health professionals.
- Agree research protocols with research bodies which can be activated in the event of a pandemic.
- Liaise with international agencies e.g. WHO and CDC

Preparedness check list:

1. Overall coordination

- Head of Infection Control Department will take responsibility for coordinating infection control during a pandemic.
- Hospital Directors and Senior Managers should be fully informed of the critical infection control issues in relation to pandemic influenza.
- Identify if there are existing forums within the hospital council committee that can address the issues and actions required towards preparation for a pandemic (including performing local risk assessments). If not, form a local Hospital Pandemic Action Group/Sub-Groups consisting of membership from the following:
 - o Head of Infection Control department
 - o Nursing Director
 - o Senior representative from Administrative Affairs
 - o Senior representative from each clinical division
 - o Occupational Health Dept
 - o Infection Control Nurses
 - o Public Relations Manager
 - o Housekeeping
 - o Supplies
 - o Pharmacy
 - o Human Resources
 - o Others as appropriate

2. Infection control issues

- Identify suitable staff (e.g., Infection Control doctors and nurses /infectious disease specialist) who can supplement the existing team if needed.
- Prepare a strategy for surveillance during a pandemic
- Prepare strategy to communicate infection control information to staff.

3. Triage and patient placement

- Establish procedures and test a plan for pandemic triage and rapid separation of patients with influenza from other patients.
- Identify areas for segregating/cohorting large numbers of patients with pandemic influenza with engineering staff.
- Identify a designated room in the radiology department that can be used for influenza patients only.

4. Occupational health

Develop plans and procedures to:

- Assess staff with respiratory symptoms
- Track and document staff sickness absence
- Administer antiviral therapy as specified
- Vaccinate staff as specified

5. Staffing

Ensure that plans are in place to address:

- Staff allocations to pandemic/non-pandemic areas, considering skill mix and the likelihood of sickness and absence.
- Staff of Hotel Services Department
- When an emergency staffing crisis would be declared

6. Bed management

- Procedures for reviewing and revising admission criteria
- Policies for expediting discharge of patients
- Adequate transportation arrangements for discharged patients
- Plans for tracking bed occupancy during a pandemic
- Cancellation of elective admissions at short notice
- Plans to convert surgical wards into medical wards

7. Supplies of consumables

- Evaluate current stock of essential equipment
- Assess anticipated demand for consumables and determine trigger point for ordering extra supplies
- Determine feasibility of ordering and storing extra PPE
- Direct supplies managers to establish contingency plans in the event that primary sources of supplies become limited or exhausted

8. Mortuary issues

- Plan for mass fatalities.
- Assess capacity for refrigeration
- Define overflow arrangements

9. Education and training

- Brief senior medical and nursing staff on pandemic infection control procedures.
- Brief managers of other departments (including Hotel Services, Radiology and Physiotherapy Departments)
- Test local response capabilities
- Plan for additional training and fit-testing for staff likely to use respirators
- Provide general training for all staff on the infection control implications of pandemic influenza
- Consider how the hospital intranet could be utilized for training, education and communication on infection control issues during a pandemic to minimize face-to-face meetings during a pandemic

Infection Control Key Management Issues

I. Patient placement, segregation and cohorting

- In all health care settings, patients with symptoms of pandemic influenza A should be segregated from non-influenza patients as rapidly as possible
- Whenever possible, different teams of staff should care for influenza and non-influenza patients. The segregation of symptomatic patients is important in the containment of pandemic influenza.
- This requires careful consideration of flexible accommodation and staffing arrangements
- Patients with pandemic influenza should be managed separately until discharged.

Selection of segregated areas for cohorting patients

To achieve the desired goal of separating patients with pandemic influenza from those without, a designated self-contained area/wards of the hospital should be used for the treatment and care of patients with pandemic influenza whenever possible. Ideally, this area should:

- include a reception area separate from the rest of the hospital.
- if feasible, have a separate entrance/exit from the rest of the hospital.
- not be used as a thoroughfare by other patients, visitors or staff. This includes patient transfers, staff going for meal breaks, and staff and visitors entering and exiting the building.

To control entry, signage should be displayed warning of the segregated pandemic influenza A area.

Whilst there is no specific concern for long-range airborne transmission of pandemic influenza, when selecting possible areas to segregate patients the local hospital engineering department should be consulted regarding design considerations and to also ensure that mechanical ventilation systems do not dilute from cohorted to non-cohorted areas. At a minimum, doors should be closed between the two areas.

Ward level

1. Cohorting of patients in segregated areas of the hospital should be carried out from the outset of the pandemic to help contain influenza within one part of the hospital and reduce the risk to other patients.
2. Side rooms in non-influenza areas should be reserved for patients requiring isolation for other (non-influenza) reasons; side rooms in influenza segregated areas should be reserved for performing aerosol-generating procedures whenever possible.
3. Consideration should be given to cohorting separately patients infected with pandemic influenza and another pathogen (e.g., MRSA) to minimise hospital transmission of other infectious pathogens. This will be dependent on availability of rooms and staff and the number of patients who are infected with both influenza and another pathogen requiring isolation.
4. Patients should remain in the designated segregated area until discharged to the community and not allowed to be transferred to other areas purely for bed management purposes. However, if there is extreme pressure for beds in the segregated area of the hospital, convalescing patients with residual, nonrespiratory problems (i.e., who are unlikely to be secreting virus in large quantities), but who require hospitalisation for other reasons (e.g., poor mobility, non-respiratory complications) may need to be moved to another area of the hospital or an intermediate care facility. Such convalescing patients should, where possible, be accommodated together and away from other patients.

Infection control measures for segregation and cohorted care

Entry procedures:

- Place a recording sheet at the entrance of the cohorted area.
- All healthcare workers and visitors should sign in so that if follow up/contact tracing is required details are readily available.
- The number of personnel should be limited to those necessary for patient care and support.
- Place a sign at the entrance alerting all to the precautions to be adopted.

Infection control precautions:

- Standard Infection Control Principles must be strictly applied in conjunction with Airborne/ Droplet Precautions.
- Droplet Precautions for all patients should be maintained in the segregated area.

Ward furnishings:

- For 4 – 6 bedded bays, set up an equipment station outside the entrance to hold PPE. For wards to accommodate more patients, identify strategic points for equipment stations to facilitate access and encourage use.
- Remove all non-essential furniture, especially soft furnishings. Remaining furniture should be easy to clean and should not conceal or retain dirt and moisture.

Patient area:

- In accordance with Droplet Precautions, the distance between beds should be more than 1metre.
- Beds should be separated, preferably by a physical barrier (e.g., curtain).
- Keep the patients' personal belongings to a minimum.
- Provide water jug and glass, tissue wipes and suitable disposable containers (e.g., plastic bags), and all other items necessary for personal hygiene within the patients reach.

Patient equipment:

- Where feasible allocate each patient their own non-critical items of patient equipment (e.g., stethoscope, thermometer) or use disposable items.
- Clean re-usable equipment between patients.

Recreation rooms::

- Consider closing of recreation rooms if there is a risk that these might be used by both influenza and non-influenza patients or if the location of these rooms presents a problem for limiting patient movements.

Cleaning:

- Areas should be scrupulously cleaned as a minimum at least once a day.
- Close liaison with housekeeping/domestic services will be required.

II. Patient transfer/transport/hospital day care procedures

Hospital transfers

- Patients must not be automatically admitted to hospital if they have pandemic influenza A. However, it can be anticipated that some patients who are initially managed in the community will require hospital admission.
- Patients must not be transferred from one hospital to another for routine care related to pandemic influenza A, including mechanical ventilation. However, some patients may require transfer for specialist care arising out of complications or concurrent medical events (e.g., cardiac angioplasty, renal dialysis).
- If transfer is essential, the Infection Control Team at the receiving hospital and the ambulance staff must be advised in advance.
- Patients with influenza should not be admitted or transferred to specialist units for vulnerable patients (e.g., transplant units) where if influenza is introduced, mortality is likely to be very high.

Intra-hospital transfers

- Where possible allocate dedicated equipment such as X-ray equipment and ECG recorders to the segregated area so that all procedures and investigations can be carried out in the area.
- Patients with pandemic influenza should leave the segregated care area for only urgent and essential procedures.
- If a patient requires transfer to another department the following procedures must be followed:
 1. the department must be informed in advance
 2. the patient must be taken straight to and return from the department and must not wait in a communal area

3. patients should be placed at the end of a list to allow appropriate decontamination after any procedure.
4. in some settings (e.g., radiology departments) a separate room should be set aside for patients with influenza segregated areas of the hospital and this room should be cleaned regularly
5. influenza patients should wear a surgical mask while in transit to help prevent large droplets being expelled in to the environment. If a surgical mask cannot be tolerated (e.g., due to the patient's age or deteriorating respiratory status) apply the most practical measures (e.g., tissues) to contain respiratory secretions. Where possible the patient should also perform hand hygiene before leaving their room or cohorted area.

Hospital day care procedures

For patients who develop influenza and have chronic conditions that require attendance at hospital regularly for day care procedures, options may include:

1. deferring the procedure and re-scheduling the next appointment
2. transfer to a designated hospital with isolation or cohorted facilities
3. introduction of barriers in special units to separate patients with symptoms of pandemic influenza.

III. Special settings:

III.1. Special settings: Accident and Emergency

During the peak of a pandemic, hospital accident and emergency (A&E) departments and outpatient departments may be overwhelmed with patients seeking care.

Alternative approaches to triage and initial assessment will be required to:

1. rapidly screen and identify persons who have symptoms of pandemic influenza upon their arrival
2. separate symptomatic patients from others to reduce the risk of disease transmission
3. determine as early as possible the type of care patients will require (i.e., "see and discharge" or admit for treatment).

Screening and triage

1. Signage should be displayed prior to and on entry to the A&E Department instructing patients with respiratory symptoms to inform the reception immediately on their arrival.
2. A triage practitioner should be based in the reception for managing patient flow, including deferral of patients who do not require emergency care.
3. Screening for signs and symptoms of pandemic influenza in all persons entering the hospital may escalate from passive (e.g., signs at the entrance) to active (e.g., direct questioning).

Reception area/layout

1. Patients with symptoms of pandemic influenza should be triaged to a segregated waiting and assessment area immediately.
2. Patients should be instructed to stay in this waiting area and not wander around the department, hospital, or go to the public cafeteria. Signage and physical barriers should be used as appropriate.
3. If separate areas for patients with symptoms of pandemic influenza cannot be established, at a minimum, an alternate site should be set up for those at highest risk of complications from influenza infection (e.g., outpatients presenting for dialysis, patients with a history of organ transplantation, chemotherapy, or who are immunocompromised for other reasons).
4. Patients who do not have symptoms of pandemic influenza but require acute care assessment promptly should be triaged to a specific waiting and examining area, physically separate from the influenza waiting and assessment area.
5. Attention to respiratory hygiene should be reinforced by displays of posters and provision of hand washing facilities, tissues, and waste bins. All non-essential soft furnishings and items such as books and magazines and toys should be removed.

Infection control measures for waiting rooms

- Patients, staff, and visitors should be encouraged to minimise potential transmission of influenza through good hygienic measures as follows:
 1. cover nose and mouth disposable one-use tissues when sneezing, coughing, wiping and blowing noses
 2. dispose of used tissues in nearest waste bin
 3. wash hands or use waterless antiseptic hand rub after coughing, sneezing using tissues or contact with respiratory secretions and contaminated objects
 4. keep hands away from the mucous membranes of the eyes and nose
 5. certain patients (e.g., the elderly, children) may need assistance with containment of respiratory secretions; those who are immobile will need a receptacle (e.g., a plastic bag) readily at hand for immediate disposal of tissues and a supply of hand wipes and tissues
 6. Patient masking: As waiting rooms can become crowded, it is preferable that symptomatic persons wear surgical masks. This will assist with the containment of respiratory secretions and minimise environmental contamination.

Infection control procedures in rooms/cubicles

1. **Room layout:** all non-essential equipment from the examination room/cubicle should be removed. Stocks of consumables should be stored near to the examination rooms and not inside them.
2. **Patient masking:** Coughing and sneezing patients should wear surgical masks to minimize environmental contamination of the cubicle. Patients should be confined to their rooms/cubicles and only moved outside for essential procedures.
3. **Cleaning:** hand contact surfaces must regularly cleaned while room is in use.

III.2. Special settings: Children

- Children's wards present special challenges due to the difficulties experienced with younger children adhering to respiratory hygiene. In addition, children usually shed virus longer than most adults and in some settings shedding may be prolonged for weeks.

Patient placement

The following points need to be taken into consideration when cohorting children:

- different age groups (e.g., infants, toddlers, adolescents)
- routine childhood vaccination status of children.
- presence of immunocompromising conditions
- co-infection with another pathogen (e.g. RSV); such children may be cohorted separately. However, this will be dependent upon the availability of rooms, staff and the number of patients who are infected with both influenza and another pathogen requiring isolation.

Respiratory hygiene

- It is important to educate and encourage children and their families to adopt good hygiene measures to minimise potential transmission including use of disposable tissues for wiping noses.
- covering nose and mouth when sneezing and coughing; washing hands after coughing, sneezing or using tissues.
- and keeping hands away from the mucous membranes of the eyes and mouth.

Personal protective equipment

- Gowns may be required when caring for babies and neonates due to the close contact required.

Environmental issues

- Communal areas such as play rooms and schoolrooms should be closed.
- Toys should not be shared. All toys must be cleanable and should be cleaned regularly (preferably when the environment is cleaned).
- Cleaning of the environment should be increased.

III.3. Special settings: Intensive Care Units

Unit layout/patient placement

- If the unit does not have side rooms, the main unit should be divided into two separate areas for care of patients with and without pandemic influenza.
- Whenever possible, staff teams should be dedicated to one area.

Respiratory care issues

Respiratory equipment

1. Disposable patient respiratory equipment must be used wherever possible. Reusable equipment must be disinfected in accordance with local policy and manufacturers guidelines
2. Closed systems should be used wherever possible (e.g., suction, closed nebuliser delivery)
3. All respiratory equipment used on patients must be protected with a filter
4. The ventilatory circuit should not be broken unless absolutely necessary
5. The use of open non invasive positive pressure ventilation equipment should be avoided
6. Water humidification should be avoided.
7. Respiratory procedures
 - Only essential staff should be in a patient's room when airway management, cough inducing activities or nebulisation of drugs is being carried out
 - PPE must be worn when giving care, especially during procedures involving airway management.

III.4. Special settings: Mortuary

1. During a pandemic questions may arise about the need for post-mortems examinations.
2. Where clinically indicated, such exams will yield vital clinicopathological information which may be of vital importance in refining recommendations related to prevention and treatment of infection.
3. The postmortem should be conducted in a high risk post-mortem room and a powered respirator and full PPE should be worn.

Mortuary and funeral staff

The mortuary staff manager should be informed that the deceased had pandemic influenza.

Infection Control Principles should be followed.

III.5. Special settings: visitors

Family visitors

1. During a pandemic, visitors to all areas of the hospital should be kept to a minimum.
2. On arrival to influenza segregated wards all visitors should report to the ward reception.
3. Signage should be displayed informing visitors of the ward's current segregated status and procedures that need to be undertaken prior to entering the ward.
4. Visitors entering a cohorted area must be instructed on hand hygiene practice and the wearing of protective clothing as appropriate.
5. The use of family members and volunteers to assist in patient care during a pandemic may be considered if staff shortages are extreme.
6. When visitors become carers they will need to be instructed on the use of PPE.

Others

1. Works department technicians should not be allowed entry into influenza segregated areas unless undertaking essential maintenance work. If this is necessary, PPE must be worn as detailed for healthcare workers.
2. Medical sales representatives should not be allowed entry into influenza segregated areas including patient waiting or reception areas designated for patients with symptoms of pandemic influenza.

III.6. Special settings: Dentists

1. **Patient visits:** It may be prudent to cancel routine dental visits during the pandemic period. At a minimum, dental practices should put in place active screening of all patients for symptoms of influenza prior to entering the clinical area. Patients with symptoms of pandemic influenza should not be seen at all, unless a dental emergency is suspected.
2. **Performance of procedures on patients with pandemic influenza:** Emergency patients should be treated at the end of a surgery session when all other patients have left. Staff in attendance should be kept to a minimum and all should wear PPE in accordance with an aerosol generating procedure.

III.7. Special settings: ambulance services

1. Where practical designate an ambulance(s) for influenza patients
2. Standard Infection Control Principles and Droplet/Airborne Precautions are applicable in most circumstances
3. Crew members should wear respirators
4. Equipment carried should be kept to a minimum.
5. Where practical and possible designate an ambulance(s) for transfer of patients with pandemic influenza for the duration of each shift.
6. The immediate environment i.e., trolley and patient equipment must be decontaminated between patients.

7. Upon completion of transfer of patients with influenza (e.g., at the end of a shift) the vehicle must be thoroughly cleaned and decontaminated using detergent and hot water before further use.
8. All disposable materials must be disposed of as clinical waste.
9. Waste bags must be sealed, labelled and sent for incineration.
10. Coughing and sneezing patients should be transported on their own whenever possible. However, if pressure upon the service occurs, two patients with symptoms of pandemic influenza may be transferred together.
11. Symptomatic patients should be encouraged to wear a surgical mask to assist in the containment of respiratory secretions and reduce environmental contamination of the ambulance.

IV. Control of Influenza Outbreaks in Health-care Settings

When influenza outbreaks occur in health-care settings, additional measures should be taken to limit transmission. These include:

- Confirm the presence of a nosocomial outbreak.
- Implement all recommended infection control measures for all patients with suspected or confirmed influenza.
- Separate suspected or confirmed influenza patients from asymptomatic patients.
- Restrict staff movement from areas with outbreaks to other units and buildings.
- Administer influenza antiviral prophylaxis and treatment to patients, residents, and health-care personnel according to current recommendations.
- Curtail or eliminate elective medical and surgical admissions and restrict cardiovascular and pulmonary surgery to emergency cases only.

V. Requirements for implementation of the plan (12 weeks)

Item	Amount	Approximate value
Paper towels	21000 box	84, 000 KD
Plastic boxes for contaminated sharps	135,000 box	50, 000 KD
Waterless alcohol gels*	3000 units	30, 000 KD
Mobile HEPA Filters	100 Filters	400, 000 KD
Total		564, 000 KD

* Waterless alcohol gels (new item) each unit is 500 ml containing Ethyl alcohol in a concentration of 60-65% with emollient.

Items that should be delivered through :

- General Stores
 - Medical Stores
 - Hotel service department
1. Personal Protective Equipments
 - High efficiency N95 Masks
 - Surgical Masks
 - Disposable long sleeved cuffed gowns
 - Single use plastic aprons
 - Gloves (sterile and clean gloves)
 - Protective eye wear (goggles/visors/face shields)
 - Theatre caps/Head covers
 2. Hand Hygiene products:
 - Chlorhexidine 4% + detergent.
 - Chlorhexidine 0.5% + 70% alcohol
 3. Environmental cleansing agents
 - Liquid soap
 - Disinfectants: chlorine releasing agents
 4. Heat soluble plastic bags for contaminated linen
 5. Appropriate waste bags
 6. Collection container for used equipments
 7. Relevant tubes and containers for specimen collection and transportation
 8. Cadaver plastic bags

N.B. The above mentioned items delivered through the General, Medical stores and Hotel service departments should be requested with 40% increment of the regular amounts except the high efficiency mask that should be doubled.