Sultanate of Oman
Ministry of Health
Directorate General for Diseases Surveillance & Control

سلطنة عمان
وزارة الصحة
المديرية العامة لمراقبة ومكافحة الامراض

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Seasonal Influenza National Guidelines for Healthcare Workers

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Ver. 3

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Introduction:

Influenza virus is an RNA virus that affect the respiratory tract. Seasonal influenza is caused by established, circulating influenza viruses, currently A (H3N2), A (H1N1) pdm09 and influenza B viruses.

Point mutations and recombination emerge new influenza virus (i.e., antigenic drift) which is the virological basis for seasonal epidemics. Recurrent epidemics of influenza are observed seasonally around the world with considerable health and economic consequences and necessitates consideration for adjustment of vaccine viruses each season.

On the other hand, larger genetic changes, or antigenic shifts, occur among influenza A viruses, less frequently than antigenic drift events. The new or substantially different influenza A virus subtypes resulting from antigenic shifts have the potential to cause pandemics when they cause human illness because they might be transmitted efficiently from human to human in a sustained manner and because there is little or no pre-existing immunity among humans.

Seasonal influenza activity

Precise timing of the onset, peak, and end of influenza activity varies from one season to the next and from one country to another.

In Oman, Influenza virus is associated with a substantial proportion of sever acute respiratory infections. The burden of influenza is greatest in children (morbidity) and the elderly (mortality).

Although seasonal flu viruses are detected year-round in Oman, It follows northern hemisphere seasonality, where annual epidemics of seasonal influenza typically occur between September and mid-May. Flu activity most commonly peaks twice; First in December and the second in March-April.

Influenza Modes of Transmission

- Influenza spreads from person to person primarily through;
  - Large-particle respiratory droplet transmission (e.g., when an infected person coughs or sneezes near a susceptible person).
  - Indirect contact transmission via hand transfer of influenza virus from virus-contaminated surfaces or objects to mucosal surfaces of the face (e.g., nose, mouth).
- Airborne transmission via small particle aerosols in the vicinity of the infectious individual may also occur.

Influenza infection complications

Most influenza virus infections result in a self-limiting, uncomplicated, acute illness of short duration (typically 2-5 days). Subclinical or asymptomatic infection is also recognized. Most complications affect the respiratory tract (e.g. viral pneumonia). Acute respiratory distress syndrome (ARDS) is a common complication in patients admitted to ICUs as well as secondary bacterial pneumonia but complicated illness can involve other systems (e.g. encephalopathy, myositis). Other possible serious complications triggered by flu can include myocarditis, encephalitis, myositis or rhabdomyolysis and multi-organ failure.

At Risk groups

Although most persons who become infected with influenza viruses will recover without sequelae, influenza can cause serious illness and death in high risk patients

There are well-recognized risk groups for complicated seasonal influenza:

- ✓ chronic neurological disease (e.g. neuromuscular, neurocognitive and seizure disorders)
- ✓ chronic hepatic disease (e.g. cirrhosis)
- ✓ chronic kidney disease (e.g. CKD requiring dialysis or transplantation)
- ✓ chronic pulmonary disease (e.g. COPD, asthma, cystic fibrosis)
- ✓ chronic cardiovascular disease (e.g. congestive cardiac failure; atherosclerotic disease)
- ✓ diabetes mellitus
- ✓ severe immunosuppression (see antiviral guidance for examples)
- ✓ age over 65 years
- ✓ pregnancy (including up to two weeks post-partum)
- ✓ morbid obesity (BMI ≥40)
- ✓ children under 59 month

Objectives of the Guidelines:

The overarching goal of human seasonal influenza guidelines is to minimize the burden of influenza by providing useful information to public health specialists, epidemiologists, treating physicians and infection preventionists in all aspect related to monitoring, clinical management, infection prevention and control and information dissemination.

Components of the Guidelines:

I) Influenza Surveillance

Influenza is a common condition and has symptoms similar to those of many other viral respiratory infections. Therefore, Influenza surveillance is carried out as a solid component of National Acute Respiratory Infections Surveillance (NARI).

Guidelines for NARI/ influenza surveillance:

Monitoring of ILI/SARI trend:

The reporting of the influenza like illnesses (ILI) from outpatient health centers /and Sever acute respiratory infections (SARI) from hospitals for all age groups is monitored at all the governments as well as central level. ICD-10 codes proxy for ILI/SARI are reported through AlShifa system are retrieved and analyzed weekly to be compared against a pre-established baseline, alert threshold and seasonal threshold.

Epidemiological/Laboratory-based surveillance:

ILI laboratory surveillance: in outpatient treatment centers to detect and monitor mild cases of ARI. It is conducted in the selected ILI sentinel sites (Salalah Jadidah in Dhofar and North Al Khuweir Health Centre in Muscat)

SARI laboratory surveillance: SARI surveillance is generally designed to detect and monitor admitted cases of ARI. It is arranged in two levels:

1. SARI-sentinel surveillance: in selected sentinel hospitals (Sohar hospital, Ibra hospital and Sultan Qaboos hospital in Salalah).
2. SARI-intensified surveillance: in all hospitals including sentinel sites

Roles and responsibilities in laboratory bases surveillance:

Regional surveillance team:

1. At healthcare facility:
    - Doctors from concerned department (health center/ hospital) are primarily responsible for patient selection, data submission within ARI e-notification system followed by the collection of samples. Appropriately labelled samples will be sent to the hospital laboratory.
    - Regional laboratory coordinator at (health center/ hospital ensures the availability of all laboratory supplies including viral transport media and swabs and brought any

shortage to the attention of medical supply and store in their respective region in advance. He/she will ensure samples are stored and transported appropriately and in a timely manner to the CPHL (flagged samples should be sent urgently).

- National ARI focal point at hospital is responsible to review previous 24 hour's admission of patient with respiratory infection to identify those who comply with SARI case definition and missed to notify and ensure the completeness of notified cases. Regional surveillance team

2. The regional epidemiologist:

- Regional epidemiologist is responsible for ARI surveillance program in the region. He/she ensures that all the surveillance activities are conducted according to the policy including supervising the proceeding of samples.
- Extracts the epidemiological, clinical and virological data from e-notification and will contact the ARI focal point at hospital in order to get information about the outcome of SARI patients.
- Analyzes the data and prepare a SARI morbidity and mortality weekly report (annex 1)and submit the report to the Department of Communicable Disease (DCD) and concerned parties in the region on a weekly basis
- Prepare and submit an influenza line list (annex 2) for all the laboratory confirmed cases of influenza (all subtypes) including epidemiological and related clinical data including the outcome on a weekly basis and a mortality line list for all the deceased cases (annex 3).

National surveillance team

The Lab-coordinator at the Central Public Health Laboratory (CPHL) is responsible for:

- Supervising the receiving and processing of specimens and reporting of quality results.
- Ensuring the flagged samples are to be processed immediately and the non-flagged samples are treated as routine surveillance samples.
- Submitting the laboratory results to the hospital laboratory, CDC and regional epidemiologist through the Al Shifa System/e.notification.
- Ensuring availability of diagnostic test kits at the CPHL

- Ensuring availability of well-trained staff on sample handling and processing at the CPHL and the training of regional laboratory coordinators on sample collection, storage and transport to the CPHL.

The NARI coordinator at the Department of Communicable Diseases (DCD) will be responsible for:

- Monitoring the implementation of the surveillance, data management, epidemiological analysis and preparation of national reports.
- Preparing a national SARI weekly report based on data generated through e-notification system and reports from the regional epidemiological analysis.
- Prepare and update a national influenza mortality line list whenever a case of influenza associated death happens.

For more details please refer to the National Acute Respiratory Infection Surveillance Policy

II) Epidemiological Investigations:

Any unusual and unexpected events need thorough analysis and investigation and case by case review

Triggers/signals for the investigation

- Clusters* of cases of unexplained ILI /SARI or influenza outside the typical season.
- Severe, unexplained respiratory illness occurring in one or more health care worker(s) who provide care for patients with respiratory disease.
- Changes in the epidemiology of mortality associated with the occurrence of ILI or ARI, an increase in deaths observed from influenza or an increase in the occurrence of severe respiratory disease in previously healthy adults or adolescents.
- Persistent changes noted in the treatment response or outcome of severe lower respiratory illness.
- Change in the virology pattern (un subtypable, novel influenza viruses)

*A cluster is defined as two or more persons presenting with manifestations of unexplained acute respiratory illness with fever >38°C or who died of an unexplained respiratory illness and those are

detected with onset of illness within a period of 14 days and in the same geographical area and/or are epidemiologically linked.

III) Pharmaceutical Interventions

Vaccination

The first and most important step in preventing flu is to get a flu vaccination each year. A safe annual vaccine is available to protect against seasonal influenza that research indicates will be most common during the upcoming season.

Seasonal influenza vaccine is recommended to persons at increased risk for developing influenza related complications. According to MOH vaccination strategy, the following groups are eligible for seasonal influenza vaccination this year:

- Pregnant women
- Healthcare workers
- Persons aged >65 years
- Patients with chronic diseases regardless of age (i.e.; >6 months forward) including diabetes mellitus, HTN, asthma, cardiovascular diseases, renal dialysis …..etc.
- Immunocompromised patients including patients with immunodeficiency disorders, , human immunodeficiency virus (HIV) infection, combined immunodeficiency, abnormalities of immunoglobulin synthesis (i.e. Antibody deficiency syndromes) leukemia, lymphoma or generalized malignant neoplasm of those being given immunosuppressive therapy with pharmacologic agents or radiation therap.
- Pilgrims

Antiviral agents

Antiviral agents active against influenza are the only major medical countermeasure available.

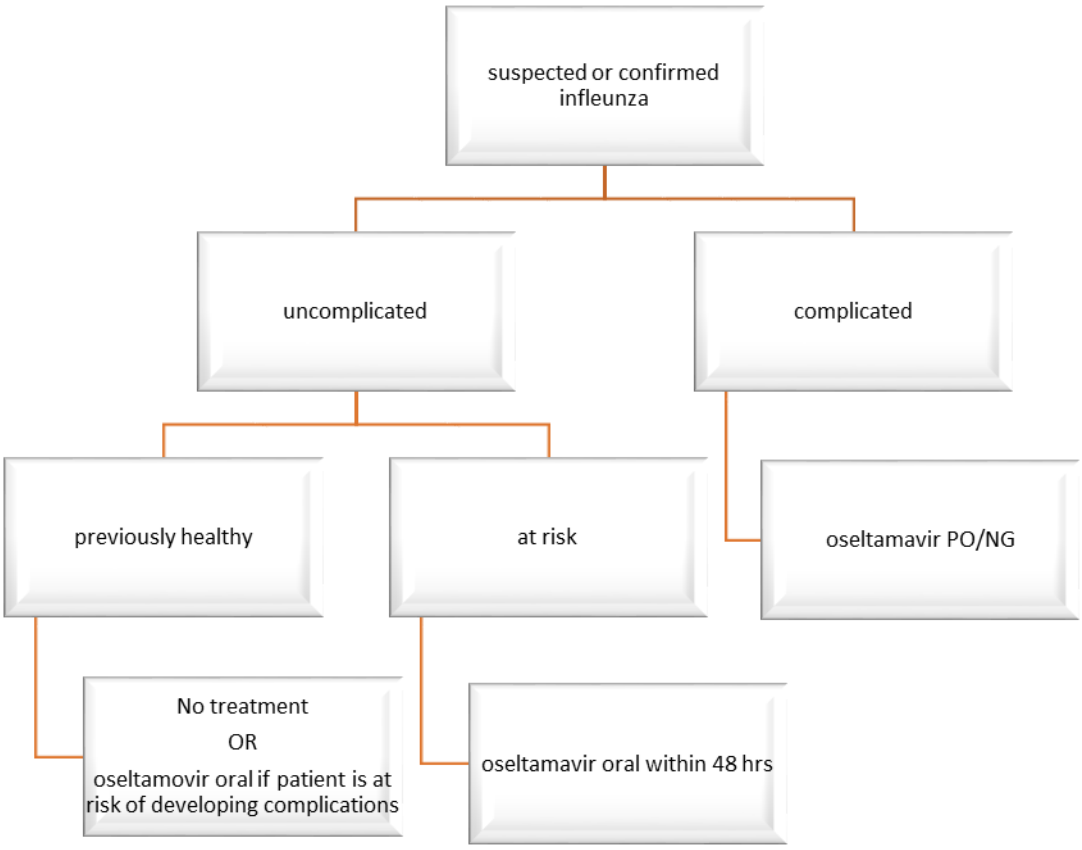
Treatment of suspected or confirmed influenza

1. **Treatment of adults and children in with uncomplicated Influenza at Primary Health level**

- **Previously healthy people**: No antiviral treatment, if physician feels patient is at serious risk of developing serious complications from influenza, then oseltamivir PO.
- **At risk population**: Oseltamivir PO. Do not wait for laboratory confirmation. Treatment should be started as soon as possible, ideally within 48 hours of onset. There is evidence that treatment may reduce the risk of mortality even if started up to

five days after onset. Refer the patient as soon as possible if there is any sign of deterioration to regional or designated hospital

Algorithm: Selection of antiviral therapy for treatment of influenza



2. **Treatment of adults and children with complicated influenza at <u>Secondary Care Level</u>**

- **All patients with signs of complication of influenza should receive treatment in hospital.**

  Diagnostic samples for respiratory viruses including influenza virus (RVP, MERS CoV) is recommended for all patients fulfilling the clinical criteria for complicated infection. Treatment should be started as early as possible; **treatment should not be delayed waiting for laboratory confirmation of influenza virus infection.**
- Ensure that appropriate infection control precautions are applied to the patients (see Infection Control section)
- A history of influenza immunization does not exclude influenza as a possible diagnosis.

- The duration of therapy depends on clinical response, discussion with Infectious Diseases or virologists is advised if the patient condition didn't improve or deteriorated.
- **Severely immunosuppressed patients:** Oseltamivir PO is the first line treatment, Treatment should start as soon as possible. If clinical condition does not improve consider other possible causes for a failure to improve e.g. bacterial or fungal infection and discuss with infectious diseases consultant further investigation and treatment. If oseltamivir resistant confirmed discuss with ID consultant / virologist

Table 1: Treatment dosage

	Premature (less than 36 weeks post conceptual age)[1]	**0 to 12 months (36 weeks post conceptual age or greater)**	**>1–12 years: Dose according to weight below**				**Adults (13 years and** over)[2]
			≤15kg	**>15-23kg**	**>23-40kg**	**>40kg**	
Oseltamivir PO (treatment course: 5 days)	**1mg/ kg /dose BD Unlicensed**[1]	**3mg/kg/dose BD**	**30mg BD**	**45mg BD**	**60mg BD**	**75mg BD**	**75mg BD**

[1]This is an unlicensed use of oseltamivir, and is based on evidence from the literature, and expert opinion
[2]If a person in this age group weighs 40kg or less, it is suggested that the >23-40kg dose for those aged >1-12 years, is used.

3. Management of influenza in critical care

The principles of antiviral treatment are the same as for complicated influenza. The first line therapy remains PO/NG oseltamivir and there is evidence that standard dose oseltamivir PO or NG is adequately absorbed even in critical illness. Increasing the dosage is no longer recommended in patients who are severely ill with influenza A due to a lack of evidence that it is any more effective.

Post exposure prophylaxis (contact management)

Close contact are those who cared for, lived with, or had direct contact with respiratory secretions or body fluids of a confirmed case influenza virus.

Oseltamivir may be used for prophylaxis of persons in at risk groups following exposure to a person in the same household or residential setting with influenza-like illness when influenza is

circulating in the community. If oseltamivir resistant confirmed discuss with ID consultant / virologist.

Prophylaxis should be issued if the contact is not adequately protected by vaccination, that is:

- The vaccination is not well matched to the circulating strain, or
- There has been less than 14 days between vaccination and date of first contact with influenza.

Table 2: Post-exposure prophylaxis

Risk category	Recommendation
Previously healthy	No prophylaxis
At risk of complicated influenza (including pregnant women, severely immunosuppressed patients)	Oseltamivir PO once daily for 10 days, if therapy can be started within 48 hrs of exposure; or after 48 hrs on specialist advice only
Children under 5 years in at risk groups including severely immunocompromised children	

Table 3: Prophylaxis dosage

	0 to 12 months (36 weeks post conceptual age or greater)	**>1–12 years: Dose according to weight below**				**Adults (13 years and** over)[1]
		≤15kg	**>15-23kg**	**>23-40kg**	**>40kg**	
Oseltamivir PO (prophylaxis course: 10 days)	**3mg/kg od**	**30mg od**	**45mg od**	**60mg od**	**75mg od**	**75mg od**

[1] If a person in this age group weighs 40kg or less, it is suggested that the >23-40kg dose for those aged >1-12 years, is used.

IV) Non-pharmaceutical public health interventions

The main aim of non-pharmaceutical intervention is to prevent the spread of infection either in healthcare settings or in the community

Infection Prevention and Control in Healthcare Settings

Healthcare-associated influenza infections can occur in any healthcare setting and are most common when influenza is also circulating in the community. Spread of influenza virus can occur among patients, health care workers (HCWs), and visitors; in addition, HCWs may acquire influenza from persons in their household or community.

Fundamental Elements to Prevent Influenza Transmission:

- Administration of influenza vaccine
- Rapid identification of patients suspected to have influenza infection and implementing appropriate transmission precautions
- Appropriate management of ill HCWs
- Adherence to infection prevention and control precautions for all patient-care activities and aerosol-generating procedures
- Implementing environmental infection control measures

1. Administration of seasonal influenza vaccine to HCWs and high risk patients:

- Annual vaccination is the most important measure to prevent seasonal influenza infection.
- Achieving high influenza vaccination rates of HCWs and patients is a critical step in preventing healthcare transmission of influenza from HCWs to patients and from patients to HCWs.
- HCWs at higher risk for complications from influenza infection include:
  - Pregnant women and women up to 2 weeks postpartum
  - Persons 65 years old and older
  - Persons with chronic diseases such as asthma, heart disease, diabetes, diseases that suppress the immune system, certain other chronic medical conditions, and morbid obesity.

Vaccination and early treatment with antiviral medications are very important for HCWs at higher risk for influenza complications because they can decrease the risk of hospitalizations and deaths

- It's important for the healthcare facility to have tracking for the annual influenza vaccination coverage among HCWs.

- Strong organizational leadership and an infrastructure for clear and timely communication and education, and for program implementation, have been common elements in successful vaccination programs.

2. Rapid identification of patients with acute respiratory illness (ARI):

To prevent the transmission of respiratory infections in the healthcare settings, including influenza, the following measures should be implemented at the first point of contact with a potentially infected person:

- When **scheduling appointments** especially during flu season instruct patients and persons who accompany them to inform HCWs upon arrival if they have symptoms of any respiratory infection (e.g., cough, runny nose, fever) and to take appropriate preventive actions (e.g., wear a facemask upon entry, follow triage procedure). Such instruction can be included in appointments SMS messages or from the nurse/medical record person calling to schedule visit.
- **Visual Alerts:**
  - Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency rooms and clinics).
  - Instruct patients and persons who accompany them (e.g., family, friends) to inform healthcare personnel of symptoms of acute respiratory illness when they first register for care.
  - Instruction to practice the following Respiratory Hygiene/Cough Etiquette:
    - **Cough Etiquette**
      - Cover your mouth and nose with a tissue when coughing or sneezing.
      - Dispose of the tissue in the nearest waste receptacle right after use.
      - Perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand sanitizer, or antiseptic hand wash) after having contact with respiratory secretions and contaminated objects or materials.
- **Actual Triage:**
  - Visual triage station should be placed at the entry point of the healthcare facility (i.e. emergency room entrance, dialysis unit entrance, day care and the clinics) or other

designated areas and attended by a nurse/ medical assistant who is trained on suspicion of ARI symptoms.

- Symptoms of ILI (influenza like illness) include fever with a cough, sore throat, rhinorrhea, sneezing, shortness of breath, and/or wheezing
- Appropriate infection control precautions and respiratory etiquette (described above) for source control should be promptly applied.
- Identified ILI patients should be asked to wear a surgical mask. They should be evaluated immediately in an area separate from other patients.
- If ILI patients cannot be evaluated immediately, they should wait in a waiting area dedicated for the ARI patients with spatial separation of at least 1 m between each ARI patient and others.
- Clinical and epidemiological aspects of the cases should be evaluated as soon as possible, and the investigation should be complemented by laboratory evaluation.
    - **Masking and Separation of Persons with Respiratory Symptoms in waiting areas:**
        - Offer regular (surgical) masks to persons who are coughing.
        - Masks may be used to contain respiratory secretions (N-95 masks are not necessary for this purpose).
        - When space and chair availability permit, encourage coughing persons to sit at least 1 meter away from others in common waiting areas.
        - Provide tissues and closed waste bin for tissue disposal.
        - Provide conveniently located dispensers of alcohol-based hand sanitizer.
        - Where sinks are available, ensure that supplies for hand washing (i.e., antiseptic soap and disposable towels) are consistently available.

3. Prevention of overcrowding:

- It is essential to prevent cross infection in clinical areas. Many of the outbreaks of ARI have been linked to overcrowding in clinical units especially emergency room and dialysis units.
- The minimum distance (1 meter) that should be maintained between patient's beds in general wards and intensive care, hemodialysis and emergency units need to always be observed.

4. Infection prevention and control Precautions:

- Adhere to Standard Precautions:
  - Standard precautions assume that every person is potentially infected or colonized with a pathogen that could be transmitted in the healthcare setting.
  - Elements of standard precautions that apply to patients with respiratory infections, including those caused by the influenza virus, are summarized below.

➢ Hand hygiene:

1. HCWs should apply the 5 moments for hand hygiene; before touching a patient, before any clean or aseptic procedure, after body fluid exposure, after touching a patient, and after touching a patient's surroundings, including contaminated items or surfaces.
2. Hand hygiene includes either washing hands with antiseptic soap and water or the use of an alcohol-based waterless hand sanitizer (waterless hands rub).
3. Wash hands with antiseptic soap and water when they are visibly soiled.
4. The use of gloves does not eliminate the need for hand hygiene.
5. Hand hygiene is necessary after taking off gloves and other personal protective equipment (PPE).

➢ Surgical Mask

1. Surgical masks should be worn by healthcare workers when in close contact (i.e. approximately within one meter) with patients having symptoms of influenza. The mask acts as barrier and minimizes contamination of nose and mouth by droplets.
2. In outpatient settings and in accident and emergency(A&E)- (Influenza patient triage) healthcare worker must wear surgical mask before entry and remove it before leaving the triage or when surgical mask requires replacement (i.e. when it is wet or damaged) Surgical mask should:
   - Cover both nose and mouth
   - Not be allowed to dangle around the neck after or in between use
   - Not be touched once put on
   - Be changed when moist or damaged
   - Be worn once and discarded after use
   - Perform hand hygiene after disposal of mask

- **Eye protection**
  1. Eye protection should be used if there is a risk of splashing of (blood and body fluid, excretion, secretion including respiratory secretion) into the eyes.
  2. Healthcare worker must do a risk assessment while providing care to patients
  3. Eye protection should always be worn by all present in the room during potentially infectious aerosol- generating procedures.

- **Gloves**
  1. Wear gloves for any contact with potentially infectious material.
  2. Remove gloves after contact, followed by hand hygiene.
  3. Do not wear the same pair of gloves for care of more than one patient.
  4. Do not wash gloves for the purpose of reuse.

- **Gowns**
  1. Wear gowns for any patient-care activity when contact with blood, body fluids, secretions (including respiratory), or excretions is anticipated.
  2. Remove gown and perform hand hygiene before leaving the patient's environment.
  3. Do not wear the same gown for care of more than one patient

- **Adhere to specific infection prevention and control precautions in addition to the standard:**
  - **Droplet & contact precautions :**
    - For patients with suspected, probable, or confirmed influenza infection who are not critically ill, standard, contact, and droplet precautions are recommended for management
    - It should be implemented for patients with suspected or confirmed influenza for 7 days after illness onset or until 24 hours after the resolution of fever and respiratory symptoms, whichever is longer, while a patient is in a healthcare facility.
    - In some cases, facilities may choose to apply droplet precautions for longer periods based on clinical judgment, such as in the case of young children or severely immunocompromised patients, who may shed influenza virus for longer periods of time.

- Patients under droplet & contact precautions should be discharged from medical care when clinically appropriate, not based on the period of potential virus shedding or recommended duration of droplet precautions.
- Before discharge, make sure patient and family or if transferred the receiving facility are well informed about the patient's diagnosis and current precautions.

o **Airborne & contact precautions:**

- Should be implemented for patients with suspected, probable, or confirmed influenza infection when they are:
    - Critically ill (e.g. pneumonia with respiratory distress or hypoxemia), due to the high likelihood of requiring aerosol-generating procedures.
    - Critically or non-critically ill but anticipating or performing aerosol-generating procedures;
        - Bronchoscopy
        - Sputum induction
        - Intubation and/or extubation
        - Cardiopulmonary resuscitation
        - Open suctioning of airways
        - Manual ventilation via umbo bagging through a mask before intubation.

5. Personal Protective Equipment (PPE) for Healthcare Workers (HCWs):

- The following PPE should be worn by HCWs upon entry into patient rooms or care areas in the respected order:
    1. Gowns (clean, non-sterile, long-sleeved disposable gown).
    2. Surgical mask.
    3. Eye protection (goggles or face shield).
    4. Gloves.
- For patients under airborne precautions, all persons entering the room should wear a fit-tested, seal checked N-95 mask instead of a medical mask. For those who failed the fit testing of N95 masks (e.g. those with beards), an alternative respirator, such as a powered air-purifying respirator (PAPR), should be used.
- Upon exit from the patient room or care area, PPE should be removed and discarded;

- Except for N95 masks, remove PPE at the doorway or in the anteroom. Remove N95 mask after leaving the patient room and closing the door.
- Remove PPE in the following sequence:
  1. Gloves
  2. Gown
  3. Goggles or face shield
  4. Mask or respirator

- You should note and observe the following:
  - **Gloves:**
    - Outside of gloves is contaminated.
    - Grasp outside of glove with opposite gloved hand; peel off.
    - Hold removed glove in gloved hand.
    - Slide fingers of ungloved hand under remaining glove at the wrist.
    - Peel glove off over first glove.
    - Discard gloves in a medical waste container.
    - Perform hand hygiene.
  - **Gown**
    - Gown front and sleeves are contaminated.
    - Unfasten ties.
    - Pull away from neck and shoulders, touching inside of gown only, turn gown inside out then fold or roll into a bundle and discard.
  - **Goggles or face shield:**
    - Outside of goggles or face shield is contaminated.
    - To remove, handle by the headband or ear pieces.
    - Place in designated receptacle for reprocessing or in a medical waste container.
  - **Surgical or N95 masks:**
    - Front of the mask is contaminated -do not touch.
    - Grasp bottom then tops ties or elastics and remove.
    - Discard in a waste container.

- Never wear a surgical mask under the N95 mask as this prevents proper fitting and sealing of the N95 mask thus decreasing its efficacy.

- Perform hand hygiene before and after contact with the patient or his/her surroundings and immediately after removal of PPE.
- HCWs should refrain from touching their eyes, nose or mouth with potentially contaminated gloved or ungloved hands.

6. Selected components of recommended precautions for prevention of ARI transmission:

- **<u>Placement</u>:** Place patients with suspected, probable, or confirmed influenza infection as following :
  a. **Those who are Not critically ill** should be placed in single patient rooms in an area that is clearly segregated from other patient-care areas.
  b. **Critically ill** (e.g. pneumonia with respiratory distress or hypoxemia) should be placed in Airborne Infection Isolation Rooms (Negative Pressure Rooms) due to the high likelihood of requiring aerosol-generating procedures.
  c. When single rooms are not available, place patients with the same diagnosis together (Cohorting). If this is not possible, place patient beds at least 1 meters apart.
  d. Put the isolation sign so that it is visible and clear for all HCWs, patients and visitors.
  e. Avoid the movement and transport of patients out of the isolation room or area unless medically necessary.
  f. The use of designated portable X-ray, ultrasound, echocardiogram and other important diagnostic machines is recommended when possible.
  g. If possible, use either disposable equipment or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).
  h. If equipment needs to be shared among patients, clean and disinfect it after each patient use.
  i. Use the log sheet /book for all persons who enter the isolation room

- **<u>Performing Aerosol-Generating Procedures (AGP):</u>**

1. Performing AGP on patients with suspected or confirmed influenza infection may be more likely to generate higher concentrations of infectious respiratory aerosols than coughing, sneezing, talking, or breathing.
2. These procedures potentially put HCWs at an increased risk for influenza exposure.
3. Precautions for aerosol-generating procedures on patients with suspected or confirmed influenza include:
    i. Perform these procedures only if they are medically necessary and cannot be postponed.
    ii. Limiting the number of HCWs present during the procedure to only those essential for patient care and support.
    iii. Ensure that HCWs whose duties require them to perform or be present during these procedures are offered influenza vaccination.
    iv. Conducting the procedures in an airborne infection isolation room (AIIR) when feasible.
    v. Considering use of portable HEPA filtration units to further reduce the concentration of contaminants in the air.
    vi. HCWs should adhere to standard precautions, including wearing gloves, a gown, and either a face shield that fully covers the front and sides of the face or goggles.
    vii. HCWs should wear respiratory protection equivalent to a fitted N95 filtering face piece respirator or equivalent N95 respirator (e.g., powered air purifying respirator, elastomeric) during aerosol-generating procedures.
    viii. Unprotected HCWs should not be allowed in a room where an aerosol-generating procedure has been conducted until sufficient time has elapsed to remove potentially infectious particles.
    ix. Conduct environmental surface cleaning following procedures (see section on environmental infection control).

- **<u>If transport is required</u>**:
    1. Patients should wear a surgical mask to contain secretions (N95 mask is not required for this purpose).
    2. Use routes of transport that minimize exposures of staff, other patients, and visitors.

3. Notify the receiving area of the patient's diagnosis and necessary precautions as soon as possible before the patient's arrival.
4. Ensure that healthcare workers (HCWs) who are transporting patients wear appropriate PPE and perform hand hygiene afterward.

7. Managing the visitor to the patient:

- Limit visitors for patients in isolation for influenza to persons who are necessary for the patient's emotional well-being and care.
- Visitors who have been in contact with the patient before and during hospitalization are a possible source of influenza for other patients, visitors, and staff.
- For persons with acute respiratory symptoms, healthcare facilities should develop visitor restriction policies that consider location of patient being visited (e.g., oncology units) and circumstances, such as end-of-life situations, where exemptions to the restriction may be considered at the discretion of the facility. Regardless of restriction policy, all visitors should follow precautions for respiratory hygiene and cough etiquette.
- Visits to patients in isolation for influenza should be scheduled and controlled to allow for:
    - Screening visitors for symptoms of acute respiratory illness before entering the hospital.
    - Providing instructions, before visitors enter patients' rooms, on hand hygiene, limiting surfaces touched, and use of personal protective equipment (PPE)
    - Visitors/attendants should not be present during aerosol-generating procedures.

8. Managing sick HCWs:

- Symptomatic HCW should declare that to the head of their unit and they are to be directed to attend the facility Staff clinic or equivalent (e.g. ER, OPD) for assessment & management.
- Symptomatic HCWs should not be allowed to take care of patients and he/she should be on sick leave for the period of their illness.
- At the clinic ;
    - HCW need to be medically evaluated and treatment with antiviral initiated as decided by physician.
    - Specimen (Nasopharyngeal Swab send in viral transport media for respiratory viral panel) should be collected to identify cause of ARI symptoms.

- Influenza vaccination status of the HCWs need to be noted

- Infection prevention and control team in the health care facility should be informed about the case so follow-up for contact if any (patients and staff) can be done and prophylaxis administered timely to prevent spread of infection in HCF &/or severe illness in high risk group.

9. Implement environmental infection control:

- Standard cleaning and disinfection procedures (e.g., using cleaners and water to preclean surfaces prior to applying disinfectants to frequently touched surfaces or objects for indicated contact times) are adequate for influenza virus environmental control in all settings within the healthcare facility, including those patient-care areas in which aerosol-generating procedures are performed.
- Management of laundry, food service utensils, and medical waste should also be performed in accordance with standard procedures.
- Waste management in accordance with national and facility guidelines

10. Implement engineering controls:

- Consider designing and installing engineering controls to reduce or eliminate exposures by shielding HCWs and other patients from infected individuals. Examples of engineering controls include installing physical barriers such as partitions in triage areas or curtains that are drawn between patients in shared areas.
- Engineering controls may also be important to reduce exposures related to specific procedures such as using closed suctioning systems for airways suction in intubated patients.
- Another important engineering control is ensuring that appropriate air-handling systems are installed and maintained in healthcare facilities.

11. Train and educate HCWs:

- Ensure that all HCWs receive job- or task-specific education and training on preventing transmission of infectious agents, including influenza, associated with healthcare during orientation to the healthcare setting. This information should be updated periodically during ongoing education and training programs.
- Competency including N95 fit test should be documented initially and repeatedly, as appropriate, for the specific staff positions.

- A system should be in place to ensure that HCWs employed by outside employers meet these education and training requirements through programs offered by the outside employer or by participation in the healthcare facility's program.
- Key aspects of influenza and its prevention that should be emphasized to all HCWs include:

✓ Influenza signs, symptoms, complications, and risk factors for complications.

✓ HCWs should be made aware that, if they have conditions that place them at higher risk of complications, they should inform their healthcare provider immediately if they become ill with an influenza-like illness so they can receive early treatment if indicated.

✓ Central role of administrative controls such as vaccination, respiratory hygiene and cough etiquette, sick policies, and precautions during aerosol-generating procedures.

✓ Appropriate use of personal protective equipment including respirator fit testing and fit checks.

✓ Use of engineering controls and work practices including infection control procedures to reduce exposure.

Both HCWs and patients should be reminded that persons treated with influenza antiviral medications continue to shed influenza virus while on treatment. Thus, hand hygiene, respiratory hygiene and cough etiquette practices should continue while on treatment.

At Community Level

Each individual is expected to practice the following general preventive measures for influenza especially during influenza season:

- Avoid close contact with people who appear unwell and have fever and cough.
- Wash hands with soap and water or hand sanitizer thoroughly and often.
- Practice good health habits including adequate sleep, eating nutritious food, and keeping physically active.

The persons who are not well should be cared at home unless the person is seriously ill which require hospital admission keeping following guidelines in mind:

- Separate the ill person from others, at least 1 meter in distance from others.
- Cover the mouth and nose when caring for the ill person.

- Wash hands with soap and water or hand sanitizer thoroughly after each contact with the ill person.
- Improve the air flow where the ill person stays. Use doors and windows to take advantage of breezes.
- Keep the environment clean with readily available household cleaning agents.

The person who is unwell having high fever, cough or sore throat is expected to follow following steps:

- Stay at home and keep away from work, school or crowds.
- Rest and take plenty of fluids.
- Cover your mouth and nose with disposable tissues when coughing and sneezing, and dispose of the used tissues properly.
- Wash your hands with soap and water often and thoroughly, especially after coughing or sneezing.
- If you need medical attention then go to the nearest health center

V) Information Dissemination

The overall communications strategy covers the gathering, collation and dissemination of information for a variety of audiences, which can be divided broadly into:

Strategic Communications

Two way strategic communications will involve the Ministry of Health, and all other governmental agencies and organizations, including the private health establishments and the international agencies. The Government briefings and public information will be controlled and monitored by Director General of diseases surveillance and Control under the supervision of higher officials of the ministry of health.

Professional Information and Guidance

Regular circulars to the health professionals to be issued when required and as urgency indicates through appropriate means and routes.

Communications with the Public and the Media

Media communications to be coordinated initially by the Ministry of Health Public Relation Office. They will also co-ordinate cross government communication and depending on the scale

will also co-ordinate the media and public communication for the other Government Departments involved.

Health education should be conducted by all the available means before and during the expected influenza season.

Methods:

- ✓ Newspaper articles in Arabic and English
- ✓ Health education materials, sample attached in annex.
- ✓ Video clips
- ✓ Lectures
- ✓ SMS messages
- ✓ Social media

Message:

Educating public about the nature of the disease, mode of transmission, symptoms, vaccine availability for high risk groups, non-pharmaceutical public health interventions…etc.

Settings:

Waiting areas in health centers and hospitals

Schools

Any closed community/confined groups

Annexes:

Annex 1: Template for weekly ARI/Influenza regional report

Summary

- Brief summary description of the epidemiological, virological data.

Description of the surveillance system

- Describe the type if surveillance (SARI-IS, SARI-SS, ILI, Lab surveillance)

1. SARI Epidemiological surveillance

- Present the epidemiological data graphically.
- Describe the season in terms of starting date, duration of season.
- Age groups most affected.
- Description and summary of influenza-associated SARI data collected by week admitted, age, and gender.
- Co-morbidity among cases.
- Fatal cases.

2. Virological surveillance

- Present the virological data graphically.
- Description of how many influenza detections were done, as well as type and subtypes of influenza viruses.
- Describe differences in the distribution of viruses by age or severity.
- Summarize any notable changes from previous years.

3. Flu Vaccine data

- Vaccination coverage, if possible by age and/or risk groups.

4. Key Performance indicators of the NARI surveillance system

- The KPIs data for the system should be presented in table (Please refer to NARI policy Annex 9)

In order to prepare the weekly report, you should provide the following:

The following data should be presented in table:

- Number of new SARI cases. (ARI e.notification)
- Number of new admitted cases due to all causes. (Shifa system)
- Number of SARI deaths. (ARI e.notification)

- Number of death due to all causes. (Shifa system)
- Number of SARI cases which been sampled (respiratory sample). (ARI e.notification)
- Number of positive SARI cases type and subtype.

The following data should be presented graphically:

- Proportion of SARI admissions and deaths related to SARI in region.
- ILI and/or SARI curve from this year by week
- ILI curve from this year, with age break down
- SARI curve from this year, with age break down
- Proportion of sampled admitted SARI cases in region
- Proportion of samples that were positive
- Virus detections showing types/subtypes and proportion positivity.

From Alshifa system SARI trend rate comparing with baseline and alert threshold on the regional level.should be presented graphically

Annex 2: Influenza line list

SR	YEAR	Month	ISO Week	Patient ID	Patient Name	REGION	Health institute	SEX	AGE	Admission Date	Admission ward	Date of Onset
Ventilated	**Comorbidity**	**Exposure Hx**	**Travel History**	**Vaccine**	**Antiviral**	**Date of sample collection**	**Date of results**	**Results**	**Outcome**	**Date of Outcome**	**Remarks**	

Annex 3: Influenza mortality line list

Sr.#	Iso week #	Age	Name	Sex	Nationality	Governorate	Date of Onset	Admitting hospital	Hospital ID

Date of Admission	Date of respiratory sampling	Date of confirmation	Flu subtype	Travel Hx	Comorbidity/ Risk Factors	Vaccine	Tamiflu	Date of Death	Cause of Death

Annex 4: ARI Laboratory Codes

No	Test Name	Test ID	Short Name
1	SARI- Intensified Surveillance(ward)	30203	SARI-ISW
2	SARI- Intensified Surveillance(ICU)	30202	SARI-ISU
3	SARI-Sentinel Surveillance(SARI-SS)	30201	SARI-SS
4	Antiviral susceptibility testing of Influenza virus	30028	FLUA-Res
5	Influenza like illness (ILI) Survelliance	30200	ILI

Annex 5: Health education materials