

Infection Prevention and Control Guidelines for Seasonal Influenza in Healthcare Setting

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Introduction

Influenza virus Infection may be introduced into a healthcare facility by patients, personnel, or visitors. Influenza outbreaks are also known to result in increased absenteeism and lost productivity among hospital staff. Descriptive reports of hospital influenza outbreaks provide evidence that nosocomial spread of influenza occurs. Hospital staff can transmit the infection to patients and risk for influenza acquisition in hospitalized patients are considerable. This document aim to provide infection prevention and control guidance to healthcare workers (HCWs) managing patients with suspected or confirmed seasonal influenza at healthcare facilities. Avian and Novel influenza strains are not addressed.

Case finding and surveillance

Patients who show signs and symptoms of respiratory infection should be assessed in a timely manner to prevent spread of infection to patients and staff. Influenza symptoms may vary, however the following definitions are used for surveillance purposes:

- **Influenza-like illness (ILI)*** is defined as an individual with an acute respiratory infection with:
 - measured fever of $\geq 38\text{ C}^\circ$
 - and cough;
 - with onset within the last 10 days.
- **Confirmed influenza virus infection** is defined as an individual with laboratory confirmed influenza virus infection by one or more of the following tests:
 - real-time RT-PCR
 - viral culture
 - four-fold rise in influenza virus specific neutralizing antibodies.

*In settings where influenza is being transmitted, this definition is fairly specific but lacks sensitivity, so some influenza cases will be missed. Additional or optional features in case definitions may include chills or rigors, myalgia, fatigue, headache, sore throat and coryza. Note that in the elderly, confusion, anorexia and breathlessness may sometimes be the only signs of influenza.

LABORATORY TESTING

- Laboratory testing of all potential cases of influenza is neither required nor desirable for public health management.
- It is not necessary to routinely obtain laboratory confirmation of influenza before commencing anti-influenza medications for individual patients.
- Laboratory testing is recommended for:
 - a representative sample of ILI patients from the surveillance systems.
 - people with severe influenza-like illness who are hospitalized.
 - outbreaks in high-risk settings where individuals are at increased risk for severe disease. The number of ill people needing testing to determine the cause of an outbreak is generally low (this will depend on the clinical situation, but five quality samples should suffice).

Vaccination

- The most effective way to prevent or reduce severe outcomes from the illness is vaccination. Safe and effective vaccines have been available and used for decades. Influenza vaccine reduces the severity, duration and the need for hospitalization. Vaccine effectiveness is affected by the match between the influenza viruses the

vaccine is designed to protect against and the influenza viruses circulating in the community. Among the elderly, the vaccine effectiveness may be reduced. Side effects of the vaccine are generally mild and may include pain and/or swelling from the shot, headache, fever, muscle aches and fainting (mainly adolescents). Some studies have found a possible small association of injectable flu vaccine with Guillain-Barré syndrome (GBS). Overall, these studies estimated the risk for GBS after vaccination as fewer than 1 or 2 cases of GBS per one million people vaccinated. Other studies have not found any association. GBS also, rarely, occurs after flu illness. Even though GBS following influenza illness is rare, GBS is more common following influenza illness than following flu vaccination.

- The available vaccine is a trivalent inactivated influenza vaccine (Types A/H1N1, A/H3N2 and B). It comes in a pre-filled syringe containing 0.5 mL administered intramuscularly. The preferred site in adults is into the deltoid muscle
- The vaccine should not be administered to anyone with a history of severe allergic reaction to egg protein or any component of the vaccine
- HCW are considered a high risk group for acquiring influenza infection. Vaccination will protect them, their families and their patients.
- Mandatory influenza vaccination for all healthcare personnel is imperative. All healthcare personnel are required to provide:
 - a. annual documentation of influenza immunization; OR
 - b. documentation from a licensed physician indicating medical contraindication against influenza vaccination

General infection prevention and control precautions

Standard Precautions

- Standard Precautions, a cornerstone for providing safe health care and reducing the risk of further infection, should always be applied in all health-care settings for all patients. Standard Precautions include:

Hand hygiene

- HCWs should apply “My 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.
- Hand hygiene includes either washing hands with antiseptic soap and water or the use of an alcohol-based waterless hand sanitizer (waterless hands rub).
- Wash hands with antiseptic soap and water when they are visibly soiled.
- The use of gloves does not eliminate the need for hand hygiene. Hand hygiene is necessary after taking off gloves and other personal protective equipment (PPE).

Respiratory precautions

To prevent the transmission of respiratory infections in the healthcare settings, including influenza, the following infection control measures should be implemented at the first point of contact with a potentially infected person. They should be incorporated into infection control practices as one component of Standard Precautions.

- **Visual Alerts:** Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency rooms and clinics) instructing patients and persons who accompany them (e.g., family, friends) to inform healthcare personnel of

symptoms of acute respiratory illness (including fever with cough, sore throat, rhinorrhea, sneezing, shortness of breath, and/or wheezing) when they first register for care and to practice the following Respiratory Hygiene/Cough Etiquette.

● **Masking and Separation of Persons with Respiratory Symptoms:**

- Offer regular (surgical) masks to persons who are coughing. Regular (surgical) 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.
- Healthcare facilities should ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors.
- Provide tissues and no-touch receptacles for used 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.

Triage for rapid identification of patients with influenza like illness (ILI)

- Clinical triage should be used for early identification of all patients with ILI in the Emergency Rooms, dialysis units and the Clinics.
- Identified ILI patients should be asked to wear a surgical mask. They should be evaluated in an area separate from other patients
- Infection control and prevention precautions should be promptly implemented.
- If ILI patients cannot be evaluated immediately, they should wait in a waiting area dedicated for the acute respiratory infection patients with spatial separation of at least 1 m between each patient and others.
- Clinical and epidemiological aspects of the cases should be evaluated as soon as possible and the investigation can be complemented by laboratory evaluation.

Infection prevention and control precautions when caring for patients with ILI or confirmed influenza infection

- For patients with ILI or confirmed influenza infection, standard and droplet precautions are recommended.
- Place the patient in a single room (a negative air pressure room is not indicated) and place a droplet precaution sign on the door.
- When single rooms are not available, place patients with the same diagnosis together (cohorting). If this is not possible, place patient beds at least 1.2 meters apart.
- Avoid the movement and transport of patients out of the isolation room or area unless medically necessary. The use of designated portable X-ray, ultrasound, echocardiogram, and other important diagnostic machines is recommended when possible. If transport is required:
 - Patients should wear a surgical mask to contain secretions
 - Use routes of transport that minimize exposures of staff, other patients, and visitors.
 - Notify the receiving area of the patient's diagnosis and necessary precautions as soon as possible before the patient's arrival.
 - Ensure that healthcare workers (HCWs) who are transporting patients wear appropriate PPE and perform hand hygiene afterwards.

- Personal Protective Equipment (PPE) for Healthcare Workers (HCWs):

The following PPE should be worn by HCWs (and visitors) upon entry into patient rooms or care areas in the respective order:

1. Gowns (if exposure to body fluid or secretions or contaminated environment anticipated)
2. Surgical mask
3. Eye protection (goggles or face shield) (if splashes anticipated)
4. Gloves (if exposure to body fluid or secretions or contaminated environment anticipated)

Remove PPE at doorway in the following sequence: 1. Gloves, 2. Goggles or face shield, 3. Gown and 4. Mask.

Perform hand hygiene before and after contact with the patient or his/her surroundings and immediately after removal of PPE.

- Environmental Infection Control:

Follow standard procedures, per hospital policy and manufacturers' instructions, for cleaning and/or disinfection of Environmental surfaces, equipment, textiles and laundry.

- Limit the number of HCWs, family members and visitors in contact with a patient with ILI or confirmed influenza

Infection prevention and control precautions for aerosol generating procedures

- An aerosol-generating procedure is defined as any medical procedure that can induce the production of aerosols of various sizes, including small (< 5 micron) particles.
- Aerosol-generating procedures that may be associated with an increased risk of infection transmission includes both elective procedures such as bronchoscopy, sputum induction, elective intubation and extubation, as well as emergency procedures such as cardiopulmonary resuscitation, emergency intubation, open suctioning of airways, manual ventilation via umbo bagging through a mask before intubation, and initiation of non-invasive ventilation (e.g. Bilevel Positive Airway Pressure - BiPAP).
- BiPAP is not recommended in influenza infected patients because of the high risk of generating infectious aerosols and lack of evidence for efficacy over elective endotracheal intubation and mechanical ventilation for patients with pneumonia.
- Additional precautions should be observed when performing aerosol-generating procedures, which may be associated with an increased risk of infection transmission:
 - Wear N95 masks -Every healthcare worker should wear a fit tested N95 mask (or an alternative respirator if fit testing failed). Additionally, when putting on N95 mask, always check the seal.
 - Wear eye protection (i.e. goggles or a face shield).
 - Wear a clean, non-sterile, long-sleeved gown and gloves (some of these procedures require sterile gloves).
 - Wear an impermeable apron for some procedures with expected high fluid volumes that might penetrate the gown.
 - Perform procedures in a negative pressure room

- Limit the number of persons present in the room to the absolute minimum required for the patient's care and support.
- Perform hand hygiene before and after contact with the patient and his or her surroundings and after PPE removal.

Admission criteria

- The majority of patients suspected to have influenza infection will not require admission to hospital. However, admission may be considered for those who have clinical or radiological evidence of pneumonia and persons at increased risk of disease complications (e.g. persons aged >65 years or <5 years of age, pregnant women and people with certain chronic medical conditions).

Instruction for Home isolation

The patient should be instructed as follows:

During the period that you have symptoms, especially fever, it is possible for you to spread the flu virus to those who have close contact with you (for example, someone living with or caring for you). To help prevent spread of the flu virus to others in close contact with you, we are asking you to follow these guidelines:

THE PERSON WHO IS SICK SHOULD

- **STAY AT HOME** at least 24 hours after fever is gone. Fever should be gone without the use of a fever-reducing medicine.
- **AVOID CLOSE CONTACT WITH OTHERS.** Limit your contact with others. Avoid close contact such as kissing, sharing toothbrushes or drinks with people who are not sick. Try to stay in one room of the house, as far away from others as possible.
- **COVER YOUR MOUTH AND NOSE.** Always cover your mouth and nose when sneezing, coughing, or blowing your nose.
- **WASH YOUR HANDS.** Wash your hands with soap and water or an alcohol-based hand gel right after you sneeze, cough or throw a used tissue in the trash.
- **WEAR A MASK.** When you are in close contact with others (within 6 feet) or if it is necessary to leave the house, wear a mask to stop the spread of flu to others.
- **CALL YOUR HEALTHCARE PROVIDER IF YOUR SYMPTOMS GET WORSE.** Trouble breathing including shortness of breath or fast breathing. Bluish skin color. Pain or pressure in the chest or abdomen. Sudden dizziness. Confusion or irritability. Flu-like symptoms improve but then return with fever and worse cough.

OTHER PERSONS IN THE HOME

- **WATCH FOR SYMPTOMS.** Household and close contacts should watch for symptoms such as fever, cough, sore throat or runny nose. Contacts that develop symptoms should remain at home and follow the steps listed above.
- **CHOOSE ONE PERSON TO CARE FOR THE SICK PERSON.** Limit the number of people caring for the sick person. Wear a mask if you must have close contact. If at all possible, persons with chronic health problems and pregnant women should not care for the sick person.
- **WASH YOUR HANDS.** Wash your hands with soap and water or an alcohol-based hand gel right after any contact with the sick person. Wash your hands after handling dirty laundry and other personal items

- LIMIT THE NUMBER OF VISITORS. Sick people should not have visitors while they are ill. If someone who does not live in the home with the patient has to enter the home, they should not come in close contact (within 2 meters) of the sick person.
- WIPE DOWN SURFACES. Clean surfaces that are frequently touched or shared with a standard household disinfectant. This may include doorknobs, remote controls, bedside tables, and bathroom counters / fixtures.

Management of health care workers who had contacts with patients with influenza infection

- Health care facilities should trace all health care workers who had protected or unprotected contacts with patients with suspected (ILI), or confirmed influenza infection
- Instructed not to report to work, or if at work, to stop patient-care activities, don a facemask, and promptly notify their supervisor and infection control personnel/employee health before leaving work
- The Infection Control unit should be notified of all contacts that develop a respiratory illness.
- Testing for influenza is not recommended if exposed asymptomatic HCW.
- Exposed HCW can continue working unless they become symptomatic
- Symptomatic HCW must stop working immediately, put a mask and report to the employee health clinic. Nasopharyngeal swabs should be collected and tested for influenza.
- HCW who develop consistent symptoms after exposure to influenza should be treated with antiviral medications
- Decision to start prophylactic anti-influenza medication for asymptomatic exposed HCW should be judged on case by case basis in consultation with infection control department.
- The use of prophylactic anti-influenza medication is not indicated if the exposed HCW was vaccinated with the current seasonal influenza vaccine more than two weeks prior to exposure.

Management of Hospital outbreak of influenza

- Defined as evidence of secondary transmission within the hospital of single or more cases.
- Investigation should be under guidance of Infection prevention and control unit of the hospital, regional command and control center and central command and control centre.
- More testing of asymptomatic HCW may be required.
- Cohorting or closure of units may be required in consultation with the regional command and control center
- Consider influenza vaccination for unvaccinated patient unless contraindications exist
- Chemoprophylaxis for unvaccinated HCWs and patients, may be required

Duration of isolation precautions for influenza infection

- Patients may shed influenza virus for up to 24 hours (1 day) before onset of symptoms and usually until 7 days after the onset of symptoms. Viral shedding in adults peaks in the first 1 to 2 days after symptom onset, then reduces to very low levels by 5 days after onset of symptoms. Not all cases of influenza infection exhibit fever, but when it is present, it is correlated with viral shedding.

- Children and younger adults may shed influenza virus for 10 or more days, and immunosuppressed persons may shed virus for weeks. However, the ability to transmit infection is likely to be higher when respiratory symptoms are present.
- Patients are considered no longer infectious if:
 - 24 hours have elapsed since the resolution of fever, provided either;
 - Have received 72 hours of anti-influenza medication OR
 - 5 days have elapsed since onset of respiratory symptoms.
- Repeating the nasopharyngeal swab is not generally required to discontinue isolation.

Managing bodies in the mortuary

- The risk of infection from dead bodies is minimal. Observing standard precautions at the morgue will suffice (see GCC_ICM Appendix A-VIII-10)
- Washing can be done outside of the hospital setting based on family wishes.