

Infection prevention and control of suspected or confirmed influenza in healthcare settings

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Content	Page
1.0 Introduction	3
2.0 Infection Prevention and Control Precautions	4-9
3.0 Duration of Precautions	10
4.0 References	11
Appendix A: Respiratory hygiene and cough etiquette poster	12
Appendix B: Algorithm for infection prevention and control precautions for patients with suspected or known to be infected with an acute infectious respiratory disease	13
Appendix C: Aerosol generating procedures	14
Appendix D: Donning and removing PPE	15

1.0 Introduction

This document outlines the infection prevention and control measures required for patients presenting with suspected or confirmed influenza in healthcare settings.

As the symptoms of influenza are non-specific it is imperative that staff in healthcare settings are cognisant of the current prevalence of influenza in the community. Information from the Health Protection Surveillance Centre (HPSC) national weekly influenza surveillance reports should be readily available to relevant staff. These reports can be downloaded at <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Surveillance/InfluenzaSurveillanceReports/>

Standard Precautions should be used by ALL healthcare workers (HCWs) for ALL patients at ALL times.

Infection prevention and control precautions for suspected or confirmed influenza:

Patients \geq 5 years of age:

- Standard and Droplet Precautions, with additional precautions for aerosol generating procedures (AGP)

Patients $<$ 5 years of age:

- Standard, Droplet and Contact Precautions, with additional precautions for AGP

2.0 Infection prevention and control precautions when caring for a suspected or confirmed influenza case

2.1 Administration measures should be applied to all patients presenting with influenza-like illness (ILI)¹

- Educate healthcare workers (HCWs) on the importance of control measures to contain respiratory secretions to prevent droplet and contact transmission of respiratory pathogens.
- Ensure supplies of tissues, waste bins and hand hygiene facilities are available in waiting areas.
- Ensure rapid triage.
- Provide dedicated waiting areas for symptomatic patients where possible.
- Limit entry to persons who have an ILI but who are not seeking care.
- HCWs should have access to an occupational health team and be offered annual influenza vaccination.
- HCWs should self monitor for ILI.
- HCWs with ILI symptoms should not attend work and should immediately report symptoms to their line manager.
- All healthcare facilities should have a surveillance programme in place to monitor staff and patients for ILI. Clusters or outbreaks should be reported to the local Public Health Department. See [Interim guidance regarding surveillance to detect clusters/outbreaks of influenza or influenza like illness](#)

2.2 Respiratory hygiene and cough etiquette should be applied to all patients with ILI and includes the following:

- Offer surgical masks to coughing patients and symptomatic accompanying persons.
- Maintain a spatial separation of at least one meter (3 feet) from others in common waiting areas.
- Educate patients on respiratory hygiene and cough etiquette using:
 - Patient information [leaflets](#).
 - [Posters](#) in all departments especially waiting areas (Appendix A).
- Additional precautions when caring for all patients with an acute respiratory infection
 - In addition to standard precautions all HCWs and visitors should:

¹ ILI symptoms using the Irish case definition include: Sudden onset of symptoms **and** at least one of the following four systemic symptoms: fever, malaise, headache, myalgia **and** at least one of the following three respiratory symptoms: cough, sore throat and shortness of breath.

- Wear a surgical mask when in close contact (within 1 metre (3 feet)) and on entering the patient's room or cubicle.
- Perform hand hygiene before and after touching a patient and his or her surroundings and after removing the mask.
- Refer to the algorithm with infection prevention and control precautions for patients with suspected or known to be infected with an acute infectious respiratory disease in Appendix B.

2.3 Patient placement

- Place patients with suspected or confirmed influenza in a single room preferably with ante room and en-suite facilities.
- Doors of isolation rooms must remain closed.
- Place an isolation sign indicating the type of transmission-based precautions on the door (as per local guidelines), ensuring that patient confidentiality is maintained.
- If a single room not available, place patients with ILI at least one meter (3 feet) from other patients.
- Emergency Departments without single rooms must have interim arrangements in place to prioritise transfer to an appropriate single room.
- AGP should be carried out in a well ventilated room (e.g. mechanically ventilated with 6-12 air changes per hour or naturally ventilated room). See appendix C for an updated list of AGP.
 - Nebulisation is no longer considered an AGP but patients receiving nebulisation should be placed in a single room.

Ambulance

- Refer to: <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Infectioncontroladvice/>

2.4 Patient movement and transfer

External transfer

- Patient should wear a surgical mask outside their room.
- It is the responsibility of the transferring facility to inform staff in the receiving facility of the precautions required.

Internal transfer

- Minimise movement of the patient from the single room.
- Patient should wear a surgical mask outside their room.

- Staff should be informed of the precautions required in the receiving departments (e.g. diagnostic departments).
- Avoid holding patients in communal areas (radiology etc).
- Personal protective equipment (PPE) for HCWs (Section 2.6):
 - Wear a surgical mask if patient unable or unwilling to wear a surgical mask, and observe hand hygiene before donning and after removing gloves (Section 2.6).

Care after death

- As there is a risk of blood or body fluid leakage in those who are deceased, gloves, surgical mask, apron, and goggles (if splashing/spraying risk) should be worn by all handling the remains. Hand hygiene should be performed after removing PPE.
- Where there is a risk of leakage of body fluids, body bags should be used for transporting the remains.
- Autopsy should be undertaken in a facility complying with [HBN 20 Facilities for mortuary and post-mortem services, NHS Estate](#).
- During autopsy procedures, HCWs should wear the PPE advised for an AGP (Section 2.6) and comply with [Health Services Advisory Committee, Safe working and the prevention of infection in the mortuary and post-mortem room, 2003](#).
- Embalming is permitted. Gloves, surgical mask, apron and goggles should be worn by morticians.
- Viewing and touching of remains is permitted once skin cleansing/hygienic preparation is completed.

2.5 Hand hygiene

Hands should be decontaminated with alcohol hand rub or washed with soap and water if physically dirty:

- Before touching a patient.
- Before a clean/aseptic procedure.
- After blood and body fluid exposure.
- After touching a patient.
- After touching the patient's surroundings.

2.6 Personal protective equipment (PPE)

The patient should wear a surgical mask when outside their single room and during chest physiotherapy if tolerated.

HCWs (even if vaccinated against influenza) must wear the following PPE:

PPE for routine care for suspected or confirmed influenza case.

Patients aged \geq 5 years:

- Surgical mask. Wear gloves/apron/gown/goggles if risk of contact with blood, body fluids, mucous membranes or non-intact skin anticipated as per Standard Precautions.

Patients aged < 5 years:

- Surgical mask, gloves, apron/gown (and goggles if risk of spraying or splashing of blood or body fluids).

PPE for an aerosol generating procedure (AGP) and if remaining in or entering the patient's room within one hour after cessation of the AGP:

- FFP2 or FFP3 respirator (correctly fitted), goggles, long sleeved disposable gown, gloves.
- Refer to Appendix C for list of [AGP](#) and appendix D for [donning and removing PPE](#) poster.

HCWs when putting on and removing PPE must:

- Replace if damp, wet or torn.
- Put on and remove in the correct sequence (Refer to Appendix D for [donning and removing PPE](#) poster).
- Remove and dispose of gloves & apron/gown inside the single room.
- Remove and dispose of mask in the ante room or immediately outside the single room if there is no ante room. Ensure door is closed.
- Discard masks/respirators as healthcare risk waste.
- Discard gloves/aprons/gowns/goggles as healthcare risk waste if contaminated with blood or body fluids.
- Decontaminate hands immediately after removing PPE.

Visitors should:

- Be kept to a minimum.
- Wear a surgical mask while in patient's room.
- Be educated on:
 - Donning and removing PPE.
 - Hand hygiene.
 - Respiratory hygiene and cough etiquette.

2.7 Environmental hygiene

- Only take essential equipment and supplies into the room. Do not stockpile as unused stock will have to be discarded on cessation of additional precautions.
- Patient charts/records should not be taken into the single room.
- The frequency and intensity of cleaning may need to be increased based on the patient's level of hygiene and the level of environmental contamination.

Cleaning and disinfection

Patient's room

- Thoroughly clean the environment and furniture and all patient care equipment daily with a neutral detergent and disinfectant (hypochlorite solution 1000 ppm) paying special attention to frequently touched sites and equipment close to the patient.
- Cleaning and disinfection of the environment on discharge/transfer:
 - Prior to initiating environmental cleaning and disinfection, all privacy, shower and window curtains must be removed and sent for laundering.
 - All disposable items including paper towels and toilet paper should be discarded.
 - All sterile and non-sterile supplies in the patient room to be discarded on patient transfer/discharge.

Treatment rooms (e.g. X-ray)

- Clean and disinfect the environment and furniture after use with a neutral detergent and disinfectant (hypochlorite solution 1000 ppm) paying special attention to frequently touched sites (door handles, bed rails etc).
- Medical equipment (refer to 2.8).

Cutlery and crockery should be washed in a dishwasher or hand washed with liquid detergent and water.

2.8 Patient care equipment/instruments/devices

- Dedicate patient care medical devices (e.g., thermometers, sphygmomanometers, stethoscopes, glucometers) to single patient use.
- Use disposable equipment whenever possible.
- Manufacturer's instructions should be followed for cleaning and disinfecting of reusable medical equipment after use.

- Single use items should be disposed of after use.
- **Bedpan/Commodes**
 - Use a working washer disinfectant at 80°C for one minute.
 - If the patient has diarrhoea and no ensuite available, dedicate a commode for single patient use.
 - Decontaminate commode surface after each patient use with a hypochlorite solution 1000 ppm.

2.9 Laundry and linen

- As per Standard Precautions all contaminated laundry should be carefully placed in an alginate stitched or water soluble bag and then placed into a laundry bag clearly identified with labels, colour-coding or other methods prior to transport to an approved laundry capable of dealing with contaminated linen.

2.10 Management of waste

- As per Standard Precautions.
- Surgical masks and FFP2/3 respirators should be discarded as healthcare risk waste.
- Gloves, aprons/gowns and goggles contaminated with blood and body fluids should be discarded as healthcare risk waste.

2.11 Management of sharps, needle stick injuries (NSI) and blood and body fluid exposure, spillages of blood and body fluids and safe injection practices

- As per Standard Precautions.

3.0 Duration of Transmission-based Precautions

The use of laboratory results (serology or respiratory tract samples) to determine duration of transmission-based precautions is not recommended.

Standard Precautions must be used by all HCWs for all patients at all times.

3.1 Influenza

Transmission-based precautions (i.e. Droplet and Contact where applicable) should be continued for at least 7 days following symptom onset and, in addition: ^(1, 2)

- For 24 hours following resolution of acute symptoms particularly fever.
 - Cough or other airway distress may persist longer than the period of infectivity.
 - In elderly patients, and those on certain medicines, such as antipyretics and oral corticosteroids, fever may be suppressed or absent.
- For the duration of ILI in patients who are immunosuppressed and/or in intensive care units.
- In any situation where drug-resistant virus is suspected, including any patient whose respiratory symptoms persist beyond a 5-day antiviral treatment course.

References

1. Siegel JD, Rhinehart E, Jackson M, Chiarello L. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control* 2007;35:10(Suppl 2):S65-164.
2. World Health Organization. Infection Prevention and control during health care for confirmed, probable or suspected cases of pandemic (H1N1) 2009 virus infection and influenza like illness. December 16th 2009.
<http://www.who.int/csr/resources/publications/swineflu/swineinflcont/en/index.html>
3. World Health Organization. Infection Prevention and Control of Epidemic and Pandemic-Prone Acute Respiratory Diseases in Health care. 2007
http://www.who.int/csr/resources/publications/WHO_CD_EPR_2007_6/en/index.html Accessed 20-3-2013.
4. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol Generating Procedures and Risk of Transmission of Acute Respiratory Infections to Healthcare Workers: A Systematic Review. *PloS ONE* 2012;7(4):e35797

Appendix A

COVER UP COUGHING AND SNEEZING



- Turn your head away from others
- Use a tissue to cover your nose and mouth



- Drop your tissue into a waste bin

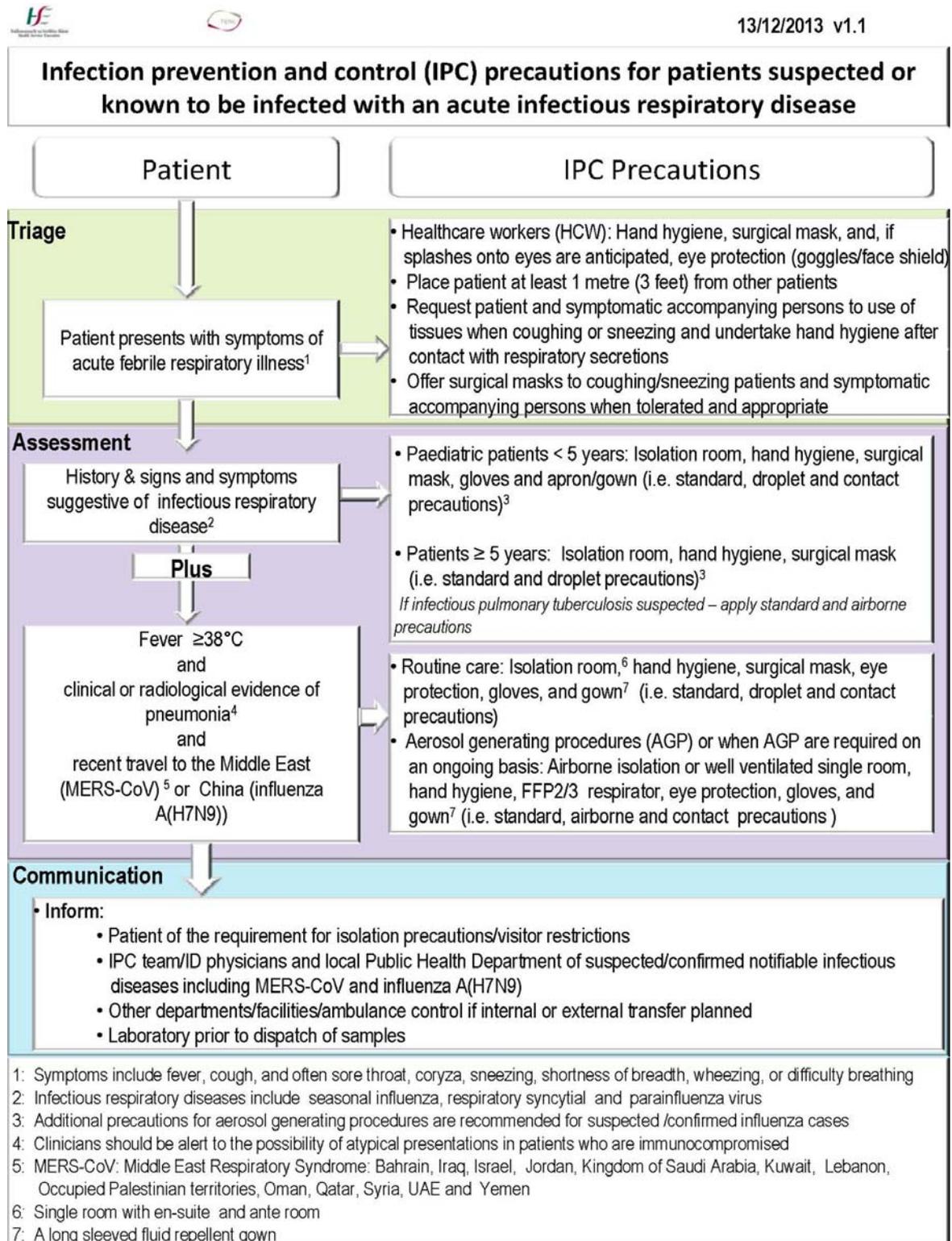


- No tissues? Use your sleeve



- Clean your hands after discarding tissue using soap and water or alcohol gel for at least 15 seconds

Appendix B: Algorithm for infection prevention and control precautions for patients with suspected or known to be infected with an acute infectious respiratory disease



Appendix C: Aerosol Generating Procedures (AGP)

Based on current recommendations from WHO,³ which are derived from a systematic review of the literature,⁴ the list of AGP requiring additional precautions have been revised.

The following are AGP which require additional precautions:

- Intubation
 - HCWs performing or exposed to a tracheal intubation were found to be consistently associated with an increased risk of infection (OR 6.6 (95% CI; 2.3,18.9)⁴
- Manual ventilation²
- Non-invasive ventilation (e.g., BiPAP, BPAP)
- Tracheostomy insertion

Note: Specific infection prevention and control guidance for all bronchoscopy and sputum induction procedures as outlined in the [Guidelines on the Prevention and Control of Tuberculosis in Ireland 2010](#) should be followed

² Tran et al reported that an increased risk of infection was associated with non-invasive ventilation, manual ventilation and tracheostomy; however, these findings were derived from a very limited number of studies with the data not considered sufficiently robust to establish a risk of transmission with any certainty compared to the risk from intubation.

Appendix D

Donning and Removing PPE

20/12/2013

Version 1.9

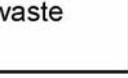


Personal Protective Equipment (PPE)

Adapted for Influenza



Correct sequence for putting on and removing PPE to prevent contamination of the face, mucous membranes and clothing

Putting on PPE		
1. Decontaminate hands		
2. Put on disposable apron/gown		
3. Put on surgical mask or FFP2/3 respirator* as indicated		
For FFP2 or FFP3 respirators:		
Fit Check	<ul style="list-style-type: none"> A. Place mask over nose, mouth and chin B. Fit flexible nose piece over nose bridge C. Secure on head with elastic D. Adjust to fit E. Inhale – mask should collapse F. Exhale – check for leakage around face 	
4. Put on goggles if required - (If goggles fog up, the respirator is not fitted correctly, adjust and repeat fit check)		
5. Put on gloves		
Removing PPE		
In patient's room	1. Remove gloves (avoid touching the outside of the gloves)	
	2. Decontaminate hands	
	3. Remove goggles	
	4. Remove gown or apron (avoid touching the front of the gown/apron)	
In ante room or directly outside patient's room. Ensure door is closed	5. Remove mask/respirator by breaking the ties. If ties are elastic grasp and lift ties from behind your head and pull off mask/respirator away from your face. Avoid touching the front of the mask/respirator & use ties to discard	 
	6. Discard mask/respirator (& gloves/aprons/gowns/goggles contaminated with blood or body fluids) as healthcare risk waste	
7. Decontaminate your hands		

* An FFP2/3 respirator is the same as an FFP2/3 mask