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# Interim Infection Prevention and Control Precautions for Possible or Confirmed 2019 novel Coronavirus (2019 nCoV), Middle East Respiratory Syndrome Coronavirus (MERS- CoV) and Avian Influenza A in Healthcare Settings

v2.0 11.02.2020

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Updated Feb 2020

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## Summary

This guidance has been reviewed in the context of the emergence of a novel Coronavirus in China. Although this is a new virus the experience so far indicates that it spreads in a similar way to other respiratory viruses and that the same steps to limit spread of this virus are likely to be effective. Even without the risk of importation of a novel virus most of these measures are appropriate to protect patients and to protect HCW from infection with the influenza virus and other common respiratory viruses that are circulating.

Although HCW concerns for their personal welfare and that of their colleagues and family are natural and reasonable it is important that patients with any infectious disease receive appropriate care. It is necessary to manage the risk of spread without compromising the delivery of timely and appropriate care to the patient.

There is some variation in detail between national guidance issued in different countries. Where there are differences of opinion and guidance, this document generally follows guidance from the World Health Organization (WHO). One specific topic on which there are differences of view relates to the use of PPE in particular masks. Surgical masks are appropriate in all healthcare settings other than when aerosol generating procedures are performed (as below). It is accepted however, that there are some areas of the health service where healthcare workers are very familiar with the use of particular types of personal protective equipment, for example FFP2 masks. Where people have long experience with a particular type of PPE they may prefer to use equipment with which they are familiar provided it does not provide a lower level of protection

## Key Recommendations

- Apply Standard Precautions when caring for all patients at all times in particular all HCW providing patient care should strictly comply with WHO “Five Moments” for hand hygiene at all times and remove any barriers to achieve this including wrist/hand jewellery, nail polish or enhancements and short /rolled up sleeves.
- **Ensure risk assessment/triage processes are in place to identify patients that present with features of an acute respiratory infection to any healthcare service as quickly as possible.** Ask them to wear a surgical mask, move them as quickly as possible to isolation in a room with a door that can be closed.
- Ensure that a HCW member, carefully adhering to infection prevention and control practice (Standard, Contact and Droplet Precautions) assesses the patient without delay. The assessment must include information on recent travel and recent contact with any person with a flu like illness know to have travelled to regions of concern as identified on the relevant risk assessment algorithms ([www.hpsc.ie](http://www.hpsc.ie))
- If there is reason to suspect a novel Coronavirus or Avian Influenza apply precautions as outlined within the guidance and seek further advice from a Public Health Specialist and where available Infection Prevention and Control Practitioner

## Introduction

This document outlines the interim infection prevention and control measures required for patients presenting with possible or confirmed Novel Coronavirus (2019-nCoV), Middle East Respiratory Syndrome (MERS-CoV) or Avian influenza infection in healthcare settings. The document had been developed from guidance issued by the World Health Organization, Public Health Agency Canada, Public Health England and the European Centre for Disease Prevention and Control. Guidelines will be reviewed as further information arises. The guidelines have been endorsed by the AMRIC Division of HPSC. It is acknowledged that there may be differences in guidelines from other international bodies.

## Coronaviruses

Coronaviruses are enveloped RNA viruses, which can cause infection in both humans and animals. The human coronaviruses mainly infect the upper respiratory and gastrointestinal tracts resulting in mild upper respiratory tract infections (simple colds), and very rarely cause severe disease. Coronaviruses are transmitted between an infected individual and others via respiratory secretions either directly (through droplets from coughing or sneezing) or indirectly (through touching contaminated objects or surfaces or touching/shaking hands). As coronaviruses have a lipid envelope a wide range of disinfectants are known to be effective against them. In recent years new Coronaviruses have emerged which have had significant impact in the healthcare setting.

### Novel Coronavirus (2019-nCoV)

In December 2019 a novel coronavirus associated with a cluster of pneumonia cases was identified in the area of Wuhan, Hubei province in China. There is currently limited information on the severity and precise routes of transmission of this infection however it appears likely that it is transmitted in a similar way to other respiratory viruses. Contact (direct and indirect) and droplet play a large role in transmission of all respiratory viruses.

For the latest information on cases and risk assessments refer to the HPSC website.

### Middle East Coronavirus (MERS CoV)

MERS-CoV is a zoonotic virus (i.e. it can be transmitted from animals to humans). Dromedary camels are believed to be the animal reservoir for the virus. This virus was first identified in 2012 in a patient from the Middle East who died from a severe respiratory infection and cases continue to be reported in this region.

### Severe acute respiratory syndrome (SARS)

SARS is a viral respiratory illness caused by a coronavirus called SARS-associated coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. The illness spread to more than two dozen countries in

North America, South America, Europe, and Asia before the outbreak was contained. Since 2004, no case of SARS has been reported anywhere in the world.

## Avian Influenza

Avian influenza is a contagious disease of animals caused by viruses that normally infect only birds and, less commonly, other animals such as pigs. Avian influenza viruses are highly species-specific, but have, on rare occasions, crossed the species barrier to infect humans. Current viruses that have the potential to begin circulating among humans include H5, H9 and H7 strains of avian influenza.

## General preparedness measures for management and care of possible or confirmed cases of Novel Coronavirus (2019-nCoV), MERS-CoV and Avian Influenza A

In preparation healthcare professionals or facilities that may be involved in assessment, investigation, management and care of possible cases should:

- Educate and train relevant HCWs on the clinical and epidemiological features of Novel Coronavirus (2019-nCoV), MERS-CoV and avian influenza A and the importance of early recognition.
- Ensure dedicated room has been identified for assessment/management of possible cases and all HCW are aware of the location.
- Have systems in place to promptly identify and report suspected cases to local infection prevention and control teams & Public Health Departments.
- Educate healthcare workers (HCWs) on the importance of correctly applying appropriate precautions (Standard, Contact & Droplet) for all patients with a suspected acute respiratory tract infection.
- Ensure adequate supplies of personal protective equipment (PPE) are available and that HCW are trained in the safe donning and doffing and disposal of PPE.
- Ensure this guidance is disseminated to all HCW and implemented with tailoring to local needs if required.

## Respiratory and cough hygiene

All healthcare facilities should have available a supply of tissues and surgical masks and access to alcohol based hand rub at reception to give to any person who presents with an acute respiratory tract infection

All individuals (HCWs, patients and visitors) with signs and symptoms of a respiratory infection should apply respiratory hygiene/cough etiquette as follows;

- Cover their mouth and nose when coughing and sneezing

- Use disposable tissues, as a source control to contain respiratory secretions
- Dispose of tissues into healthcare risk waste bins immediately after use

## Hand Hygiene

Hand hygiene is a critical measure to prevent transmission of infection. Hands should be decontaminated using alcohol based 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

Patients with acute respiratory tract illness should be encouraged to decontaminate their hands with alcohol hand rub on arrival and at intervals while in the health care setting

## Additional General Preparedness Measures for Acute Hospitals/Emergency Departments

- Standard, contact and airborne precautions are recommended when aerosol generating procedures (See relevant section) are being performed which includes the requirement to wear a minimum of an FFP2 respirator mask. Facilities should have a respiratory protection programme in place which incorporates education and practical training for HCWs who perform aerosol generating procedures to ensure that FFP 2 respirators are properly fitted when worn, this includes:
  - Fit testing
  - Undertaking a fit check each time a respirator is worn
  - Preventing self-contamination when removing respirators
  - HCW with facial hair including beards and moustaches may require further respirator support with a power air-purifying respirator (PAPR) option.
  - Agency and other temporary placement HCW who may be involved in aerosol generating medical procedures must be either included in the facility's respiratory protection programme or have undertaken equivalent training and education prior to placement

Ensure that all available mechanical ventilated rooms have been commissioned, are serviced regularly and that there are mechanisms in place to validate that the ventilation system is functioning correctly.

## Early recognition and source control

Rapid risk assessment and subsequent management are essential for infection prevention and control of rare and unusual respiratory viral infections. Details of risk assessment algorithms can be found on the HPSC website.

#### *Case definition for Possible or Confirmed 2019 – Novel Coronavirus (2019 nCoV)*

- Refer to [Algorithm](#) for assessment, investigation and public health management of possible cases and contacts of severe acute respiratory illness associated with 2019 nCoV for case definitions.

#### *Case definition for Possible or Confirmed MERS-CoV*

- Refer to [Algorithm](#) for assessment, investigation and public health management of possible cases and contacts of severe acute respiratory illness associated with MERS CoV for case definitions.

#### *Case definition for Avian Influenza A(H7N9)*

- Refer to [Algorithm](#) for the assessment, investigation and management of possible human cases of avian influenza A(H7N9), in returning travellers for case definitions.

## **Precautions in Emergency Department & other secondary care settings.**

### **Healthcare Workers**

- Minimise the number of HCW caring for the patient with possible or confirmed respiratory infection. It is essential that there are adequate numbers of nursing/midwifery and medical HCW to allow time for observing the necessary infection prevention and control precautions, in particular careful and safe donning and doffing of PPE.
- A record of all HCW in contact with a patient with possible or confirmed infection must be maintained e.g a record sheet can be placed outside the door and all HCW entering and leaving must complete this and record the timing and duration of exposure. See Occupational Health Guidance [www.hpsc.ie](http://www.hpsc.ie)
- The use of HCW who are not familiar with this guidance or local recommendations for assessing and managing suspected/confirmed patients should be avoided in these situations.
- Arrangements should be in place for HCWs involved in care of presumptive or confirmed cases to have access to an occupational health team and emergency contact details for out of hours advice in the event they develop symptoms or they have a breach in PPE.
- HCWs who provide direct care or examination to a possible or confirmed case should follow Occupational Health Guidelines in relation to self monitoring and reporting of symptoms.



## Patient Placement

- Patients should be cared for in a single room with ensuite facilities. If there is no en-suite toilet a dedicated commode should be used with arrangements in place for safe removal of a bedpan/urinal to an appropriate disposal point or alternatively arrange for safe access to a toilet close by dedicated for their use only.
- In the event of a commode being used, HCW should leave the isolation room wearing full PPE, transport commode directly to the nearest sluice and remove PPE in the sluice after placing the contents in the bed pan washer. A second HCW member should be available to assist with opening isolation room and sluice room doors.
- Take time to explain to the patient the importance of the precautions that are in place to manage their care and advise against leaving the room without HCW guidance. Listen and respond to any concerns they may have to ensure support and optimal compliance is achieved during their care.
- Isolation signage should be placed at the entrance to the room to restrict entry and indicate contact and droplet precautions. The door should remain closed. The signage should instruct visitors to contact HCW member in charge before entry.
- If cohorting is necessary, only patients who are confirmed to have the same infection (e.g nCoV) should be cohorted.
- Ensure foot operated healthcare risk waste bins are available in the room.
- Avoid storing any unnecessary equipment in the patient's room.
- In order to ensure appropriate care for the patient with the minimum of risk a person who enters the patients room should plan to deliver as much of the care required as possible at each entry. Where appropriate some communications may be performed with the patient through use of a mobile telephone.

## Patient Placement for Aerosol Generating Procedures (AGP)

- Procedures that produce aerosols of respiratory secretions, for example bronchoscopy, induced sputum, positive-pressure ventilation via a face mask, intubation and extubation, and airway suctioning carry an increased risk of transmission. Where these procedures are medically necessary, they should be undertaken in a negative-pressure room using airborne precautions.
- If a negative pressure room is not available, AGP should be carried out using a process and environment that minimises the exposure risk for HCWs, ensuring that patients, visitors, and others in the healthcare setting are not exposed e.g. single room with door closed, away from other patients.
- In addition to the PPE outlined below, a minimum of a FFP2 respirator should be used by all persons in the patient's room when AGP are being performed and for one hour following the procedure when caring for the patient.
- HCW and visitors should leave the patient room during AGPs unless it is necessary to assist with care.

## Personal Protective Equipment

- To be worn by **ALL** persons entering the room where a suspected, or confirmed case is being cared for

- PPE should be available outside the patient's room
- A buddy system to observe donning and doffing of PPE is recommended
- In addition to standard precautions, the following PPE for **contact** and **droplet** precautions should be used by all HCW routinely.
  - long sleeved, fluid-repellent disposable gown over scrubs, standard work clothing is acceptable if changing to scrubs is not practical.
  - non-sterile examination gloves
  - Surgical Mask
  - For Aerosol Generating Procedures a FFP2/FFP3 mask for airborne precautions instead of a surgical mask should be used. **HCW with facial hair including beards and moustaches require further respirator support with a power air-purifying respirator (PAPR) option.** Eye protection must be worn (prescription glasses do not provide adequate protection against droplets sprays and splashes)
    - It is recommended that eye protection should be single-use and disposed as healthcare risk waste after use. This is due to the difficulties associated with cleaning to eliminate contamination

## Putting on PPE

- Decontaminate hands
- Put on disposable gown and secure with ties
- Put on surgical mask, secure ties/straps to middle back of head and neck. Fit flexible band to bridge of nose. Fit snug to face and below chin.
- For AGP's put on a minimum of a FFP2 respirator instead of surgical mask and fit check as per Figure 1 overleaf.
- Put on Eye Protection – and adjust to fit
- Put on gloves – pull glove wrist over the gown cuff

## Removing PPE

**In patients' room**

1. Remove gloves (avoid touching outside of gloves and dispose in healthcare risk waste)
2. Decontaminate hands
3. Remove eye protection from behind and dispose in healthcare risk waste
4. Remove gown( avoid touching the front of the gown) and dispose in healthcare risk waste

**In ante room or directly outside patients' room.  
Ensure door is closed**

5. Grasp and lift mask ties from behind your head and remove mask/respirator away from your face. Avoid touching the front of the respirator and use ties to discard in healthcare risk waste bin.
7. Decontaminate hands










<b>Putting on PPE</b>		
<ol style="list-style-type: none"> <li>1. Decontaminate hands</li> <li>2. Put on disposable apron/gown</li> <li>3. Put on mask (Surgical or FFP2 <b>For AGP</b>)</li> </ol>	  	
<p><b>For FFP2</b></p> <p><b>Fit Check</b></p>	<ol style="list-style-type: none"> <li>A. Place mask over nose, mouth and chin</li> <li>B. Fit flexible nose piece over nose bridge</li> <li>C. Secure on head with elastic</li> <li>D. Adjust to fit</li> <li>E. Inhale – mask should collapse</li> <li>F. Exhale – check for leakage around face</li> </ol>	
<ol style="list-style-type: none"> <li>4. Put on goggles if required</li> <li>5. Put on gloves</li> </ol>		
<b>Removing PPE</b>		
<p><b>In patients' room</b></p>	<ol style="list-style-type: none"> <li>1. Remove gloves (avoid touching the outside of the gloves)</li> <li>2. Decontaminate hands</li> <li>3. Remove goggles</li> <li>4. Remove gown or apron (avoid touching the front of the gown/apron)</li> </ol>	  
<p><b>In ante room or directly outside patients' room. Ensure door is closed</b></p>	<ol style="list-style-type: none"> <li>5. Remove mask by breaking the ties. If ties are elastic grasp and lift ties from behind your head and pull off mask away from your face. Avoid touching the front of the mask &amp; use ties to discard</li> </ol>	  
<ol style="list-style-type: none"> <li>6. Discard all masks (&amp; gloves/aprons/gowns/goggles contaminated with blood or body fluids) as healthcare risk waste</li> <li>7. Decontaminate your hands</li> </ol>		

Figure 1: Fit Check for a FFP2 Respirator

## Those accompanying patients at time of assessment and visitors

- Individuals who accompany patients at the time of their presentation should be asked to perform hand hygiene and offered a surgical mask. They should be advised to remain in the same room as the patient. If not remaining with the patient they should be asked not to travel to other patient areas, to sit at least 1m\* away from other individuals and to wear a surgical mask.
- [*\*Note that although a distance of 1m is generally regarded as sufficient to minimise direct exposure to droplets the current public health case definition of a “close contact” for 2019 nCoV/MERS CoV refers to a distance of 2m therefore it is preferable to increase the distance beyond 1m where this is practical*]
- Visiting should be minimised with restriction to one family member/carer if possible.
- All visitors should be advised of infection exposure risk.
- Visitors should be advised to wear appropriate PPE while in patient’s room including
  - Surgical mask, gown, gloves
  - If parents of infants or small children or other carers have difficulty adhering to full use of PPE while with the patient they should be encouraged to prioritise hand hygiene, avoiding contact with face and eyes and wear a surgical mask.
- Visitors should be educated on:
  - Donning and removing PPE
  - Hand hygiene
  - Respiratory hygiene and cough etiquette

A record of all accompanying individuals should be maintained.

## Laboratory Specimens

- For guidance in relation to the transport of specimens to the National Virus Reference Laboratory, UCD see the relevant risk assessment algorithm and information on [www.hpsc.ie](http://www.hpsc.ie)
- For information in relation to laboratory processes refer to HPSC recommendations on *Biosafety guidance for diagnostic laboratories handling specimens from individuals with possible, probable or confirmed infection with Novel Coronavirus (2019 nCoV), Middle East respiratory syndrome Coronavirus or Avian Influenza A* available at [www.hpsc.ie](http://www.hpsc.ie)
- Specimens for the laboratory should be double bagged following collection in the isolation room by a HCW wearing appropriate PPE for contact & droplet precautions.
- Blood cultures can be collecting as per standard procedures.
- Clinical HCW should notify laboratory HCW when specimens are submitted from a patient with suspected or confirmed infection, through proper completion of request forms or electronic test ordering systems, or by direct communication with the laboratory.

- Specimens should be hand delivered to the lab
- Transport of samples between laboratories should be in accordance with Category B transportation regulations.

## Point of Care Tests

Point of care testing should not be performed on potentially infectious samples where alternatives exist. If point of care blood gas analysis is necessary to manage a critically ill patient the incremental risk to healthcare workers beyond the risk of delivering direct patient care is likely to be minimal and it may be performed with the following precautions.

- The operator should strictly adhere to standard, contact and droplet precautions throughout the blood sample collection at the patient's bedside.
- The needle should be removed and disposed of safely and the adaptor applied to the tip of the syringe. If air must be expelled from the sampling syringe this should be performed in the patient care zone with the syringe pointing away from the operator
- Ideally a blood gas analysis machine should be placed within the patient room if repeat testing is likely to be required. If a blood gas analysis machine is not in the patient room then the syringe should be laid flat in a disposable tray with deep sides for transport to the blood gas analyser.
- Remove PPE and decontaminate hands on leaving the patient room. Apply clean gloves and transfer sample to a clean disposable tray and take sample to the blood gas analyser.
- The analysis of the specimen may be performed as normal using standard precautions The residual blood in the syringe should be discarded as per standard practice and the instrument and its surrounding be cleaned/disinfected after use.

## Waste

- Dispose of all waste in the isolation room as Category B Waste –healthcare risk waste (otherwise referred to as clinical waste) (Appendix 2)

## Environmental Cleaning & Disinfection

Cleaning/ disinfection should only be performed by HCW fully trained to undertake cleaning of an isolation room and a cleaning schedule should be available.

- Cleaning HCW should be trained in the donning and removal of the appropriate PPE for standard, contact and droplet precautions.
- Equipment used in the cleaning/disinfection of the isolation area should be single use where possible and stored separately to equipment used in other areas of the ward/hospital.
- The main patient isolation room should be cleaned/disinfected at least once per day and as required and following aerosol generating procedures or other potential contamination.

## Patient's room

- Do not store unnecessary equipment and supplies in the room as unused stock will have to be discarded as healthcare risk waste.
- Where possible use single use/single patient use equipment including BP cuffs.
- Patient charts/records should not be taken into the isolation room.
- If Electronic Patient Health Records (EHR) are used, a mobile workstation for the EHR should remain in the room with the patient.
- Thoroughly clean/disinfect the environment, furniture and equipment.
- Use either a combined detergent disinfectant solution at a dilution of 1000 parts per million available chlorine \* (ppnm av.cl.) or a detergent clean followed by disinfection (1000ppm av.cl.)
- Pay special attention to thorough cleaning/disinfection of frequently touched sites and equipment close to the patient.
- All patient care equipment should be cleaned and disinfected in line with manufacturer's instructions

### *Aerosol Generating Procedures*

- If aerosol generating procedures are undertaken in the patient's own room, the room should be cleaned and disinfected 20 minutes after the procedure has ended. If a different room is used for a procedure it should be left for 20 minutes, then cleaned and disinfected before being put back into use. Clearance of any aerosols is dependent on the ventilation of the room. In hospitals, rooms commonly have 12-15 air changes per hour, and so after about 20 minutes there would be less than 1 per cent of the starting level (assuming cessation of aerosol generation).
- If it is known locally that the design or construction of a room may not be typical for a clinical space, or that there are fewer air changes per hour then an alternative room with adequate air handling for clinical care should be sought. The input of the local engineering team may be necessary to calculate how long to leave room before decontamination.

### **Cleaning and disinfection of the environment on discharge/transfer:**

- Prior to initiating environmental cleaning/ disinfection, all privacy, shower, window curtains & blinds must be removed and sent for laundering or if disposable should be discarded.
- All unused disposable items including paper towels and toilet paper should be discarded and all waste removed from the room.
- All sterile and non-sterile supplies in the patient's room to be discarded on patient transfer/discharge.
- A terminal clean checklist is good practice to support household HCW to effectively complete all environmental cleaning tasks which should be signed off by the cleaning supervisor before the room reopens

## Treatment rooms (e.g. X-ray)

- Clean and disinfect the environment, furniture & equipment after use with a neutral detergent and disinfectant (e.g., hypochlorite solution 1000 ppm) or combined detergent disinfectant solution (at a dilution of 1000 parts per million available chlorine). Environmental disposable wipes that meet this criteria may be used.
- Pay special attention to thorough cleaning of frequently touched sites (door handles, bed rails hospital mobiles, TV remotes etc) and horizontal surfaces.

## Patient Care Equipment/Instruments/Devices

- Dishes, cutlery and patient trays should be washed through the normal dishwasher cycle if no dishwasher is available wash in the highest tolerable temperature of water and detergent, rinse in fresh water and dry with a paper towel.
- 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

## Linen

- Unbagged linen should not be carried through the ward or other clinical areas.
- Place all laundry in an alginate stitched or water soluble bag and then place in an outer laundry bag clearly identified with labels, colour-coding or other methods
- All laundry bags should be secured inside the patient isolation room until removal to the hospital laundry services

## Mobile healthcare equipment

- The following advice applies to devices that cannot be left in the isolation room, such as portable X-ray machines
  - the use of mobile healthcare equipment should be restricted to essential functions as far as possible to minimise the range of equipment taken into and later removed from the room.
  - the operator of the device, if not routinely looking after the patient, must be trained and supervised in infection control procedures, including hand hygiene and use of PPE
  - the operator should wear PPE as described earlier in this document, when in the isolation room.



- any equipment taken in to the room which must be subsequently removed needs to be disinfected immediately after leaving the room.
- any additional items such as a digital detector or a cassette will also need to be disinfected in a similar fashion, regardless of whether there has been direct contact with the patient or not. This is due to the risk of environmental contamination of the equipment within the isolation room.

## External Transfer

- Transfer of cases to another hospital should be avoided unless it is necessary for medical care.
- If there are insufficient facilities for isolating a possible or confirmed case, then the risks of transfer should be carefully considered against the risks of a lapse in infection control procedures due to insufficient facilities.
- If transfer is required, it is the responsibility of the transferring facility to inform in advance, HCW in the receiving facility and ambulance personnel of the precautions required.
- Standard/Contact/Droplet precautions with appropriate PPE should be continued during patient transfer.

## Internal Transfer

- Minimise movement of the patient from the single room.
- Patient should wear a surgical mask when outside their room.
- All HCW who are in close contact (within 1m) of the patient should wear appropriate PPE during transfer.
- HCW in the receiving departments should be informed of the precautions required prior to the transfer of the patient (e.g. diagnostic departments, operating theatre).
- Patients must not be held in communal areas.
- HCWs carrying out procedures should wear appropriate PPE.
- Cleaning and decontamination of the room and equipment should be undertaken following the procedure.

## Operating theatre

- The decision that surgery is essential during period of infectivity should be made by senior surgeons and anaesthetists. Wherever possible surgery should be deferred until the patient is no longer infectious and is in optimal condition for surgery.
- The patient should be anaesthetised and recovered in the operating room.
- As operating theatres are under positive pressure it is essential that the doors of the theatre should remain closed
- Only the minimum number of required HCW should be present, and they must all wear PPE as described above. Entry and exit from the room should be minimised during the procedure
- Disposable anaesthetic equipment should be used where possible.

- The anaesthetic machine must be protected by a filter with viral efficiency to 99.99%.
- Reusable equipment (anaesthetic, instruments etc) should be decontaminated as per manufacturer's instructions.
- Operating room should be cleaned and disinfected after use.
- Operating room should be left vacant for 15 minutes after the patient leaves (based on a conventional ventilation system with 20 air changes per hour).

## Critical Care Settings

- If admitted to a critical care unit, the patient should be nursed in a negative pressure isolation room where available, or if not available, a single room with a closed ventilator circuit should be used.
- All respiratory equipment must be protected by a filter with high efficiency e.g. BS EN ISO 23328-1:2008
- Disposable respiratory equipment should be used wherever possible. Re-usable equipment must be decontaminated in accordance with the manufacturer's instructions.
- Ventilator circuits should not be broken unless absolutely necessary.
- Ventilators must be placed on stand-by when carrying out bagging.
- Water humidification should be avoided and a heat and moisture exchange should be used if possible.
- Use only closed system suction.

## Care after death

- If a post-mortem is required, the recommendations on infection prevention and control precautions required should be discussed with the National Incident Management Team.
- A body bag should be used for transferring the remains.
- The outer surface of the body bag should be cleaned/disinfected immediately before the body bag leaves the room. This may require at least two individuals wearing such protective clothing, in order to manage the remains easily.
- The trolley carrying the remains should need to be disinfected prior to leaving the anteroom
- PPE is not required for transfer of the remains to the mortuary.
- Washing or preparing the body is acceptable if those carrying out the task wear long-sleeved gowns gloves and a surgical mask which should then be discarded. Mortuary HCW and funeral directors must be advised of the biohazard risk.
- After use, empty body bags should be disposed of as category B waste.

## Primary Care General Measures

- Apply Standard Precautions when caring for all patients at all times in particular all HCW providing patient care should strictly comply with WHO “Five Moments” for hand hygiene at all times and remove any barriers to achieve this including wrist/hand jewellery, nail polish or enhancements and short /rolled up sleeves.
- **Ensure risk assessment/triage processes are in place to identify patients who present with features of an acute respiratory infection to any healthcare service as quickly as possible.** Ask them to wear a surgical mask, move them as quickly as possible to isolation in a room with a door that can be closed.
- Ensure that a HCW member, carefully adhering to infection prevention and control practice (Standard, Contact and Droplet Precautions) assesses the patient without delay. The assessment must include information on recent travel and recent contact with any person with a flu like illness know to have traveled to regions of concern as identified on the relevant risk assessment algorithms ([www.hpsc.ie](http://www.hpsc.ie))
- If there is reason to suspect a novel Coronavirus or Avian Influenza apply precautions as outlined within the guidance and seek further advice from a Public Health Specialist and available Infection Prevention and Control Practitioner as per the appropriate risk assessment algorithm.

## General Measures

### Respiratory and cough hygiene

- All primary care facilities should have available a supply of tissues and surgical masks and access to hand rub at reception to give to any person who presents with an acute respiratory tract infection
- All individuals (HCWs, patients and visitors) with signs and symptoms of a respiratory infection should know how to apply respiratory hygiene/cough etiquette:
  - Cover their mouth and nose when coughing and sneezing
  - Use disposable tissues, as a source control to contain respiratory secretions
  - Dispose of tissues into healthcare risk waste bins immediately after use

### Hand Hygiene

- Hand hygiene is a critical measure to prevent cross-infection. Hands should be decontaminated using alcohol based 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

- Patients with acute respiratory tract illness should be encouraged to decontaminate their hands with alcohol based hand rub on arrival and at intervals while in the health care setting

**For up to date information on the risk assessment and initial management of patients presenting to primary care refer to relevant algorithms available on [www.hpsc.ie](http://www.hpsc.ie)**

## Telephone Assessment

- If a patient telephones the practice the appropriate risk assessment should be performed over the telephone. If the person fits both the epidemiological AND clinical criteria, then discussion with public health is indicated following the same process as outlined in the relevant algorithm.

## Patients presenting to Primary Care

### Patient placement

- Any patient with an acute respiratory tract infection who presents to reception should be provided with a surgical mask & tissues
- Patient should be moved to a room away from other patients and have limited exposure of HCW. If there is no available room, where possible the patient should sit at least 1m away from others. If the patient has driven to the surgery and there is no immediate clinical concern it may be reasonable for the patient to remain in their car whilst waiting to be reviewed. [Note that although a distance of 1m is generally regarded as sufficient to minimise direct exposure to droplets the current public health case definition of a “close contact” for 2019 nCoV/MERS CoV refers to a distance of 2m therefore it is preferable to increase the distance beyond 1m where this is practical]

## PPE

An instructional video for donning and doffing PPE is available on [www.hpsc.ie](http://www.hpsc.ie) .

### Putting on PPE before entering patient's room

- Decontaminate hands with alcohol hand rub or hand wash with soap and water
- Put on disposable gown
- Put on mask: Secure mask ties/straps at middle of head and neck. Fit flexible band to bridge of nose. Fit snug to face and below chin.
- Put on eye protection and adjust to fit. (prescription glasses/spectacles are not suitable protection on their own- if you require glasses/spectacles place goggles over them).
- Put on gloves – extend to cover wrist of long sleeved gown.

## Assessment

- Take the healthcare risk waste bag and alcohol hand rub with you when you enter the space where you will assess the patient.
- The assessment should be performed in a room away from other patients. The door should remain closed with restricted entry for HCW members. Provide the patient with a mask and tissues and ask them to decontaminate their hands.
- In the space where you will assess the patient, position the healthcare risk waste bag and the hand hygiene gel as far away from the patient as possible – more than 1 metre from the patient if possible
- Check that the mouth of the healthcare risk waste bag is open so that you can avoid/minimise contact with the outside of the bag when disposing of PPE
- Remain 1 metre from the patient during the assessment. Unless clinically indicated a physical examination should not be performed.
- If a case is considered possible when a consultation is already in progress, withdraw from the room, close the door and decontaminate your hands. Apply appropriate PPE before completing assessment.
- If the person fits both the epidemiological AND clinical criteria, then discussion with public health is indicated and follow the same process as outlined in the relevant algorithm.

## Removing PPE

### In the examination room

- Avoid contact between gloved hands and external surface of the healthcare risk waste bag.
- Remove gloves (avoid touching outside of gloves dispose in healthcare risk waste)
- Decontaminate hands with alcohol hand rub
- Remove eye protection from behind and dispose in healthcare risk waste bag
- Remove gown (avoid touching the front of the apron/gown) and dispose in healthcare risk waste bag.
- Take the healthcare risk waste bag with you as you leave the room where you have assessed the patient.

### Step outside the examination room

- Remove mask – grasp and lift mask straps/ties from behind your head and pull off mask away from your face. Avoid touching the front of the mask and hold the mask by the ties/straps to discard into a healthcare risk waste bag.
- Close the healthcare risk waste bag and place into a second healthcare risk waste bag for disposal.

- Decontaminate hands with alcohol based hand rub or hand wash with soap and water **If you have contaminated your hands at any stage of this process immediately decontaminate your hands with alcohol hand rub before the next step.**

## After the patient leaves the room

- Ensure the door to the room remains closed and room is vacant for one hour prior to environmental decontamination.
- PPE - (gloves and an apron )should be worn for cleaning and disinfection of the room – a mask is not required
- Remove any fabric curtains and place in a sealed bag for laundering in line with local arrangements
- Clean and disinfect all horizontal hard surfaces including, chairs, examination couch, door handles and sanitary fittings in the room after use with a detergent clean followed by disinfection with a product containing 1000 parts per million available chlorine (ppm av.cl.) or with combined detergent disinfectant solution at a dilution of 1000 (ppm av.cl.). Other products e.g detergent/disinfectant wipes with these specifications may also be used.
- Pay special attention to frequently touched sites e.g. door handles and to horizontal surfaces.
- Waste should be disposed of as healthcare risk waste and bag sealed for disposal (Appendix C)
- Further infection prevention and control guidance is available on the HPSC website

## Follow up of contacts

- Make a list of all patients in the waiting room and HCW who may have had potential exposure – see definitions of close contacts as per relevant risk assessment algorithm [www.hpsc.ie](http://www.hpsc.ie)
- No action is required until the suspect case is confirmed
- If the suspected case is confirmed, the local Department of Public Health will contact the GP/Practice regarding follow-up of contacts.

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- Available at <https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/infectioncontrolandhai/guidelines/>
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## Appendix 1 Respiratory/Cough Etiquette

# 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



These steps will help prevent the spread of colds, flu and other respiratory infections



## Appendix 2 Dispose of all waste as Healthcare Risk Waste

RISK WASTE	RISK WASTE	RISK WASTE
<p style="text-align: center;"><b>YELLOW BAG</b></p>	<p style="text-align: center;"><b>YELLOW SHARPS BIN</b> (with blue or red lid)</p>	<p style="text-align: center;"><b>YELLOW 30/60 LITRE RIGID BIN</b> (with yellow lid)</p>
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>• All blood-stained items and all items soiled with body fluids assessed as infectious</li> <li>• Suction catheters &amp; tubing</li> <li>• Incontinence waste from known or suspected enteric infections</li> <li>• Bag should be closed using 'swan neck' when 2/3 full</li> </ul> <p><b>* NO SHARPS, LIQUIDS OR HARD OBJECTS</b></p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="text-align: center;">  </div> <div style="margin-top: 20px;">  </div> </div> <ul style="list-style-type: none"> <li>• All Needles</li> <li>• All Syringes</li> <li>• Scalpels</li> <li>• Contaminated slides</li> <li>• Sharps tips of clear IV giving sets</li> <li>• Blood-stained or contaminated glass</li> <li>• Stitch cutters</li> <li>• Guide wires/ trocars</li> <li>• Razors</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b> Use Long Bin for large trocars, knives, stapling guns, etc.</p> </div> <p><b>* NO FREE LIQUIDS</b></p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>• Blood Administration Sets (never disconnect line from bag)</li> <li>• Contained blood and body fluids</li> <li>• Non-cultured laboratory waste (including autoclaved microbiological cultures)</li> <li>• Disposable suction liners</li> <li>• Redivac drains (ensure drain closure sealed)</li> <li>• Sputum containers</li> <li>• Chest drains</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b> Absorbent material or gelling agent should be used in sufficient quantities to hold the fluid and prevent leakage.</p> </div> <p><b>* NO SHARPS OR FREE LIQUIDS</b></p>

