

Infection Control Strategies for Specific Procedures in Health-Care Facilities

Epidemic-prone and pandemic-prone acute respiratory diseases

A Quick Reference Guide



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This document is addressed to infection control professionals, occupational health specialists and other professionals involved in patient care in health-care facilities.

It is designed to provide quick reference guidance on infection prevention and control to help prevent the transmission of acute infectious respiratory diseases during health care.

The advice in this Quick Reference Guide is drawn from “Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care- WHO Interim Guidelines.”¹

¹ Available at http://www.who.int/csr/resources/publications/WHO_CD_EPR_2007_6/en/index.html

INFECTION CONTROL MEASURES FOR HEALTH-CARE WORKERS CARING FOR PATIENTS WITH FEBRILE ACUTE RESPIRATORY DISEASES IN SPECIFIC CLINICAL SETTINGS AND PROCEDURES

Setting or procedure	Infection control measures							
	Hand Hygiene	Gloves	Gown	Medical mask for HCW	Particulate respirator for HCW	Eye protection	Respiratory etiquette	Adequately-ventilated single room (≥ 12 ACH) ^a
Reception ^b				✓			✓	
Physical exam/triage	✓			✓			✓	
General nursing care	✓			✓			✓	
Specimen collection (blood)	✓	✓		✓			✓	
Nebulization	✓			✓				
Specimen collection (induced sputum)	✓	✓	✓		✓	✓		✓
Aerosol-generating procedure	✓	✓	✓		✓	✓		✓

HCW, health-care worker; ACH, air changes per hour

^a All spaces in the health facility should be well ventilated, not only the single rooms used for isolation purposes.

^b Without any direct contact with patient.

Explanatory Notes & Rationale

No anticipated close contact with the patient

Involves close contact (< 1 metre) with patient

Aerosol-generating procedure associated with pathogen transmission e.g. intubation; cardiopulmonary resuscitation and related procedures (e.g. manual ventilation, suction); bronchoscopy; and autopsy or surgery involving the use of high-speed devices

1

SCENARIO 1:
Patient arrives at the health-care facility (HCF)

Patient arrival at the reception

The following recommendations assume that the:

- patient's diagnosis is not known;
- availability of personal protective equipment (PPE) will vary between settings and countries;
- available space and places for patients will be different within and between settings and countries.

What type of procedures will I be undertaking on this occasion?

- Primarily, exchange of non-clinical, administrative information.
- Referral to clinical staff for assessment and triage.

How close will I be to the patient during these procedures?

- No close contact i.e. expect to maintain at least 1 metre separation between self and the patient.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Minimal, if any.

What measures should be in place to stop the patient transmitting infection?

• Environment

- Encourage the patient to maintain a distance of at least 1 metre from other patients and visitors.
- Limit the number of staff in patient's environment to a minimum.
- Keep spaces well ventilated (open windows and doors).

• Patient

- Instruct on use of respiratory etiquette supplies including tissues/medical mask and hand hygiene solution.
- If the patient is able to tolerate it, a medical mask should be worn.
- Restrict patient movement.

• HCW

- If close contact, without barrier, use a medical mask.

What infection control supplies should be available?

- Tissues, medical masks and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !

- ✓ If there is any direct close contact with the patient, use a medical mask and perform hand hygiene before and after the contact.



2

SCENARIO 2:
Patient requires triage and physical examination

Triage & physical examination

The following recommendations assume that the:

- patient's diagnosis is not known;
- availability of PPE will vary between settings and countries;
- available space and places for patients will be different within and between settings and countries.

What type of procedures will I be undertaking on this occasion?

- clinical assessment
- physical examination
- taking history

How close will I be to the patient during these procedures?

- Close contact i.e. expect to be within 1 metre.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Possible that patient may sneeze or cough during nursing care.
- HCWs may be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection?

- **Environment**
 - Limit the number of staff in patient's environment to a minimum.
 - Keep spaces well ventilated (open windows and doors).
- **Patient**
 - Instruct on use of respiratory etiquette supplies including tissues/medical mask and hand hygiene solution.
 - If the patient is able to tolerate it, a medical mask should be worn.
- **HCW**
 - Use a medical mask and perform hand hygiene before and after patient contact.

What infection control supplies should be available?

- Tissues, medical masks and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !

- ✓ Contact with contaminated secretions, droplets and tiny aerosols may be increased if resuscitation, intubation, and suctioning are required. In this situation use a particulate respirator instead of medical mask, and gloves, gown and eye protection, and if possible, place patient in a well-ventilated single room during such procedures.



3

SCENARIO 3:
Patient requires delivery of nebulized drug

Nebulized drug therapy

The following recommendations assume that the:

- patient's diagnosis is not known;
- availability of PPE will vary between settings and countries;
- available space and places for patients will be different within and between settings and countries.

What type of procedures will I be undertaking on this occasion?

- Placement and adjustment of nebulizer around patient's face and nose.
- Contact with oxygen tank or outlet.

How close will I be to the patient during these procedures?

- Close contact i.e. expect to be within 1 metre.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Possible that patient may sneeze or cough during nursing care.
- HCWs may be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection?

- **Environment**
 - Limit the number of staff in patient's environment to a minimum.
 - Keep spaces well ventilated (open windows and doors).
- **Patient**
 - Instruct on use of respiratory etiquette supplies including tissues, medical mask and hand hygiene solution.
 - If the patient is able to tolerate it, a medical mask should be worn and removed only during the nebulizer treatment.
- **HCW**
 - Use a medical mask and perform hand hygiene before and after patient contact.

What infection control supplies should be available?

- Tissues, medical masks and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !

- ✓ Contact with contaminated secretions, droplets and tiny aerosols may be increased if resuscitation, intubation, and suctioning are required. In this situation use a particulate respirator instead of medical mask, and gloves, gown and eye protection, and if possible, place patient in a well-ventilated single room during such procedures.



4

SCENARIO 4:
Patient requires general nursing care

General nursing care

The following recommendations assume that the:

- patient's diagnosis and risk factors are known;
- availability of PPE will vary between settings and countries;
- available space and places for patients will be different within and between settings and countries.

What type of procedures will I be undertaking on this occasion?

- General nursing care excluding aerosol-generating procedures.

How close will I be to the patient during these procedures?

- Repeated contact with the patient, their immediate care environment and equipment used in their care provision.
- Contact will include being within 1 metre of the patient.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Possible that patient may sneeze or cough during nursing care.
- HCWs may be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection and what pieces of PPE should be available?

• Environment

- Limit the number of staff in patient's environment to a minimum.
- Keep spaces well ventilated (open windows and doors).
- Place patient in a single room if resuscitation, intubation or suctioning are undertaken.

• Patient

- Instruct on use of respiratory etiquette supplies including tissues/medical mask and hand hygiene solution.
- If the patient is able to tolerate it, a medical mask should be worn.

• HCW

- Use a medical mask and perform hand hygiene before and after patient contact.
- Use protective gloves, gown, eye protection and particulate respirator if resuscitation, intubation or suctioning is undertaken.

What infection control supplies should be available?

- Tissues, medical masks, and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !

- ✓ Contact with contaminated secretions, droplets and tiny aerosols may be increased if resuscitation, intubation, and suctioning are required. In this situation use a particulate respirator instead of medical mask, and gloves, gown and eye protection, and if possible, place patient in a well-ventilated single room during such procedures.



5

SCENARIO 5:
Non-intubated patient in any clinical setting

Collection of an induced sputum specimen

The following recommendations assume that the:

- patient's diagnosis is UNKNOWN and risk factors are known;
- availability of clinical equipment and resources and PPE will vary between settings and countries.

What type of procedures will I be undertaking on this occasion?

- Chest physiotherapy and induced sputum collection.

How close will I be to the patient during these procedures?

- Repeated close contact with the patient.
- Contact will include being within 1 metre of the patient and very close to their airway and respiratory secretions.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Likely that HCWs will be exposed to patient's respiratory secretions during physiotherapy or specimen collection.
- HCWs may also be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection and what pieces of PPE should be available?

- **Environment**
 - Limit the number of staff in patient's environment to a minimum.
 - Place patient in a single room.
 - Keep spaces well ventilated (open windows and doors).
- **HCW**
 - Perform hand hygiene before and after patient contact.
 - Use protective gloves, gown, eye protection and particulate respirator.

What infection control supplies should be available?

- Gloves, gown, eye protection, particulate respirator and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !



- ✓ Contact with contaminated secretions, droplets and tiny aerosols is increased during suctioning.
- ✓ In addition to the PPE recommended above, hand hygiene must be performed carefully after PPE removal.
- ✓ **The particulate respirator MUST be seal checked before doing the procedure!**
- ✓ If possible, place patient in a well-ventilated single room.

6

SCENARIO 6:

Intubated patient in emergency department, intensive care unit, operating theatre or equivalent setting

Resuscitation, intubation, suctioning and/or extubation

The following recommendations assume that the:

- patient's diagnosis and risk factors are known;
- availability of clinical equipment and resources and PPE will vary between settings and countries;
- where possible and available, clinicians will try and use a suction technique and/or equipment which decreases the risk for aerosolization of tracheal secretions during suction-induced coughing.

What type of procedures will I be undertaking on this occasion?

- Insertion of laryngoscope, endotracheal tube and/or suction catheter.
- Connection of an Ambu-bag.
- Normal saline lavage if thick and/or bloody secretions present.
- Disconnection of endotracheal tube from the ventilator.
- Removal of endotracheal tube.

How close will I be to the patient during these procedures?

- Repeated close contact with the patient.
- Contact will include being within 1 metre of the patient and very close to their airway and respiratory secretions.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- Likely that the patient will expel respiratory secretions and tiny aerosols during suctioning, resuscitation, intubation or extubation.
- HCWs may also be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection and what pieces of PPE should be available?

- **Environment**
 - Limit the number of staff in patient's environment to a minimum.
 - Place patient in a single room.
 - Keep spaces well ventilated (open windows and doors) or use mechanically-ventilated operating theatre for pre-operative intubation.
- **HCW**
 - Perform hand hygiene before and after patient contact.
 - Use protective gloves, gown, eye protection and particulate respirator.

What infection control supplies should be available?

- Gloves, gown, eye protection, particulate respirator and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !



- ✓ Contact with contaminated secretions, droplets and tiny aerosols is increased during suctioning, resuscitation, intubation or extubation.
- ✓ In addition to the PPE recommended above, hand hygiene must be done carefully after PPE removal.
- ✓ **The particulate respirator MUST be seal checked before doing the procedure!**
- ✓ If possible, place patient in a well-ventilated single room.

7

SCENARIO 7:

Sedated patient in emergency department, intensive care unit, procedure room or equivalent setting

Bronchoscopy

The following recommendations assume that the:

- patient's diagnosis and risk factors are known;
- availability of clinical equipment and resources and PPE will vary between settings and countries;
- where possible and available, clinicians will try and use a technique and/or equipment which decreases the risk for aerosolization of tracheal secretions.

What type of procedures will I be undertaking on this occasion?

- Insertion and removal of bronchoscope.
- Possibly a normal saline lavage depending on presence of thick and/or bloody secretions.
- Possibly biopsy or specimen collection.

How close will I be to the patient during these procedures?

- Repeated close contact with the patient.
- Contact will include being within 1 metre of the patient and very close to their airway and respiratory secretions.

What is the likelihood of me having contact with any blood or body fluids during the procedures?

- The patient may expel respiratory secretions and tiny aerosols during insertion or removal of the bronchoscope and/or suctioning.
- HCWs may also be exposed to patient secretions on contaminated surfaces, used equipment, tissues or linen.

What measures should be in place to stop the patient transmitting infection and what pieces of PPE should be available?

- **Environment**
 - Limit the number of staff in patient's environment to a minimum.
 - Place patient in a single room.
 - Keep spaces well ventilated (open windows and doors) or use mechanically-ventilated procedure room.
- **HCW**
 - Perform hand hygiene before and after patient contact.
 - Use protective gloves, gown, eye protection and particulate respirator.

What infection control supplies should be available?

- Gloves, gown, eye protection, particulate respirator and hand hygiene products (i.e. water, soap, single-use towel, hand rub solution).

ATTENTION !

- ✓ Contact with contaminated secretions, droplets and tiny aerosols is increased during suctioning, insertion or removal of the bronchoscope.
- ✓ The patient may expel blood-stained sputum or secretions if a biopsy is taken.
- ✓ In addition to the PPE recommended above, hand hygiene must be done carefully after PPE removal.
- ✓ **The particulate respirator MUST be seal checked before doing the procedure!**
- ✓ Place patient in a well-ventilated single room.





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