



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate.

## **YOUR QUESTION**

Infection prevention and control guidance for hospitalised patients

### **What does the World Health Organization say?**

#### **Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected<sup>1</sup>**

The WHO recommend the following 5 infection prevention and control strategies to prevent or limit transmission in healthcare settings:

- Ensure triage, early recognition and source control: isolating patients with suspected nCoV infection.
- Apply standard precautions for all patients.
- Implement empiric additional precautions – droplet and contact and, whenever applicable, airborne precautions – for suspected cases of nCoV infection
- Implement administrative controls. Administrative controls are broad-ranging and include the development of policies, staff training, patient and caregiver education, and ensuring an adequate patient-to-staff ratio
- Implement environmental and engineering controls to support the infrastructure of the facility and ensure adequate ventilation and environmental cleaning

### **What does the European Centre for Disease Prevention and Control say?**

#### **Infection Prevention and Control for COVID-19 in Healthcare Settings<sup>2</sup>**

Recommended patient safety measures include:

- Suspected cases of COVID-19 should be isolated/separated from other patients. They should wear a surgical mask and use dedicated toilet facilities.
- Confirmed admitted cases should use an isolation room – airborne-precaution single rooms with negative pressure and anteroom, if available – and dedicated bathroom.
- Cohorting confirmed cases or the designation of sections of the facility should be considered.
- Visits to COVID-19 patients should be minimised and physical contact should be strongly discouraged.
- Visitors should wear PPE: surgical mask, gloves, goggles and gown. If visitors keep at least 1 meter away from a patient, and PPE availability is limited, only a surgical mask may be worn.
- If available, provide a surgical mask for patients with respiratory symptoms (eg cough).

<sup>1</sup> World Health Organization. [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125). [Accessed 20 03 2020]

<sup>2</sup> European Centre for Disease Control and Prevention. <https://www.ecdc.europa.eu/en/publications-data/infection-prevention-and-control-covid-19-healthcare-settings>. [Accessed 20 03 2020]



Recommended staff safety measures include:

- Staff in contact with a confirmed/suspected case should be trained in the proper use of PPE and wear PPE for contact, droplet and airborne transmission of pathogens: FFP2 or FFP3 respirator tested for fitting, eye protection (ie goggles or face shield), long-sleeved water-resistant gown and gloves.
- Staff can wear the same respirator while caring for multiple patients without removing the respirator up to a maximum of 4 hours if the respirator is not damaged, soiled or contaminated.
- Use case-by-case risk assessment to determine PPE to be used. No PPE is required if a physical barrier (eg glass or plastic teller window) is in place and a distance of 1 meter is maintained.
- If there is a shortage of respirators, face masks [surgical masks] can be used, but respirators should be used for aerosol-generating procedures such as tracheal intubation.
- The use of dedicated or if possible disposable medical equipment (eg blood pressure cuffs, stethoscopes and thermometers) is strongly recommended.
- Staff should be assigned to carry out procedures such as swabbing in designated areas.
- Staff should be monitored for development of symptoms and provided with occupational health support.
- A staff member should be designated lead for COVID-19 infection prevention and control and preparedness, including training and planning for surge capacity.
- Staff engaged in environmental cleaning and waste management should wear appropriate PPE. Regular cleaning followed by disinfection is recommended. Waste should be treated as infectious clinical waste Category B (UN3291).
- All specimens collected for laboratory investigation should be regarded as potentially infectious and appropriate precautions taken.
- PPE should be worn if in contact with deceased patients and during autopsies, if there is a risk to generate aerosols.

## What does the Health Protection Surveillance Centre (Ireland) say?

### Current recommendations for the use of Personal Protective Equipment (PPE) in the management of suspected or confirmed COVID-19<sup>3</sup>

Actions for healthcare workers:

- Implement standard precautions for infection prevention and control with all patients at all times.
- Maintain a physical distance of at least 1 metre (3 feet) but ideally 2 metres from individuals with respiratory symptoms.
- Clean your hands regularly as per WHO 5 moments.
- Avoid touching your face.
- Promote respiratory hygiene and cough etiquette.

<sup>3</sup> Health Protection Surveillance Centre. [https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/infectionpreventionandcontrolguidance/Interim%20Guidance%20for%20use%20of%20PPE%20%20COVID%2019%20v1.0%2017\\_03\\_20.pdf](https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/infectionpreventionandcontrolguidance/Interim%20Guidance%20for%20use%20of%20PPE%20%20COVID%2019%20v1.0%2017_03_20.pdf). [Accessed 20 03 2020]



## BMJ Best Practice

### Coronavirus virus 2019 (COVID-19)<sup>4</sup>

Under the “Infection Prevention and Control” section, it is recommended to triage all patients on admission and immediately isolate all suspected and confirmed cases in an area separate from other patients. The following is recommended:

- Immediately isolate all suspected cases in an area that is separate from other patients
- Implement standard precautions at all times:
  - Practice hand and respiratory hygiene
  - Offer a medical mask to patients who can tolerate one
  - Wear personal protective equipment
  - Prevent needlestick and sharps injury
  - Practice safe waste management, environmental cleaning, and sterilisation of patient care equipment and linen
- Implement additional contact and droplet precautions until the patient is asymptomatic:
  - Place patients in adequately ventilated single rooms
  - When single rooms are not available, place all suspected cases together in the same ward
  - Wear a medical mask, gloves, an appropriate gown, and eye/face protection: eg goggles or a face shield
  - Use single-use or disposable equipment
  - Consider limiting the number of healthcare workers, family members, and visitors in contact with the patient, ensuring optimal patient care and psychosocial support for the patient
  - Consider placing patients in negative pressure rooms, if available
- Implement airborne precautions when performing aerosol-generating procedures
- All specimens collected for laboratory investigations should be regarded as potentially infectious

It is important to disinfect inanimate surfaces in the surgery or hospital as patients may touch and contaminate surfaces such as door handles and desktops. The median half-life of the virus is approximately 1 hour as an aerosol, 4 hours on copper, 24 hours on cardboard, and 72 hours on stainless steel and plastic, based on initial data.

## UpToDate

### Coronavirus Disease 2019 (COVID-19)<sup>5</sup>

The World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) recommendations for infection control for suspected or confirmed infections differ slightly:

The WHO recommends standard, contact and droplet precautions with eye or face protection. The addition of airborne precautions – ie respirator – is warranted during aerosol-generating procedures.

The CDC recommends that patients with suspected or confirmed COVID-19 be placed in a single-occupancy room with a closed door and dedicated bathroom. The patient should wear a facemask if being transported out of the room: eg for tests or procedures that cannot be performed in the room. An airborne infection isolation room (ie a single-patient negative pressure room) should be reserved for patients undergoing aerosol-generating procedures.

Any personnel entering the room of a patient with suspected or confirmed COVID-19 should wear the appropriate personal protection equipment: gown, gloves, eye protection, and a respirator: eg an N95 respirator. If supply of respirators is limited, the CDC acknowledges that facemasks are an acceptable alternative in addition to contact precautions and eye protection, but respirators should be worn during aerosol-generating procedures.

<sup>4</sup> BMJ Best Practice. [Coronavirus virus 2019 \(COVID-19\)](#). [Accessed 20 03 2020]

<sup>5</sup> UpToDate. [Coronavirus Disease 2019 \(COVID-19\)](#). [Accessed 20 03 2020]



## What does the international literature say?

### **Handbook of COVID-19 Prevention and Treatment**<sup>6</sup>

The First Affiliated Hospital, Zhejiang University School of Medicine has published a handbook which provides comprehensive guidelines and best practices by China's top experts for coping with COVID-19. Part 1 of the handbook relates to Prevention and Control Management. It provides very practical advice from clinicians in relation to the following: isolation area management; staff management; COVID-19 related personal protection management; hospital practice protocols; and digital support for epidemic prevention and control.

### **Cheng et al. Escalating Infection Control Response to the Rapidly Evolving Epidemiology of the Coronavirus Disease 2019 (COVID-19) Due to SARS-CoV-2 in Hong Kong**<sup>7</sup>

Vigilance in hand hygiene practice, wearing of surgical masks in the hospital, and appropriate use of PPE in patient care, especially when performing aerosol generating procedures, are the key infection control measures to prevent nosocomial transmission of SARS-CoV-2 even before the availability of effective antiviral agents and vaccines.

### **Peters et al. Understanding the emerging coronavirus: what it means for health security and infection prevention**<sup>8</sup>

IPC teams must work with hospitals in expanding their triage capacity and deciding how to organize the activities. Liaising with the virology laboratory to define additional hours and workforce if needed, can be an additional step to help ready an institution. It is essential that regular care activities do not suffer because of a pandemic condition, and that control of the far more common and far more deadly pathogens hospitals deal with on a daily basis remains of utmost importance.

### **Chen et al. Initiation of a new infection control system for the COVID-19 outbreak**<sup>9</sup>

China's Guangdong Second Provincial General Hospital has developed an innovative infection-control system called the observing system. These observers undertake real-time monitoring of clinical staff caring for patients in negative pressure isolation wards and advise them if corrections are required. The observers maintain normal operation of the negative pressure isolation wards, supervise the implementation of disinfection, ensure a sufficient supply of protective materials, arrange specimens for inspection, and support clinical staff while treating patients.

### **Wang et al. Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition)**<sup>10</sup>

Delayed cord clamping is not recommended and infants should not be fed with breast milk from mothers with confirmed 2019-nCoV. The neonatal department should be subdivided into transitional, quarantine, and general wards. The delivery room and neonatal transport for neonates suspected for, or diagnosed, with 2019-nCoV should

<sup>6</sup> The First Affiliated Hospital, Zhejiang University School of Medicine. "Handbook of COVID-19 Prevention and Treatment".

[https://www.alibabacloud.com/universal-service/pdf\\_reader?spm=a3c0i.14138300.8102420620.dreadnow.6df3647fNE3r&pdf=Handbook\\_of\\_COVID\\_19\\_Prevention\\_en\\_Mobile.pdf](https://www.alibabacloud.com/universal-service/pdf_reader?spm=a3c0i.14138300.8102420620.dreadnow.6df3647fNE3r&pdf=Handbook_of_COVID_19_Prevention_en_Mobile.pdf). [Accessed 18 March 2020].

<sup>7</sup> Cheng et al. *Infect Control Hosp Epidemiol*. 2020 Mar 5:1-24 <https://pubmed.ncbi.nlm.nih.gov/32131908/> [Accessed 23 03 2020]

<sup>8</sup> Peters A. et al. *J Hosp Infect*. 2020 Mar 4. <https://www.ncbi.nlm.nih.gov/pubmed/?term=32145323> [Accessed 23 03 2020]

<sup>9</sup> Chen et al. *Lancet Infect Dis*. 2020 Feb 18. <https://www.ncbi.nlm.nih.gov/pubmed/?term=32085850> [Accessed 23 March 2020]

<sup>10</sup> Wang et al. *Ann Transl Med*. 2020 Feb; 8(3): 47. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7036629/> [Accessed 23 03 2020]



be equipped with protective equipment, disinfectant solution, and rapid hand disinfectant. For all operations that may produce aerosols on suspected or confirmed infants, take airborne precautions. Staff caring for neonates suspected for or confirmed with 2019-nCoV should be provided with protective equipment.

Produced by the members of the National Health Library and Knowledge Service Evidence Team.<sup>†</sup> Current as at 23 March 2020. This evidence summary collates the best available evidence at the time of writing. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

	HOSPITALISED COVID-19 PATIENTS
	INFECTION PREVENTION AND CONTROL
	REDUCED RISK ON COVID-19 SPREADING FROM HOSPITALISED PATIENTS

Resources consulted: WHO, ECDC, HPSC, BMJ Best Practice, UpToDate, Medline, Google Scholar and Google.

The following search strategy was used:

Part 1: "covid-19" OR coronavirus OR "wuhan virus" OR "2019-ncov" OR "severe acute respiratory syndrome coronavirus 2" OR "2019 novel coronavirus" OR "2019 new coronavirus".  
 Part 2: EMBASE Indexing (EMTREE) used: hospital patient, infection prevention, infection control and communicable disease control  
 Medline Indexing (MeSH) used: MH "Inpatients", MH "Communicable Disease Control+", MH "Infection Control+"  
 Keywords used: (Hospital\*) adj3 (patient\*) OR in-patient\* OR inpatient\*  
 (infection) adj3 (prevent\* OR control\*) OR hygiene)

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