

Chapter 6: Specific healthcare settings

This chapter is part of the COVID-19 Infection Prevention and Control Manual, Clinical Excellence Commission, 2022.

The publication summarises current evidence about COVID-19 infection prevention and control strategies and interventions, and their implementation in healthcare settings.

The publication will continue to evolve with additional chapters over time that address infection prevention and control in other settings. As new resources become available, they will be added as hyperlinks of the resources section in each chapter or to the appendices.

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Key points

- Infection prevention and control is required when managing patients through a surgical pathway to ensure the safety of HW and patients
- COVID-19 risk assessment should be aligned with the recommendations in *Chapter 3: Response and Escalation Framework*

Acronyms and abbreviations

AGB	Aerosol-generating behaviour
AGP	Aerosol-generating procedure
CEC	Clinical Excellence Commission
CO	Carbon monoxide
COHb	Carboxyhaemoglobin
CO ppm	Carbon monoxide parts per million

CPAP	Continuous positive airway pressure
ECMO	Extracorporeal membrane oxygenation
HW	Health worker
IPAC	Infection prevention and control
IPPV	Intermittent positive pressure ventilation
LHD/SHN	Local Health District/Specialty Health Network
PACU	Post-anaesthesia care unit
PPE	Personal protective equipment
RMD	Reusable medical device

6.1 Introduction

This chapter provides advice on specific acute healthcare settings. Content will evolve over time and be added as updates.

6.2 Maternity and neonatal services

Specific guidance relating to maternity is available on the NSW Health website: [Guidance for maternity services](#) and for information on neonatal services refer to [Guidance for neonatal services](#).

Carbon monoxide testing in pregnancy

Smoking in pregnancy is one of the single most important avoidable causes of stillbirth and other adverse pregnancy outcomes. Carbon monoxide (CO) monitoring can be a very useful tool for smoking cessation.

NSW Health supports carbon monoxide monitoring for pregnant women as per LHD guidance, however this is dependent upon the transmission risk levels (refer to *Chapter 3 – Response and Escalation Framework*).

During high and medium transmission risk levels this testing is not recommended to enable women to maintain mask wearing during their antenatal appointments.

The purpose of this guidance is to provide infection prevention and control advice for LHDs that elect to undertake CO monitoring in their maternity services.

NOTE: Neither NSW Health nor the CEC endorses or promotes any products or equipment identified in this guidance.

Infection prevention and control measures for carbon monoxide measurement

NSW Health Maternity services use a handheld expired CO monitor to measure CO levels in the pregnant woman's breath. The monitor has a single-use mouthpiece for each user and

the filters are changed when visibly soiled and according to the manufacturer's instructions for use.

Adhere to the following advice on infection prevention and control principles when using an expired CO monitor:

- Do not provide CO monitoring for a woman who answers 'yes' to any COVID-19 screening questions – refer to *Chapter 7: Section 7.2 Community Primary and Outpatient Settings* or local LHD guidelines
- Maintain physical distance > 1.5 metres whenever possible
- Both the HW and pregnant woman must perform hand hygiene prior to testing
- The HW should don non-sterile gloves if there is a risk of contact with blood or body fluid/respiratory droplets
- The HW should wear a surgical mask during the procedure; refer to *Chapter 3: Response and Escalation Framework*.

Procedure

1. The HW provides an explanation and offers the pregnant woman CO testing
2. Use a single-use mouthpiece (straw) for each woman
3. The HW inserts the mouthpiece into the expired CO monitor prior to handing the monitor to the woman
4. The woman holds the monitor while the test is being performed
5. The HW should maintain physical distance of > 1.5 metres where possible. Whilst the woman is exhaling, the HW should avoid positioning themselves in front of the exhaust port of the monitor
6. To start, press the symbol on the front of the monitor
7. Ask the woman to breathe in and hold when she sees the clock come up on the screen; ask the woman to keep holding her breath for the 15 second countdown
8. Two short beeps will sound during the last three seconds of the countdown
9. At the commencement of a long beep, ask the woman to blow slowly into the mouthpiece aiming to empty her lungs completely (over at least 5 seconds)
10. The CO parts per million (ppm) and equivalent % COHb levels appear on the screen
11. Refer to the [NSW Health Fact Sheet on using an expired CO monitor](#) for interpretation of the levels and additional information
12. Ask the woman to remove the single-use mouthpiece and dispose in the general waste on completion of the assessment
13. Hand hygiene to be performed following use of the monitor by both the HW and the woman.

Cleaning and storage

- Wipe the monitor and D-Piece external surfaces with neutral detergent wipes after each use
- Do not use cleaning solutions/wipes that contain alcohol or other organic solutions and refer to the manufacture's information for use
- Inspect the D-piece after each use and discard and replace if the filter is visibly soiled or contaminated
- Allow the monitor to be air dried prior to storage
- The monitor must be stored away from direct patient contact when not in use.

Additional information on CO monitoring

NSW Health Maternity Services currently use the Bedfont Smokerlyzer®. The manufacturer has a statement supporting the [use of the device during COVID-19](#). The D-piece filter has been tested to filter viruses as small as 24 nanometres in diameter and the COVID-19 virus particle has a diameter of approximately 125 nanometres. Bedfont have concluded that bacterial and viral pathogens (including COVID-19) will effectively be removed by the D-piece filter at an efficiency rate of > 99% (bacteria) and > 97% (viruses).

FIGURE 15: EXAMPLE OF CARBON MONOXIDE MEASUREMENT EQUIPMENT



Information on the Bedfont Smokerlyzer®

Manufacturer information including user manual, infection control and maintenance guidelines are available on the [Bedfont Smokerlyzer®](#) website.

6.3 Access to surgery

Access to surgery may vary depending on the level of community transmission of COVID-19 and therefore it is important to check for up to date information at [NSW Health Updated guidance for the management of surgery during COVID-19](#).

Surgery / Procedure

If the patient is suspected or confirmed to have COVID-19 and the decision is to proceed with surgery, then follow Transmission Based precautions for Contact, Droplet and Airborne Precautions including eye protection.

The decision to operate on a patient confirmed to have COVID-19 will be influenced by the level of transmission risk at a state level and the surgical need for each patient. The pathway for a patient from the emergency department (ED) or a ward bed to the operating theatre and return to the ward involves a number of interactions between HWs and the patient. Standard Precautions always apply.

The following table outlines these steps and the actions needed to reduce the risk of transmission of SARS-CoV-2.

TABLE 7: RISK MANAGEMENT FOR SURGERY IN PATIENTS WITH SUSPECTED OR CONFIRMED COVID-19

Criteria	Action
Booking of surgery/procedure	Medical Officer making booking to inform the Senior Nurse Manager/Patient Flow Coordinator, Anaesthetic Team and Procedural Charge Nurse of patient's COVID-19 status
Intubated patients for transfer	Contact, Droplet and Airborne Precautions apply Isolate and contain resuscitaire for post-operative transfer if remaining intubated post procedure
Non-intubated patients with oxygen <i>in situ</i> transfer	Contact, Droplet and Airborne Precautions apply Where possible consider using nasal prongs with a maximum O ₂ flow of 4L under a surgical mask instead of a simple oxygen mask where possible
Arrival in procedural area	Identify the correct patient and procedure. Transfer the patient directly to the operating / procedural room then continue completion of the pre-operative checklist. Bypass holding and anaesthetic bays where these exist
Arrival in operating/procedure room	Contact, Droplet and Airborne Precautions apply Complete pre-operative checklist and commence Clinical Procedure Safety Checklist . Review Transmission-Based Precautions and anaesthesia plan during Sign In. This includes Work Health and Safety – Controlling Exposure to Surgical Plume
Anaesthesia induction – AGP	Wear PPE for Contact, Droplet and Airborne Precautions also follow COVID-19 airway management advice and resources
Anaesthesia – regional/sedation – non AGP	Wear Contact, Droplet and Airborne Precautions Refer above to “Non-intubated patients with oxygen <i>in situ</i> transfer”. If the patient is unable to tolerate or it is not appropriate for the patient to wear a surgical mask, anaesthetic, scout and scrubbed HW's will need to don Contact, Droplet and Airborne Precautions
Procedural room	Minimise equipment and items in the room prior to the patient arrival where possible Avoid unnecessary entry and exiting of the procedural room following the patient's arrival. Consider: <ul style="list-style-type: none"> • Limiting the number of HWs in the room • HWs who are involved in the procedure (scrub/scout) within 1.5 metres to wear PPE for Contact, Droplet and Airborne Precautions and follow local procedures for correct sequence of donning and doffing

Criteria	Action
Extubation – AGP	HW to wear PPE for Contact, Droplet and Airborne Precautions when they extubate [including laryngeal mask airway (LMA) removal] in the procedural room
PACU (Recovery) – assess the risk	Depending on workload and resources recover the patient in the operating or procedure room. If this is not possible use a negative pressure or isolation room in the PACU if available or single room with door closed Wear PPE for Contact, Droplet and Airborne Precautions If additional airway support is required, follow routine procedures. For airway resources see COVID-19 airway management Senior Nurse Manager/Patient Flow Coordinator to communicate to the post procedural receiving area
Bypassing PACU (assuming patient is intubated)	Contact, Droplet and Airborne Precautions apply
Transfer to receiving department from procedural area	Sending department to inform receiving area and HW responsible for transferring the patient of patient's COVID-19 status Contact, Droplet and Airborne Precautions apply Patient to wear a surgical/procedural mask where possible
Family/carers	Close contacts of COVID-19 should be in home isolation, and limit visitors. For participants in care or birth partner as they may an exemption means they are not required to be at home for the birth if in theatre and the hospital can facilitate appropriate IPAC strategies
Environmental cleaning	Apply routine procedures for PPE Follow advice for cleaning in Chapter 2 Dispose of all single use items and reprocess reusable items as per local procedure Following patient discharge, the procedural and PACU isolation room (where used) should be left vacant and allow for air exchange, based on the air change per hour (ACH/hour) as per CDC Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency . Confirm air exchange rates for the procedure room for maximum room vacancy times with: <ul style="list-style-type: none"> • engineering department • local IPAC
Reprocessing of reusable medical devices (RMDs)	Follow routine procedures. DO NOT LABEL USED RMDs as COVID-19 CASE

Criteria	Action
Handling of linen	Handle all used linen as per Standard Precautions
Waste management	Manage in accordance with routine procedures: Clinical waste should be disposed of in clinical waste streams All non-clinical waste should be disposed of into general waste stream (PPE is considered general waste unless contaminated with bulk blood and or body substances)
Education	Ensure HWs understand how to choose, don and doff PPE safely

Further information is available at:

- Surgical Services Taskforce; NSW Health: [Emergency Surgery Guidelines](#)
- NSW elective surgery table at [Key Principles for Management of Surgery during COVID-19](#) surgery during COVID-19 pandemic
- NSW Health elective surgery table [Waiting Time and Elective Surgery Policy](#)
- NSW Health [Updated guidance for the management of surgery during COVID-19](#)
- NSW Health [Recommendations for operating theatres during Amber alert and high community prevalence of COVID-19](#)
- NSW Health [Managing suspected or confirmed COVID-19 patients in positive pressure operating theatres](#)

6.4 Blood transfusions

The CEC Blood Watch team developed this information for clinicians in consultation with the CEC Infection Prevention and Control team and NSW Health Pathology due to concerns raised about the safety of blood and blood products during the COVID-19 pandemic.

In order to maintain supply and prevent wastage of blood products, the principles of Patient Blood Management (particularly single unit policy) should be adhered to in conjunction with Standard Precautions.

Principles for clinical areas

- Do not request blood products until both the clinical area and patient are ready for transfusion
- Blood components should only be taken to potentially contaminated clinical areas or COVID-19 restricted areas immediately prior to transfusion
- Blood components should be kept on surfaces that have been cleaned and are not at risk of respiratory droplet contamination (including satellite refrigerators, platelet incubators/agitators, transport containers or other cleaned surfaces)
- All blood products should continue to be handled with Standard Precautions i.e., using gloves as routinely required along with hand hygiene

- Blood component use for patients with confirmed COVID-19 who are acutely unwell is generally low, except for those receiving extracorporeal membrane oxygenation (ECMO) who may also have an increased need for platelets/plasma (NHS, 2020).

Frequently Asked Questions

1. What is the risk of contamination if a blood pack is taken to potentially contaminated bedsides or clinical areas and not used?

There is no evidence that the virus causing COVID-19 can permeate a blood pack (NHS 2020).

2. Is there any way of wiping a blood bag to clean or disinfect it?

No. Lifeblood have advised they are unable to recommend any product to clean or disinfect blood component bags. There is no validated or approved product or method for this purpose (Australian Red Cross Lifeblood, 2020).

3. Where a blood product enters a COVID-19 specific area can it be accepted back into laboratory inventory?

Where Standard Precautions have been applied, blood products should not pose a risk to HWs upon return to the laboratory. Single use plastic transport bags may be used.

4. Should blood products from any clinical area be accepted back into the inventory?

Blood components should only go to the clinical area and the patient bedside when the transfusion is ready to commence.

If a blood component has been out of controlled storage, has breached the cold chain requirements and is no longer required, the laboratory should be contacted.

If a blood component has been correctly stored and is no longer required, it can be returned safely from clinical areas containing patients infected with COVID-19 with no special precautions. Local infection prevention and control teams can confirm local policy¹.

Ensure Standard Precautions are used when blood components are returned and follow guidance about personal protection.

5. Should there be a quarantine box to keep in cases where particular groups or product stock levels are low?

A quarantine box should not be needed if the blood bag is taken to the patient bedside or into a COVID-19 restricted area when it is ready to transfuse.

References

1. NHS Blood and Transplant COVID-19 and information for hospital transfusion laboratories – 6.4.20, <https://nhsbt.dbe.blob.core.windows.net/umbraco-assets-corp/18211/faqs-part-2-060420.pdf> (accessed 21 April 2020)
2. Australian Red Cross Lifeblood Communication, AHP Coronavirus update 8 April 2020.

