aci.health.nsw.gov.au

Personal protective equipment in the operating theatre and procedural areas

COVID-19 pandemic decision support tool

This decision support tool has been developed for health workers in the operating theatre environment during the COVID-19 pandemic.

Note: this advice has been updated to reflect the current Delta outbreak in NSW commencing 26 June 2021.

This tool outlines the minimum standards for personal protective equipment (PPE) to be worn by each health worker (HW) in the operating theatre environment. The recommendation for PPE usage needs to be based on the factors listed below.

1. Current recommended national advice: CDNA National Guidelines for Public Health Units and Commonwealth Infection Control Expert Group[i,ii]
2. NSW Health Risk Monitoring Dashboard and CEC Risk Escalation Framework in Chapter 3
3. Likelihood of patient having suspected or confirmed COVID-19 or is a contact (see here)
4. Patient risk factors related to underlying respiratory illness
5. The procedure being undertaken.
6. ACORN standards (by subscription) https://www.acorn.org.au/covid

Within this document, there are three levels of risk identified for operating theatres.

A fourth level (e.g. catastrophic) will be added and implemented should the health system be overwhelmed and/or a statewide disaster be declared.

These risk levels allow for safe and rational approach to PPE utilisation for the duration of the pandemic. The method for calculating the LHD risk is based on epidemiological parameters and is currently a decision of the NSW Health Risk Escalation Panel. The panel has representatives from PHEOC, Agency for Clinical Information, Clinical Excellence Commission, Ministry of Health, Workforce and HealthShare and meets at least weekly.

The LHD risk rating is determined by the NSW Health Risk and Escalation Panel. If the Panel determines, in collaboration with clinical leaders, that the surgery risk rating should differ from other clinical areas this will be communicated to the system at the same time. LHDs cannot lower their risk rating, but may choose to increase their risk rating based on local context.

NSW Health provides at least weekly updates on its risk. The overall alert status and the surgery risk level may be different for different geographic areas, depending on the location and extent of an outbreak.

The risk of COVID-19 changes over time and is not the same across geographic areas, including local health districts, local government areas or jurisdictions. PHEOC continues to provide advice around COVID-19 case locations and NSW alerts can be found here.

NSW GOVERNMENT

AGENCY FOR CLINICAL INNOVATION

ACI-0450 [09/20]

Aerosol generating procedures (AGPs) are material to the risk posed to the health worker. There are some procedures for which there is no dispute where there is aerosolisation of respiratory secretions, such as intubation, called high risk in this tool. There are others for which there is some biological plausibility based on evidence from other viral or biological studies (for example colonoscopy). Given COVID-19 is a novel disease and evidence on transmission is continually emerging, recommendations on AGP risks are subject to change. The use of low AGP risk is not standard practice but reflects the need for the staff to be safe and feel safe where the evidence is incomplete. For the following groups of patients, AGPs should be conducted in a negative pressure theatre if possible:

- Suspected or confirmed COVID-19
- Patients who meet NSW Health public health orders for testing and self-isolation
- Any person who has been asked to self-isolate by NSW Health
- Patients with an acute respiratory illness for whom there is no alternate diagnosis
- And in the setting of moderate to high community transmission, unconscious patients for whom no history is available.

Information continues to evolve and risk of transmission of COVID-19 can be considered as a combination of intensity, proximity and duration. For example, close contact to a COVID-19 positive patient is at least high risk for transmission irrespective of whether droplets and/or aerosols are produced.

All patients should be screened for risk of COVID-19 and physical distancing should continue where possible, including minimising the number of people in a theatre. Hand hygiene is imperative along with appropriate PPE.

All patients who have suspected or confirmed COVID-19, or who are a close contact of someone with COVID-19 (as defined by NSW Health) must be managed with airborne precautions.

Respirators (P2/N95 masks) are part of airborne precautions and are used when performing AGPs. Staff using these devices are expected to have undergone **fit testing** and understand and practice fit checking each time they use P2/N95 respirators. See CEC Respiratory Protection Program for more information.

This document exclusively addresses PPE for the theatre environment. The use of PPE while inside a facility (in particular, masks) must also align with active Public Health Orders.

Definitive and comprehensive advice on PPE utilisation is available in the CEC's Infection Prevention and Control Practice Handbook[iii], with advice for LHDs to guide responses to changing risk profiles and appropriate infection prevention and control measures in the Chapter 3 of the CEC's COVID-19-IPAC Manual. All facilities are expected to comply with the infection prevention and control framework including engineering and administrative controls

An important component of engineering controls is ventilation and airflow within operating theatres. The number of air exchange is an important feature of patient safety to reduce post-operative surgical site infections. Whilst negative air pressure is recommended, this may not be achievable.

PPE definitions for operating suites: for all patient encounters

Standard precautions

- Hand hygiene
- Aseptic technique
- Cleaning and disinfection
- Choose PPE based on the risk of contamination of skin or clothing and appropriate to your role
- Respiratory etiquette
- Safe handling of sharps
- Waste disposal
- Includes usual operating theatre attire[iv]

Note: PPE for transmission-based precautions (contact, droplet or airborne) include all the elements of standard

Contact precautions

Used when infectious particles are transmitted by contact with patient or surrounds

As a minimum

- Hand hygiene
- Gloves
- Long sleeve impervious gown

Droplet precautions

Used when infectious particles are transmitted by droplets

In addition to contact precautions

- Surgical mask
- Eye protection - face shield or goggles

Airborne precautions

If infectious particles are transmitted by droplets + aerosols

In addition to contact and droplet

- P2/N95 respirator (or higher) in place of surgical mask
- Where possible, the patient should be in a negative pressure room
- Patient should wear a surgical mask when possible

COVID-19 procedural PPE: Business as usual: LHD Green alert[1,2]

(determined by the state Risk Escalation and Review Panel)

Patient COVID-19 risk[3]	Low			Suspected[4], contact or confirmed
AGP[5]	**No**	**Low risk**	**High risk**	**Low or High Risk**
Patient	Nil	Nil	Nil	Surgical mask[6]
Anaesthetist (and assistant)	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Anaesthetic nurse	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Instrument or circulating nurse	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Surgical team	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Operating assistants[7]	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Recovery nurse	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Medical imaging or allied health staff[8]	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Surgical representatives[8]	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**

Operating theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	COVID 19 theatres
Patient transportation	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Perioperative staff requirements	As per the Australian College of Perioperative Nurses guidelines	As per the Australian College of Perioperative Nurses guidelines	As per the Australian College of Perioperative Nurses guidelines	**Outside anaesthetic runner and/or clinical runner to support theatre team**
Recovery of patients	Recovery unit	Recovery unit	Recovery unit	**Extubate and recover in operating theatre**

Notes

1. Risk at LHD Level is determined weekly by the state Risk Escalation and Review Panel. Where it is different for surgery, this will be communicated to the system at the same time. LHDs cannot lower their risk rating, but may choose to increase their risk rating based on local context. See Risk Monitoring Dashboard
2. PPE: All include standard precautions. **Droplet includes contact. Airborne includes droplet and contact.**
3. COVID-19 risk for individuals is based on current NSW Health advice and will vary across NSW. See Latest case locations and NSW Alerts
4. Airborne precautions and eye protection are required for the following. Any patient who has been identified as a contact and is in self-isolation; who has suspected or confirmed COVID-19 or anyone with an acute respiratory illness without an alternate diagnosis. This includes patients who cannot be screened adequately prior to surgery.Suspected COVID-19 patients must meet clinical and epidemiological criteria see CDNA COVID guidelines
5. The AGP list may change based on evidence and/ or local definitions.
6. Patients with suspected or confirmed COVID-19 or who are identified as a contact are to wear a surgical mask if they are able to tolerate it (until anaesthetic induced).
7. Operating assistants **and staff not involved in the procedure** are expected to be outside the operating theatre during the procedure. If they must return to the theatre in the 30 minutes following an AGP, appropriate PPE is required.
8. Medical imaging, allied health services and surgical representatives should be outside the operating theatre during an AGP.

COVID-19 procedural PPE: LHD AMBER Alert[1,2]

(determined by the state Risk Escalation and Review Panel)

Patient COVID-19 risk[3]	Low			Suspected[4], contact or confirmed
AGP[5]	**No**	**Low risk**	**High risk[9]**	**High or low risk**
Patient	Surgical mask[6]	Surgical mask[6]	Surgical mask[6]	Surgical mask[6]
Anaesthetist (and assistant)	**Usual theatre attire**	**Droplet**	**Minimum – Droplet[8]**	**Airborne + eye protection**
Anaesthetic nurse	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Instrument or circulating nurse	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Surgical team	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Operating assistants[7]	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Recovery nurse	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Medical imaging or allied health staff[8]	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Surgical representatives[7]	**Usual theatre attire**	**Droplet**	**Minimum – Droplet**	**Airborne + eye protection**

Operating theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	COVID 19 theatres
Patient transportation	**Usual theatre attire**	**Usual theatre attire**	**Usual theatre attire**	**Airborne + eye protection**
Perioperative staff requirements	As per Australian College of Perioperative Nurses	As per Australian College of Perioperative Nurses	As per Australian College of Perioperative Nurses	**Outside anaesthetic nurse and circulating nurse; outside operating assistant**
Recovery of patients	Recovery unit	Recovery unit	Recovery unit	**Extubate and recover in operating theatre**

Notes

1. Risk at LHD Level is determined weekly by the state Risk Escalation and Review Panel. Where it is different for surgery, this will be communicated to the system at the same time. LHDs cannot lower their risk rating, but may choose to increase their risk rating based on local context. See Risk Monitoring Dashboard
2. PPE: All include standard precautions. **Droplet includes contact. Airborne includes droplet and contact.**
3. COVID-19 risk for individuals is based on current NSW Health advice and will vary across NSW. See Latest case locations and NSW Alerts
4. Airborne precautions and eye protection are required for the following. Any patient who has been identified as a contact and is in self-isolation; who has suspected or confirmed COVID-19 or anyone with an acute respiratory illness without an alternate diagnosis. This includes patients who cannot be screened adequately prior to surgery. Suspected COVID-19 patients must meet clinical and epidemiological criteria see CDNA COVID guidelines
5. The AGP list may change based on evidence and/ or local definitions.
6. Patients to wear a surgical mask if they are able to tolerate it (until anaesthetic induced).
7. Operating assistants **and staff not involved in the procedure** are expected to be outside the operating theatre during the procedure. If they must return to the theatre in the 30 minutes following an AGP, appropriate PPE is required.
8. Medical imaging, allied health services and surgical representatives should be outside the operating theatre during an AGP.

COVID-19 procedural PPE: LHD Red Alert[1,2]

(determined by the state Risk Escalation and Review Panel)

Patient COVID-19 risk[3]	Low			Suspected[4], contact or confirmed
AGP[5]	**No**	**Low risk**	**High risk**	**High or low risk[8]**
Patient	Surgical mask[6]	Surgical mask[6]	Surgical mask[6]	Surgical mask[6]
Anaesthetist (and assistant)	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Anaesthetic nurse	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Instrument or circulating nurse	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Surgical team	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Operating assistants[7]	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Recovery nurse	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Medical imaging or allied health staff[8]	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**
Surgical representatives[7]	**Minimum – Droplet**	**Minimum – Droplet**	**Minimum – Droplet**	**Airborne + eye protection**

Operating theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	Non-COVID 19 theatres	COVID 19 theatres
Patient transportation	**Droplet**	**Droplet**	**Droplet**	**Airborne + eye protection**
Perioperative staff requirements	As per Australian College of Perioperative Nurses	As per Australian College of Perioperative Nurses	As per Australian College of Perioperative Nurses	**Outside anaesthetic nurse and circulating nurse; outside operating assistant**
Recovery of patients	Recovery unit Consider setting up hot and cold zones in Recovery			**Extubate and recover in operating theatre**

Notes

1. Risk at LHD Level is determined by the state Risk Escalation and Review Panel. Where it is different for surgery, this will be communicated to the system at the same time. LHDs cannot lower their risk rating, but may choose to increase their risk rating based on local context. See Risk Monitoring Dashboard
2. PPE: All include standard precautions. **Droplet includes contact. Airborne includes droplet and contact.**
3. COVID-19 risk for individuals is based on current NSW Health advice and will vary across NSW. See Latest case locations and NSW Alerts
4. Airborne precautions and eye protection are required for the following. Any patient who has been identified as a contact and is in self-isolation; who has suspected or confirmed COVID-19 or anyone with an acute respiratory illness without an alternate diagnosis. This includes patients who cannot be screened adequately prior to surgery. Suspected COVID-19 patients must meet clinical and epidemiological criteria see CDNA COVID guidelines
5. The AGP list may change based on evidence and/or local definitions.
6. All patients to wear a surgical mask if they are able to tolerate it (until anaesthetic induced).
7. Operating assistants **and staff not involved in the procedure** are expected to be outside the operating theatre during the procedure. If they must return to the theatre in the 30 minutes following an AGP, appropriate PPE is required.
8. Medical imaging, allied health services and surgical representatives should be outside the operating theatre during an AGP.

Aerosol generating procedures in relation to COVID-19

COVID-19 is a respiratory tract infection predominantly transmitted by large droplets.[ii] Contact and droplet precautions are therefore recommended during routine care of patients with suspected, probable or confirmed COVID-19.[ii,v] AGPs may need to be performed during the care of these patients. AGPs may lead to the production of droplet nuclei (<5 micrometres in size) or airborne particles (aerosols) due to air or gas flowing rapidly over a moist or wet surface.[vi] There are many procedures that may be aerosol generating but evidence is evolving as to whether they lead to an increased risk of respiratory infection transmission.

In addition to the nature of the procedure itself, the overall risk of transmission of SARS-CoV-2 is also associated with the viral load in the body fluid potentially being aerosolised, and whether the virus is intact and capable of causing infection (which is an important distinction, since many body fluid, air-sampling and environmental studies use methods that detect any viral RNA rather than intact, infective virus). Studies have shown that SARS-CoV-2 is most commonly detected in respiratory tract samples (lower greater than upper) in those who are infected; thus procedures involving potential exposure to respiratory tract secretions or tissues are of particular relevance with respect to the risk of COVID-19 transmission.[vii] SARS-CoV-2 has also been detected in non-respiratory specimens, in particular stool and to a lesser extent blood and ocular secretions, but the role of these sites in transmission is uncertain. Of note, faecal-oral transmission has not been clinically described, and does not appear to be a significant factor in the spread of infection.[viii]

With respect to COVID-19, high risk AGPs are those associated with production of respiratory tract-generated aerosols. These procedures have the potential to pose an airborne transmission risk of SARS-CoV-2 and therefore airborne precautions are recommended. High risk AGPs should be performed with the minimum number of personnel present and where possible, the most qualified person should carry out the procedure. In contrast, low risk AGPs for COVID-19 transmission or procedures not associated with the potential to produce aerosols, can be performed using contact and droplet precautions, as indicated for the routine care of suspected, probable or confirmed cases of COVID-19. In general, it is recommended that nebulised medication is avoided in favour of metered dose inhaler and spacer use. If a COVID-19 patient requires an AGP for optimal care, the procedure should be performed with appropriate infection control precautions which will minimise risk to staff.

See Table 1 for examples of AGPs of varying risk based on current evidence and expert opinion, including considerations of biological plausibility.[ix,x] It must be noted that at present, the evidence is limited and these classifications may change as new data emerge. For guidance regarding other specialised procedures related to allied health interventions, please refer to the CEC website.

Cardiopulmonary resuscitation (CPR) is complex in terms of assessing AGP risk. While many procedures (e.g. intubation), undertaken during the course of CPR, are considered high risk AGPs, it is uncertain whether chest compressions or defibrillation result in aerosol generation or transmission of COVID-19. There is very limited, poor quality data in the current literature concerning this issue.[ix,xi] In many reports, it is likely that there was simultaneous exposure to airway manoeuvres, such that the isolated effect of either chest compressions or defibrillation could not be reliably identified. In the setting of low rates of community transmission of COVID-19, chest compression and defibrillation are unlikely to pose a risk to first responders who start CPR, without knowledge of the subject's COVID-19 status.[ii] Healthcare workers can safely start chest compression or defibrillation of a patient with suspected, probable or confirmed COVID-19 using contact and droplet precautions, until another clinician arrives, using airborne precautions, to manage the airway.[ii]

Table 1: Examples of aerosol generating procedures classified according to risk of airborne transmission of SARS-CoV-2

Procedure	High risk AGPs	Low risk AGPs or not AGPs
Airway interventions	• Tracheal intubation or extubation • Manual bag-mask ventilation[1] • Non-invasive ventilation[1] • Tracheostomy or tracheotomy (insertion and removal)[1] • Laryngeal mask or supraglottic airway • Intentional or inadvertent disconnection or reconnection of closed ventilator circuit • High flow nasal oxygen[2] • Open-suctioning of airways	• Mechanical ventilation via closed circuit
Procedures involving the respiratory tract	• Sputum induction[3] • Bronchoscopy • Thoracic surgery involving the lung • Maxillofacial surgery • Ear, nose and throat procedures that involve suctioning or high-speed drilling, including transphenoidal surgery	• Swabbing of upper respiratory tract • Examination of the throat, eyes or ears without invasive instrumentation • Nasendoscopy
Other procedures	• Procedures that involve open suctioning of the upper airways (e.g. gastroscopy with suctioning) • Dental procedures with high-speed drilling • Post-mortem procedures involving high-speed devices on the respiratory tract	• Insertion of a nasogastric tube • Transoesophageal echocardiogram • Colonoscopy • Laparoscopic surgery • Orthopaedic procedures with saws, drills or large volume washouts
Precautions for COVID 19	**Contact, droplet and airborne**	**Contact and droplet**

1. Evidence for AGP being associated with transmission of acute respiratory infections[ix]
2. High flow nasal oxygen is a specific form of non-invasive respiratory support which delivers high flow oxygen via large diameter nasal cannula which is humidified and heated. Flow rates can be given up to 60l/min in adults and 25l/min in children with an oxygen air blender supplying oxygen at 21–100%.
3. Sputum induction is classified as a high risk AGP as it is performed using an ultrasonic nebuliser. It is the nebuliser that makes it an AGP, not the fact that the procedure induces coughing in the patient.

Evidence base

This document has been developed through review of published literature, clinical guidelines from domestic and international organisations, sourced in April and May 2020, defining suitable personal protective equipment in surgical and procedural care during the COVID-19 pandemic. This published evidence was supplemented with experiential evidence from subject matter experts to specify the protective equipment suitable for various surgical and perioperative care team members.

A sub-committee of the Surgery Community of Practice developed the document, with further input from the broader Surgery Community of Practice and Anaesthesia Community of Practice. This was obtained through virtual consultation with members with expertise in surgical services, anaesthesia, quality and safety, perioperative care, nursing and allied health over a period of four weeks. Further targeted consultation with the Clinical Excellence Commission led to the inclusion of advice relating to aerosol generating procedures. The final document was approved by the Clinical Leads of the Surgery and Anaesthesia Communities of Practice.

References

i. Commonwealth Department of Health. Coronavirus Disease 2019 (COVID-19): CDNA National Guidelines for Public Health Units. Canberra: Dept of Health; 2020. https://www1.health.gov.au/ internet/main/publishing.nsf/Content/cdna-song- novel-coronavirus.htm

ii. Commonwealth Department of Health. Guidance on the use of personal protective equipment (PPE) in hospitals during the COVID-19 outbreak. Canberra: Australian Government; 2020. Accessed 5 June 2020. Available at: https://www.health.gov. au/sites/default/files/documents/2020/04/guidance-on-the-use-of-personal-protective-equipment-ppe-in-hospitals-during-the-covid-19- outbreak.pdf

iii. Clinical Excellence Commission. Infection Prevention and Control Practice Handbook. Sydney: CEC; 2020. Available from: http://www.cec.health.nsw.gov. au/__data/assets/pdf_file/0010/383239/IPC- Practice-Handbook-2020.PDF

iv. NSW Clinical Excellence Commission. Transmission-Based Precautions http://cec.health.nsw.gov.au/keep-patients-safe/ infection-prevention-and-control/ transmission-based-precautions

v. Clinical Excellence Commission. Personal protective equipment. Sydney: CEC; 2020. Accessed 5 June 2020. Available at: http://www.cec.health.nsw.gov.au/keep- patients-safe/COVID-19/personal- protective-equipment

vi. World Health Organization. Infection prevention and control of epidemic-and pandemic prone acute respiratory infections in health care. WHO guidelines. WHO; 2014. Accessed 5 June 2020. Available at: https:// www.who.int/csr/bioriskreduction/ infection_control/publication/en/

vii. Wang W, Xu Y, Gao R, et al. Detection of SARS-CoV-2 in Different Types of Clinical Specimens. JAMA. 2020;323:1843-44. doi:10.1001/jama.2020.3786

viii. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-2019). February 16-24, 2020. http://www.who.int/ docs/default-source/coronaviruse/who- china-joint-mission-on-covid-19-final- report.pdf

ix. Tran K, Cimon K, Severn M, et al. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: a systematic review. PLoS One. 2012;7:e35797. doi:10.1371/ journal.pone.0035797

x. Health Protection Scotland Literature Review. Assessing the evidence base for medical procedures which create a higher risk of respiratory infection transmission from patient to healthcare worker. 12 May 2020: https:// www.hps.scot.nhs.uk/web-resources- container/assessing-the-evidence-base-for- medical-procedures-which-create-a-higher- risk-of-respiratory-infection-transmission- from-patient-to-healthcare-worker/ (accessed 5th June 2020)

xi. Couper K, Taylor-Phillips S, Grove A, et al. COVID-19 in cardiac arrest and infection risk to rescuers: A systematic review. Resuscitation. 2020;151:59-66

Other publications

Judson SD, Munster VJ. Nosocomial transmission of emerging viruses via aerosol-generating medical procedures. Viruses. 2019;11:940. doi:10.3390/v11100940

Lim WS, Anderson SR, Read RC, et al. Hospital management of adults with severe acute respiratory syndrome (SARS) if SARS re-emerges - updated 10 February 2004. J Infect. 2004; 49:1-7. doi:10.1016/j.jinf.2004.04.001

Christian MD, Loutfy M, McDonald LC, et al. Possible SARS coronavirus transmission during cardiopulmonary resuscitation. Emerg Infect Dis. 2004;10:287-293. doi:10.3201/eid1002.030700

Nam HS, Yeon MY, Park JW, et al. Healthcare worker infected with Middle East Respiratory Syndrome during cardiopulmonary resuscitation in Korea, 2015. Epidemiol Health. 2017;39:e2017052. doi:10.4178/epih.e2017052

Acknowledgements

This tool has been adapted from:

- Nepean Blue Mountains Local Heath District PPE for Surgery
- Northern Sydney Local Health District Facility Risk Matrix

Document information	
Version number	3
Original publication date	23 July 2020
Developed by	Surgery Community of Practice
Consultation	Anaesthetic CoP, NSW Ministry of Health, Clinical Excellence Commission
Endorsed by	Nigel Lyons
Review date	7 July 2021
Reviewed by	Surgery Community of Practice, Anaesthesia Community of Practice
For use by	District and Network Chief Executives, Directors of Medical Services, Clinical Directors of Surgery, Surgery Operations Managers, Departments of Anaesthesia and Perioperative Service

TRIM: ACI/D20/1749 | ACI_0450 [09/20] SHPN: (ACI) 210654
ISBN: 978-1-76081-860-9

NSW GOVERNMENT | AGENCY FOR CLINICAL INNOVATION