Safe use of respiratory therapy at Western Health:

High rates of community transmission

COVID - 19

Be Safe -- Be Smart -- Be Kind

Background

This guideline is to be used when the rates of Community transmission are deemed intermediate/high by the WH COVID Response team in accordance with Department of Health (DH) advice (COVID active/peak) such that additional precautions are needed.

All staff authorising/using aerosol generating procedures must be aware of the current level of community transmission to ensure that that the correct level of precautions are followed. The decision when to change from the Low rate of community transmission guideline to the High rate of community transmission guideline will be made and publicised through COVD-19 Governance. The resultant changes are highlighted in the tables below.

The use of nebulisers, high flow oxygen and non-invasive ventilation all pose a risk of transmission of respiratory infection to staff and patients. Please use this guideline in conjunction with the current advice regarding the use of PPE as per the WH COVID-19 PPE Guideline (https://coronavirus.wh.org.au/ppe/).

THE APPROACH DESCRIBED IN THIS DOCUMENT APPLIES TO ALL PATIENTS, TO MINIMISE THE RISK OF AEROSOLISATION OF VIRUS IN THE PATIENT WITH UNRECOGNISED COVID-19.

Nebulisers

As per the WH COVID-19 PPE Guidelines, nebulisers are considered a High Risk Aerosol Generating Procedure. See Table 1.

Nebulised therapies should be replaced by puffers (pressurised Metered Dose Inhaler, pMDI) and spacer whenever possible. Nebulised steroids, saline, and antibiotics should not be prescribed (rarely, there may be a role for nebulised antibiotics in patients with bronchiectasis).

If nebulisers must be used:

- In Adult and Paediatric Emergency Departments, ICU, Theatres (Anaesthetic team) or ENT and Paediatric wards the treating ENT/Paediatric clinician/senior registrar must approve use.

Approval should be documented in EMR order under "order comments", AND in progress notes with rationale of risk: benefit
- For all other clinical teams please contact the respiratory registrar for approval within hours and the general medicine registrar on call out of hours.
- On the ward, during MET call/Code Blue – can be commenced immediately, after staff donning airborne (P2/N95 mask and face shield) and contact PPE. If in shared room pull curtain to act as barrier. Discuss with ICU physician/senior registrar ASAP.
- COVID-19 log sheet (for contact tracing if required) must be completed for all staff attending MET/Code Blue

Patients with suspected or confirmed COVID-19 requiring nebulisers are ideally nursed in a Negative Pressure Ventilation room, or otherwise in a single room with closed door. Non COVID-19 patients requiring nebulisers can be nursed in a shared room, utilising the side curtain as a barrier. Use a McMonty hood if available and ensure other patients in the room are wearing a surgical mask. PPE requirements are outlined in Table 2 PPE Requirements for Performing AGP's.

Table 1: High and Low Risk Aerosol Generating Procedures*

HIGH RISK AEROSOL GENERATING PROCEDURES (AGPs)
• Nebulisers including for sputum induction • All oxygen therapy delivered via venturi mask • Non-invasive ventilation/CPAP

LOW RISK AEROSOL GENERATING PROCEDURES (AGPs)
• Oxygen therapy 6 L/min or above delivered via Hudson mask, non-rebreather mask • High Flow Nasal Cannula (as referenced by McGain et al) • Mechanical ventilation (excluding neonatal mechanical ventilation where an uncuffed endotracheal tube is used)

The following are NOT considered aerosol generating procedures:
• Oxygen therapy less than 6L/min delivered via nasal cannulae, Hudson mask or non-rebreather mask

*This is an abbreviated table limited to respiratory therapies only and is not an exhaustive list of AGPs. For the full AGP table please refer to the WH COVID 19 PPE guideline.

Table 2: Requirements for performing AGPs in each patient group

	Non COVID-19 case (cleared or not suspected)	Low risk suspected COVID-19 case[1]	Confirmed COVID-19 case COVID-19 quarantine High risk suspected COVID-19 case[1]
PPE Requirements	Refer to WH COVID 19 PPE guideline		
Approval from respiratory team required for CPAP/APAP/NIV?	YES (except ED/ICU/Anasethetics – treating consultant/registrar can approve)		
Respiratory equipment modification required (CPAP/APAP/NIV including BiPAP)	YES – if multi room NO – if single room	YES – in ED/ICU YES – other wards	YES
Patient placement **Ward patients**	Any room, curtain separation McMonty hood if available	Single room (or negative pressure room (NPR) if available)	Negative pressure room. If unavailable use single room and McMonty hood
Patient placement **ICU patients[5]**	Any room, curtain separation[5] McMonty hood if available	NPR or McMonty hood[5]	NPR or use alternative respiratory support[5]

1. Refer to Patient Management - De-isolation Guideline for definitions of low risk and high risk suspected case
2. Refer to table above for delineation of Low-Risk and High-Risk AGPs
3. P2/N95 respirator masks should be worn for all ENT/maxillofacial surgery, regardless of the patient's COVID-19 status, given the difficulty ascertaining symptoms in this patient population
4. Tier 3 – PPE requirements for undertaking high risk AGPs on a person suspected or confirmed COVID-19; is in quarantine, or where a history cannot be obtained as per DHHS COVID-19 Infection Control Guidelines
5. If NIV is being performed in an open ICU bed please aim to apply the following risk mitigation strategies, regardless of McMonty hood use:

a. Distance as much as possible from other patients
b. Closest patients to those who are receiving NIV to be those who are intubated
c. Locate NIV patient as much downstream of direction of air flow as possible
d. ICU staff to wear N95 or halos
e. Surgical masks on other ICU patients if possible

All staff (including non-clinical staff) entering a room of a confirmed or suspected COVID-19 patient during, and **up to 30 minutes after**, a high-risk AGP has been performed, must wear a P2/N95 respirator mask (please check with the nurse in charge if unsure).

ED + Transfer from ED to wards

Patients should be transferred promptly from ED to receiving ward along designated transport routes. If NIV/PAP required during transit use a Hamilton closed circuit system.

High risk AGPs should be temporarily suspended if safe to do so, otherwise use McMonty hood. Patient should wear a surgical mask during transit if possible.

Low –risk AGPs may be continued. Patient should wear a surgical mask during transit if possible.

For patients requiring oxygen aim to use a non-rebreather mask during transit and attempt to control traffic for transfer so it is as efficient as possible.

Prioritisation of surgery in home CPAP/BiPAP users

During periods of reduced elective surgery due to a COVID-19 surge, elective surgery for home CPAP/BiPAP users should be deferred. The exceptions to this are cat 1 cases and day cases that are not likely to need an overnight stay.

Respiratory Equipment modification (if required)

If CPAP/NIV is used, the circuit should be set up with a non-vented mask, and viral filter proximal to the exhalation port. Patients on long term CPAP/NIV should be changed to a non-vented mask, with bacterial/viral filters and CO2/exhalation port post filter. Call Respiratory Unit for assistance with modification of respiratory circuits: contact the Clinical sleep laboratory staff 83456124 or Respiratory registrar (in hours) FH page 840 (consults) SH page 230 (or Respiratory on –call after hours via switchboard

Simple setup:

- Non-vented full face mask - make sure O2 port is closed if mask has one.
- Bacterial/viral filter (changed at least every 24hrs)
- CO2 exhalation port/valve (post filter)

- Tubing (General wards at Western Health have single limb circuits available)
- Optional 2nd filter (recommended)
- Machine (Variety of brands/modes, with differences in site of oxygen inflow)
- Turn off /remove humidifier (according to machine). Can run without water with 0 heat.

Table 3. Respiratory Equipment modification

SEQUENCE from patient to pump			
Mask (non-vented)	**Filter** **Bacterial/viral not HME**	**CO2 exhalation port** **Must be distal to the filter**	**Second filter at machine end** **Bacterial/viral not HME**
Suitable for use with single limb circuit **Often have blue elbow** **Ensure O2 port closed**	**Filter must be Bacterial/ viral (not HME)** **Mask end filter to be changed daily**	**Filter between mask and exhalation port** **This is the air outlet DO NOT BLOCK**	**Oxygen adaptor can be inserted at pump end if needed for standard CPAP/APAP/domiciliary equipment**
		Alternative combined single limb circuit with exhalation port and 2 filters	
			Non-Invasive circuit with Filtered exhalation port proximally, and pressure line. If pressure line not required (some machines require pressure input feedback) cut off and knot the tube, or remove and cap.

Guidelines to supplemental oxygen use on the wards

DOCUMENT TARGET OXYGEN SATURATION
= 92 - 95%
Aim 88 - 92% if known chronic lung disease or hypercarbia.

↓ Not achieving target O_2 sat

Nasal cannula (1 – 4 L/min)

↓ Not achieving target O_2 sat

Hudson mask* (6-8 L/min)

↓ Not achieving target O_2 sat

Acute or chronic ventilatory failure ($PaCO_2$ > 45mmHg)

YES	NO
High flow nasal cannula (HFNC)*	**Non-rebreather mask*** 6 – 10 L/min

↓ Requiring supplemental oxygen at flow rates > 6L/min or FiO_2 > 40%

REVIEW ACUTE RESUS PLAN (ARP)
Discuss with Respiratory OR contact Intensive Care Unit (ICU) if appropriate.

Oxygen flow rate (L/min)	1	2	3	4	5	6	7	8	9	10
	NON-AEROSOL GENERATING OXYGEN DELIVERY						*AEROSOL GENERATING Precautions as per PPE guideline			

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