Clinical Guide for COVID-19 Unit
Attending Physician

Vitalité Health Network

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Preamble

This document is intended for regional hospitals within Vitalité Health Network that could potentially treat patients with suspected or confirmed COVID-19. It was inspired by the technical procedure guide prepared for the *Ministère de la Santé et des Services sociaux du Québec*. It is a generic document that is not intended to replace the work adapted by critical care and infection prevention and control (IPC) teams from all individual centres. The pandemic evolves on a daily basis, and these guidelines might have to be adapted as the situation evolves. We invite you to keep abreast of any updates.

At all times, the safety of hospital staff is the priority.

1. Initial preparation (at all times)

A negative pressure room is always available and ready to accommodate a very unstable patient with confirmed SARS-CoV-2 (COVID-19) for any procedures with a high risk of aerosolization (intubation, stabilization if bed in Intensive Care is not available right away).

- Every day, staff check that negative pressure or designated rooms are adequately prepared, which includes:
    - Operational negative pressure system with the door closed.
    - Wireless communication system available and operational (e.g. baby monitor or mobile phone).
    - Antiseptic solution available inside the room, in the anteroom and at the exit.
- Back-up personal protective protection equipment for aerosolization (N95) available at the room entrance.

2. Personal protective equipment

Droplet + contact + eye protection is required for all **suspected** or **confirmed SARS-CoV-2 (COVID-19) cases**.

- Personnel in place should be wearing hospital centre provided and washed uniforms, and shoes worn should only be used in work units and in the hospital.
- Equipment must be put on under the supervision of a person able to put on that type of protection.
- Here are additional videos to ensure that PPE is put on and removed safely:
    - Video: Put on and remove PPE (French only).
    - Vitalité Health Network website: Doctors tab under Employee Training and Support.
- If possible, a staff member should be present to oversee the equipment donning and removal of staff involved in the procedure.

- Personal protective equipment includes at least:
    - Level 2 gown
    - Surgical mask (N95 for procedures involving a risk of aerosolization only)
    - Long gloves (covering gown sleeves)
    - Eye protection (visor)

3. COVID-19 floor operation

Infected patients will start by being hospitalized in isolation rooms; they will then be placed in individual rooms to maintain the recommended distance of 2 metres between each case.

Patients who are already hospitalized, who develop COVID-19 symptoms and test positive will be transferred to the units that provide care to these clients. This includes pediatric and psychiatric patients as well as patients requiring heart monitoring.

Only patients having tested positive for COVID-19 will be admitted to the COVID Unit. Patients awaiting their test result will not be admitted to the COVID Unit.

Floor zones

Hot zone (identify this zone with a sign) -

The hot zone includes the entire unit where protective equipment is always required.

Employees entering this zone must wear protective equipment at all times.

Take off your gloves and wash your hands after each patient. Then, put on clean gloves.

Exceptions – complete change of PPE:

- In case of a patient with COVID-19 + and C. difficile +, place the patient in a private room, if possible with an anteroom. PPE will have to be replaced upon exiting the room, and hands washed with water and soap.

- If PPE is soiled, proceed to warm zone to remove PPE.

The patient's record remains in the hot zone; upon discharge, the paper record is placed in a hermetically sealed plastic bag, disinfected and removed from the unit. The paper record may be removed from the bag after seven days.

Warm zone - (identify this zone with tape and a sign)

- This is the area where protective equipment is removed before leaving
- the unit.

- Use antiseptic gel when removing PPE.

Cold zone -

Clean zone outside the unit where protective equipment is not required. Area for donning personal protective equipment before entering the hot zone unit

- Hospital scrubs must be removed at the employee lockers at the end of the day.
- No scrubs from the dedicated COVID-19 Unit and from the hospital are to be worn outside the hospital.
- An average of approximately 10 patients / attending physician is recommended
- Physician will be available on the floor during the day and on-call at home in the evening and at night, with the possibility to provide on-call coverage on site depending on the condition and severity of cases and the number of admitted patients.
- Debrief with the team at the end of each shift and as needed.
- If a patient is admitted with heart monitoring available on the unit, this must be used for clinically stable patients not requiring any intravenous medication infusion (e.g. diltiazem, beta blocker). COVID Unit nursing staff will never be responsible for monitoring intravenous medication administration as mentioned.

4. Patient admission procedure

a. COVID Unit patient admission criteria

The main admission criterium is a patient who tested positive for COVID-19, who is still considered contagious and who requires hospitalization. Admission criteria to the COVID Unit may include:

- positive COVID result requiring hospitalization for any reason

- requires respiratory assistance (needs oxygen)

- based on NEWS-2 score (cf. appendices)

b. Intensive Care admission criteria

Proposed Intensive Care admission criteria are:

- FiO2 ³ 40 % for saturation > 90 %
- Significant respiratory distress or RR > 24
- Persisting hemodynamic instability despite adequate volemic resuscitation
- Altered level of consciousness
- Any intubated patient or requiring non-invasive ventilation

C. Pediatric considerations

- Unstable or intubated pediatric patients must be transferred to designated centres. (e.g. IWK in Halifax or CHUL in Quebec City)

5. Procedure for transportation outside the unit

- As it poses a risk for transmission, patient transportation should be kept to a minimum.
- Therefore, the decision to perform tests should be carefully weighed:
    - Is the test very likely to answer a clinical question that will change the course of action?
    - Before leaving, consider all imaging tests that could potentially be necessary to care for the patient.
- A transportation procedure for COVID-19 patients should be implemented in each centre to minimize hospital staff and community exposure.
- Identify staff required to accompany the patient outside the unit: nurse, respiratory therapist, attendant as needed (all wearing personal protective equipment).
- Tests such as X-rays and ultrasounds will be made on the floor whenever possible.
- When leaving the unit:
    - The patient must practise hand hygiene before exiting the room if possible;
    - The patient must wear a procedure mask; If the patient requires oxygen and cannot wear a procedure mask, oxygen is administered using an oxygen mask with viral filter;
    - Health care workers responsible for transporting the patient must wear the appropriate PPE (face shield, surgical/procedure mask, gown and gloves);
    - No one else is allowed on the elevator, except if wearing appropriate PPE;
    - Once the patient has left, personnel must take the necessary steps to have the room cleaned and disinfected by housekeeping;
    - Upon the patient's arrival to their room, the personnel must clean and disinfect the stretcher/wheelchair before taking it outside the unit.

6. Airway care procedure – severe suspected COVID cases

- Non-invasive ventilation (NIV) and high-flow nasal cannula ventilation (Optiflow, Airvo) ***are not encouraged treatment options***. This statement does not apply to pediatrics as long as a negative pressure room is available.
    - **Avoid auscultation before, during and after intubation.**
- **Consider early intubation: Emergency intubation increases the risk of transmission by exposing caregivers and other patients to aerosols.**
- An intubation cart dedicated to SARS-CoV-2 infections should be placed inside the unit's negative pressure room.
- All equipment must be readily available nearby, including equipment required to manage a difficult grade of intubation.
- For difficult intubations, the teams responding to the code (intensivist and ER physician) will need to bring their equipment if it is not available on the floor.
- Cf. Regional Guide for Management of Airway Protection.
- Refer to the checklist before entering the room.
- Intubation must:
    - Be done in a negative pressure room or, if one is not available, in strict airborne isolation;
    - Be performed with everyone wearing personal protective equipment, as described above;
    - Be performed by the intensivist or ER physician or by the most experienced person available;
    - Pre-oxygenation FiO2 100% (Ventimask with reservoir) x 5 minutes if the situation allows;
    - BVM ventilation should be avoided as much as possible before intubation. If BVM ventilation is administered, place a viral filter, use two-person ventilation and an oropharyngeal cannula (Guedel) and use low tidal volume ventilation.

- Personnel in the room kept to a minimum:
    - Nurse responsible for the patient;
    - Respiratory therapist;
    - Professional intubating.

- Rapid sequence intubation must be preferred (limits the risk of coughing and aerosols).
- It is necessary to wait for the designated period before entering the negative pressure room with the door closed (should be a maximum of 60 minutes), to allow the aerosol load to decrease, except if wearing an N95 mask.

7. Cardiorespiratory arrest care

Resuscitation techniques are considered to present a high risk of propagating aerosols, and the potential risk for the care staff has to be balanced with the expected benefits to the patient.

Except in rare circumstances, intra-hospital cardiac arrests have a poor prognosis. In rare targeted circumstances (e.g. arrhythmia that could lead to a defibrillation or cardioversion), efforts could be justifiable. In all other circumstances, the decision to resuscitate and the intensity of efforts must be modulated based on the risk to staff and the rest of the clientele.

The intensity of care must be reassessed regularly and rediscussed with patients and/or their loved ones.

Underlying principles:

- The resuscitation order must be identified or validated for each patient, upon admission on the COVID-19 Unit, by attending physicians;
- Avoid procedures that produce aerosols (external thoracic compression, manual ventilation, etc.);
- Expose as little staff as possible;
- Adequate use of personal protective equipment;
- Code blue events on COVID-19 units are managed by resuscitation teams who handle code blue events for the rest of the hospital (most often the ER physician); As for the

participation of nursing and respiratory therapy teams, it is recommended that this be determined according to local practices;

- If a patient becomes unstable, the intensivist is called to notify them of the patient's condition and to discuss transfer to the Intensive Care Unit. If transfer to the Intensive Care Unit is delayed, transferring the patient to a negative pressure room at the COVID-19 Unit is recommended, if one is available, in the event that intubation would be required at the COVID-19 Unit. However, if the patient experiences cardiac arrest in their room, it is recommended that they be transferred to a negative pressure room at the COVID-19 Unit, if one is available, to proceed with intubation and resuscitation in that room;

- The staff who responds to code blue events, such as ECG technicians, phlebotomists or others, should make themselves available outside the COVID-19 Unit and not enter the unit unless explicitly requested;

- When a patient is unstable, it is recommended that the intensivist assist the team of the COVID-19 Unit while awaiting the patient's transfer to the Intensive Care Unit. Otherwise, it is recommended that it be a member of the on-call internal medicine team, according to local arrangements;

- It should be noted that the chances of success of cardiopulmonary resuscitation will possibly be reduced because of PPE/intubation-related delays;

- All staff must take the time to put on personal protective equipment before entering the room.

Initial CPR management

1) Assign roles and determine who the leader is, while waiting for the resuscitation team.

2) Once a code blue is called, the staff on site can connect the defibrillator. The defibrillator can be connected to the patient using the defibrillator electrodes, and the patient can be defibrillated as needed before intubation. Defibrillation alone does not require an N95 mask; however, if a massage is initiated or an intubation is done, one will need to be worn. Perform immediate defibrillation in the case of ventricular fibrillation or pulseless ventricular tachycardia, by a person who is skilled in resuscitation and using a defibrillator.

3) While waiting for the resuscitation team, the care staff may initiate the cardiac massage. To that end, the patient will need to be transferred to the negative pressure room, the care staff initiating the cardiac massage will need to put on appropriate PPE, including an N95

mask. They will also need to cover the patient's mouth, either with a mask or with any other physical barrier to reduce the potential dispersal of aerosols. Care must be taken to position the mask properly and to prevent it from shifting during the cardiac massage. The cardiac massage must not be initiated until everyone in the room is wearing appropriate PPE, including an N95 mask.

4) It is recommended that no ventilation be done during resuscitation, except if using an endotracheal tube with inflated cuff, viral filter in place with Ambu.

5) Manage airways using the principles already stated:

   a) **Manual ventilation is to be avoided in most cases.** If ventilation is imperative, use two-person ventilation and an oropharyngeal cannula (Guedel) to reduce the presence of leaks around the mask. Place a viral filter.

   b) Rapid sequence intubation (follow the recommendations described above).

   c) After confirmation of intubation, continue usual resuscitation.

   d) It is necessary to wait for the designated period before entering the negative pressure room with the door closed (should be a maximum of 60 minutes), to allow the aerosol load to decrease, except if wearing an N95 mask.

Initial support of the CPR (See code blue and airway management guides)

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Transfer the patient to the negative pressure room

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Put on personal protective equipment (including N95 mask)

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Defibrillation (if appropriate and by skilled caregiver)

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Cardiac massage while waiting for code team

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Intubation protected by code team

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Continue resuscitation

8. Samples and laboratories

- Limit samples to those that are urgent and will change your course of action.
- Handle samples according to the facility procedures in effect.
- In patients at risk of developing cardiogenic pulmonary edema, it is recommended that BNP levels be taken at admission, and in case of respiratory deterioration while hospitalized, which could be explained by a cardiogenic pulmonary edema. Here are some risk factors for developing a pulmonary edema that could be considered when deciding to take BNP levels at time of admission:
    - Old age
    - Female gender
    - History of pulmonary overload of any kind
    - LV systolic or diastolic dysfunction
    - Left ventricular hypertrophy on ECG or ultrasound
    - Poorly controlled hypertension
    - Severe valvulopathy (especially aortic and mitral)
    - Atrial fibrillation
    - Interruption of diuretic treatment

9. Pharmacotherapy

Based on current knowledge, the treatment of COVID-19 is a supporting treatment. There is no literature supporting a standardized pharmacological approach. Please refer to the COVID-19 Pharmacological Management (French only) document available on Vitalité Health Network's website at time of prescription.

- Nebulized medications are prohibited for COVID patients.
- If a nebulized treatment absolutely needs to be administered (e.g. vaponephrine or antibiotic), these must be administered in a negative pressure room, and ideally if recommended by a specialist.
- Avoid NSAIDs; however, do not stop low-dose aspirin.
- Intravenous hydration must be done conservatively.

10. Ethics – Resource allocation – End of life

- Refer to the ethics and guiding principle policy, section 1G, extracted from the Regional COVID-19 Pandemic Plan for ethical considerations.
- Modalities of end-of-life care must represent a shared decision that takes into account the patient's dignity, the family's wishes, the risk of contagion and available resources.
- It is strongly suggested to discuss end-of-life care with patients at time of admission or even before that if possible.
- Please refer to the respiratory distress protocol and palliative care expertises.

11. Discharge criteria (Refer to Regional guide: Hospital discharge guidelines for COVID-19 patients)

Once a patient who has recovered from COVID-19 no longer requires oxygen and does not present chest tightness, the physician may consider discharging them from the COVID-19 Unit taking the following guidelines into consideration:

- No test of cure is required to discharge the patient;
- Depending on the patient's clinical status, they can be discharged from the hospital by following Public Health's self-isolation guidelines;
- If the patient presented chest X-ray abnormalities while hospitalized, it is recommended to schedule an outpatient follow-up X-ray 4 to 6 weeks after discharge;
- The attending physician must notify Public Health if the patient is discharged < 14 days after the onset of symptoms.

Vitalité Health Network's Public Health offices:

Location	Telephone	Fax
Bathurst	506-547-2062	506-547-7459
Campbellton	506-789-2266	506-789-2349
Caraquet	506-726-2025	506-726-2493
Dalhousie	506-789-2266	506-789-2349
Edmundston	506-735-2065	506-735-3142
Grand Falls	506-735-2065	506-735-3142
Jacquet River	506-789-2266	506-789-2349
Kedgwick	506-735-2065	506-735-3142
Moncton	506-856-2401	506-856-2623
Richibucto	506-856-2401	506-856-2623
Sackville	506-856-2401	506-856-2623
Shediac	506-856-2401	506-856-2623
Shippagan	506-336-3061	506-336-3068
Tracadie-Sheil	506-394-3888	506-394-3858

- Identify a procedure that minimizes the risk of infection when leaving the hospital and going back home in collaboration with security officers to speed up the process and prevent contamination when exiting the hospital and unit.

Home isolation

1. Continue isolation at home for 2 weeks after discharge.
2. Conditions for home isolation:
    a. Alone in a well-ventilated and frequently disinfected location;
    b. Avoid any contact with elderly and immunosuppressed people;
    c. Patient and family must wear masks and wash their hands often;
    d. Check temperature twice a day (morning and evening).

- Criteria are subject to change as the pandemic evolves.
- A telephone follow-up is recommended 48 hours after discharge.

12. Discontinuation criteria for COVID-19 patient isolation measures

****The following recommendations could change during the pandemic.****

To discontinue the isolation of a hospitalized COVID-19 patient and enable their transfer to another nursing unit, all the following factors must be considered before lifting the additional infection prevention precautions:

The transfer must be approved by Infection Prevention and Control personnel or the attending physician

- At least 14 days have passed since the onset of the acute disease (CIDRAP, 2020);
- No fever for 48 hours;
- No acute symptoms for 24 hours;
- A negative PCR result from at least two consecutive nasopharyngeal swabs (or according to Public Health's recommendations) collected 24 hours apart after resolution of the acute disease (e.g. the patient becomes asymptomatic 14 days after the onset of symptoms).