Regional Guide
Processing and treating pediatric COVID-19 patients

The Pediatrics working subgroup in Vitalité Health Network recommends the following actions:

Suspected pediatric COVID-19 cases:

- Suspected COVID-19 patients of pediatric age should be kept under observation in hospitals in the zones that have a pediatrician on call and be seen and treated by the pediatrician.
    - They should be in the units designated for suspected cases in droplet and contact isolation (SRI-CV precautions sign) depending on the facility.
- Children with a mild case and no risk factors that require a referral may be sent home with the usual follow-up by Public Health.

Positive pediatric COVID-19 cases:

If hospitalization is required, the on-duty pediatrician shall assess the child and decide whether he needs to be transferred to a tertiary centre or can be admitted to the centre where he is. Transfer to a tertiary centre will be possible based on the criteria below and after a discussion with the physician at the receiving centre.

Constantly reassess the capacity of the centre to admit pediatric patients to the COVID-19 unit.

Factors to consider:

- Human resources - pediatricians.
    - Closed if only one pediatrician is available.
- Human resources - nurses.
- Occupancy of the unit.
    - Based on the guidelines in Vitalité's pandemic plan – assess capacity of pediatrics if the occupation rate in the unit is over 75 %.
    - Phase 1:
        - **Admission of COVID-19 positive pediatric patients zone 1B, 4 and 6 – directives in the COVID-19 Ped working document**
            - Obstetrics and Pediatrics closed in zone 5.
            - Transport corridors from Campbellton to Bathurst organized.
            - Patients from Québec sent to Maria – DSP advised.
    - Phase 2:
        - Pediatric admissions closed in zone 4: Transport corridors to Fredericton /Moncton.
        - Pediatric admissions closed in zone 6: Transport corridor to Moncton – Dumont HUC.
    - Phase 3:
        - Pediatric admissions closed in zone 1B: assess provincial capacity with Horizon.
    - Phase 4:
        - Pediatric admissions closed in the entire province: transport corridors to Québec City – Halifax.

Patients will be admitted to the COVID-19 floor to limit the risk of contagion in the hospital.

A patient admitted to the COVID-19 unit **will be allowed to have only one parent with him on the floor**. This parent shall follow protection rules and not leave the unit. The parent will be considered to be COVID-19 positive and be advised of the risk of transmitting the disease. When the child is discharged, the parent and the child shall self-quarantine at home for a period of 14 days. If the parent develops symptoms or requires medical assessment while in the COVID-19 unit with his child, we recommend that the parent be assessed there. A consultation with a family physician, a physician looking after the COVID-19 unit or other should occur on site, and investigations and treatment should be administered on site, if appropriate, rather than moving the parent somewhere else (such as the ER). If necessary, a visitation or hospitalization may be opened in the same room as the child.

The working subgroup recommends that a pediatric nurse be responsible for a pediatric patient on the COVID-19 unit or that a nurse with PALS training be present to be able to adequately assess the pediatric patient's clinical signs. The subgroup is aware of the challenge posed by the availability of human resources. We suggest checking with the redeployment centre and asking retired nurses or those who have been transferred to another department to assist.

Help with clinical decisions – COVID-19 positive pediatric patient

Up until now, children and adolescents have suffered mild effects that rarely require hospitalization for pneumonia or rehydration, and even more rarely ventilation.

Symptoms

- Fever
- Dry cough
- Fatigue
- Myalgia
- Headache

Sometimes in children

- Nasal congestion
- GI symptoms: abdominal pain, nausea, vomiting and diarrhea

Transport corridors: IWK (via EHS LifeFlight 1-800-743-1334) and CHUL

- Contact the teams on site to discuss the most appropriate place.
- Advise the transport team that the patient has been tested for or confirmed with COVID-19.

Screening:

Shall be carried out following the recommendations of Public Health New Brunswick.
Screening is by nasopharyngeal culture or by gargle screening method.

Criteria for admission - hospital:

Contact the pediatrician on duty who will look after the patient, who will be hospitalized on the COVID-19 floor to limit contagion.

- Need for oxygen
- Need for IV hydration

Criteria to consider transfer to a tertiary centre:
Rapidly contact the ICU team

- Need for oxygen > 30 % for saturation > 90 %
- Significant or worsening respiratory distress
- Before starting non-invasive ventilation
- Persistent hemodynamic instability despite adequate volemic resuscitation
- Decreased level of consciousness
- Patients less than 1 year old
- Chronic lung disease
- Congenital heart defect
- Immune system disease

Prevention of infections/Material:
Protection from contact/droplets

- mask, visor, gloves and gown for all patients suspected of or positive for COVID-19.

Protection from aerosols:

- N95 and negative-pressure rooms for the following medical procedures:
  - Optiflow (with MD's approval, specific case)
  - CPAP or BIPAP (with MD's approval, specific case); See the Regional Guide – Airway management.
  - Nebulization (only if aerochamber impossible/tx inevitable)
  - Airway suction
  - Intubation
  - CPR with valve mask or ventilation, limit as much as possible the duration before intubation
  - Chest compressions

*Always limit the staff on site, non-essential staff should not be present to avoid unnecessary exposure.
*Consider intubation early because emergency intubation increases the risks of transmission.
*If possible, all staff must leave the room for a period required based on the ventilation system (20 min to 3 hours), while the aerosol load decreases.

<u>Managing cardiac arrest or major respiratory distress</u>
All resuscitation procedures are considered to present a high risk for producing aerosols. They should be carried out in a negative-pressure room by the healthcare worker with the most competences in pediatrics, who shall wear the recommended PPE.

- N95 mask
- Visor
- Gown
- Gloves

Intubation:
Intubation shall be performed by the most experienced person available.

Pediatric intubation shall be carried out by the anesthetist. The intubated patient shall be transferred to a tertiary centre. Until the transfer, the anesthetist shall provide support for safe airway management.

Ventilation – Regular oxygen therapy:

- Don't use a bubbler.
- Maximum flow 5 lpm.
- Venturi mask or oxymask for 24-90 % O_2.
- Bag mask for 100 % O_2.
- Clapping not recommended.

<u>According to WHO</u>

Plateau pressure < 28 cm H_2O
Lowest allowable pH: 7.15-7.30
Current volume 3-6 ml/kg predicted body weight, if poor pulmonary compliance
Current volume 5-8 ml/kg predicted body weight with normal pulmonary compliance

<u>According to USI Québec protocol</u>

ARDS protective ventilation strategy
Small current volumes
High PEEP

Resuscitation - Pediatric patient:

- As is the case in adults, the airway must always be secured by intubation + connection to a closed system to limit the risk of aerosols during resuscitation.
- If ventilation is required (before rapid intubation), use 4 hands and a guedel to reduce leaks
- Cardiac massage must be started before intubation.
- The team absolutely has to take the time to put on PPE before entering the room.
    - In this situation, clear and preestablished roles are essential. The minimum number of persons should enter the room, all with adequate PPE.

Resuscitation - Newborn:

- Differs by when resuscitation occurs.
- In the delivery room, resuscitation takes place as normal. PPV can be used, and chest compressions as needed. (There is not considered to be any risk of vertical transmission for the moment).
- For respiratory distress occurring in the neonatal unit: technically if a baby has respiratory distress that is progressing in an atypical fashion then its condition should be considered as possibly related to COVID-19, so the baby should already be in a negative-pressure room.
- Intubation and resuscitation should take place in that room.
- When intubating a newborn, it is suggested that proper placement of the tube be confirmed with PPV and the CO_2 detector before connecting the respirator.

Document prepared with information from the IWK, the Québec City HUC and the Québec MSSS.

Additional information:

Acetaminophen vs Ibuprofen

According the last WHO guidelines (March 19), there is no evidence for avoiding NSAIDs with COVID-19 patients. The IWK supports this. This point had been observed in adults. We can always use it prudently and try acetaminophen first.

NIV and high-flow ventilation
See the Regional Guide – Airway management.

This is not recommended for adults, but it can be used in pediatrics if a negative-pressure room is available and based on the patient's clinical condition. Early intubation is preferred for significantly ill patients.

Corticosteroids
This is not recommended for adults, but it can be used in pediatric patients based on clinical severity. A child in respiratory distress needs to be discussed with an Intensive Care specialist, so the use of a corticosteroid could also be discussed with this key person.

Why a less severe infection? Study of 2143 children in China
The reason is unknown. However, children under 1 year of age and preschoolers seem to be more vulnerable to moderate to severe infections. Severe cases among children in China accounted for about 6% (vs 18.5% among adults).

Can children be asymptomatic?
According to the same study, 13% of children who tested positive were asymptomatic. This probably underestimates the total number of children because they are less likely to be tested if they are not symptomatic. However, they play a role in transmission of the disease.