

Paediatric Admission
Criteria and
Management of
COVID-19

Table of Contents:

Working Group and Contributors.....	2
1.0 Introduction.....	3
2.0 Aim.....	3
3.0 Parameters.....	3
4.0 Definitions.....	3
5.0 Triage and Assessments.....	4
6.0 Investigations.....	5
7.0 Management.....	6
8.0 Newborns of Suspected or Confirmed Covid-19 Mothers.....	9
9.0 Discharge Criteria.....	10
10.0 Follow-up.....	10
11.0 Administrative Management.....	10
References.....	11

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Paediatric Admission Criteria and Management of COVID-19

1.0 Introduction

This clinical guideline for Paediatric cases of Covid-19 has been put together at a time when Fiji has limited experience with only a few cases (5 confirmed) of this pandemic that originated out of Wuhan, China. It is a consolidated effort looking through our experience with our local disease outbreaks and other countries experience with COVID-19. This is presented in a TRIAGE format to delineate those with mild symptoms that require good self-isolation and those with moderate to severe and critical disease that require designated health facility isolation, observation and intensive care. This document will be revised as more information becomes known globally.

2.0 Aim

- 2.1 To ensure safe, prompt, and effective TRIAGE of all paediatric cases of COVID-19, and ensure that they are admitted appropriately through organized and coordinated work of medical, nursing and allied health support staff and uphold strict infection control measures.
- 2.2 To provide a guideline in assessing and managing children with COVID-19 infection.
- 2.3 To provide administrative management of COVID-19 Paediatric cases.

3.0 Parameters

This guideline applies to all children below 15 years of age.

4.0 Definitions

4.1 Coronavirus Disease 2019 (Covid-19) is an illness caused by a novel coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China.

4.2 Covid-19 Case*

- A. A patient with **acute respiratory illness** (fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness of breath),

PLUS

- 1) **no other etiology** that fully explains the clinical presentation
- 2) a **history of travel to or residence** in a country/area or territory reporting **local transmission** of COVID-19 disease during the **14 days prior to symptom onset** (Refer to daily WHO Covid-19 Situation Report);

OR

- B. A patient with **any acute respiratory illness**

PLUS

- 1) had **contact** with a COVID 19 case **OR contact** with a traveler coming from a country with local transmission in the **last 14 days prior to onset of**

symptoms (see definition of contact below and refer to daily WHO Covid-19 Situation Report);

OR

C. A patient with **severe acute respiratory infection** (fever and at least one sign/symptom of respiratory disease (e.g. cough, shortness breath)

PLUS

- 1) **requiring hospitalization**
- 2) With **no other etiology** that fully explains the clinical presentation.

***NOTE:** Healthcare professionals should ensure a detailed travel history for anyone presenting with an acute respiratory infection.

4.3 Close Contact

A contact is a person that is involved in any of the following from 2 days before and up to 14 days after the onset of symptoms in the Covid-19 patient:

- Face-to-face contact with a Covid-19 patient within 1 meter and for >15 minutes
- Providing direct care without proper personal protective equipment (PPE) for COVID-19 patients
- Staying in the same close environment of a COVID-19 patient (including workplace, classroom, household, gatherings) for any amount of time
- Traveling together in close proximity (within 1 meter) with a COVID-19 patient in any kind of conveyance (airplane, ship)

4.4 Local transmission indicates locations where the source of infection is within the reporting location

5.0 Triage and assessments

5.1 Table 1: Classification of Covid-19 Cases

Assessments of Disease	Mild	Severe	Critical
Symptoms & Signs	Cough or cold, low grade fever and slight fatigue without signs of pneumonia, severe pneumonia or critical illness. Saturating $\geq 95\%$ in room air	Cough and shortness of breath plus at least one of the following: <ul style="list-style-type: none"> • central cyanosis or SaO₂ <90% • severe respiratory distress (e.g. grunting, severe chest in drawing) • signs of pneumonia with a general danger sign: inability to breast feed or drink, lethargy or unconsciousness, or convulsions 	Respiratory failure Shock Multiple Organ Dysfunction/Failure

		<ul style="list-style-type: none"> • other signs of pneumonia may be present: chest in drawing, fast breathing: < 2 months: $\geq 60/\text{min}$, 2–11 months: $\geq 50/\text{min}$, 1–5 years: $\geq 40/\text{min}$ and ≥ 5 years: $\geq 30/\text{min}$ 	
Plans	<ul style="list-style-type: none"> • Refer to Paediatric Consultant or On-call Team for admission. • This patient will be admitted at the identified isolation area (SORTS i.e. Navua Hospital, Nadi Hospital, Labasa Isolation). • Important: Refer back to Paediatric Consultant or On-call Team if patient deteriorates or has Severe or Critical Disease • Refer to COVID-19 management 	<ul style="list-style-type: none"> • Refer to Paediatric Consultant or On-call Team. • Refer to Paediatric Ventilation in PICU CPG. • Refer to Shock Management in PICU CPG. • Refer to SORTS/DORTS & Health Protection/Fiji CDC for contact tracing. 	<ul style="list-style-type: none"> • Refer to Paediatric Consultant or On-call Team • Refer to Paediatric Ventilation in PICU CPG • Refer to Shock Management in PICU CPG • Refer to SORTS/DORTS & Health Protection/Fiji CDC for contact tracing

5.2 Other symptoms in children and newborns include vomiting, diarrhea, other gastrointestinal discomfort, myalgia, sore throat, drowsiness. **Fever may not always be present even in severe cases.**

5.3 Risk factors for severe/critical disease:

- Infants <3 months old
- Children with coexisting conditions (CHD, BPD, respiratory deformity, hemoglobinopathy, SAM, etc.)
- Children with immunodeficiency (HIV, SCID, others), or under immunosuppressive state (high dose prednisone, on chemotherapy)

6.0 Investigations

6.1 Nasopharyngeal swab RT-PCR c/o Fiji CDC; should be restricted to those who meet the current case definition.

- 6.2** Routine laboratory tests include CBC with differential count, UEC, LFTs, LDH, CRP, ESR, CK, Troponin and myoglobin as needed. Blood cultures in septic or critical cases. All samples should be transported in the proper bio-flask provided by IPC team.
- 6.3** Chest x-ray is not routinely recommended and may be normal. Findings include patchy opacities, interstitial changes more obvious in the lung periphery and later develop into multiple ground glass appearance. Consolidation can also occur, rarely pleural effusion.
- 6.4** CT has been used for diagnosis in adults but not recommended in children.

7.0 Management

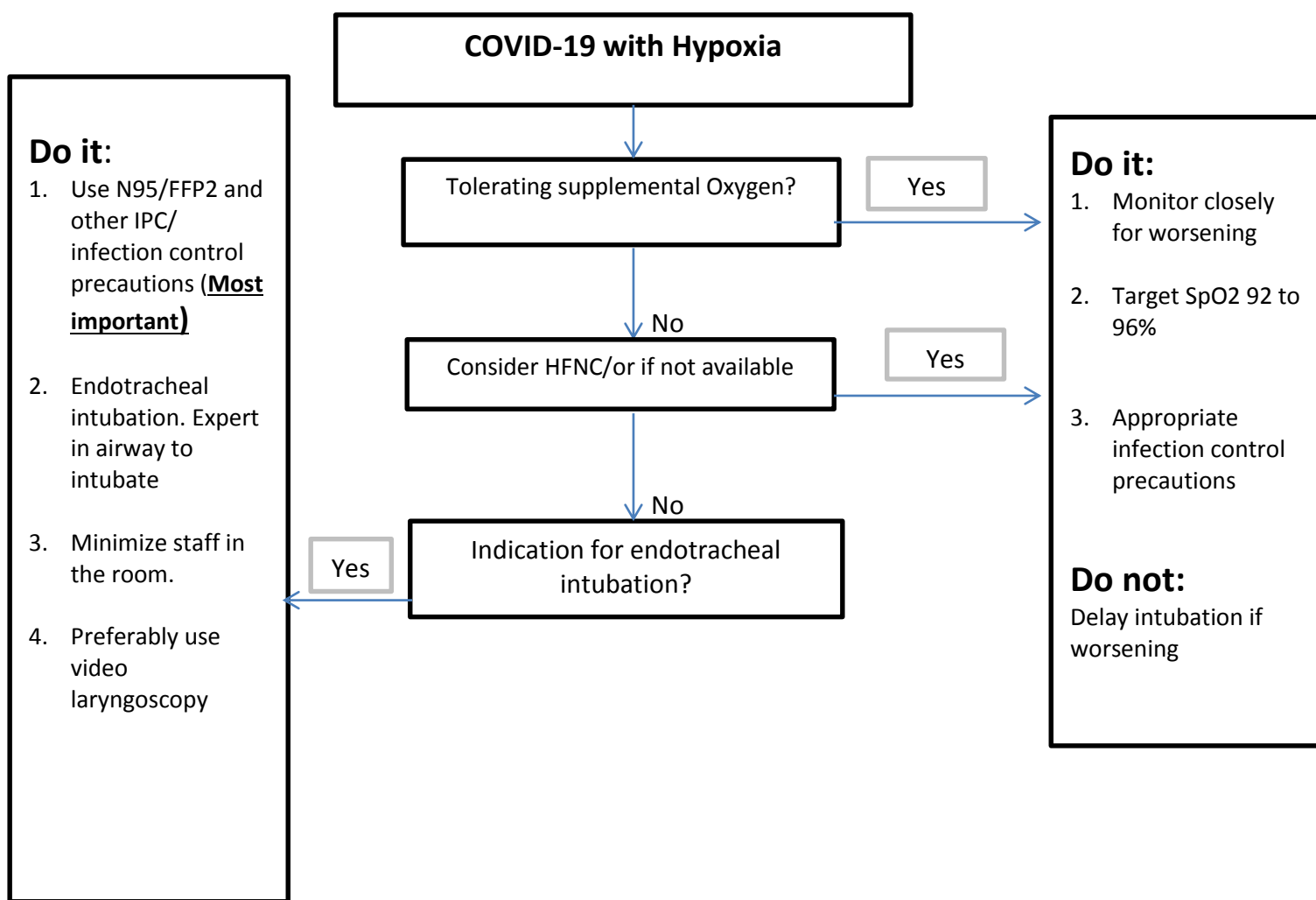
7.1 Refer to Consultant Paediatrician and On-call Team once patient is stabilized as below:

NOTE: Don recommended PPE (goggles, or face shield, N95/FFP2 mask, gown, gloves, shoe cover) before attending to the patient.

- A. Stabilize Airway, Breathing and Circulation
- B. Airway and Breathing refer to PICU ventilation Guideline (in Host app), Airway management in COVID-19 patients (**7.1**), and Algorithm for Hypoxia in COVID-19 (**7.3**).
- C. In mechanically ventilated patients with Covid-19, lung protective ventilation strategy as per ARDS (Acute Respiratory Distress Syndrome) protocols is recommended as follows:
 - Titrate PEEP to achieve $FiO_2 \leq 0.5-0.6$, SpO_2 88-95%
 - Limit tidal volume (6 cc/kg ideal body weight) and alveolar plateau pressure (≤ 30 cm H₂O)
 - Permissive hypercapnea unless contraindicated (coexisting increased ICP)
 - Titrate PEEP upward (up to 15 cm H₂O) if ongoing hypoxemia in the setting of alveolar derecruitment. If using a higher PEEP strategy (>10 cm H₂O), monitor for barotrauma.
 - For severe ARDS, prone positioning continuously for 16 hours a day is recommended.
 - Short-term (24 hours) bolus administration of neuromuscular blocking agents (Pancuronium or Vecuronium) to facilitate mechanical ventilation targets for ventilation asynchrony.
 - Avoid prolonged sedation.
 - Follow oxygenation index to guide response to treatment.
- D. Circulation refer to the PICU Shock Guideline (in Host app). Recommended inotropes: Norepinephrine (1st choice), epinephrine (2nd) and Dobutamine (3rd). Corticosteroids should only be used in Refractory Shock.
- E. Check CBG. If with Hypoglycemia, treat with a bolus of 2 mls/Kg of D10% Water (age-dependent) and repeat after 30mins. Maintain GIR of 6-8 mg/kg/min. If persistent discuss with Consultant. For Severe Acute Malnutrition, follow appropriate hypoglycemic guideline in WHO Blue book.
- F. Manage seizures as per PICU Guideline.

- G. Keep patient NBM if severe or critically ill and initiate IV fluids as per PICU or NICU CPG on IV Fluids. Restrictive fluid strategy is recommended to reduce extravascular lung water. Use omeprazole or ranitidine.
- H. In management of fever USE Paracetamol ONLY (PO, PR or IV). **DO NOT USE NSAIDS.**
- I. Empirical antibiotics for sepsis or septic shock should be given within one hour as per protocol. Some Covid-19 patients will present with secondary bacterial lower respiratory infection.
- J. **There are no proven pharmaceutical treatments for Covid-19 at this time other than supportive care.** Therapies being investigated include use of Hydroxychloroquine plus Azithromycin, oseltamivir, anti-interleukin 6 (anti-IL6), antiretroviral drugs, traditional Chinese medication, Vitamin C, and Zinc. Discuss with Consultant before administration.
- K. There are no vaccines available for Covid-19.

7.1 Algorithm for Hypoxia treatment in COVID-19



7.2 Precautions on intubations and personal protection equipment

7.2.1 In PICU there is an increased risk of dispersion of aerosolized virus into the healthcare environment due to the nature of critical illness, higher viral load and the performance of aerosol generating procedures. **It is therefore recommended that airborne PPE precautions should be used for all COVID-19 patients in intensive care, and no improvised, non-standardized PPEs as it poses potential risk to the user.**

7.2.2 It is also recommended to minimize all aerosol generating procedures. If it must be performed, then it should be completed preferably in a negative pressure room. If this is not available, then it should be in a single well-ventilated room.

Aerosol generating procedures include:

- Intubation
- Extubation
- Bronchoscopy
- High flow Nasal use
- Nasal swabs for PCR
- Non-invasive ventilation (particularly with poor fitting mask)
- Procedures on screaming children
- Tracheostomy
- CPR prior to intubation

7.2.3 Use of **nebulized agents** (e.g. salbutamol, saline) for the treatment of non-intubated COVID-19 patients is **NOT RECOMMENDED** due to the risk of aerosolization and transmission of infection to health care workers in the immediate vicinity. Use a metered dose inhaler instead.

7.2.4 Avoid cross contamination with proper use of hierarchy of controls with:

- Elimination (physically remove the hazard)
- Substitution (replace the hazard)
- Engineering controls (isolate the people from the hazard)
- Administrative controls (change the way people work)
- PPE (protect the worker with personal protective equipment)

7.2.5 Training and application of PPEs is an important component of the care and management of patients for all personnel (medical, nursing, allied health, cleaning and ward assistants). N95 fit check should be done.

7.2.6 **IF YOU DON'T HAVE PROPER PPE, DO NOT ENTER ISOLATION AREA OR ATTEND TO A COVID-19 PATIENT.**

7.2.7 Avoid environment cross contamination:

- Avoid sharing ICU equipment.
- Minimize personal effects in workplace.

- No personal devices in Covid-19 areas.
- Minimize stethoscope use.

7.3 Airway management in COVID-19 patients

Airway management is an essential part of both Severe and Critical disease in COVID-19 and it's important to prevent viral spread via aerosol whilst intubating or managing simple airway techniques, hence below are some recommendations:

7.3.1 Intubation should be in a negative pressure room, or if this is not available, then a single well-ventilated room should be used. Last resort is open cohort area.

7.3.2 It is vital that airborne precautions PPE is used for all staff in attendance including;

- Fit checked N95 mask
- Goggles or face shield
- Impervious gown
- Gloves
- Shoe cover

7.3.3 The procedure should be performed by the most qualified available staff with the minimum number of healthcare personnel present as are required to undertake a safe intubation.

7.3.4 Video laryngoscopes should be used preferentially.

7.3.5 In order to minimize aerosol generation, staffs should consider the following:

- Continue supplemental oxygen while waiting for all equipment to be ready. (Refer to Algorithm for hypoxia treatment in Covid-19)(7.1).
DO NOT BAG and MASK.
- Use a viral filter on bag mask circuit
- Avoid High Flow Nasal Oxygen (HFNO) use to pre-oxygenate patients prior to intubation. If HFNO are applied they must be turned off prior to removal from patient.
- Post intubation, provision of positive pressure ventilation (either by bagging circuit or ventilator) is initiated only after confirming that the endotracheal tube cuff is inflated and after ensuring that an appropriate filter is in place.

8.0 Newborns of suspected or confirmed COVID-19 Mothers

- Will be isolated from their mothers in an identified isolation area after delivery; no skin to skin contact is allowed.
- Will need investigation (nasopharyngeal swab) even if asymptomatic and will be closely observed for signs and symptoms.
- Will be cupfed with expressed breastmilk from their mother by a health care worker; Mothers to be provided with dedicated breast pump. Mothers should wash hands before

touching any pump or container and follow recommendations for proper pump cleaning after each use.

- Note: Limited data available on clinical presentation and perinatal outcomes for newborns born to Covid-19 positive mothers.
- In disaster situations, breastmilk is still the best choice.

Table 2. Covid-19 Newborn (NB) Management

Covid-19 Result for Mother	Covid-19 Result for NB	Action
Positive	Positive	Await discharge criteria
Positive	Negative	Discuss with On-call Consultant. Consider discharge to healthy caregiver.
Negative	Negative	Send home with mother

9.0 Discharge Criteria

All these conditions should be met before discharge:

- a) Normal temperature for more than 3 days.
- b) Significant improvement in respiratory symptoms with good oral intake.
- c) Pulmonary imaging shows a marked improvement in acute exudative lesions.
- d) Recommended by clinical team with Consultant approval.

10.0 Follow-up

- a) After discharge from the hospital, continue isolation management and health monitoring for 14 days from the discharge date, wear a mask, stay in a well-ventilated single room, reduce close contact with family members, wash hands frequently and avoid going out.
- b) Paediatric Covid-19 team to do digital/phone review at 2 and 4 weeks after discharge.

11.0 Administrative Management

- a) Only one caretaker is allowed for a child admitted for Covid-19 throughout their hospital stay. Caretaker should be <50 years with no known co-morbidities.
- b) No visitors are allowed for a Covid-19 patient. Alternative means of communication subject to availability – video conference via skype, viber, facebook messenger, facetime, etc.
- c) Healthcare worker who gets sick while taking care of a Covid-19 patient has to inform the Consultant-on-call to activate the National Healthcare Worker Guideline (to be developed).
- d) Transport of patients to Navua/Makoi Hospital/or designated Lautoka /Labasa facility for isolation should follow IPC guidelines for transport.

*Last updated March 27, 2020 at 3 pm

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