

COVID-19 IN CHILDREN

Section within CHAPTER 8

INFECTIVE/INFECTIOUS DISEASES

X.1 COVID-19 IN CHILDREN

U07.1

DESCRIPTION

Although the majority of COVID-19 cases occur in the adult population, newborns and children may be infected and provision must be made to cater for those with suspected and confirmed COVID-19.

Case definition of COVID-19 (NICD/NDOH):

- » A suspected COVID-19 case includes any person presenting with an acute (≤ 14 days) respiratory tract infection (cough, sore throat, shortness of breath, anosmia or dysgeusia) or other clinical illness compatible with COVID-19 including fever, weakness, myalgia or diarrhoea, or an asymptomatic person who is a close contact of a confirmed case.

Many children with COVID-19 will have no respiratory symptoms or fever, therefore, clinicians should consider COVID-19 in all acutely ill patients, especially those requiring admission.

DIAGNOSTIC CRITERIA

Screening

Symptom screening should be integrated into other routine screening programs (HIV, TB and nutrition) and every child should be screened on every encounter with the health system at the point of entry to a health facility. Routine use of cloth facemasks by children over 5 years of age and their caregivers should be encouraged.

1. Negative screen:
 - » Continue routine ambulatory care with appropriate infection control measures, particularly mask wearing, physical distancing (at least 1.5 meters) and good hand hygiene (sanitization with an alcohol-based or equivalent agent).
 - » Review approach if the child requires admission.
2. Positive screen:
 - » Give children over 5 years, plus their caregiver, a surgical mask.
 - » Move them to a designated Patient Under Investigation (PUI)/COVID-19 area.
 - » Assess the severity of the clinical condition.

Assessment

1. At PHC/CHC use the IMCI case management algorithm to assess the severity of the child's condition and classify the child as:
 - » Green: COVID-19 not suspected (negative screen).
 - » Yellow: Possible mild COVID-19 disease (as below).
 - » Red: Possible severe/moderate COVID-19 disease (as below).
2. At hospital level, two scenarios exist:
 - a. Outpatient setting (OPD/Casualty/A&E):
Use the following criteria to assess and classify the severity of the child's condition:

	MILD	MODERATE	SEVERE
Mental status	Normal	Restless	Irritable/lethargic
Feeding	Finishes feed	Does not finish feed	Unable to feed
Talking	Full sentences	Interrupted sentences	Unable to talk
Respiratory rate (breaths/minute)	< 40 < 1 year < 30 1–5 years < 20 > 5 years	40–60 < 2 months 40–50 2–12 months 30–40 1–5 years 20–30 > 5 years	> 60 < 2 months > 50 2–12 months > 40 1–5 years > 30 > 5 years
Respiratory signs	No distress	Lower-wall indrawing	Lower-wall indrawing Grunting
SpO₂	≥ 95% in room air	< 92% in room-air	< 92% in room-air Central cyanosis

- b. In-patient setting:
In light of the variable clinical presentation in children, every child requiring admission MUST be considered a possible COVID-19 case until the test result is available.

GENERAL AND SUPPORTIVE MEASURES

Isolation

Every child who is considered to be a possible, suspected or confirmed COVID-19 case must be isolated or separated from COVID-19 negative people. Based on available infrastructure, wards should be divided to accommodate 3 categories of patients:

- » Patients Under Investigation (awaiting confirmatory testing results).
- » COVID-19 Negative (negative confirmatory test).
- » COVID-19 Positive (positive confirmatory test).

Asymptomatic children and those with an IMCI classification of yellow or with mild disease:

- » If home circumstances are appropriate – self-isolate at home with appropriate counselling/information.
 - > Minimum requirements for self-isolation at home are:
 - Able to travel home safely.
 - A separate well-ventilated room for the child and caregiver.
 - The caregiver understands the importance of, and protocols for, self-isolation.
 - Access to resources for personal protection, hand and environmental hygiene.
 - Caregiver is able to contact or return to a health facility if the child's condition worsens.
- » If home/social circumstances are NOT appropriate – admit or transfer to an appropriate isolation facility.

IMCI classification red or moderate or severe disease – admit to hospital.

Confirmatory testing

A screening SARS-CoV-2 rapid Ag test (if available) for all children with suspected COVID-19 or admitted to hospital. Note: The sensitivity of rapid Ag tests in children is unclear, but is likely to be low; thus false-negative tests are expected to be common.

A SARS-CoV-2 PCR test is required if the SARS-CoV-2 rapid Ag test is negative depending on the laboratory turn-around-time (TAT) for COVID-19 PCR test results and the clinical status of the child:

TAT < 72 hours	Test all children with a negative SARS-CoV-2 rapid Ag test.
TAT > 72 hours	Test only symptomatic children with a negative SARS-CoV-2 rapid Ag test. Test if IMCI classification red, PUI with moderate or severe disease, and all children requiring admission.

MEDICINE TREATMENT

Ensure the holistic care and review the immunization, nutritional, HIV and TB risk status of the child.

Exclude other differential diagnoses.

- » Mild disease:
 - > Provide symptomatic treatment at home or isolation facility.
 - > Provide caregiver with a patient information pamphlet.
 - > Implement suitable infection prevention and control practices.
 - > Special investigations and imaging are not routinely indicated.
 - > Routine micronutrient and vitamin supplementation is not recommended.
 - > Do not prescribe steroids unless indicated for a concomitant non-COVID-19 condition, e.g. asthma exacerbation, croup.
- » Moderate/Severe disease:

- > Admit to a children's ward PUI cubicle for supportive in-patient care and consult/refer.
- > The children's wards in every hospital should have designated PUI and COVID-19 cubicles.

REFERRAL

Consult with a specialist for advice prior to referral when a child requires supportive care that cannot be safely and effectively provided at the current facility, including:

- » Prior to prescribing corticosteroids.
- » When the child requires $\geq 40\%$ oxygen to maintain SpO₂ above 92%.
- » If the child's clinical condition worsens.
- » If the child meets criteria for Multisystem Inflammatory Syndrome in Children (MIS-C) associated with COVID-19 (see below).

Discharge/De-isolation

Children can be discharged from hospital once they no longer require supplementary oxygen, are feeding well and can be safely cared for at home.

They can be de-isolated when they are no longer likely to be shedding virus:

Asymptomatic children	10 days from initial positive SARS-CoV-2 PCR test.
Mild disease	10 days from onset of symptoms.
Moderate/Severe disease	10 days after they are clinically stable, i.e. cessation of oxygen.

X.2 MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN

U10.9

DESCRIPTION

A rare but serious inflammatory syndrome has been linked to COVID-19. Also known as Paediatric Inflammatory Multisystem Syndrome temporally associated with SARS-CoV-2 infection (PIMS-TS) or Kawasaki-like syndrome. The syndrome occurs after resolution of acute COVID-19 or following asymptomatic SARS-CoV-2 infection.

DIAGNOSTIC CRITERIA

Clinical presentation varies but the condition should be considered in children and adolescents (0–19 years of age) with fever ≥ 3 days **AND** 2 of the following:

- » Rash or bilateral non-purulent conjunctivitis or mucocutaneous inflammation signs (oral, hands or feet).
- » Hypotension or shock.
- » Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities (including ECHO findings or elevated Troponin/NT-proBNP).
- » Evidence of coagulopathy (by PT, PTT, elevated D-dimers).
- » Acute gastrointestinal problems (diarrhoea, vomiting, or abdominal pain).

AND

- » Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin.

AND

- » No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes.

AND

- » Evidence of COVID-19 (RT-PCR, antigen test or IgG serology positive), or likely contact with patients with COVID-19.

TREATMENT

- » If the child meets the above case definition, evaluate for shock and manage accordingly (see Chapter 1: Emergencies and Trauma, section 1.1.7: Shock).
- » Consult a tertiary centre for advice and referral.

REFERRAL

- » All cases.

X.3 NEONATAL ISSUES RELATED TO COVID-19

DESCRIPTION

- » Most neonates born to mothers with COVID-19 will not be seriously affected, although prematurity seems to be more common.
- » Vertical transmission is exceedingly rare. Transmission via breast milk is also unlikely.

GENERAL AND SUPPORTIVE MEASURES

Until better evidence becomes available regarding neonates born to SARS-CoV-2 infected mothers:

- » Preferably do not separate them from their mothers.
- » Encourage breastfeeding unless contra-indicated for other medical reasons.
- » If requiring medical care, preferably, it should be offered without separating them from their caregivers (e.g. phototherapy, naso-gastric feeds, blood sugar monitoring, parenteral antibiotics) – the ability to do this will depend on local circumstances.
- » If separation is unavoidable, keep isolated in a closed incubator with appropriate non-pharmaceutical infection control measures until discharge, 10 days from onset of mother's symptoms or 10 days from birth (whichever comes first).
- » Routine neonatal testing for SARS-CoV-2 infection is probably unnecessary, however, if symptoms not explained by other neonatal diseases develop, then nasopharyngeal sampling for SARS-CoV-2 PCR testing is appropriate.

MEDICINE TREATMENT

Concomitant neonatal conditions: As per existing neonatal guidelines (see Chapter 19: Neonatal Conditions).

- » For suspected/confirmed COVID-19: supportive therapy as needed.