



# Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



## Clinical Reference Group Recommendation: Pediatric Clinical Guidance for COVID-19

March 27, 2020

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Ministry of  
Health



BC Centre for Disease Control

**If you have fever, a new cough, or are  
having difficulty breathing, call 8-1-1.**



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## Introduction

Knowledge is changing rapidly and therefore information below may be modified in response to new information.

This guidance document does not specifically address newborns born to suspected or confirmed COVID-19 mothers as this will be provided in a separate document.

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## Microbiology and Transmission

COVID-19 virus is a betacoronavirus and is related to the viruses that cause SARS and MERS. It is the name of the disease caused by the COVID-19 virus, also known as SARS-CoV-2 virus. Transmission occurs via droplets and fomites. Airborne spread is not known to occur outside of aerosol-generating procedures. Fecal shedding has been identified but fecal-oral spread has not been shown to be a driver of transmission.

The question of vertical transmission remains unclear. At this time, there is no definite evidence of vertical transmission. A sample of six pregnant patients who were positive for COVID-19 demonstrated that their amniotic fluid was negative for COVID-19.

The incubation period is a median of 4 days but ranges from 2-14 days.

The majority of children with COVID-19 have a positive household contact.

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## Infection Prevention and Control

Please refer to the BCCDC COVID-19 care site for up to date recommendations;  
<http://www.bccdc.ca/health-professionals/clinical-resources/covid-19-care>

BC Children's Hospital-specific recommendations / policies and procedures are available at  
<http://policyandorders.cw.bc.ca/>

In brief, respiratory droplet and contact precautions should be used for all suspected or confirmed cases of COVID-19.

Airborne precautions (including an N95 mask and protective eyewear/face shield, gown and gloves) should be used for any aerosol generating procedures (AGMPs).

AGMPs include:

- Endotracheal tube insertion or removal
- Tracheotomy
- Bronchoscopy
- Nebulized therapy

The full list of AGMPs is available at: <http://www.bccdc.ca/Health-Info-Site/Documents/Respiratory-protection-COVID19.pdf>

IPAC guidelines for donning and doffing PPE should be followed. See BCCDC link: <http://www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/infection-control/personal-protective-equipment>

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## Clinical Features and Diagnosis

### **Clinical**

Most pediatric patients described in the literature have asymptomatic or mild disease with symptoms consistent with a viral respiratory tract infection. Fever is usually a prominent feature. Cough is also described frequently. Less commonly they have sore throat, headache, productive cough, nausea and diarrhea.

The current literature estimates that children have made up about 2% of the infected population. Approximately 1% of infected children have required hospitalization and a few children have required mechanical ventilation.

In the largest sample of pediatric patients which reviewed over 2000 children with confirmed or suspected COVID-19, 0.6% had critical illness. There was one death of a 14-year-old boy. Patients under 1 year of age had the highest proportion of severe and critical illness.

There is a report in the New England Journal of Medicine (March 18, 2020) of one case of a 10-month-old child with COVID -19 who had intussusception and multi-organ failure and died 4 weeks after admission.

Concomitant viral or bacterial pathogens have been described. There are reported cases of co-infection of COVID-19 with Influenza, RSV and Mycoplasma.

### **Imaging**

Chest imaging is not indicated in individuals with mild disease, who are not requiring hospitalization.

Chest imaging often shows consolidation, ground-glass opacities or bilateral infiltrates.

In the adult population, progression to Acute Respiratory Distress Syndrome (ARDS) often occurs late in the disease course at a median of 8 days after symptom onset. There have been very few critical pediatric cases described so it is unclear whether this is the same for pediatrics.

### **Testing**

Microbiologic confirmation of COVID-19 is made by a positive Polymerase Chain Reaction (PCR) test for COVID-19.

#### **Who to test:**

(This changes frequently, please refer to BCCDC guidelines for up to date testing criteria- <http://www.bccdc.ca/health-info/diseases-conditions/covid-19/testing-isolation>)

Children with respiratory symptoms who are likely to be hospitalized, are residents of a long-term care facility or are part of an outbreak investigation should be tested.

To prioritize testing, label requisition as coming from:

- Hospital (label as HOSP)
- Long-term care facility (label as LTCF)

Who does not need testing:

- Asymptomatic individuals
- Returning travelers who are isolating at home
- Those with mild COVID-19 symptoms not requiring hospitalization

Testing procedure

- Nasopharyngeal (NP) swabs can be performed using Droplet and Contact Precautions and do not require an N95 respirator.
- For outpatients: 1 NP swab OR 1 viral throat swab (NP swab preferred)
- For inpatients: 1 NP Swab (OR sputum OR endotracheal aspirate)

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## **Management and Treatment**

The current literature suggests that most children will have mild disease and will recover at home and require no medical care or intervention. Children who are cared for at home should be self-isolated at home for at least 10 days after onset of their symptoms. After 10 days, if their temperature is normal and they feel better, they can return to their routine activities. Coughing may persist for several weeks, so a cough alone does not mean they need to continue to self-isolate for more than 10 days.

Hospitalization of a child with suspected or confirmed COVID-19 disease is based on clinical assessment of the child. In particular, it may be considered if the child has symptoms of respiratory distress including dyspnea, increased work of breathing, increased respiratory rate, etc.

### **Supportive Care**

Supportive care is the only known effective therapy for COVID-19. Use conservative fluid management when there is no evidence of shock.

Advanced organ support including hemodynamic support, mechanical ventilation and renal replacement may be necessary if severe respiratory deterioration is occurring. In this instance, arrangements for transfer to a larger centre and consultation with the Pediatric Intensive Care Unit (PICU) at BC Children's hospital will be required.

### **Fever management**

- There have been some observations indicating that Nonsteroidal anti-inflammatory drugs (NSAIDs) may worsen the effects of COVID-19; however, the evidence is weak.
- Acetaminophen at routine doses is recommended for fever and symptom relief of patients with suspected or confirmed COVID-19.
- Acetaminophen, however, does not need to be used exclusively for fever from other causes. See therapeutics initiative summary here:
- <https://www.ti.ubc.ca/2020/03/18/acetaminophen-vs-nsaids-during-covid-19-pandemic/>

For those patients who are using NSAIDs regularly for other diagnoses (ie. Juvenile idiopathic arthritis (JIA), etc.), decisions should be made on a case-by-case basis in consultation with their doctor or sub-specialist and Pediatric Infectious Diseases.

### **Corticosteroids**

Corticosteroids have not been shown to have benefit in SARS, MERS or Influenza pneumonia. Furthermore, multiple harms have been noted including delayed viral clearance, secondary infections and possibly, increased mortality.

It is recommended that you do not give systemic corticosteroids for COVID-19.

Patients who are regularly on steroids for other indications (i.e. underlying adrenal insufficiency, rheumatologic disease, etc.) should be discussed on a case by case basis with Pediatric Infectious Diseases and the relevant physicians involved in their care.

### **Antibiotics**

Antibiotics have no effect against the COVID-19 virus. Empiric antibiotics could be given for sepsis or other suspected bacterial infection based on clinical assessment of the patient. Please collect relevant cultures (blood, urine, etc.) before initiating antibiotics. Empiric antibiotics should be de-escalated on the basis of microbiology results and clinical judgement.

### **Intravenous Immune Globulin (IVIG)**

IVIG has been used in some pediatric cases of COVID-19 but there is no clear evidence of benefit in COVID-19 disease in children.

### Antiviral medications

There are currently no anti-viral medications licensed to treat patients with COVID-19. As per the WHO guidelines, investigational anti-COVID-19 medications should only be used in approved, randomized controlled trials (RCT).

Oseltamivir is not recommended specifically for COVID-19 as no clinical benefits have yet to be identified. However, it could be considered for patients who are hospitalized and who have a positive test for Influenza.

There are some in-vitro and in-vivo studies suggesting potential therapeutic agents including hydroxychloroquine, lopinavir-ritonavir (Kaletra) and remdesivir, but again, these should only be used in the context of an RCT.

There is an RCT titled Canadian Treatment for COVID-19 (CATCO) that will begin, under the direction of Dr. Srin Murthy, exploring the role of lopinavir-ritonavir for patients with COVID-19. If you have a patient in which you are considering the use of anti-viral medications, please consult Pediatric Infectious Diseases for details regarding inclusion in the RCT.

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#### About the Clinical Reference Group

\*The Clinical Reference Group (CRG) is made up of senior individuals from relevant healthcare areas (including critical care, epidemiology, infectious disease, microbiology, public health, and clinical specialties) acting as a collective resource for current COVID-19 knowledge. They provide clinical advice and guidance to support the overall work being done by the BC Centre for Disease Control, the Provincial Health Office, and the Ministry of Health. The CRG includes representation from the provincial health authorities and works with the other Ministry areas in order to provide cross-input on all COVID-19 content.

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