CADTH COVID-19 PANDEMIC

COVID-19 CADTH Health Technology Review

Pharmacological Therapies for COVID-19

This report was published on April 27, 2022

To produce this report, CADTH used a modified approach to the selection, appraisal, and synthesis of the evidence to meet decision-making needs during the COVID-19 pandemic. Care has been taken to ensure the information is accurate and complete, but it should be noted that international scientific evidence about COVID-19 is changing and growing rapidly.

Version: 1.0
Publication Date: April 2022
Report Length: 24 Pages

Authors: Robyn Haas, Kelly Farrah, Quenby Mahood

Cite As: *Pharmacological Therapies for COVID-19*. Ottawa: CADTH; 2022 Apr. (CADTH Health Technology Review).

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Key Messages

- Different severities of COVID-19 illness can require different types of pharmacological treatment.
- The purpose of this report is to identify and summarize published guidance that provides recommendations about which pharmacological therapies should (or should not) be used to treat COVID-19 in Canada across different severities of illness.
- A literature search identified the following numbers of published recommendations for the pharmaceutical management of patients with COVID-19 in Canadian settings: 19 publications about adults who are critically ill, 20 publications about adults who are moderately to severely ill, 20 publications about adults who are mildly ill, and 3 publications about pediatric populations.
- A total of 17 publications were identified that provided recommendations against the use of specific pharmacological therapies for the treatment of any severity of COVID-19 illness in Canadian settings.

Background

COVID-19 is an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] The virus is primarily transmitted through human-to-human contact via respiratory droplets or aerosols containing infectious particles.[1] It typically takes 2 days to 14 days for individuals exposed to the virus to display symptoms, but most experience symptom onset between 5 days and 6 days after exposure.[2] Infected individuals can experience a range in severity of illness from asymptomatic to critical. Symptoms of COVID-19 include, but are not limited to, fever, cough, headache, sore throat, and difficulty breathing.[2] Some individuals may experience only mild to moderate symptoms and recover on their own, whereas for others, the illness may progress in severity, resulting in hospitalization and potentially death.[2] The severity and likelihood of developing complications of COVID-19 illness is typically influenced by factors such as age, underlying medical conditions, and vaccination status.[2]

The severity of illness for COVID-19 falls on a spectrum. Although the precise definitions used to classify the severities of COVID-19 disease vary in the literature and by jurisdiction, severity of illness generally falls into the following categories: asymptomatic, mild, moderate, severe, and critical. Asymptomatic infection refers to individuals who receive a positive COVID-19 test result but do not experience signs or symptoms characteristic of the illness.[3] Mild illness refers to individuals who experience some symptoms, such as fever, cough, or sore throat, but not others, such as shortness of breath or abnormal chest imaging.[4,5] Moderate illness refers to individuals who show signs of lower respiratory disease but usually do not require supplemental oxygen support.[4,5] Severe disease refers to individuals who experience COVID-19 symptoms, require supplemental low-flow oxygen support, and are typically hospitalized on inpatient units.[4,5] Finally, critical disease refers to individuals who experience COVID-19 symptoms, require higher levels of respiratory support such as mechanical ventilation, and are typically hospitalized in intensive care units.[4,5]

Numerous pharmacological therapies are being explored for the treatment of COVID-19. The different severities of illness can require different types of treatment because of the changes in the body's response to the virus throughout the disease course.[4] For instance, individuals with mild to moderate illness who are early in their course of illness may benefit

from antiviral therapy because viral replication may be particularly active during this time.[4] Conversely, later and more severe stages of the illness are characterized by a hyperinflammatory state in which treatment with immunomodulatory therapies, such as corticosteroids, may be more effective.[6]

The purpose of this report is to identify and summarize published guidance that provides recommendations about which pharmacological therapies should (or should not) be used to treat COVID-19 in Canada across different severities of illness.

Research Questions

1. What pharmacological therapies are recommended for the treatment of critically ill patients with COVID-19 in Canadian settings?
2. What pharmacological therapies are recommended for the treatment of moderately to severely ill patients with COVID-19 in Canadian settings?
3. What pharmacological therapies are recommended for the treatment of mildly ill patients with COVID-19 in Canadian settings?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, Embase, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were pharmacological therapies for COVID-19 and Canadian settings. CADTH-developed search filters were applied to limit retrieval to guidelines or policies. Conference abstracts were excluded. The search was completed on March 10, 2022, and was limited to English- or French-language documents published since January 1, 2021.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Criteria	Description
Population	Q1: People (of any age) who are critically ill with COVID-19 in Canadian settings Q2: People (of any age) who are moderately to severely ill with COVID-19 in Canadian settings Q3: People (of any age) who are mildly ill with COVID-19 in Canadian settings
Intervention	Pharmacological therapies
Types of information	Recommendations regarding which pharmacological therapies should be used for treating patients with COVID-19 (i.e., treatment protocols, dosing information, appropriate patient populations)
Study designs	No restrictions on study design or type of publication

Q= question.

Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, were duplicate publications, or were published prior to 2021. Guidance documents that were not specifically intended for use in Canadian settings were also excluded. Recommendations related to thromboprophylaxis or anticoagulation therapies were considered out of scope for the current report.

Overall Summary of Findings

Forty publications[5,7-45] that provided guidance about the recommended pharmacological therapies for the treatment of patients with COVID-19 in Canadian settings were identified for inclusion in this report. These publications were produced by organizations from several Canadian jurisdictions, including Alberta,[11,12,42,43] British Columbia,[5,28,38,39] Manitoba,[29,30,40] Nova Scotia,[24,25] Ontario,[8-10,20,26,27,33,41] Quebec,[7,13-19,31-37] and Saskatchewan.[21,22] Additional literature produced by Canadian associations, including the Canadian Pediatric Society, was also identified.[45] A summary of the recommendations made in these documents for people who are critically ill, moderately to severely ill, and mildly ill are available in Table 2, Table 3, and Table 4, respectively. Additionally, pharmacological therapies not recommended for any severity of COVID-19 are listed in Table 5; recommendations that are specific to pediatric populations are provided in Table 6. Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

Table 2: Pharmacological Therapies for COVID-19 for Adults Who Are Critically Ill or in Intensive Care Units

Drug	Guideline	Recommendation	Methodology[a]
Immunotherapy			
Baricitinib	Alberta Health Services[42,43]	Baricitinib is recommended for individuals experiencing significant progressive respiratory failure. **Dose:** 4 mg p.o. or enteral tube daily (for GFR ≥ 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 2 mg p.o. every other day (for GFR 15 mL/min/1.73 m^2 to 29 mL/min/1.73 m^2) for up to 14 days or until hospital discharge (whichever occurs first)	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Baricitinib is recommended as an alternative to tocilizumab during drug shortages. **Dosage:** 4 mg p.o. daily (for GFR ≥ 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 2 mg p.o. every other day (for GFR 15 mL/min to 29 mL/min/1.73 m^2) for up to 14 days or until discharge from hospital (whichever occurs first)	Unclear
	INESSS[16,31]	Baricitinib is recommended for those receiving supplemental oxygen by noninvasive ventilation or high-flow oxygen as an alternative to tocilizumab or sarilumab during drug shortages. It is recommended in addition to dexamethasone if systemic inflammation is present. **Dosage:** 4 mg p.o. daily (for GFR ≥ 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 1 mg p.o. daily (for GFR 15 mL/min/1.73 m^2 to 29 mL/min/1.73 m^2) for up to 14 days, or until discharge from hospital (whichever occurs first)	Evidence-based
	Shared Health Manitoba[40]	Baricitinib is recommended as an alternative for tocilizumab during drug shortages. **Dosage:** 4 mg p.o. or NG daily for 14 days or until hospital discharge if sooner	Unclear
	Nova Scotia Health[23,25]	Baricitinib is recommended for consideration in the context of pragmatic research. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20,27] Centre for Effective Practice[41]	Baricitinib is recommended in drug shortage situations for individuals who are on the recommended dose of dexamethasone therapy or who have a contraindication to corticosteroid treatment. **Dosage:** 4 mg p.o. or NG daily for 14 days (or until discharge if sooner)	Consensus-based
	Saskatchewan Health Authority[21]	Baricitinib is recommended as an alternative when tocilizumab and sarilumab are unavailable. **Dosage:** 14 days at 4 mg p.o. daily for eGFR ≥ 60 mL/min/1.73 m^2, or at 2 mg p.o. daily for eGFR 30 to 59 mL/min/1.73 m^2, or at 1 mg p.o. daily for eGFR 15 mL/min/1.73 m^2 to 29 mL/min/1.73 m^2.	Unclear

Drug	Guideline	Recommendation	Methodology[a]
Dexamethasone	Alberta Health Services[42,43]	Dexamethasone is strongly recommended. **Dosage:** 6 mg IV or p.o. for 10 days or until individual is off supplemental oxygen or discharged	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Dexamethasone is strongly recommended. **Dosage:** 6 mg IV, SC, or p.o. q.24.h. for up to 10 days, unless higher doses are clinically indicated	Unclear
	INESSS[7,13]	Dexamethasone is recommended. **Dosage:** 6 mg p.o. or IV daily for 10 days or until discharge	Evidence-based
	Shared Health Manitoba[40]	Dexamethasone is recommended. **Dosage:** 6 mg p.o. or IV daily for 10 days	Unclear
	Nova Scotia Health[23,25]	Dexamethasone is recommended for routine care for individuals with SpO_2 < 94% on room air or supplemental oxygen. **Dosage:** 6 mg p.o. or IV daily for 10 days or until discharge	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Dexamethasone is recommended. **Dosage:** 6 mg p.o. or IV daily for 10 days (or until discharge if sooner)	Unclear
		Dexamethasone may be considered at an alternate dosage in patients who are unable to receive tocilizumab, sarilumab, or baricitinib. **Dosage:** 12 mg p.o. or IV for 10 days (or until discharge if sooner)	Unclear
	Saskatchewan Health Authority[21]	Dexamethasone is recommended. **Dosage:** 6 mg p.o. or IV daily for 10 days or until discharge from hospital	Unclear
Antivirals			
Remdesivir	Alberta Health Services[42,43]	Remdesivir is recommended for individuals with confirmed COVID-19 pneumonia who are not invasively mechanically ventilated. **Dosage:** NR	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Remdesivir is not recommended outside of approved clinical trials.	Unclear
	INESSS[32,33]	Remdesivir is not recommended.	Evidence-based
	Nova Scotia Health[23,25]	Remdesivir is recommended for consideration in the context of pragmatic research. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory	Remdesivir is not recommended for individuals receiving mechanical ventilation. Remdesivir may be considered in	Unclear

Drug	Guideline	Recommendation	Methodology[a]
	Table;[20] Centre for Effective Practice[41]	individuals requiring high-flow oxygen (e.g., oxygen by mask, high-flow nasal cannula, noninvasive mechanical ventilation). **Dose:** 200 mg IV on day 1, then 100 mg IV daily for 4 days	
	Saskatchewan Health Authority[21]	Remdesivir is not currently recommended due to lack of benefit in this population.	Unclear
Monoclonal antibodies			
Sarilumab	Alberta Health Services[42,43]	Sarilumab is recommended for individuals experiencing significant progressive respiratory failure. **Dosage:** 400 mg IV (single dose)	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Sarilumab is recommended for individuals requiring life support due to confirmed COVID-19. **Dosage:** 400 mg IV (single dose)	Unclear
	INESSS[14,15]	Sarilumab is recommended in combination with recommended doses of dexamethasone. **Dosage:** In individuals who weigh 40 kg or more, 400 mg IV (single dose)	Evidence-based
	Shared Health Manitoba[40]	Sarilumab is recommended as an alternative to tocilizumab during drug shortage situations. **Dosage:** 400 mg IV (single dose)	Unclear
	Nova Scotia Health[23,25]	Sarilumab may be used on a case-by-case basis in the context of pragmatic research in individuals with severe symptomatic COVID-19 requiring critical care for organ support. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Sarilumab should be given to all eligible individuals in drug shortage situations. **Dosage:** 400 mg IV (single dose)	Unclear
	Saskatchewan Health Authority[21]	Sarilumab is recommended as an alternative to tocilizumab during drug shortage situations. **Dosage:** 400 mg IV (single dose)	Unclear
Tocilizumab	Alberta Health Services[42,43]	Tocilizumab is recommended for individuals experiencing significant progressive respiratory failure. **Dosage:** In individuals weighing ≤ 40 kg: 8 mg/kg (single dose); in individuals weighing > 40 kg: 400 mg (single dose)	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Tocilizumab is recommended for individuals requiring life support due to confirmed COVID-19. **Dosage:** 400 mg IV (single dose)	Unclear
	INESSS[14,15]	Tocilizumab is recommended in combination with recommended doses of dexamethasone. **Dosage:** In individuals who weigh • ≤ 30 kg: 12 mg/kg^2 (single dose)	Evidence-based

Drug	Guideline	Recommendation	Methodology[a]
		• > 30 kg and ≤ 40 kg: 8 mg/kg[2] (single dose) • > 40 kg and ≤ 65 kg: 400 mg (single dose) • > 65 kg and ≤ 90 kg: 600 mg (single dose) • > 90 kg: 800 mg (single dose)	
	Shared Health Manitoba[40]	Tocilizumab is recommended. **Dosage:** 4 mg/kg IV once (up to a maximum dose of 400 mg)	Unclear
	Nova Scotia Health[23,25]	Tocilizumab can be considered for use in the context of pragmatic research in hospitalized individuals with severe COVID-19, an SpO_2 ≤ 92% on room air or supplemental oxygen, and systemic inflammation in addition to standard of care. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[10,20] Centre for Effective Practice[41]	Tocilizumab is recommended for individuals taking dexamethasone (or equivalent corticosteroid) and within 14 days of hospital admission or 14 days of a new COVID-19 diagnosis if it is acquired in-hospital. In drug shortage situations, a single dose of tocilizumab should be used for all eligible individuals. **Dosage:** 400 mg IV (single dose)	Consensus-based
	Saskatchewan Health Authority[21]	Tocilizumab is recommended for individuals taking dexamethasone (or equivalent corticosteroid) and within 14 days of symptomatic COVID-19 infection. **Dosage:** 400 mg IV (single dose)	Unclear

eGFR = estimated glomerular filtration rate; GFR = glomerular filtration rate; INESSS = Institut national d'excellence en santé et en services sociaux; NG = nasogastric; NR = not reported; p.o. = orally; q.24.h. = every 24 hours; SC = subcutaneous; SpO_2 = saturation of peripheral oxygen.

[a] Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

Table 3: Pharmacological Therapies for COVID-19 for Adults Who Are Moderately to Severely Ill or Require Supplemental Oxygen

Drug name	Guideline	Recommendation	Methodology[a]
Immunotherapy			
Baricitinib	Alberta Health Services[42,43]	Baricitinib is recommended in this patient population if they require supplemental oxygen > 6 L/min to achieve a minimum SpO_2 of 90% or require noninvasive ventilation. **Dosage:** 4 mg p.o. or enteral tube daily (for GFR > 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 2 mg p.o. every other day (for GFR 15 mL/min/1.73 m^2 to 29 mL/min/1.73 m^2) for up to 14 days or until hospital discharge (whichever occurs first)	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Baricitinib is recommended for individuals who are hospitalized for COVID-19 and require supplemental oxygen. **Dosage:** 4 mg p.o. daily (for GFR > 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 2 mg p.o. every other day (for GFR 15 mL/min/1.73 m^2 to 29	Unclear

Drug name	Guideline	Recommendation	Methodology[a]
		mL/min/1.73 m^2) up to 14 days, or until hospital discharge (whichever occurs first)	
	INESSS[16,31]	Baricitinib is recommended for those receiving supplemental oxygen as an alternative to tocilizumab or sarilumab during drug shortages. It is recommended in addition to dexamethasone if systemic inflammation is present. **Dosage:** 4 mg p.o. daily (for GFR ≥ 60 mL/min/1.73 m^2), or 2 mg p.o. daily (for GFR 30 mL/min/1.73 m^2 to 59 mL/min/1.73 m^2), or 1 mg p.o. daily (for GFR 15 mL/min/1.73 m^2 to 29 mL/min/1.73 m^2) up to 14 days, or until discharge from hospital (whichever occurs first).	Evidence-based
	Shared Health Manitoba[40]	Baricitinib is recommended as an alternative to tocilizumab during drug shortages. **Dosage:** 4 mg p.o. or NG daily for 14 days (or until hospital discharge, if sooner)	Unclear
	Nova Scotia Health[23,25]	Baricitinib is recommended for consideration in the context of pragmatic research. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20,27] Centre for Effective Practice[41]	Baricitinib is recommended in drug shortage situations for individuals who are receiving recommended doses of dexamethasone therapy (or equivalent corticosteroid) or who have a contraindication to corticosteroid treatment. **Dosage:** 4 mg p.o. or NG daily for 14 days (or until discharge if sooner).	Consensus-based
Dexamethasone	Alberta Health Services[42,43]	Dexamethasone is strongly recommended. **Dosage:** 6 mg IV or p.o. for 10 days or until individual is off supplemental oxygen or discharged.	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Dexamethasone is strongly recommended. **Dosage:** 6 mg IV, SC, or p.o. q.24.h. for up to 10 days, unless higher doses are clinically indicated	Unclear
	INESSS[7,13]	Dexamethasone is recommended if individuals require supplemental oxygen. **Dosage:** 6 mg p.o. or IV daily for 10 days or until discharge	Evidence-based
	Shared Health Manitoba[40]	Dexamethasone is recommended if individuals require supplemental oxygen. **Dosage:** 6 mg p.o. or IV daily for 10 days	Unclear
	Nova Scotia Health[23,25]	Dexamethasone is recommended for routine care for individuals with SpO_2 < 94% on room air or supplemental oxygen. **Dosage:** 6 mg p.o. or IV daily for 10 days or until discharge	Unclear
	Ontario COVID-19 Science Advisory	Dexamethasone is recommended.	Unclear

Drug name	Guideline	Recommendation	Methodology[a]
	Table;[20] Centre for Effective Practice[41]	If individuals are discharged with home-based oxygen therapy, dexamethasone may be considered. **Dosage:** In hospitalized individuals, 6 mg p.o. or IV daily for 10 days (or until discharge if sooner); in discharged individuals, 6 mg p.o. daily until supplemental oxygen is no longer required (for a maximum of 10 days)	
	Saskatchewan Health Authority[21]	Dexamethasone is recommended. **Dosage:** 6 mg p.o. or IV daily for 10 days (or until discharge from hospital)	Unclear
Antivirals			
Remdesivir	Alberta Health Services[42,43]	Remdesivir is recommended for individuals with confirmed COVID-19 pneumonia who are not invasively mechanically ventilated. **Dosage:** NR	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Remdesivir has not demonstrated benefit in survival, progression to ventilation, or length of hospital stay, and remains uncertain with respect to shortening time to recovery by 5 days. Further evaluation in approved clinical trials is strongly encouraged. **Dosage:** NR	Unclear
	INESSS[32,33]	Remdesivir should be considered on a case-by-case basis for those requiring supplemental oxygen. **Dosage:** 200 mg IV on day 1, then 100 mg IV daily starting on day 2. Maximum treatment duration is 10 days.	Evidence-based
	Nova Scotia Health[23,25]	Remdesivir is recommended for consideration in the context of pragmatic research. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Remdesivir is recommended. **Dosage:** 200 mg IV on day 1, then 100 mg IV daily for 4 days	Unclear
	Saskatchewan Health Authority[21]	Remdesivir may be considered for individuals on low-flow supplemental oxygen despite limited benefit. **Dosage:** 200 mg IV on day 1 followed by 100 mg IV daily for 4 days	Unclear
Monoclonal antibodies			
Sarilumab	Alberta Health Services[42,43]	Sarilumab is recommended for individuals who are severely ill, if they require supplemental oxygen > 6 L/min to achieve a minimum SpO_2 of 90% or require noninvasive ventilation. **Dosage:** 400 mg IV (single dose)	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Sarilumab is not currently recommended for individuals receiving low-flow oxygen support due to drug shortages.	Unclear

Drug name	Guideline	Recommendation	Methodology[a]
	INESSS[14,15]	Sarilumab is recommended when individuals require supplemental oxygen, and in combination with dexamethasone if CRP ≥ 75 mg/L. **Dosage:** In individuals weighing 40 kg or more, 400 mg IV (single dose)	Evidence-based
	Shared Health Manitoba[40]	Sarilumab is recommended as an alternative to tocilizumab during drug shortages. **Dosage:** 400 mg IV (single dose)	Unclear
	Nova Scotia Health[23,25]	Sarilumab may be used on a case-by-case basis in the context of pragmatic research in individuals with severe symptomatic COVID-19 requiring critical care for organ support. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Sarilumab should be used for all eligible individuals in drug shortage situations. **Dosage:** 400 mg IV (single dose)	Unclear
	Saskatchewan Health Authority[21]	Sarilumab is not currently recommended due to limited drug supply. It should be reserved for individuals with greatest severity of illness.	Unclear
Sotrovimab	Alberta Health Services[42,43]	Sotrovimab is recommended in certain high-risk individuals admitted for non-COVID-19 reasons. It is not recommended for individuals hospitalized because of COVID-19. **Dosage:** NR	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Sotrovimab should not be used until there is evidence to support its use and recommendations are issued.	Unclear
	Shared Health Manitoba[29,40]	Sortovimab may be considered if the individual requires low-flow oxygen, the duration of COVID-19 symptoms is ≤ 9 days, and they are seronegative for SARS-CoV-2 anti-spike antibody within the 9-day symptom window. **Dosage:** 500 mg IV (single dose)	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Sotrovimab is not recommended due to reduced neutralizing activity against Omicron subvariant BA.2.	Consensus-based
	Saskatchewan Health Authority[21]	Sotrovimab is not currently recommended because it has not demonstrated benefit in existing trials of hospitalized individuals with COVID-19.	Unclear
Tocilizumab	Alberta Health Services[42,43]	Tocilizumab is recommended if individuals require supplemental oxygen > 6 L/min to achieve a minimum SpO_2 of 90% or they require noninvasive ventilation. **Dosage:** In individuals weighing ≤ 40 kg, 8 mg/kg (single dose); in individuals weighing > 40 kg, 400 mg (single dose)	Unclear

Drug name	Guideline	Recommendation	Methodology[a]
	British Columbia COVID-19 Therapeutics Committee[5]	Tocilizumab is not currently recommended for individuals receiving low-flow oxygen support due to drug shortages.	Unclear
	Shared Health Manitoba[40]	Tocilizumab is recommended after consultation with ICU if there is evidence of disease progression and systemic inflammation (should only be given with corticosteroids). **Dosage:** 4 mg/kg IV once (up to a maximum dose of 400 mg)	Unclear
	INESSS[14,15]	Tocilizumab is recommended when individuals require supplemental oxygen, in combination with dexamethasone if CRP ≥ 75 mg/L. **Dosage:** In individuals who weigh • ≤ 30 kg: 12 mg/kg^2 (single dose) • > 30 kg and ≤ 40 kg: 8 mg/kg^2 (single dose) • > 40 kg and ≤ 65 kg: 400 mg (single dose) • > 65 kg and ≤ 90 kg: 600 mg (single dose) • > 90 kg: 800 mg (single dose)	Evidence-based
	Nova Scotia Health[23,25]	Tocilizumab can be considered for use in the context of pragmatic research in hospitalized individuals with severe COVID-19, an SpO_2 ≤ 92% on room air or supplemental oxygen, and systemic inflammation in addition to standard of care. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[10,20] Centre for Effective Practice[41]	Tocilizumab is recommended for individuals who have evidence of systemic inflammation and have evidence of disease progression despite 24 hours to 48 hours of recommended doses of dexamethasone therapy, and they are within 14 days of hospital admission (or 14 days of a new COVID-19 diagnosis if it is acquired in-hospital). **Dosage:** 400 mg IV (single dose)	Consensus-based
	Saskatchewan Health Authority[21]	Tocilizumab is not currently recommended due to limited drug supply. It should be reserved for individuals with greatest severity of illness.	Unclear

CRP = C-reactive protein; GFR = glomerular filtration rate; ICU = intensive care unit; INESSS = Institut national d'excellence en santé et en services sociaux; NG = nasogastric; NR = not reported; p.o. = orally; q.24.h. = every 24 hours; SC = subcutaneous; SpO_2 = saturation of peripheral oxygen.

[a] Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

Table 4: Pharmacological Therapies for COVID-19 for Adults Who Are Mildly Ill or Outpatients

Drug	Guideline	Recommendation	Methodology[a]
Immunotherapy			
Budesonide	Alberta Health Services[42,43]	Inhaled budesonide via dry powder inhaler may be recommended. **Dosage:** NR	Unclear
	British Columbia COVID-19 Therapeutics Committee[39]	Inhaled budesonide may be considered on a case-by-case basis in individuals who have lower respiratory tract symptoms for purposes of symptom relief. **Dosage:** 800 mcg twice daily for 14 days.	Unclear
	Shared Health Manitoba[40]	Budesonide may be considered if antivirals or monoclonals are unavailable or contraindicated. **Dosage:** 800 mcg twice daily for 14 days if symptom duration is ≤ 7 days.	Unclear
	Nova Scotia Health[24,25]	Budesonide dry powder inhaler may be considered for routine care and should be initiated within 14 days of symptom onset. **Dosage:** 800 mcg inhaled twice daily for 14 days or until symptom recovery.	Unclear
	Ontario COVID-19 Science Advisory Table;[8,20] Centre for Effective Practice[41]	If remdesivir and nirmatrelvir-ritonavir are unavailable or contraindicated, budesonide may be considered in individuals who are at both standard risk and higher risk for severe disease. **Dosage:** 800 mcg inhaled twice daily for 14 days	Consensus-based
	Saskatchewan Health Authority[22]	Budesonide should not be offered to individuals until further scientific evidence is available.	Unclear
Fluvoxamine	Alberta Health Services[42,43]	There is insufficient evidence to recommend routine use of fluvoxamine.	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[39]	Fluvoxamine is not recommended due to low certainty of benefit and potential risk of adverse events associated with the dose evaluated (100 mg p.o. twice daily), especially in vulnerable individuals and older adults.	Unclear
	Shared Health Manitoba[40]	Fluvoxamine may be considered if antivirals and monoclonals are unavailable or contraindicated and if symptom duration is ≤ 7 days. **Dosage:** 50 mg p.o. daily for 1 day followed by 50 mg twice daily for 1 day, then 100 mg p.o. twice daily for total treatment course of 15 days.	Unclear
	Nova Scotia Health[24,25]	Fluvoxamine is not recommended.	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	If remdesivir and nirmatrelvir-ritonavir are unavailable or contraindicated, fluvoxamine may be considered in individuals with both standard and higher risk for severe disease presenting within 7 days of symptom onset. **Dosage:** 50 mg p.o. daily titrated up to 100 mg p.o. twice daily for a total of 15 days	Unclear

Drug	Guideline	Recommendation	Methodology[a]
	Saskatchewan Health Authority[22]	Fluvoxamine should not be offered to individuals until further scientific evidence is available.	Unclear
Antivirals			
Nirmatrelvir-ritonavir (Paxlovid)	Alberta Health Services[42,43]	Nirmatrelvir-ritonavir is recommended for individuals who meet provincially outlined eligibility criteria. **Dosage:** NR	Unclear
	British Columbia COVID-19 Therapeutics Committee[28,39]	Nirmatrelvir-ritonavir is recommended within 5 days of symptom onset to individuals with ≥ 5% risk for hospitalization for COVID-19. Nirmatrelvir-ritonavir is suggested within 5 days of symptom onset to individuals with a 3% to 4% risk of hospitalization from COVID-19. **Dosage:** 300 mg nirmatrelvir and 100 mg ritonavir p.o. twice daily for 5 days (both populations)	Unclear
	Shared Health Manitoba[30,40]	Nirmatrelvir-ritonavir can be considered based on patient preference and sotrovimab availability, and if symptom duration is ≤ 5 days. **Dosage:** 300 mg nirmatrelvir and 100 mg ritonavir p.o. twice daily for 5 days	Unclear
	INESSS[34,35]	Nirmatrelvir-ritonavir can be considered if symptoms have been present for ≤ 5 days, unless contraindicated. **Dosage:** 300 mg nirmatrelvir and 100 mg ritonavir p.o. twice daily for 5 days. In individuals with moderate renal impairment, the dosage should be reduced to 150 mg nirmatrelvir and 100 mg ritonavir taken together twice daily for 5 days.	Evidence-based
	Nova Scotia Health[24,25]	Nirmatrelvir-ritonavir is recommended for routine care in individuals with a confirmed positive COVID-19 test result and who are at high risk for progression to severe disease. Treatment should be initiated within 5 days of symptom onset. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20,26] Centre for Effective Practice[41]	Nirmatrelvir-ritonavir is recommended for individuals who are at high risk of severe disease if they present within 5 days of symptom onset. Nirmatrelvir-ritonavir is not recommended in individuals with severe renal impairment. It should be preferentially deployed in regions and to populations where administration is a barrier to IV medication. **Dosage:** 300 mg nirmatrelvir (two 150 mg tablets) with 100 mg ritonavir (one 100 mg tablet), with all 3 tablets taken together orally twice daily for 5 days. In individuals with moderate renal impairment, the dose should be reduced to 150 mg nirmatrelvir and 100 mg ritonavir taken together twice daily for 5 days.	Consensus-based
	Saskatchewan Health Authority[22]	Nirmatrelvir-ritonavir is recommended. Individuals must be within 5 days of symptom onset, have no identified medical contraindications and/or drug-drug interactions, and meet clinical criteria for high risk of disease progression.	Unclear

Drug	Guideline	Recommendation	Methodology[a]
		Dosage: (300 mg nirmatrelvir and 100 mg ritonavir p.o. twice daily for eGFR ≥ 50 mL/min/1.73 m^2, or 150 mg nirmatrelvir and 100 mg ritonavir p.o. twice daily for eGFR 30-59 mL/min/1.73 m^2) for 5 days	
Remdesivir	Alberta Health Services[42,43]	Remdesivir is not recommended for mildly ill individuals. Although evidence suggests there is a benefit, due to supply concerns, use should be reserved for more severely ill individuals.	Unclear
	British Columbia COVID-19 Therapeutics Committee[39]	Remdesivir can be considered within 7 days of symptom onset as an alternative to nirmatrelvir-ritonavir or sotrovimab. **Dosage:** 200 mg IV on day 1, followed by 100 mg IV on day 2 and day 3	Unclear
	INESSS[32,33]	Remdesivir may be considered within 7 days of symptom onset unless contraindicated. **Dosage:** 200 mg IV on day 1, followed by 100 mg IV on day 2 and day 3	Evidence-based
	Shared Health Manitoba[40]	Remdesivir can be considered based on patient preference and sotrovimab availability, and if symptom duration is ≤ 7 days. **Dosage:** 200 mg IV on day 1, followed by 100 mg IV daily for 2 days	Unclear
	Nova Scotia Health[24,25]	Remdesivir should be considered for routine care on a case-by-case basis in individuals with a confirmed positive COVID-19 test result who are at high risk for progression to severe disease. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Remdesivir is recommended for individuals at high risk for severe disease if they present within 7 days of symptom onset. **Dosage:** 200 mg IV on day 1, then 100 mg IV daily for 2 days	Consensus-based
	Saskatchewan Health Authority[22]	Remdesivir may be used in the event of future drug shortages but is not presently being made available due to logistical challenges in drug administration. **Dosage:** NR	Unclear
Monoclonal antibodies			
Casirivimab-imdevimab	Alberta Health Services[42,43]	Casirivimab-imdevimab is not recommended.	Unclear
	British Columbia COVID-19 Therapeutics Committee[39]	Casirivimab-imdevimab is no longer recommended in any population due to its lack of neutralization activity against the Omicron variant.	Unclear
	Nova Scotia Health[24,25]	Casirivimab-imdevimab may be used on a case-by-case basis in individuals who are at high risk for progression to severe disease. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Casirivimab-imdevimab is not recommended due to the lack of neutralizing activity against the Omicron subvariant BA.2.	Unclear

Drug	Guideline	Recommendation	Methodology[a]
Sotrovimab	Alberta Health Services[42,43]	Sotrovimab is recommended for individuals who meet provincially outlined eligibility criteria. **Dosage:** NR	Unclear
	British Columbia COVID-19 Therapeutics Committee[39]	Sotrovimab is recommended within 7 days of symptom onset as an alternative to nirmatrelvir, in cases in which IV administration is feasible. **Dosage:** 500 mg IV (single dose)	Unclear
	Shared Health Manitoba[29,40]	For individuals who are immunocompromised, sotrovimab is recommended if administered within 7 days of symptom onset regardless of previous vaccination or prior infection. In other individuals, sotrovimab should be considered if antivirals are unavailable or contraindicated and they are at high risk of hospitalization, and the duration of their symptoms is ≤ 7 days. **Dosage:** 500 mg IV (single dose)	Unclear
	INESSS[17,36]	Sotrovimab can be considered if symptoms have been present for ≤ 5 days, unless contraindicated. **Dosage:** 500 mg IV (single dose)	Evidence-based
	Nova Scotia Health[24,25]	Sotrovimab should be considered for routine care on a case-by-case basis in individuals with a confirmed positive COVID-19 test result who are at high risk for progression to severe disease. Treatment should be initiated within 7 days of symptom onset. **Dosage:** NR	Unclear
	Ontario COVID-19 Science Advisory Table[20]; Centre for Effective Practice[41]	Sotrovimab is not recommended due to reduced neutralizing activity against Omicron subvariant BA.2.	Unclear
	Saskatchewan Health Authority[22]	Sotrovimab may be considered if nirmatrelvir-ritonavir is unavailable. It must be administered within 7 days of symptom onset; individuals must have no identified medical contraindications and must meet clinical criteria for high-risk of disease progression. **Dosage:** 500 mg IV (single dose)	Unclear

eGFR = estimated glomerular filtration rate; INESSS = Institut national d'excellence en santé et en services sociaux; NR = not reported; p.o. = orally.

[a] Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

Table 5: Pharmacological Therapies Not Recommended for Any Severity of COVID-19

Drug	Guideline	Recommendation	Methodology[a]
Immunotherapy			
Chloroquine	Alberta Health Services[42,43]	Chloroquine is not recommended for the treatment of COVID-19.	Unclear
	British Columbia COVID-19 Therapeutics Committee[5]	Chloroquine is not recommended to treat any disease severity.	Unclear
	Shared Health Manitoba[40]	Chloroquine is not recommended in any population.	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Chloroquine is not recommended for the treatment of COVID-19.	Unclear
	Saskatchewan Health Authority[22]	Chloroquine should not be offered to individuals based on available studies demonstrating lack of benefit and/or potential harm.	Unclear
Colchicine	Alberta Health Services[11,42,43]	Colchicine is not recommended except in approved clinical trials.	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5,39]	Colchicine is not recommended for severely ill individuals outside of clinical trials. Colchicine is not recommended for moderate to mild populations due to low certainty of benefit and potential risk of adverse events and additional immunosuppression in this population.	Unclear
	INESSS[18,19]	Colchicine is not recommended outside of clinical trials.	Consensus-based
	Shared Health Manitoba[40]	Colchicine is not recommended in outpatient populations.	Unclear
	Nova Scotia Health[23,25]	Colchicine is not recommended.	Unclear
	Ontario COVID-19 Science Advisory Table;[8,20] Centre for Effective Practice[41]	There is insufficient evidence to support the use of colchicine in the treatment of COVID-19 outside of clinical trials or where other indications would justify its use.	Consensus-based
	Saskatchewan Health Authority[22]	Based on limited studies with low-quality evidence, uncertain benefit, and/or potential harm, colchicine should not be offered to individuals until further scientific evidence is available.	Unclear
Hydroxychloroquine	Alberta Health Services[42,43]	Hydroxychloroquine is not recommended for the treatment of COVID-19.	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Hydroxychloroquine is not recommended to treat any disease severity.	Unclear
	Shared Health Manitoba[40]	Hydroxychloroquine is not recommended in any population.	Unclear

Drug	Guideline	Recommendation	Methodology[a]
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Hydroxychloroquine is not recommended for the treatment of COVID-19.	Unclear
	Saskatchewan Health Authority[22]	Hydroxychloroquine should not be offered to individuals based on available studies demonstrating lack of benefit and/or potential harm.	Unclear
Antivirals			
Ivermectin	Alberta Health Services[12,42,43]	Ivermectin is not recommended except for approved clinical trials.	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Ivermectin should not be used outside of approved clinical trials.	Unclear
	Shared Health Manitoba[40]	Ivermectin is not recommended in any population.	Unclear
	INESSS[37]	Ivermectin should not be used outside of clinical trials.	Evidence-based
	Nova Scotia Health[23,25]	Ivermectin is not recommended.	Unclear
	Ontario COVID-19 Science Advisory Table;[8,9,20] Centre for Effective Practice[41]	Ivermectin is not recommended for the treatment of COVID-19.	Consensus-based
	Saskatchewan Health Authority[22]	Ivermectin should not be offered to individuals based on available studies demonstrating lack of benefit and/or potential harm.	Unclear
Lopinavir-ritonavir	Alberta Health Services[42,43]	Lopinavir-ritonavir is not recommended except in approved clinical trials.	Evidence-based
	British Columbia COVID-19 Therapeutics Committee[5]	Lopinavir-ritonavir is not recommended to treat any disease severity.	Unclear
	Shared Health Manitoba[40]	Lopinavir-ritonavir is not recommended in any population.	Unclear
	Ontario COVID-19 Science Advisory Table;[20] Centre for Effective Practice[41]	Lopinavir-ritonavir is not recommended for the treatment of COVID-19.	Unclear
	Saskatchewan Health Authority[22]	Lopinavir-ritonavir should not be offered to individuals based on available studies demonstrating lack of benefit and/or potential harm.	Unclear

INESSS = Institut national d'excellence en santé et en services sociaux.

[a] Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

Table 6: Pharmacological Therapy Recommendations for Pediatric Patients With COVID-19

Drug	Guideline	Recommendation	Severity of illness	Methodology[a]
Immunotherapy				
Dexamethasone	SickKids[44]	Dexamethasone is recommended. **Dosage:** 0.15 mg/kg IV or p.o. up to a maximum of 6 mg once daily for up to 10 days or until hospital discharge if clinically recovered	Critical	Consensus-based
		Dexamethasone use should be considered. **Dosage:** 0.15 mg/kg IV or p.o. up to a maximum of 6 mg once daily for up to 10 days or until hospital discharge if clinically recovered	Severe	Consensus-based
		Dexamethasone use should be considered in individuals who need low-flow oxygen, especially if they are at risk for severe disease or there is evidence of disease progression. **Dosage:** 0.15 mg/kg IV or p.o. up to a maximum of 6 mg once daily for up to 10 days or until hospital discharge if clinically recovered	Moderate	Consensus-based
	Canadian Pediatric Society[45]	Dexamethasone can be considered; however, the benefits and risks remain uncertain. **Dosage:** 0.15 mg/kg IV or p.o. up to a maximum of 6 mg once daily for up to 10 days	Critical, severe	Consensus-based
	British Columbia Centre for Disease Control[38]	**Recommendation:** Dexamethasone may be beneficial in individuals who require mechanical ventilation. Evidence on safety and efficacy is limited, therefore treatment decisions should be made on a case-by-case basis in consultation with a PICU physician. **Dosage:** NR	Not specified	Unclear
Antiviral				
Remdesivir	SickKids[44]	Remdesivir should be considered on a case-by-case basis if symptom duration is ≤ 10 days. **Dosage:** For children < 40 kg, 5 mg/kg IV once on day 1, then 2.5 mg/kg IV q.24.h. for 9 days; for children 40 kg or more, 200 mg IV once on day 1, then 100 mg IV q.24.h. Total treatment up to 10 days.	Critical	Consensus-based

Drug	Guideline	Recommendation	Severity of illness	Methodology[a]
		Remdesivir should be considered if symptom duration is ≤ 10 days and there are no contraindications for use. **Dosage:** For children < 40 kg, 5 mg/kg IV once on day 1, then 2.5 mg/kg IV q.24.h. for 9 days; for children 40 kg or more, 200 mg IV once on day 1, then 100 mg IV q.24.h. Total treatment up to 10 days.	Severe	Consensus-based
		Remdesivir should be considered in individuals at high risk for severe infections if there are no contraindications for use. **Dosage:** For children < 40 kg, 5 mg/kg IV once on day 1, then 2.5 mg/kg IV q.24.h. for 9 days; for children 40 kg or more, 200 mg IV once on day 1, then 100 mg IV q.24.h. Total treatment up to 10 days.	Moderate	Consensus-based
		Remdesivir should be considered if there are no contraindications for use. **Dosage:** For children < 40 kg, 5 mg/kg IV once on day 1, then 2.5 mg/kg IV q.24.h. for 9 days; for children 40 kg or more, 200 mg IV once on day 1, then 100 mg IV q.24.h. Total treatment up to 10 days.	Mild with risk factors for severe disease	Consensus-based
	Canadian Pediatric Society[45]	Remdesivir has been authorized for treatment for children 12 years or older who weigh at least 40 kg and who have pneumonia and require supplemental oxygen. **Dosage:** 200 mg on day 1, then 100 mg on day 2 to day 5, with continuation for an additional 5 days if there is no clinical improvement	Severe	Consensus-based
		Remdesivir may be considered for children at high risk for developing more severe illness. **Dosage:** 200 mg on day 1, then 100 mg on day 2 to day 5, with continuation for an additional 5 days if there is no clinical improvement	Moderate	Consensus-based
	British Columbia Centre for Disease Control[38]	The use of remdesivir is not considered a standard of care. Remdesivir has not demonstrated benefit in patient outcomes and its safety and effectiveness have not yet been evaluated. Cases should be discussed with pediatric infectious disease experts.	All	Unclear

Drug	Guideline	Recommendation	Severity of illness	Methodology[a]
Monoclonal antibodies				
Bamlanivimab	SickKids[44]	The use of bamlanivimab is not routinely recommended pending further data.	All	Consensus-based
	Canadian Pediatric Society[45]	Due to a lack of published data, bamlanivimab should only be used in consultation with pediatric infectious disease experts.	All	Consensus-based
	British Columbia Centre for Disease Control[38]	Bamlanivimab is not recommended outside of approved clinical trials.	All	Unclear

NR = not reported; PICU = pediatric intensive care unit; p.o. = orally; q.24.h. = every 24 hours.

[a] Guidance documents were classified as evidence-based (i.e., recommendations were informed using a systematic search of the literature), consensus-based (i.e., recommendations were informed by expert opinion, with or without consideration for evidence collected using non-systematic methods), or as having unclear (i.e., not reported in detail) methodology.

References

1. Government of Canada. COVID-19: prevention and risks. 2022; https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html. Accessed 2022 Apr 5.
2. Government of Canada. COVID-19 signs, symptoms and severity of disease: a clinician guide 2021; https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/signs-symptoms-severity.html?msclkid=2ce60da1b51811ecb1397a1f77cdae69. Accessed 2022 Apr 12.
3. National Institutes of Health. Clinical spectrum of SARS-CoV-2 infection. COVID-19 treatment guidelines. 2021 Oct 19; https://www.covid19treatmentguidelines.nih.gov/overview/clinical-spectrum/?msclkid=609c95cbb11c11ecb4d03beee225dcda. Accessed 2022 Apr 5.
4. National Institutes of Health. Antiviral drugs that are approved, authorized, or under evaluation for the treatment of COVID-19. COVID-19 treatment guidelines. 2022 Feb 24; https://www.covid19treatmentguidelines.nih.gov/therapies/antiviral-therapy/summary-recommendations/. Accessed 2022 Apr 12.
5. BC Centre for Disease Control. Treatments. The British Columbia COVID-19 Therapeutics Committee provides guidance on the most current research on the use of therapies in the management of COVID-19. 2022 Mar 07: http://www.bccdc.ca/health-professionals/clinical-resources/covid-19-care/treatments. Accessed 2022 Apr 5.
6. De Backer D, Azoulay E, Vincent JL. Corticosteroids in severe COVID-19: a critical view of the evidence. *Crit Care.* 2020;24(1):627.
7. Institut national d'excellence en santé et en services sociaux. COVID-19 et corticostéroïdes systémiques. Québec (QC): INESSS; 2020: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_INESSS_Corticosteroides.pdf. Accessed 2022 Apr 5.
8. Morris AM, Andany N, Bobos P, et al. Evidence-based use of therapeutics for ambulatory patients with COVID-19. *Science Briefs of the Ontario COVID-19 Science Advisory Table.* 2021;2(48). https://doi.org/10.47326/ocsat.2021.02.48.1.0. Accessed 2022 Apr 5.
9. Leung E, McIntyre M, Andany N, et al. Ivermectin as treatment to prevent disseminated strongyloides infection in patients with COVID-19. *Science Briefs of the Ontario COVID-19 Science Advisory Table.* 2021;2(30): https://doi.org/10.47326/ocsat.2021.02.30.1.0. Accessed 2022 Apr 5.
10. Morris AM, Stall NM, Bobos P, et al. Tocilizumab for hospitalized patients with COVID-19. *Science Briefs of the Ontario COVID-19 Science Advisory Table.* 2021;2(11). https://doi.org/10.47326/ocsat.2021.02.11.1.0 Accessed 2022 Apr 5.
11. Erdmann R, Zhao R, Klarenbach S, et al. COVID-19 Scientific Advisory Group: rapid evidence report: Colchicine for the treatment of COVID-19. Edmonton (AB): Alberta Health Services; 2021 Feb 23: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-colchicine-for-treatment-rapid-review.pdf. Accessed 2022 Apr 5.
12. COVID-19 Scientific Advisory Group. Ivermectin evidence review update Oct 5, 2021, AHS Scientific Advisory Group. Edmonton (AB): Alberta Health Services; 2021: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-ivermectin-in-treatment-and-prevention-rapid-review.pdf. Accessed 2022 Apr 5.
13. Institut national d'excellence en santé et en services sociaux. COVID-19: use of systemic Corticosteroids. Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_INESSS_Corticosteroids_clinical_tool.pdf. Accessed 2022 Apr 5.
14. Institut national d'excellence en santé et en services sociaux. COVID-19: use of Tocilizumab or Sarilumab. Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/Clinical_tool_Use-of-Tocilizumab-Sarilumab.pdf. Accessed 2022 Apr 5.
15. Institut national d'excellence en santé et en services sociaux. COVID-19 et biothérapies dirigées contre l'interleukine 6 ou son récepteur. Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_Anti-IL-6.pdf. Accessed 2022 Apr 5.
16. Institut national d'excellence en santé et en services sociaux. COVID-19 et inhibiteurs des janus kinases (JAK). Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_JAKi.pdf. Accessed 2022 Apr 5.
17. Institut national d'excellence en santé et en services sociaux. COVID-19 et anticorps neutralisant le SRAS-CoV-2. Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_INESSS_Ac_neutralisant_SARS-CoV-2.pdf. Accessed 2022 Apr 5.
18. Institut national d'excellence en santé et en services sociaux. Colchicine analysis of the COLCORONA study Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/Tool_colcorona_data.pdf. Accessed 2022 Apr 5.
19. Institut national d'excellence en santé et en services sociaux. Position à la suite de l'analyse de l'étude COLCORONA publiée. Québec (QC): INESSS; 2021: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/INESSS_COVID-19_COLCORONA_position.pdf. Accessed 2022 Apr 5.
20. Ontario COVID-19 Drugs and Biologics Clinical Practice Guidelines Working Group on behalf of the Ontario COVID-19 Science Advisory Table. Clinical practice guideline summary: recommended drugs and biologics in adult patients with COVID-19. Version 11.0. 2022 Apr 1: https://doi.org/10.47326/ocsat.cpg.2022.11.0. Accessed 2022 April 5.
21. Saskatchewan Health Authority. Inpatient COVID-19 management: medication and prescribing guidance. 2022 Feb 8: https://www.saskhealthauthority.ca/system/files/2022-01/CV-19-G0166-Inpatient-COVID-19-Management.pdf. Accessed 2022 Apr 5.
22. Saskatchewan Health Authority. Outpatient COVID-19 management: medication and prescribing guidance. https://www.saskhealthauthority.ca/system/files/2022-01/CV-19-G0165-Outpatient-COVID-19-Management.pdf 2022 Jan 24: https://www.saskhealthauthority.ca/system/files/2022-01/CV-19-G0165-Outpatient-COVID-19-Management.pdf. Accessed 2022 Apr 5.

23. Severe COVID-19 treatment. Halifax (NS): Nova Scotia Health; 2022: http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=93182. Accessed 2022 Apr 5.

24. Non-severe COVID-19 treatment. Halifax (NS): Nova Scotia Health; 2022: http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=93180. Accessed 2022 Apr 5.

25. NS Health COVID-19 medication recommendations. Nova Scotia Health: Halifax (NS); 2022: http://policy.nshealth.ca/Site_Published/covid19/document_render.aspx?documentRender.IdType=6&documentRender.GenericField=&documentRender.Id=85287. Accessed 2022 Apr 5.

26. Komorowski AS, Tseng A, Vandersluis S, Leung E, Ciccotelli W, Langford B. Evidence-based recommendations on the use of nirmatrelvir/ritonavir (Paxlovid) for adults in Ontario. *Science Briefs of the Ontario COVID-19 Science Advisory Table.* 2022;3(57). https://doi.org/10.47326/ocsat.2022.03.57.1.0. Accessed 2022 Apr 5.

27. Hempel A, Jevtic S, Vandersluis S, et al. Baricitinib for hospitalized patients with COVID-19. *Science Briefs of the Ontario COVID-19 Science Advisory Table.* 2022;3(53). https://doi.org/10.47326/ocsat.2022.03.53.1.0 Accessed 2022 Apr 5.

28. BC Centre for Disease Control. COVID-19 therapies - sotrovimab (xevudy) and nirmatrelvir/ritonavir (paxlovid). Guidance for health care providers. *COVID-19 treatment. Health care provider information* Vancouver (BC): BC Centre for Disease Control; 2022: http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-treatment/Health_Care_Provider_Info-sotrovimab-Paxlovid.pdf. Accessed 2022 Apr 5.

29. Shared Health Manitoba. COVID-19 monoclonal antibodies information for providers. Winnipeg (MB): Shared Health Manitoba; 2022: https://sharedhealthmb.ca/files/covid-19-monoclonal-antibodies-provider.pdf. Accessed 2022 Apr 5.

30. Shared Health Manitoba. Nirmatrevir and ritonavir (paxlovid) - information for health-care providers. Summary information. Winnipeg (MB): Shared Health Manitoba; 2022: https://sharedhealthmb.ca/files/covid-19-paxlovid-provider-info.pdf. Accessed 2022 Apr 5.

31. Institut national d'excellence en santé et en services sociaux. COVID-19 use of baricitinib. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/Fiche_Baricitinib_ENG.pdf. Accessed 2022 Apr 5.

32. Institut national d'excellence en santé et en services sociaux. COVID-19 usage du remdésivir. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_Remdesivir_outil_clinique.pdf. Accessed 2022 Apr 5.

33. Institut national d'excellence en santé et en services sociaux. COVID-19 et remdésivir. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID-19_remdesivir.pdf. Accessed 2022 Apr 5.

34. Institut national d'excellence en santé et en services sociaux. COVID-19 usage du nirmatrelvir / ritonavir (paxlovidMC). Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID_19_Outil_Paxlovid_VF.pdf. Accessed 2022 Apr 5.

35. Institut national d'excellence en santé et en services sociaux. COVID-19 et nirmatrelvir / ritonavir. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/INESSS_COVID_19_Paxlovid_VF.pdf. Accessed 2022 Apr 5.

36. Institut national d'excellence en santé et en services sociaux. COVID-19 traitements avec le sotrovimab. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/Fiche_Ac_neutralisants_FR_VF.pdf. Accessed 2022 Apr 5.

37. Institut national d'excellence en santé et en services sociaux. COVID-19 et ivermectine. Québec (QC): INESSS; 2022: https://www.inesss.qc.ca/fileadmin/doc/INESSS/COVID-19/COVID_INESSS_Ivermectine_RR_VF.pdf. Accessed 2022 Apr 5.

38. BC Centre for Disease Control. Pediatric clinical guidance for COVID-19. *Coronavirus COVID-19* BC Ministry of Health; 2021: http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-19_Pediatric_clinical_guidance.pdf Accessed 2022 Apr 5.

39. BC COVID Therapeutics Committee (CTC). Clinical practice guide for therapeutics in patients with mild-moderate COVID-19. *COVID-19 treatment. Health care provider information* Vancouver (BC): BC Centre for Disease Control; 2022: http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-treatment/ClinicalPracticeGuide_Therapeutics_MildModerateCOVID.pdf. Accessed 2022, Apr 5.

40. Shared Health Mantioba. Recommendations for COVID-19 treatment. . Winnipeg (MB): Shared Health Manitoba; 2022: https://sharedhealthmb.ca/files/covid-19-treatment-recommendations.pdf. Accessed 2022 Apr 5.

41. Centre for Effective Practice. COVID-19 clinical guidance for primary care providers. Emerging evidence: COVID-19 variants, transmission, paediatric symptoms, and RX research. Toronto (ON): Centre for Effective Practice; 2022: https://tools.cep.health/tool/covid-19/#chl-hydro-rem. Accessed 2022 Apr 5.

42. COVID-19 Therapeutics Working Group. Current guidance for the management of adult hospitalized patients with COVID-19. Edmonton (AB): Alberta Health Services; 2022: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-recommendations.pdf. Accessed 2022 Apr 5.

43. COVID-19 Therapeutics Working Group. Therapeutic management of adult patients with COVID-19. Edmonton (AB): Alberta Health Services; 2022: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-therapeutic-management-summary.pdf. Accessed April 5, 2022.

44. Interim guidance: management of paediatric patients with confirmed COVID-19. Toronto (ON): SickKids; 2021: https://www.sickkids.ca/contentassets/50c1bd3c95e74dcf9fa7c9f6fd707bd7/interim-guidance_managing-confirmed-covid19-paeds-patients1.pdf Accessed 2022 Apr 5.

45. Chan K, Beck C, Chauvin-Kimoff L, et al. The acute management of COVID-19 in paediatrics (spring 2021 update). Ottawa (ON): Canadian Pediatric Society; 2021: https://cps.ca/en/documents/position/the-acute-management-of-paediatric-coronavirus-disease-2019covid-19. Accessed 2022 Apr 4.