

Paxlovid® and Remdesivir Quick Notes

	Nirmatrelvir and ritonavir (Paxlovid®)	Remdesivir
Where can I find more information on therapies for COVID-19	Information may be found on the Shared Health website. ¹ (https://sharedhealthmb.ca/covid19/treatment/)	Information may be found on the Shared Health website. ¹ (https://sharedhealthmb.ca/covid19/treatment/)
What is it?	Paxlovid® is an antiviral combination containing two drugs: <ul style="list-style-type: none"> ○ <i>Nirmatrelvir</i> is the main antiviral that works against SARS-CoV-2. ○ <i>Ritonavir</i> is also an antiviral but its role is to slow the removal of nirmatrelvir in the body so that it can work longer. 	Remdesivir is an intravenous anti-viral that works against SARS-CoV-2.
How does it work?	<i>Nirmatrelvir</i> is known as a protease inhibitor and inhibits the SARS-CoV-2 main protease inside infected cells. <ul style="list-style-type: none"> ○ It prevents SARS-CoV-2 from reproducing inside infected cells and infecting other healthy cells. ○ SARS-CoV-2 main protease is a protein that is responsible for the building blocks used to replicate SARS-CoV-2 inside infected cells. <p><i>Ritonavir</i> is also a protease inhibitor that is used to slow the natural removal of nirmatrelvir in the body.</p> <ul style="list-style-type: none"> ○ This lowers the amount of nirmatrelvir that that patients would have to take for it to work. 	Remdesivir is known as a reverse transcriptase inhibitor that inhibits SARS-CoV-2 from replicating inside infected cells and infecting healthy cells.
What are the benefits?	Paxlovid® significantly reduced the risk of hospitalization or death by keeping 9 of 10 COVID-19 patients with risk factors from being hospitalized. ²	Remdesivir significantly reduced the risk of hospitalization or death by keeping 9 of 10 COVID-19 patients with risk factors from being hospitalized. ⁴
What is the dose of ____?	The usual dose of Paxlovid® is nirmatrelvir 300 mg and ritonavir 100 mg orally twice daily x 5 days.	Remdesivir dosage is 200 mg IV on day one followed by 100 mg IV daily x 2 days for mild illness (generally in outpatient setting). A 5 day treatment course (200mg IV on day one followed by 100mg IV daily x 4 days) is recommended for moderate illness in patients hospitalized due to COVID-19

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How is _____ taken?	<ul style="list-style-type: none"> ▪ Paxlovid® may be taken with or without food. ▪ Paxlovid® must be swallowed whole. ▪ Do not chew, break, dissolve or crush. 	Remdesivir is given intravenously over 30 minutes daily x 3 days. Remdesivir is given in a place where the patient can receive remdesivir intravenously.
My patient has renal impairment, is the dose different?	<p>Yes, there is a dose reduction in patients with <u>moderate</u> renal impairment eGFR between 30-60 mL/min:</p> <ul style="list-style-type: none"> ○ nirmatrelvir 150 mg + ritonavir 100 mg PO BID for 5 days <p>Paxlovid® is contraindicated for patients with eGFR <30 mL/min</p>	<ul style="list-style-type: none"> ▪ There is no dose adjustment required in patients with eGFR > 30 mL/min. ▪ Patients with eGFR <30 mL/min are generally not eligible for remdesivir unless reviewed by the treatment assessment team.
My patient has liver impairment, is the dose different?	<ul style="list-style-type: none"> ▪ No dose adjustment is required for patients with mild–moderate liver impairment (Child-Pugh class A or B) ▪ For patients with severe liver impairment (Child- Pugh class C), Paxlovid® is contraindicated. 	Patients with liver impairment may not be eligible to receive remdesivir if their ALT is 5 times above the upper limit of normal.
What are the contraindications for _____?	<p>Paxlovid® is contraindicated in patients with²:</p> <ul style="list-style-type: none"> ○ eGFR < 30 mL/min ○ Child-Pugh class C ○ Severe drug interactions with Paxlovid® 	<p>Remdesivir is contraindicated in patients with⁵:</p> <ul style="list-style-type: none"> ○ eGFR <30 mL/min (see above) ○ severe liver impairment or ALT > 5x upper limit of normal
Does _____ cause drug interactions?	<p>Paxlovid® may cause severe drug interactions with medications that may prohibit its use in some patients.</p> <ul style="list-style-type: none"> ○ Paxlovid® contains ritonavir which is known to significantly interfere with certain medications and how they are removed from the body. <p>For more information regarding potential medication interactions, see:</p> <ul style="list-style-type: none"> • https://covid19-sciencetable.ca/sciencebrief/nirmatrelvir-ritonavir-paxlovid-what-prescribers-and-pharmacists-need-to-know-2-0/ • https://sharedhealthmb.ca/files/covid-19-paxlovid-drug-interactions.pdf 	Remdesivir is not expected to cause any drug interactions of concern.

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Who can get _____ in Manitoba?	<ul style="list-style-type: none"> ▪ Paxlovid® is approved in Canada for patients with mild to moderate COVID-19 with risk factors for severe disease.¹ ▪ Final decision regarding appropriate use of Paxlovid is between the prescriber and their patient. ▪ Please refer to the Shared Health website for the latest information. (https://sharedhealthmb.ca/covid19/treatment/) 	<ul style="list-style-type: none"> ▪ Remdesivir is approved in Canada for patients with mild to moderate COVID-19 with risk factors for severe disease.⁵ ▪ Shared Health has defined different patient categories who may benefit from remdesivir administration. Please go to the Shared Health website for the latest information. (https://sharedhealthmb.ca/covid19/treatment/) 																																				
What are the steps to get _____ for a patient?	Any physician or nurse practitioner in Manitoba can prescribe Paxlovid®, which is available at participating retail pharmacies across the province. See https://sharedhealthmb.ca/covid19/treatment/ for more details.	Any physician or nurse practitioner in Manitoba can fill out the 'COVID-19 Oral Antivirals and Monoclonal Antibody Treatment Referral Form'. See below.																																				
Where can I find the referral form?	Effective May 20, 2022, Paxlovid® can be prescribed by any prescriber within their scope of practice; no referral necessary	For the latest referral form use this direct link: https://sharedhealthmb.ca/files/covid-19-treatment-referral-form.pdf																																				
What kind of side effects can I expect?	<p>Taste disturbance was the most common adverse event reported with Paxlovid compared to placebo in clinical trial.²</p> <table border="1"> <thead> <tr> <th></th> <th>Paxlovid® (n=1109)</th> <th>Placebo (n=1115)</th> </tr> </thead> <tbody> <tr> <td>Dysgeusia</td> <td>5.5%</td> <td>0.3%</td> </tr> <tr> <td>Diarrhea</td> <td>3.1%</td> <td>1.6%</td> </tr> <tr> <td>Vomiting</td> <td>1.1%</td> <td>0.8%</td> </tr> <tr> <td>Headache</td> <td>1.4%</td> <td>1.3%^z</td> </tr> <tr> <td>Hypertension</td> <td>1%</td> <td><1%</td> </tr> <tr> <td>Myalgia</td> <td>1%</td> <td><1%</td> </tr> </tbody> </table>		Paxlovid® (n=1109)	Placebo (n=1115)	Dysgeusia	5.5%	0.3%	Diarrhea	3.1%	1.6%	Vomiting	1.1%	0.8%	Headache	1.4%	1.3% ^z	Hypertension	1%	<1%	Myalgia	1%	<1%	<p>Nausea was the most common adverse event reported with remdesivir in clinical trial.⁴</p> <table border="1"> <thead> <tr> <th></th> <th>Remdesivir (n=279)</th> <th>Placebo (n=283)</th> </tr> </thead> <tbody> <tr> <td>Nausea</td> <td>10.8%</td> <td>7.4%</td> </tr> <tr> <td>Headache</td> <td>5.7%</td> <td>6%</td> </tr> <tr> <td>Cough</td> <td>3.6%</td> <td>6.4%</td> </tr> <tr> <td>Diarrhea</td> <td>2.5%</td> <td>3.9%.</td> </tr> </tbody> </table> <p>Mild transient increases in transaminases may occur in patients receiving remdesivir treatment. Patients are asymptomatic with transaminases resolving after completion of treatment without the need to monitor.</p>		Remdesivir (n=279)	Placebo (n=283)	Nausea	10.8%	7.4%	Headache	5.7%	6%	Cough	3.6%	6.4%	Diarrhea	2.5%	3.9%.
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Will I be charged or pay for _____?	At this time, there is no cost to the patient receiving Paxlovid® by prescription during the current pandemic wave. Subject to change.	There is no cost to the patient for remdesivir treatment.																																				

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Can my child receive ____?	Paxlovid® is authorized by Health Canada only for patients 18 years or older; off-label use may be considered in children (12 years of age and older weighing at least 40 kilograms AND with exceptional circumstances such as severe immunocompromise and/or multiple risk factors, clinical progression), AFTER consultation with pediatric experts and informed decision making with the child's care provider.	Remdesivir is approved for patients 12 years and older meeting eligibility criteria in Manitoba.
My patient is pregnant can she take ____?	Although Paxlovid® is not recommended in a pregnant woman, if the benefits of administering a COVID-19 therapeutic are felt to be substantial, neither Remdesivir nor Paxlovid should be withheld based solely on a person's pregnant state. Individualized and informed discussion weighing the risk of COVID-19 for an individual patient against the paucity of safety data in pregnancy is required when prescribing COVID-19 therapeutics during pregnancy.	Although remdesivir is not recommended in a pregnant woman, if the benefits of administering a COVID-19 therapeutic are felt to be substantial, neither Remdesivir nor Paxlovid should be withheld based solely on a person's pregnant state. Individualized and informed discussion weighing the risk of COVID-19 for an individual patient against the paucity of safety data in pregnancy is required when prescribing COVID-19 therapeutics during pregnancy.
My patient is breastfeeding, can they receive ____?	<ul style="list-style-type: none"> ▪ Paxlovid® has not been studied in breastfeeding.² ▪ There is no data on Paxlovid® in the breastfed infant. ▪ The benefits of breast-feeding should be considered along with the mother's clinical need for Paxlovid® and any potential adverse effects on the breastfed infant from Paxlovid® or from the underlying maternal condition. 	<ul style="list-style-type: none"> ▪ Remdesivir has not been studied in breastfeeding.⁵ ▪ There is no data on remdesivir in the breastfed infant. ▪ The benefits of breast-feeding should be considered along with the mother's clinical need for remdesivir and any potential adverse effects on the breastfed infant from remdesivir or from the underlying maternal condition.
Will I be cured of COVID-19 when I take	<ul style="list-style-type: none"> ▪ No, you will NOT be 'cured' by taking Paxlovid®. ▪ Paxlovid® helps to prevent SARS-CoV-2 from spreading within your body and causing more severe symptoms. ▪ You should continue to self-isolate when you are taking Paxlovid®. 	<ul style="list-style-type: none"> ▪ No, you will NOT be 'cured' by taking remdesivir. ▪ Remdesivir helps to prevent SARS-CoV-2 from spreading within your body and causing more severe symptoms. ▪ You should continue to self-isolate when you are receiving remdesivir.
What if I miss a dose?	<ul style="list-style-type: none"> ▪ A missed dose can be taken if within 8 hours of the time it is usually taken. ▪ If more than 8 hours, skip the dose and continue to the next scheduled dose. ▪ Do not double the dose. 	Not applicable

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I am unvaccinated, can I still get vaccinated after ____?	Yes, the patient may receive a COVID-19 vaccination after receiving Paxlovid® if he/she has completed self-isolation, no longer considered infectious and all the symptoms have resolved. ³	Yes, the patient may receive a COVID-19 vaccination after receiving remdesivir if he/she has completed self-isolation, no longer considered infectious and all the symptoms have resolved. ³
I am partially vaccinated/ I missed my next dose because of COVID-19. Can I still get vaccinated after ____?	Yes, the patient may receive a COVID-19 vaccination after receiving Paxlovid® once the patient has completed self-isolation, no longer considered infectious and all the symptoms have resolved. ³	Yes, the patient may receive a COVID-19 vaccination after receiving remdesivir once the patient has completed self-isolation, no longer considered infectious and all the symptoms have resolved. ³

REFERENCES:

1. Shared Health. Treatment options for covid-19. <https://sharedhealthmb.ca/covid19/treatment/>
2. Pfizer Canada. Paxlovid® (nirmatrelvir and ritonavir) product monograph. January 17, 2022 (https://pdf.hres.ca/dpd_pm/00064313.PDF)
3. Manitoba Health website. Covid-19 vaccine eligibility criteria (<https://www.gov.mb.ca/covid19/vaccine/eligibility-criteria.html#infection>)
4. Gottlieb RL, Vaca CE, Paredes R. Early remdesivir to prevent progression to severe covid-19 in outpatients. N Engl J Med 2021 DOI: 10.1056/NEJMoa2116846
5. Gilead Canada. Veklury® (remdesivir) product monograph. November 22, 2021 (<https://covid-vaccine.canada.ca/info/pdf/veklury-pm1-en.pdf>)