

Vaccine Pearls: may ↓ "long COVID" by ~1/3;⁵¹ if immunocompromised, extra dose recommended; still recommended post-COVID-19 infection (hybrid immunity more robust^{NACI}); mix-and-match brands OK & may increase response.⁵²

Table 1. COVID-19 Vaccines^{NACI}

Unvaccinated (Primary Series)	Previously Vaccinated (Booster Dose)
1st-line: KP.2 - SPIKEVAX or COMIRNATY <u>Recommended:</u> ≥65 years ≥6 months & risk of severe illness e.g. LTC or congregate living settings, comorbid conditions, pregnancy, Indigenous, members of equity-denied community, healthcare workers <u>Suggested:</u> all individuals ≥6 months (SK: universal vaccination available)	1st-line: KP.2 - SPIKEVAX or COMIRNATY <u>Recommended:</u> ≥65 years ≥6 months & risk of severe illness e.g. LTC or congregate living settings, comorbid conditions, pregnancy, Indigenous, members of equity-denied community, healthcare workers <u>Suggested:</u> all individuals ≥6 months CDC: no longer recommended for pregnant; or most healthy children ^{May2025} Most individuals: one COVID-19 dose per year. Individuals at increased risk of severe illness: 2 doses per year (recommend: ≥80 years, LTC, ≥6 months + immunocompromised; suggest: 65-79 years ^{ACIP recommends for ≥65 years})
FDA/EMA: 2025-26 COVID-19 vaccine should target newer strains of JN.1 variant, e.g. LP.8.1.	

Table 2. Original Monovalent Vaccine Efficacy Estimates in Adults

	Infection risk if exposed to COVID-19	Hospitalization risk if ~first infection	Mortality risk if ~first infection
Unvaccinated adults	~100%? (if infection-naïve)	Wide range of risk (see Table 3)	0.1% to 30%+ ^{29,30,47}
Adults vaccinated w/ initial series	↓ risk by 20-33% ^{36,42}	↓ risk by 65% ³⁸	↓ risk by 79% ³⁷
Adults vaccinated + 1 booster	↓ risk by 54-69% ³⁶	↓ risk by 85% ³⁸	↓ risk by 94% ³⁷
Adults vaccinated + 2 boosters	↓ risk by 75-83%? ³⁹	↓ risk by 95%? ³⁹	↓ risk by 99%? ³⁹
Note: It is difficult to ascertain specific efficacy values of newer vaccines as RCTs assess immunologic outcomes (antibody levels) and most individuals have previous COVID-19 exposure and/or vaccination. Vaccine efficacy wanes over time and newer vaccines are formulated to match circulating variant which is presumed to be associated with improved effectiveness. ^{NACI} Observational data supports continued vaccination, e.g. Canada: 12-15x↑ ICU admission & mortality among unvaccinated vs fully vaccinated with booster dose. ¹²³ In general, a booster "renews" a patient back to a previous level of protection.			

	Intervention	Initial Dosing (Primary Series, NACI)	Booster Dosing	Adverse Effects AE / Contraindications CI / Drug Interactions DI Monitoring M																
Vaccines	Pfizer-BioNTech mRNA vaccine * COMIRNATY 2024-25 vaccine – KP.2 2025-26 vaccine – LP.8.1  grey cap, ≥12 years: six 0.3mL doses/vial; do <u>not</u> dilute; invert vial 10 times.  USA: (unavailable in Canada) 6mo to 4 years multi-dose vial (3mcg dose) 5 to 11 years single-doses vial (10mcg dose) ≥12 years pre-filled syringe (30mcg dose)	≥12 years: 30mcg IM (0.3mL of grey cap vial) KP.2 Initial ≥12 year: 1 dose. If immunocompromised, give 2 nd dose 4-8 wk after later. Series initiated with non-KP.2 vaccine i.e. original monovalent, bivalent but not completed: Complete series with KP.2 vaccine. Do not have to restart. e.g. 18 years: 1 dose total, if immunocompromised 2 doses total (& a 3 rd may be offered), see NACI.	Not required if primary series includes KP.2 at this time. *If increased risk of severe illness may receive 2 nd KP.2 dose e.g. ≥80 years, LTC. ^{NACI} Booster ≥12 years: 30mcg IM (0.3mL of grey cap vial)	• AE: injection site reactions (>50%, and more common with second dose); ²¹ fever 20%, headache 50%, fatigue 50%, chills 20%, myalgia 50%, arthralgia 20%. ?↑AE in younger. ⁵⁷ Most AE resolve within 2d. Typically do not pre-dose with antipyretics as ?may limit immune response. Uncertain/case report: uveitis recurrence, ³⁵³ asthenia (COMIRNATY), facial nerve paralysis (COMIRNATY), ischemic stroke ≥65yr (COMIRNATY BIVALENT) ^{Prelim data} , chronic spontaneous urticaria (SPIKEVAX). ⁸⁴ • Report vaccine adverse events here . Link: Tips to Avoid Shoulder Injury (See Infographic).																
	Moderna mRNA vaccine * SPIKEVAX 2024-25 vaccine – KP.2 2025-26 vaccine – LP.8.1  royal blue cap: do <u>not</u> dilute; swirl vial. ≥12 years: five 0.5mL doses/vial. 6 months to 11 years: ten 0.25mL doses/vial.  USA: (unavailable in Canada) 6mo to 11 years pre-filled syringe (25mcg dose ≥12 years pre-filled syringe (50mcg dose) { mNEXSPIKE 10mcg/0.2mL if 12-64yr IM with risk factors & if ≥65yr, if previous vaccinated. Health CDN Oct’25 approved for adults ≥ 18yr}	≥12 years: 50mcg IM (0.5mL of royal blue cap vial) ≥6mo to 11yr: 25mcg IM (0.25mL of royal blue cap vial) KP.2 Initial ≥5 year: 1 dose. If immunocompromised, recommend 2 nd dose 4-8 weeks later. May offer 3 rd dose. KP.2 Initial 6 months to <5 year: 2 doses given 8 weeks apart. If immunocompromised, give a 3 rd dose 4-8 wks later (preferred over COMIRNATY). ^{NACI} Series initiated with non-KP.2 vaccine i.e. original monovalent, bivalent but not completed: Complete series with KP.2 vaccine. Do not have to restart. e.g. 4 years: 2 doses total, if immunocompromised 3 doses total.	Not required if primary series includes KP.2 at this time. *If increased risk of severe illness may receive 2 nd KP.2 dose e.g. ≥80 years, LTC. ^{NACI} Booster ≥12 years: 50mcg IM (0.5mL of royal blue cap vial) Booster ≥6 months to 11 years: 25mcg IM (0.25mL of royal blue cap vial)	<table><tr><th></th><th>Myocarditis (± pericarditis)</th><th>VITT (clot with ↓ platelets)</th><th>GBS (nerve damage)</th></tr><tr><td>COMIRNATY*</td><td>< 1 in 10,000 (in males age 12-30yr)</td><td>not detected</td><td>not detected</td></tr><tr><td>SPIKEVAX*</td><td>< 1 in 100,000 (all other patients)</td><td>not detected</td><td>not detected</td></tr><tr><td>NUVAXOVID</td><td>lack of data</td><td>lack of data</td><td>lack of data</td></tr></table> *mRNA: NACI no longer recommends one product over another among 12 to 29 years as risk of myocarditis is thought to be lower than previous original vaccines due to 1-dose schedule and longer interval (≥6mo) in most and lower dosage of Moderna vaccine available now. For more details on the risk of myocarditis, VITT, GBS, see Online Extras Table 5 .		Myocarditis (± pericarditis)	VITT (clot with ↓ platelets)	GBS (nerve damage)	COMIRNATY*	< 1 in 10,000 (in males age 12-30yr)	not detected	not detected	SPIKEVAX*	< 1 in 100,000 (all other patients)	not detected	not detected	NUVAXOVID	lack of data	lack of data	lack of data
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SPIKEVAX*	< 1 in 100,000 (all other patients)	not detected	not detected																	
NUVAXOVID	lack of data	lack of data	lack of data																	
Novavax recombinant spike protein NUVAXOVID * 2024-2025 vaccine antigenic composition – JN.1   USA: (unavailable in Canada) ≥12 years pre-filled syringe (5 mcg dose)	≥12 years: 5mcg IM (0.5mL) Initial: 2 doses given 3-8 weeks apart (NACI: 1 dose may be used if not immunocompromised). Offer 3rd dose if immunocompromised. ^{NACI 54, CDC}	Not preferred. Reserve if CI to others. ^{NACI} Booster ≥12yr: 0.5mL IM	• CI for all vaccines: anaphylaxis to a component or previous COVID-19 vaccine of the same platform. Precautions: history of immediate allergic reaction to any other vaccine or injection; if one COVID-19 vaccine is CI , other platforms are precautioned. History of myocarditis (mRNA vaccines). Kids: history of MIS-C. • Usually OK to still give vaccine if mild acute illness (e.g. cough & cold). • Planning/Pregnancy/Lactation: Recommended; ^{NACI} no difference in spontaneous abortion, congenital abnormalities/structural birth defects even when given during first trimester (USA, Europe). ^{131,269,341} No link to adverse neonatal outcomes. ²³³ COVID-19 prior/during pregnancy associated with spontaneous abortion. ³⁵⁶ • DI: None. May give a COVID-19 vaccine at any time in relation to other vaccines. • M: Observe for 15min after vaccine; 30min if precautions/anaphylaxis history.																	
mAB	 USA: Pemivibart PEMGARDA ≥12 years (weight ≥40kg)	Emergency Use Authorization for pre-exposure prophylaxis of COVID-19 in those who are immunocompromised & suboptimal vaccine response e.g. cancer, TNF inhibitors, etc. (reserve for those mod/severely immunocompromised at risk for progression to severe COVID-19 ^{IDA}). Pemivibart: 4500mg IV over 60min; additional doses may be given every 3 months.		• DI: do not use within 2 weeks of COVID-19 vaccine. • AE: infusion reaction ~9%, influenza-like illness e.g. fatigue, headache. • CANOPY cohort n=306, immunogenicity vs JN.1 variant but dependant on assay. ³⁴³																
Masking and Physical Distancing		Effective. ⁵⁹ Surgical masks ↓ transmission by <50% in community setting, ⁷² and physical distancing ↓ transmission by 80% (2.6% vs 12.8%, NNT=10) compared to no intervention. ⁴⁴ N95 masks more effective than disposable masks. ^{43,44} Physical distancing 2m more effective than 1m. ⁴⁴ Eye protection (e.g. face shield, goggles) also associated with ↓ infection risk. ⁴⁴																		

No longer preferred and/or available: Pfizer-BioNTech COMIRNATY Original / Omicron BA.4/BA.5, Omicron XBB.1.5 BIVALENT, COMIRNATY BNT162b2, Moderna SPIKEVAX Original/Omicron BA.4/5, SPIKEVAX XBB.1.5 BIVALENT, SPIKEVAX Original/Omicron BA.1 BIVALENT, SPIKEVAX mRNA-1273, VAXZEVRIA AstraZeneca, JCOVDEN Janssen (J&J), COVIFENZ Medicago, Novavax NUVAXOVID XBB1.5. Monoclonal antibody: Tixagevimab-Cilgavimab EVUSHELD.

Abbreviations: CLS=capillary leak syndrome GBS=Guillain-Barré syndrome mRNA=messenger ribonucleic acid mAB=monoclonal antibody MIS-C=multisystem inflammatory syndrome in children r=ritonavir VITT=vaccine-induced immune thrombotic thrombocytopenia

Clinical Pearls			Supportive Care for Acute COVID-19 Outpatients	Table 3. Risk Factors for Severe COVID-19. ²⁹
- COVID-19 treatment therapies are not a substitute for COVID-19 vaccination. If mRNA vaccine-hesitant, consider non-mRNA vaccine if available. - COVID-19 therapies may be considered in those at high-risk for progression to severe COVID-19 e.g. immunocompromised. Most data for unvaccinated pts; uncertainty of benefit in vaccinated high-risk pts (experts suggest still a role & ongoing studies).^{33-35,346,347,350} Pt tools: Should I take Paxlovid? Paxlovid benefit infographic.³⁵¹ - Nirmatrelvir/ritonavir PAXLOVID has numerous critically important drug interactions. Complete a full medication history (including herbal & OTC products) to assess drug interactions prior to prescribing. - If contraindication to nirmatrelvir/ritonavir PAXLOVID, refer for remdesivir if ≤7 days of symptom onset.			- Analgesics/antipyretics (e.g. acetaminophen); antitussives (e.g. dextromethorphan). Patient tool. - Close monitoring for new/worsening dyspnea; progression to hospitalization can be rapid. Lying in prone position (rather than supine) may help. Patients in SK may call 811. - Drink fluids regularly to avoid dehydration; rest to promote recovery. Handwash; disinfect; consider masking.	Age (≥75 years) , obesity, diabetes, immunocompromised, CKD, asthma, COPD, CVD, cancer, HIV, Indigenous, neurologic conditions, cystic fibrosis, smoking, liver dx, pregnancy, tuberculosis. Risk Calculator .
Drug	Indications / Role in Therapy	Dosing	Cost	Adverse Effects AE / Contraindications CI / Drug Interactions DI / Comments
Nirmatrelvir-Ritonavir PAXLOVID    150mg nirmatrelvir tabs and 100mg ritonavir tabs (in blister cards)  WHO: option for pregnancy / lactation See EPIC-HR Trial Summary .	1st line for outpatients (≥18 years): ✓ Mild-to-moderate COVID-19 at high-risk of progression to severe disease. Give within 5 days and if no contraindications/ serious DIs. ^{IDSA(conditional)} Link: Eligibility criteria in Sask. ① immunocompromised ② under or unvaccinated ③ ≥70y with risk factors Link: Sask prescriber assessment form. Off-label: ≥12yr, high-risk, mild COVID. ^{AMMI, FDA} Off-label: ? ↓ long COVID observational data. ⁸⁹	 eGFR ≥ 60mL/min: 300mg nirmatrelvir (two pink tabs) + 100mg ritonavir (one white tab) po q12h x 5 days  eGFR 30-59mL/min: 150mg nirmatrelvir (one pink tab) + 100mg ritonavir (one white tab) po q12h x 5 days  eGFR < 30mL/min ± dialysis (off-label): Evolving data. SK: CI based on prescribing guidelines & consider remdesivir. ⁷¹	Sask via SK Drug Plan program \$1400	↓ hospitalization/death by 89% (0.8% nirmatrelvir/r vs 6.3% placebo, NNT=18) in high-risk unvaccinated pts within 5d of sx onset . ^{EPIC-HR, Cochrane²³} Minimal benefit in low-risk. ^{EPIC-SR, 35} or vaccinated pts (subgroup analysis). ³⁵⁰ Ongoing CanTreatCOVID (CDN), ³⁴⁶ PANORAMIC (UK). ³⁴⁷ AE: Bad taste (common); nausea/vomiting/diarrhea; headache; myalgia; ↑ BP. SAE rare. AE: Rebound infection after treatment? ~6.4-8.4% vs 5.9-6.5% placebo. ^{EPIC-HR&SR, 348} CDC Rebound not associated with COVID-19 hospitalization or death. ³⁴⁸ Do not re-treat, study ongoing. ³⁴⁹ CI: severe liver disease (Child-Pugh C); some antiepileptics e.g. phenytoin. DI: CYP3A4 substrate & strong inhibitor. MANY: atorvastatin, rosuvastatin, apixaban, rivaroxaban, amlodipine, tamsulosin, clopidogrel, ticagrelor, colchicine, clozapine, salmeterol. Nirmatrelvir/r should <u>not</u> be dose adjusted to manage DIs. Tools: Liverpool, medSask, BC . Assess harm of disrupting current drug tx vs expected nirmatrelvir/r benefit.
Remdesivir VEKLURY     100mg vial See PINETREE Trial Summary .	Alternative for outpatients: ✓ Mild-to-moderate COVID-19 at high-risk of progression to severe disease. • high-risk outpatients (≥18 years) if CI or DI to nirmatrelvir/ritonavir. ¹ ✓ Hospitalized patients (≥4wk & ≥3kg) with pneumonia requiring oxygen.	Outpatients: 200mg IV day 1, then 100mg IV days 2 & 3.  eGFR <30mL: may use standard dose, ^{SHA} others suggest dose-adjustment. ⁶¹ Peds: 5mg/kg day 1, then 2.5mg/kg. ^{IDSA} Inpatients: 200mg IV day 1, then 100mg IV day 2 & onwards for total duration of 5-10d.	Sask via SK Drug Plan program \$2670	↓ hospitalization by 87% (0.7% remdesivir vs 5.3% placebo, NNT=22) when given to high-risk outpatients within 7 days of symptom onset . ^{PINETREE} No ↓ in mortality (outpatient). AE: Nausea, headache, ↑ LFTs, rash, ↓ BP, ↓ HR, anaphylaxis. Serious adverse effects rare.  may be use in mod/severe hepatic dysfunction (no dose adjustment). ^{FDA/H} If severe, monitor LFTs.  Dialysis: give dose after dialysis ^{SHA} or during ^{BC CDC} on dialysis days. DI: Strong 3A4 inducers (e.g. CBZ, rifampin) ↓ levels. Hydroxychloroquine may ↓ efficacy.
Inhaled Budesonide PULMICORT TURBUHALER 100, 200, 400mcg inhaler 	Uncertain benefit. Off-label & not recommended. ^{IDSA (conditional)} Studied in high-risk, mostly unvaccinated adults ≥50 years. Continue ICS in other indications e.g. asthma.	800mcg inhaled BID x 7-14 days (until symptoms resolve)	\$136 (1 inhaler)	Faster COVID-19 symptom resolution (12 days budesonide vs 15 days usual care) when given to high-risk outpatients within 14 days; mixed data for hospitalizations. ^{PRINCIPLE, 17} AE: Sore throat, dysphonia, cough, thrush. Rinse mouth after use. DI: ↑ levels by CYP3A4 inhibitors (e.g. ritonavir, ketoconazole). AE: Dexamethasone role in hospitalized patients requiring oxygen (6mg po/IV daily up to 10d).
Fluvoxamine LUVOX, g  50, 100mg tabs	Uncertain benefit. Off-label & not recommended. ^{IDSA (knowledge gap), WHO} Studied in high-risk, unvaccinated patients ≥18 years.	100mg BID po x 10 days See Fact Sheet from Waterloo	\$31 (1 course)	↓ hospitalization by ~30% (11% fluvoxamine vs 16% placebo) when given to unvaccinated, high-risk outpatients within 7 days of symptoms, but methodology issues. ^{TOGETHER} Others showed no difference in sx duration vs placebo. ^{ACTIV-6} No benefit 50mg BID. ^{COVID-OUT} AE: Nausea, constipation, sedation. DI: Many. See RxFiles Antidepressants .
Colchicine, g    0.6mg tab	Uncertain benefit. Off-label & not recommended. ^{IDSA (conditional)} Studied in high-risk, unvaccinated outpatients age ≥40 years. No benefit for <u>inpatients</u> . ⁶⁰	0.5-0.6mg BID po x 3 days, then daily x 27 days	\$20 (1 course)	↓ hospitalization/death by 25% (4.5% colchicine vs 5.9% placebo, NNT=71) when given to high-risk outpt ≤1d of positive COVID-19 test. ^{COLCORONA} Subsequent found no difference. ^{ACT} AE: Diarrhea 14% NNH=15 , ¹⁸ nausea, rash. Serious: ?pulmonary embolism 0.5%, neutropenia. CI: Blood dyscrasias, transplant pts, CrCl<30mL/min. DI: P-gp & CYP3A4 inhibitors.
Hydroxychloroquine	✗ Not recommended. ^{IDSA (strong; inpatient or outpatient)}		Initial evidence mixed; subsequent meta-analysis showed inefficacy in preventing infection & ↑ harms. ^{11,12}	
Ivermectin	✗ Not recommended. ^{IDSA (strong; inpatient or outpatient)}		Initial positive RCT data fabricated; ⁴⁸ subsequent showed inefficacy to prevent COVID-19 hospitalization when given within 7 days of symptom onset. ^{13, 13, COVID-OUT, ACTIV}	

Montelukast: RCT (N=1250) found no difference in symptom duration for adults with mild to moderate COVID-19.³⁴⁴ **Metformin** titrated to 1500mg/day: RCT (N=2991) found no difference in time to symptom resolution in low-risk COVID-19.³⁷⁹ **Vitamin D:**^{27,28} inconsistent benefit in hospitalized pts.^{64,66} prevention.⁶⁹ **CORONAVIT Zinc:** Uncertain benefit, 25mg elemental BID x 15d ↓ ICU admission.⁷⁵ **Others (not routinely available in SK):** casirivimab-imdevimab, bebtelovimab, high-titer convalescent plasma, bamlanivimab-etesevimab, regdanvimab, pegylated interferon lambda. Real-world **NNTs** will vary based on pt risk, COVID-19 wave, variant, etc. Bacterial co-infection ~8.5%, reassess if antibiotic required.⁷⁶

Investigational/not available in Canada: simnoretelvir/ritonavir 750/100mg BID x5d, ensitelvir x 5d^{Japan}. **No longer preferred and/or available:** Sotrovimab **XEVUDY**, Tixagevimab-Cilgavimab **EVUSHELD**, Molnupiravir **LAGEVIRIO**, Bebtelovimab.

Post-COVID Condition or “Long COVID” or Post Acute Sequelae of COVID-19 (PASC)

- Definition:** generally symptoms persisting ≥12 weeks;^{WHO} variable course, ~20-50% symptoms >1 year; incidence ?~7%³⁵⁵ (range 5-40%); less data in children (incidence ?~10-20%, range 4-62%).²¹⁰
- Risk Factors:** >40 years, severe illness (hospitalization/ICU), BMI ≥30, comorbidities, smoking, female (↑~35% vs male³¹⁸).¹³⁹⁻¹⁴²
- Treatment:** pacing/intermittent activity; reassurance/validation; CBTi (↓ fatigue vs usual care);^{120,354} symptomatic treatment; reassess polypharmacy.; Off-label: ?vaccination - mixed results; ?**PAXLOVID** no difference vs placebo²⁶¹ **STOP**.^{PASC} cohort data found some positive results.¹⁴³⁻¹⁴⁷ **Patient tool: [SK self-management resource](#)** • **Prevention:**¹⁴⁷⁻¹⁴⁹ ?vaccination - 2 doses vs unvaccinated OR 0.57 (OR 0.43 in 5-17 years³³¹); ?**PAXLOVID**; ?metformin x 14 days.¹³⁴

COVID-19 Online Extras

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Table 4. Useful Links and Resources

Guidelines & Reviews	Clinical Tools
NIH COVID-19 Guidelines IDSA COVID-19 Guidelines WHO COVID-19 Guidelines Medical Letter COVID-19 Treatments and COVID-19 Vaccines Pharmacist Letter COVID-19 Treatments and COVID-19 Vaccines UpToDate COVID-19 Review British Columbia COVID-19 Treatments Ontario Science Table Nirmatrelvir/Ritonavir (Paxlovid) Briefing	Drug Interactions checkers: Liverpool, medSask, BC CTC, Ontario Science Table, IDSA Drug Interaction Guidance Health Canada COVID Vaccines Components Health Canada Approved COVID-19 Therapies in Canada Canadian Pharmacists Association Patient Tools - Top Tips to Prevent the Spread of Viruses - Managing COVID-19 at Home Centre for Effective Practice COVID-19 Resource Centre Health Canada Where to Book a Vaccine Appointment Waterloo: Tips to Avoid Shoulder Injury Related to Vaccine Administration ACFP: COVID Tools for Practice Low dead-volume syringes helps ↑ # of doses/vial. Vaccine safety: Resources for health professionals on surveillance, reporting and regulation https://www.canada.ca/en/public-health/services/immunization/vaccine-safety.html National AEFI reporting form https://www.canada.ca/content/dam/phac-aspc/documents/services/immunization/reporting-adverse-events-following-immunization/aefi_form.pdf ACCA https://www.canada.ca/en/public-health/services/immunization/vaccine-safety/advisory-committee-causality-assessment.html Canadian Risk Estimator: Link to COVID-19 HAZARD INDEX (updated q2 wks.)
Saskatchewan Resources	
medSask COVID-19 vaccine doses, eligibility, and intervals Sask Health Vaccine Clinics in Saskatchewan [or call 1-833-727-5829] Sask Health Vaccine Comparison Chart Saskatchewan COVID-19 Outpatient Treatment Guidelines SIM Chapter 10 https://www.ehealthsask.ca/services/Manuals/Documents/sim-chapter10.pdf COVID-19 Immunization Manual https://www.ehealthsask.ca/services/Manuals/Pages/COVID-19.aspx SHA COVID-19 Vaccine Info for HCP https://www.saskhealthauthority.ca/intranet/health-provider-resources/clinical-resources/z-list-clinical-resources/covid-19-info-healthcare-providers/covid-19-vaccine-information-healthcare-providers SHA COVID-19 Immunizer Updates https://www.saskhealthauthority.ca/system/files/2021-06/CV-19-G0125-CV19-Immunizer-Updates.pdf Sask Paxlovid Dispensing +/- Prescribing Pharmacies medSask Paxlovid Center: immunocompromising medications, prescriber assessment tool (prescription), paxlovid patient handout SHA: Outpatient COVID-19 management, Post-COVID Condition / “Long COVID”	

Table 5. Adverse Events with Original COVID-19 Vaccines: Additional Information.

Myocarditis with mRNA vaccines	VITT (Vaccine-Induced Immune Thrombotic Thrombocytopenia) with adenoviral vector vaccines	Guillain-Barré syndrome (GBS) with adenoviral vector vaccines
- Myocarditis risk is greater with a COVID-19 infection than a vaccine (1500 cases per million patients).²³ - Most common in young adult males. For example, with a second mRNA dose: → up to 69 cases per million in males 12-17yrs.²² → up to 4 cases per million in males >30yrs.²² → up to 4 cases per million in males 5-11yrs.⁴⁹ - Ask patients to monitor for new chest pain, shortness of breath, or palpitations. Median time to onset of symptoms is 2 days.⁸⁵ - Myocarditis cases are usually mild, with onset <1 week after vaccine. The vast majority of cases resolve after supportive care in a hospital or outpatient setting. Most cases require NSAID and/or colchicine therapy; however, some require no treatment.⁸⁵ - Myocarditis risk may be greater with SPIKEVAX than COMIRNATY (one analysis suggested a ~5x higher risk with SPIKEVAX),²⁶ greater with short (i.e. ≤30 days) interval between COVID-19 doses for those 16-17 yrs (≤30 days 21.3 per 100,000 vs >31-55 days ~5 per 100,000),⁸⁵ and ? greater with heterologous COMIRNATY and SPIKEVAX dosing.¹³⁸	- Most common in adult females (e.g. 3.8 cases per million doses of Janssen vaccine in general population vs up to 10.6 cases per million in females 30-49yrs).²⁴ - Ask patients to monitor for signs and symptoms: e.g. new petechiae or bruising, shortness of breath, chest pain, lower extremity edema, abdominal pain, unabating severe headache, severe backache, new focal neurologic symptoms, seizures. - Fatal in up to 20% of cases. Onset typically within 2 weeks of vaccine. - Some evidence that mRNA vaccines are safe in patients who have previously experienced VITT.⁶²	- In reports, median age of 56 years, 13 days after Janssen vaccination. Fatal in <1% of cases. Overall rate of 9.8 cases per million doses (4x background rate).²⁵ Others suggest up to 4 cases per million doses.⁸³ - Ask patients to monitor for tingling in extremities; weakness; difficulty with facial movements, breathing, or swallowing. - Causal relationship not yet established. Of note, other vaccines (e.g. for influenza) have previously been associated with GBS.³¹

Discontinued or not available in Canada:

COVID-19: Prevention

Janssen (J&J) adenoviral vector D/C by company June 2023 JCOVDEN Ad.26.COV2.S one vial containing five 0.5mL doses *	≥18 yrs: 0.5mL IM Initial: 1 dose. If immunocompromised, give a 2nd dose 4 weeks later of an mRNA vaccine.	Not preferred. Reserve if CI others. ^{NACI} ≥18yrs, Booster dose: 0.5mL IM -booster 1: give 2 mos post initial series.
Medicago recombinant spike protein COVIFENZ * developed in CDN  , plant-based. two vials; after mixing = ten 0.5mL doses	18-64 yrs: 3.75mcg IM (0.5mL) Initial: 2 doses given 3-8 weeks apart. Consider 3rd dose if immunocompromised. ^{NACI 54}	Off-label for use as booster dose.

mAb Tixagevimab-Cilgavimab EVUSHELD * dark grey cap 150mg tixagevimab vial white cap 150mg cilgavimab vial	PL UNCERTAINTIES: <u>Sask</u> : routine use not recommended. Emerging antiviral resistance limits use. ^{HC} On-label dosing 150mg/150mg if immunocompromised or vaccination not recommended. ³² Off-label: ≥12yrs & ≥40kg: 300mg tixagevimab IM + 300mg cilgavimab IM, expert opinion for Omicron → Give separate injections into each gluteal muscle	Repeat dosing unstudied. FDA: repeat q6mos in those who require ongoing protection. ^{Expert}	Unclear benefit for hospitalization or mortality endpoints with prophylactic use. ↓ incidence of symptomatic COVID-19 by 83% (0.3% tix-cil vs 1.8% placebo, NNT=67 over ~6 mos) for high-risk COVID-19 -negative . See RxFiles PROVENT Trial Summary . • AE: Injection site reactions, ?cardiac events e.g. MI NNH=263/6mos . ^{PROVENT} • CI: Caution: CVD e.g. CAD, MI, HF, stroke, etc. DI: wait ≥14d post COVID-19 vaccine.
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Discontinued or not available in Canada

Sotrovimab XEVDY 500mg vial Gone from Brent See COMET-ICE Trial Summary .	PL Utilization on hold in Sask due to uncertain efficacy vs Omicron. ^{WHO'22} ✓ mild-to-moderate outpatient COVID-19 in high-risk patients age ≥12yrs & ≥40kg.	500mg IV once over 60 minutes May slow rate of infusion if reaction occurs.	Federally acquired medication	↓ hospitalization by 85% (1% sotrovimab vs 7% placebo, NNT=17) when given to high-risk patients within 7 days of symptom onset. ^{COMET-ICE} Guidelines suggest may not be effective against Omicron BA.2 variant. ^{1, WHO} • AE: Infusion reactions, diarrhea, anaphylaxis (treat with epinephrine). Serious AE rare. • CI: Hypersensitivity to any components. DI: None known.
Tixagevimab-Cilgavimab EVUSHELD * 150mg tixagevimab vial and 150mg cilgavimab vial	PL ✓ for high-risk outpatients (≥12yrs & ≥40kg) with mild-to-moderate COVID-19. See RxFiles TACKLE Trial Summary .	≥18yrs: 300mg tixagevimab IM (dark grey vial cap) + 300mg cilgavimab IM (white vial cap) Requires separate injections (3mL each drug).	Federally acquired medication	↓ hospitalization by 57% (4.1% tix-cil vs 9.5% placebo, *interim result*) when given to unvaccinated (& mainly high risk) patients within 7 days of symptom onset. ^{TACKLE} Possible role in acute treatment, but emerging antiviral resistance limits role. ^{HC} For AE , CI , & DI for tixagevimab-cilgavimab, see previous page.
Molnupiravir LAGEVIRIO 200mg capsule Gone from Brent	PL Currently not authorized in Canada. Studied in mild-to-moderate outpatient COVID-19 in high-risk patients age ≥18 years.	800mg (4 caps) q12h po x 5 days	Unavailable in Canada	↓ hospitalization/death (NNT=33) when given to high-risk pts ≤5d sx onset. ^{MOVE-OUT} Later RCT and systematic review found NS. ^{128 PANORAMIC, 122} Inferior to sotrovimab, OpenSAFELY • AE: Diarrhea, nausea, dizziness, ?impaired bone/cartilage growth. CI: Use contraception (♂ & ♀) during tx. DI: None known.

Bebtelovimab 175mg vial		Currently not authorized in Canada. Studied in mild-to-moderate outpatient COVID-19 in low-risk pts age ≥12yrs.	175mg IV once over >30 seconds	Unavailable in Canada	BLAZE-4 unpublished data: ↑ symptom resolution (6d with bebtelovimab vs 8d placebo), but no change in hospitalizations. ⁹ ? ↓ activity vs omicron BQ.1 and BQ.1.1. ^{FDA} • AE : Infusion reactions, itch, rash. DI : None known.
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References for COVID-19 Chart

General:

[COVID-19 vaccines: Canadian Immunization Guide - Canada.ca](#)

[COVID-19 Vaccines | medSask](#)

[U.S. COVID-19 Vaccine Product Information | CDC](#)

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