I. TITLE: **CSCHS Guidelines for the Management of COVID-19**

II. PURPOSE: FOR INTERNAL USE ONLY, this document covers management related to COVID-19, presenting the most robust and current data.
Created and endorsed by Infectious Diseases, Pulmonary Critical Care, Hematology/oncology, and Pharmacy Departments

This is a living document that will be updated frequently as new data is published. Please refer to the last updated date for the most current publication.	
Major updates from the last version are written in green	***Last updated***: 1/14/2022

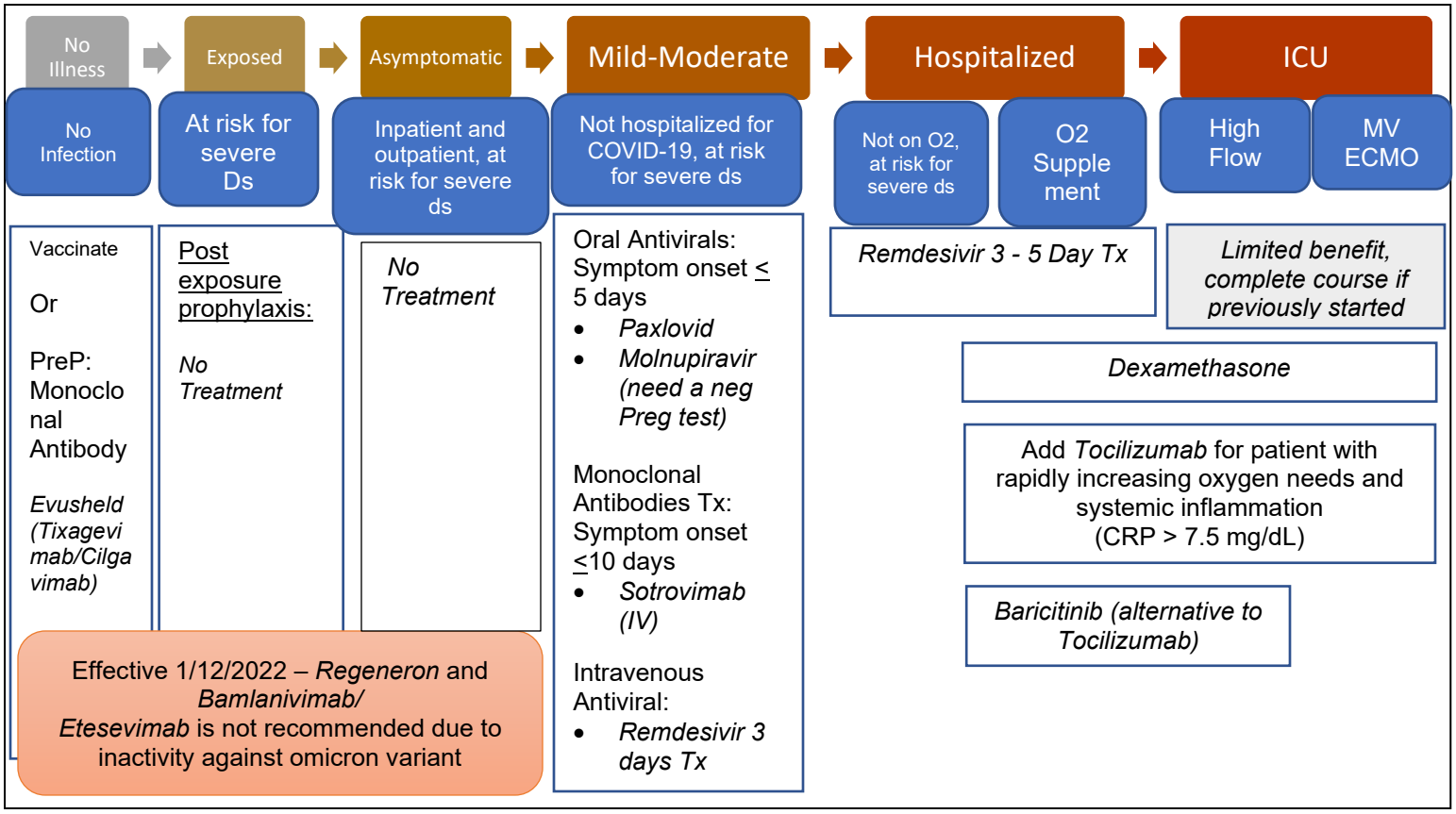
III. LEVEL: Resource document, no dependence needed

IV. SCOPE: This guideline/procedure/protocol will pertain to the following site(s):

- ☒ Custody
- ☒ O'Connor Hospital
- ☐ Public Health
- ☒ Santa Clara Valley Medical Center Hospital
- ☒ St. Louise Regional Hospital
- ☒ VMC Ambulatory Clinics
- ☒ VMC Outpatient Pharmacies

V. BACKGROUND: This is an institutional guideline to be used as a resource in determining best practices at CSCHS to treat COVID-19.

VI. General Treatment Algorithm for COVID-19



A. **Outpatient therapies for Mild-Moderate COVID-19 and at High Risk for Severe Disease**

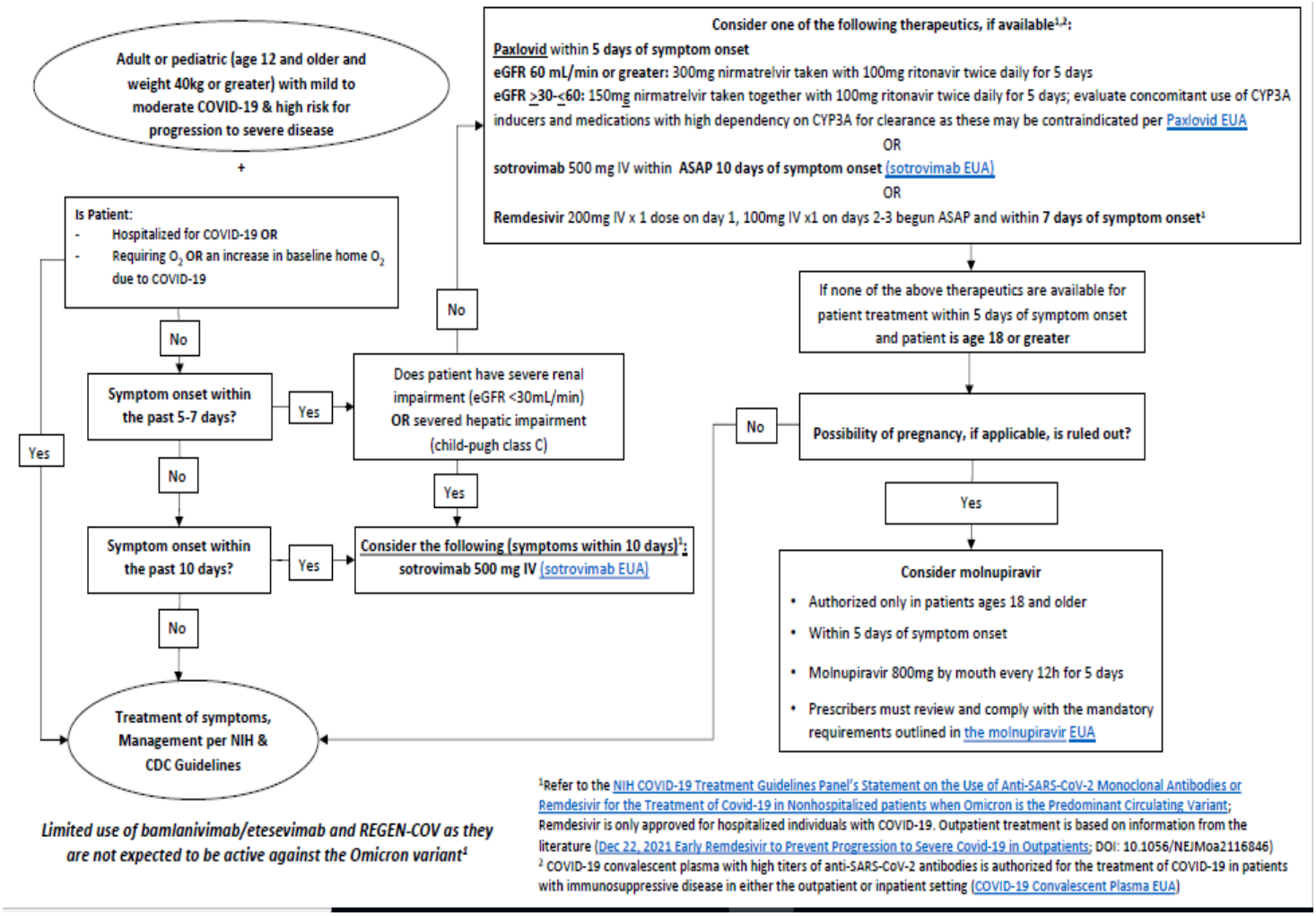
Table 1: Therapeutic Options for Outpatient, Mild-Moderate COVID-19

Drug	Indication	NIH Guidelines[1]	Dose	Notes
Nirmatrelvir/ Ritonavir (Paxlovid – Pfizer)	EUA – 12/2021 Meets all the following: Age ≥ 12 years and weight ≥ 40 kg, COVID+, high risk, within 5 days of symptom onset, treatment of mild/moderate COVID	• Recommend as outpatient treatment (1st preference) • If hospitalized after starting treatment, may complete the full 5-days course at MD's discretion. • May be used in patients who are hospitalized for a diagnosis other than COVID-19, provided they have mild to moderate COVID-19 and are at high risk of progressing to severe disease.	300/100 mg nirmatrelvir/ ritonavir PO BID x5 days Renally Adjust: eGFR ≥ 30 to < 60 mL/min: 150/100 mg nirmatrelvir/ ritonavir PO BID x5 days eGFR < 30 mL/min: not recommended	Not authorized for: • Initiation of treatment requiring hospitalization due to severe COVID • PrEP or PEP* • Treatment duration longer than 5 days. Significant drug-drug interactions. Antiviral activity against all coronavirus variants
Sotrovimab (GSH)	EUA – 5/2021 Age ≥ 12 years and weight ≥ 40 kg, COVID+, high risk, within 10 days of symptom onset), treatment mild/moderate COVID	Recommend as outpatient treatment (2nd preference)	500 mg x1 IV infusion over 30 minutes	Expected to retain activity against Omicron variant. Monitor for hypersensitivity reactions during and for at least 1 hour after infusion
Remdesivir (Veklury)	Remdesivir x3 days for outpatient treatment within 7 days of symptom onset for age ≥ 12 years and weight ≥ 40 kg	Recommend as outpatient treatment (3rd preference). If hospitalized after starting treatment, may complete the full 3-days course at MD's discretion	200 mg x1 IV on day 1, then 100 mg IV daily x2 days	Expected to retain activity against Omicron. PINETREE trial showed 3-day remdesivir had 87% relative reduction in risk of hospitalization or death compared to placebo
Molnupiravir (Merck)	EUA – 12/2021 Adults ≥ 18 years, COVID+ testing, high risk, within 5 days of symptom onset), treatment	Recommend as outpatient treatment (4th preference) • If hospitalized after starting treatment, may complete the full 5-days course at physician discretion.	800 mg (4 x200 mg capsules) PO BID x5 days	Not authorized for: • Initiation of treatment requiring hospitalization due to severe COVID • PrEP or PEP* • Longer than 5 days. • Pediatric/Pregnancy/ lactating

	mild/moderate COVID	• May be used in patients who are hospitalized for a diagnosis other than COVID-19, provided they have mild to moderate COVID-19 and are at high risk of progressing to severe disease.		Warning: Embryo-fetal toxicity (see EUA). Negative pregnancy test required prior to initiation. Broad antiviral activity against all RNA viruses
Tixagevimab/ Cilgavimab (Evusheld)[2]	EUA for PrEP only – 12/2021 Age ≥ 12 years and weight ≥ 40 kg	Recommend for PrEP in moderate-severe immunocompromised and may not mount adequate immune response to COVID vaccines those with severe allergy COVID vaccines	tixagevimab 150mg and cilgavimab 150mg IM injection x 1	If patient received recently received COVID-19 vaccination, separate administration by 2 weeks Medication is not a substitute for vaccinations.
Casirivimab/ Imdevimab (Regen-COV)		Unlikely to be active against Omicron		
Bamlanivimab/ Etesevimab (Lilly)		Unlikely to be active against Omicron		

***Abbreviations:**
PrEP: pre-exposure prophylaxis for prevention of COVID-19
PEP: post-exposure prophylaxis for prevention of COVID-19

Figure 1. Treatment algorithm for Outpatient management of COVID-19[3]



Limited use of bamlanivimab/etesevimab and REGEN-COV as they are not expected to be active against the Omicron variant[1]

[1]Refer to the NIH COVID-19 Treatment Guidelines Panel's Statement on the Use of Anti-SARS-CoV-2 Monoclonal Antibodies or Remdesivir for the Treatment of Covid-19 in Nonhospitalized patients when Omicron is the Predominant Circulating Variant; Remdesivir is only approved for hospitalized individuals with COVID-19. Outpatient treatment is based on information from the literature (Dec 22, 2021 Early Remdesivir to Prevent Progression to Severe Covid-19 in Outpatients; DOI: 10.1056/NEJMoa2116846)

[2] COVID-19 convalescent plasma with high titers of anti-SARS-CoV-2 antibodies is authorized for the treatment of COVID-19 in patients with immunosuppressive disease in either the outpatient or inpatient setting (COVID-19 Convalescent Plasma EUA)

Table 2: How to Obtain Outpatient Medications

Medication	Contact to Obtain Medication	Comments
Nirmatrelvir/ Ritonavir (Paxlovid)	Pharmacy locations/telephone and inventory availability can be found: https://www.scvmc.org/patients-visitors/services/covid-19-oral-antiviral/pharmacy-location-inventory	The prescribing physician must personally call a participating VHC pharmacy to provide a verbal prescription and obtain a reservation code. *https://www.fda.gov/media/155050/download*
Molnupiravir	Pharmacy locations/telephone and inventory availability can be found: https://www.scvmc.org/patients-visitors/services/covid-19-oral-antiviral/pharmacy-location-inventory	The prescribing physician must personally call a participating VHC pharmacy to provide a verbal prescription and obtain a reservation code. *https://www.fda.gov/media/155054/download*
Sotrovimab	HL build and allocation of medication is in process. Once ready follow steps below: Clinic infusion: Use Healthlink Referral for COVID-19 Monoclonal Antibody Infusion ED infusion: order available in healthlink	Fact sheet for healthcare providers: https://www.fda.gov/media/149534/download
Tixagevimab/ Cilgavimab (Evusheld)	Order available in healthlink for both inpatient and outpatient.	Fact sheet for healthcare providers: EUA for Evusheld (tixagevimab and cilgavimab). *https://www.fda.gov/media/154701/download*
Casirivimab/ Imdevimab (Regen-COV)	**1/12/2022 – Usage suspended due to Omicron**	https://www.phe.gov/emergency/events/COVID19/investigation-MCM/Bamlanivimab-etesevimab/Pages/bamlanivimab-etesevimab-regen-cov-ordering-update.aspx
Bamlanivimab/ Etesevimab (Lilly)	**1/12/2022 – Usage suspended due to Omicron**	https://www.phe.gov/emergency/events/COVID19/investigation-MCM/Bamlanivimab-etesevimab/Pages/bamlanivimab-etesevimab-regen-cov-ordering-update.aspx

B. Therapies for Hospitalized Adults with COVID-19

Table 3: Dosing Regimens for therapies for hospitalized adults with COVID-19

Drug Name	Dosing Regimen	Comments
Remdesivir (Hospitalized)	RDV 200 mg IV x1, then 100 mg IV daily for 4 days or until hospital discharge	• If patient progresses to more severe illness, complete course of RDV
Remdesivir (Outpatient)	RDV 200 mg IV x1, then 100 mg IV daily for 2 days	
Dexamethasone	DEX 6 mg IV/PO once daily for up to 10 days or until hospital discharge	• If DEX not available, an equivalent dose of another corticosteroid may be used
Baricitinib	Dose dependent on eGFR • eGFR ≥ 60: baricitinib 4 mg PO daily • eGFR 30 to 59: baricitinib 2 mg PO daily • eGFR 15 to 29: baricitinib 1 mg PO daily • eGFR < 15: NOT RECOMMENDED Up to 14 days duration or until hospital discharge	•
Tofacitinib	Tofacitinib 10 mg PO BID up to 14 days or until hospital discharge • eGFR <60: Tofacitinib 5 mg PO BID	• Used as alternative immunomodulatory drug if baricitinib is not available or feasible to use (BIIa) per NIH guidelines • No FDA EUA for use in COVID-19
Tocilizumab	Tocilizumab 8 mg/kg actual body weight Max: 800 mg dose Single IV infusion	• In clinical trials, a third of participants received a second dose of tocilizumab 8 hours after first dose if no clinical improvement was observed • Currently on nationwide backorder from manufacture
Sarilumab	Use single-dose, prefilled syringe (not the prefilled pen) for SQ injection. Reconstitute sarilumab 400 mg in 100 cc 0.9% NaCl and administer as an IV infusion over 1 hour.	• Used as alternative immunomodulatory drug if tocilizumab is not available or feasible to use (BIIa) per NIH guidelines • In the United States, the currently approved route of administration for sarilumab is SQ injection. In the REMAP-CAP trial, the SQ formulation was used to prepare the IV infusion • No FDA EUA for use in COVID-19

RDV = remdesivir, DEX = dexamethasone, eGFR = estimated glomerular filtration rate, IV = intravenous, PO = oral, SQ = subcutaneous

DEVELOPMENT & APPROVAL OF THE GUIDELINE/PROCEDURE/PROTOCOL

a. The document is intended to provide information on the drugs currently used for COVID-19 and relevant literature and data regarding use of these agents when considering pharmacotherapy management.
b. Review will be ongoing during this announced pandemic and then follow regular updates.

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REFERENCES

1. COVID-19 Treatment Guidelines Panel. Coronavirus Disease 2019 (COVID-19) Treatment Guidelines. National Institutes of Health. Available at https://www.covid19treatmentguidelines.nih.gov/. Accessed January 12, 2022.
2. Food and Drug Administration (FDA). Fact sheet for healthcare providers: emergency use authorization for Evusheld (tixagevimab and cilgavimab). https://www.evusheld.com/. Published December 8, 2021. Accessed January 10, 2022.
3. The Federal Response to COVID-19: Therapeutic Clinical Implementation Guidelines**.** Outpatient Administration Guide for Healthcare Providers. Available at Federal Response to COVID-19: Monoclonal Antibody Clinical Implementation Guide. Outpatient Administration Guide for Healthcare Providers (phe.gov). Accessed January 12, 2022