These are interim treatment recommendations based on best available evidence at this time. Recommendations may be modified based on resource availability, testing recommendations, and future published data.

Clinical symptoms range from uncomplicated upper respiratory tract viral infection to pneumonia, acute respiratory distress syndrome (ARDS), sepsis, and septic shock.

Testing:
See link to current COVID-19 testing recommendations: Send testing for COVID-19

Treatment:
1. Supportive care:
Supportive care is the mainstay of treatment for non-hospitalized patients.

2. Monoclonal antibody infusion:
Casirivimab + Imdevimab (REGEN-COV) has been approved by the FDA for emergency use authorization (EUA) for post-exposure prophylaxis in certain individuals with close contact exposures at high risk for progression to severe disease. Please see the Post-exposure prophylaxis guidelines for more information.

The FDA has issued an EUA for bamlanivimab + etesevimab, and casirivimab + imdevimab (REGEN-COV) for non-hospitalized adults and adolescents (12-17 years old) with mild to moderate symptoms of COVID-19 with risk factors for progression to severe disease (see Michigan Medicine Eligibility Criteria). These are monoclonal antibodies that have been developed to bind to the spike protein of SARS-CoV-2 and block the virus from invading human cells. Research suggests that it may reduce the chances that high-risk patients with mild to moderate COVID-19 will develop severe disease that requires a visit to the emergency department and/or hospitalization.

To reach the most eligible patients as quickly and efficiently as possible, we are actively screening non-admitted potentially eligible candidates with risk factors for progression to severe disease, with a new positive PCR test for SARS-CoV-2 through:
- Michigan Medicine (including ambulatory testing and ED testing of patients discharged home)
- MLabs (including UHS and OHS, or community partners)
- Michigan Medicine patients tested at an outside lab who have the PCR uploaded to MiChart with an “Outside Reported COVID-19 Pos Status” order

The goal is to give the medication as early in the course of disease as possible. The criteria utilized to identify patients with risk factors for severe disease have been approved by the Scarce Resource Allocation Committee and will be re-evaluated based on drug supply and infusion capacity. Clinicians do not need to contact anyone directly to procure this medication for their patient who meet the high-risk criteria below but should upload a patient’s result using the “Outside Reported COVID-19 POS Status” order if their test was completed through an outside lab. If a patient is eligible, the patient will be contacted to discuss further, and proceed with scheduling the infusion based on capacity available. Primary care physicians will be notified if their patient is contacted to discuss the infusion.

The FDA has expanded the EUA criteria outside of those “high-risk” patient populations that have the most data to support use. While the approach will still be to actively seek out those highest risk patients, if a patient does not meet the high-risk criteria defined below but their provider is concerned and determines them to be high-risk (e.g., 49-year-old with BMI of 34), referrals can be placed for evaluation. By placing a “Referral for COVID-19 Monoclonal Antibody Treatment” order, a referral will go directly to the COVID mAb trained pharmacy team. Patients will be called, evaluated for eligibility based on symptoms and duration, and will be scheduled as capacity allows. Prioritization will remain for the highest risk patients. This only needs to be done for patients outside of the criteria below.
It is an approximately 30-minute IV infusion, depending on the product, and requires one hour of observation afterwards. Rarely, patients could experience an allergic reaction or an infusion-related reaction during the infusion (~2% in the BLAZE-1 study).

The most common reported symptoms after the infusion are nausea, diarrhea, dizziness, vomiting, myalgias, headache, and malaise. These symptoms did not occur more frequently in patients receiving the monoclonal antibody infusion when compared to the placebo group. Thus, for most patients such symptoms are more likely to be related to COVID-19 rather than the infusion. Patients receiving a monoclonal antibody infusion are also still at risk for progression to severe disease. Therefore, a patient complaining of worsening shortness of breath in the few days following the infusion could be experiencing COVID-19 progression OR a delayed reaction to the infusion. Irrespective of the underlying cause, they should be evaluated urgently. Patients without shortness of breath or other concerns requiring emergent evaluation in the ED can be managed with supportive care (i.e., ibuprofen, acetaminophen, fluids, anti-emetics, loperamide).

<table>
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<tr>
<th>Michigan Medicine Monoclonal Antibody Eligibility Criteria*</th>
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<td>A patient must have had a Michigan Medicine encounter in the last 5 years OR be a Michigan Medicine employee OR be a University of Michigan student OR be a resident of Washtenaw County</td>
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Patients with mild or moderate COVID-19 who meet criteria #1-4 AND either criteria #5, #6, OR criteria #7

1. Outpatient
2. No requirement for supplemental oxygen (or no increase from baseline supplemental oxygen)
3. Symptoms ≤10 days
4. Not received convalescent plasma
5. Not fully vaccinated Adult ≥18 years old and ≥40 kg AND one of the following:
   a) BMI ≥35
   b) Age ≥50
   c) Chronic respiratory disease (e.g., COPD, moderate or severe Asthma (requires a daily inhaled corticosteroid), Bronchiectasis, CF, ILD)
   d) Cardiovascular disease (e.g., HTN, valvular disease, CVA, PAD, CHF)
   e) Diabetes
   f) CKD (stage III, IV, or end stage CKD-GFR <15 or dialysis)
   g) Immunosuppressed: congenital or acquired immunodeficiency, SOT, active malignancy receiving chemotherapy, BMT, or autoimmune diseases requiring immunosuppressive therapy
   h) Pregnancy
6. Vaccinated Adult ≥18 years old and ≥40 kg AND one of the following:
   a) BMI ≥35
   b) Age ≥65
   c) Chronic respiratory disease (e.g., COPD, moderate or severe Asthma (requires a daily inhaled corticosteroid), Bronchiectasis, CF, ILD)
   d) Immunosuppressed: congenital or acquired immunodeficiency, SOT, active malignancy receiving chemotherapy, BMT, or autoimmune diseases requiring immunosuppressive therapy
   e) Pregnancy
   f) Age ≥50 and one of the following
      i) Diabetes
      ii) CKD (stage III, IV, or end stage CKD-GFR <15 or dialysis)
      iii) Cardiovascular disease (e.g., HTN, valvular disease, CVA, PAD, CHF)
7. Pediatric patient 12-17 years old weighing ≥40 kg AND one of the following:
   a) BMI ≥95% for age on CDC growth chart
   b) Immunosuppressed: congenital or acquired immunodeficiency, SOT, active hematologic malignancy receiving chemotherapy, BMT, or autoimmune diseases requiring immunosuppressive therapy
   c) Pregnancy

*Criteria apply to all bamlanivimab + etesevimab, and casirivimab + imdevimab products
The recommendations in this guide are meant to serve as treatment guidelines for use at Michigan Medicine facilities. If you are an individual experiencing a medical emergency, call 911 immediately. These guidelines should not replace a provider’s professional medical advice based on clinical judgment, or be used in lieu of an Infectious Diseases consultation when necessary. As a result of ongoing research, practice guidelines may from time to time change. The authors of these guidelines have made all attempts to ensure the accuracy based on current information, however, due to ongoing research, users of these guidelines are strongly encouraged to confirm the information contained within them through an independent source.

If obtained from a source other than med.umich.edu/asp, please visit the webpage for the most up-to-date document.