<table>
<thead>
<tr>
<th>Illness Severity</th>
<th>Current Potential Therapy Options</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>Asymptomatic</td>
<td>Supportive care</td>
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</tbody>
</table>
| Symptomatic not requiring supplemental oxygen (> 94% on room air) | Supportive care  
SARS CoV-2 specific antibody therapy for patients at high risk of progression to severe COVID-19 | Initiation of either remdesivir or corticosteroids is not recommended.  
Emergency use authorization (EUA) monoclonal antibody therapies:  
**Bamlanivimab**  
The FDA issued an EUA on November 9, 2020 for bamlanivimab, a single monoclonal SARS-CoV2 antibody, in select non-hospitalized patients 12 years of age or older (≥40kg) with a laboratory-confirmed COVID-19 (i.e., direct SARS-CoV2 viral test), symptom onset within 5 days and risk factors for progression to severe COVID-19.  
**Casirivimab/Imdevimab**  
The FDA issued an EUA on November 21, 2020 for casirivimab/imdevimab, a dual monoclonal SARS-CoV2 antibody cocktail, for similar indications as bamlanivimab. |
| Hospitalized requiring low-flow nasal cannula (SpO2 ≤ 94% on RA) | Supportive care  
Consider:  
- Anticoagulation  
- Convalescent plasma or SARS-CoV-2 specific antibody therapy3-6  
- Dexamethasone  
- Remdesivir  
In addition to remdesivir, anticoagulation, antibody therapy, and dexamethasone consider referring for enrollment in available Clinical Trials.  
*Not inclusive of EUA bamlanivimab and casirivimab/imdevimab | Remdesivir – requires ID consultation and is non-formulary  
Remdesivir is not recommended in patients with an eGFR < 30 mL/min or with an ALT > 5 times with upper limit of normal. Remdesivir was FDA-approved for the treatment of COVID-19 on October 22, 2020 in hospitalized patients 12 years of age and older weighing at least 40 kg.  
**Convalescent plasma requires ID consultation**  
On August 23, 2020, the FDA issued an EUA for the use of convalescent plasma in hospitalized patients. The Mount Sinai Health System has a protocol in place for the administration of convalescent plasma. In patients with evidence of SARS-CoV-2 antibodies, SARS-CoV-2 antibody therapy is not recommended.  
**Dexamethasone 6 mg IV/PO once daily for up to 10 days**  
Patients with symptom duration of < 7 days have not demonstrated benefit from dexamethasone. Dexamethasone should not be continued after discharge unless patient has a history of being on chronic steroid therapy. |
| Hospitalized requiring non-rebreather, high flow nasal cannula, or non-invasive ventilation (i.e., BiPAP) | Supportive care  
Recommended:  
- Anticoagulation  
- Convalescent plasma or SARS-CoV-2 antibody therapy*  
- Dexamethasone  
- Remdesivir  
In addition to remdesivir, anticoagulation, antibody therapy, and dexamethasone consider referring for enrollment in available Clinical Trials.  
*Not inclusive of EUA bamlanivimab and casirivimab/imdevimab | See above |
| Hospitalized requiring mechanical ventilation or ECMO | Supportive care  
Consider  
- Anticoagulation  
- Dexamethasone  
In addition to anticoagulation and dexamethasone consider referring for enrollment in available Clinical Trials. | Evaluation for the appropriateness of convalescent plasma will be on a case-by-case basis. Currently, data demonstrating benefit are lacking in these populations.  
Remdesivir is not recommended. |
Medications:

**Anticoagulation**[^8][^9] The Mount Sinai Health System COVID-19 Anticoagulation Protocol

**Bamlanivimab**[^2][^10]

The FDA issued an emergency use authorization (EUA) for outpatient infusion of bamlanivimab on November 9, 2020. Bamlanivimab is a monoclonal antibody targeting the spike protein of SARS-CoV2. Benefit has not been observed in patients who require oxygen or who are hospitalized.

- National allocation of bamlanivimab will be made weekly to states based on reported 7-day hospitalizations. The allocation to MSHS is limited and in order to allow for equitable distribution and adherence to the EUA the prescribing of bamlanivimab will be adjudicated by a multidisciplinary committee after screening and Infectious Diseases consultation.
- Patients 12 years or older (and over 40 kg) referred for bamlanivimab must have a documented direct SARS-CoV2 viral test (antigen or PCR), symptoms of COVID-19 for ≤ 5 days and be at high risk for progressing to severe COVID-19. These high-risk conditions are described in the fact sheet for health care providers.

**Dosing:**

700 mg IV x 1 dose infused over 1 hour

**Caution:**

Monitor for infusion reactions and/or anaphylaxis for 1 hour after infusion

- Adverse events should be reported to FDA Medwatch.

**Casirivimab/Imdevimab**

The FDA issued an EUA for outpatient infusion of casirivimab/imdevimab on November 21, 2020. Casirivimab/Imdevimab is a monoclonal antibody cocktail targeting the spike protein of SARS-CoV2. Benefit has not been observed in patients who require oxygen or who are hospitalized.

- National allocation of casirivimab/imdevimab will be made weekly to states based on reported 7-day hospitalizations. The allocation to MSHS is limited and in order to allow for equitable distribution and adherence to the EUA the prescribing of casirivimab/imdevimab will be adjudicated by a multidisciplinary committee after screening and Infectious Diseases consultation.
- Patients 12 years or older (and over 40 kg) referred for casirivimab/imdevimab must have a documented direct SARS-CoV2 viral test (antigen or PCR), symptoms of COVID-19 for ≤ 5 days and be at high risk for progressing to severe COVID-19. These high-risk conditions are described in the fact sheet for health care providers.

**Dosing:**

1200 mg of casirivimab with 1200 mg of imdevimab x 1 dose infused over 1 hour

**Caution:**

Monitor for infusion reactions and/or anaphylaxis for 1 hour after infusion

- Adverse events should be reported to FDA Medwatch.

**Dexamethasone**[^11][^12][^13]

- Dexamethasone is recommended in patients with confirmed COVID-19 who require supplemental oxygen including those who require mechanical ventilation. Corticosteroid use has not been found to be beneficial in COVID-19 patients who do not require respiratory support and use in this population could be potentially harmful.
- The benefit of dexamethasone was observed in patients > 7 days out from symptom onset.
- Dexamethasone prescribed specifically for the treatment COVID-19 should not be continued after discharge unless the patient is on chronic corticosteroid therapy.

**Dosing:**

Dexamethasone 6 mg PO or IV q 24 hours for up to 10 days

Alternative corticosteroids (dose equivalent to dexamethasone): Methylprednisolone 32 mg IV q 24 hours, Hydrocortisone 160 mg, or Prednisone 40 mg PO q 24 hours for up to 10 days

**Caution:**

- Monitor for hyperglycemia and secondary infections.

**Remdesivir**[^14][^15]

- Exclusions for initiation and continuation: eGFR < 30 mL/min, ALT > 5 x ULN
- Consult Infectious Diseases for consideration for remdesivir therapy. The approval of remdesivir, which is non-formulary, will be determined by a multidisciplinary committee.
- Use of remdesivir in pediatric patients (≤ 12 years of age) and patients weighing < 40 kg would be considered off-label use of remdesivir. Use of the lyophilized powder for hospitalized pediatric patients weighing ≥ 3.5 kg is available under an emergency use authorization. Due to the lack of data in adults < 40 kg, using the EUA to document the off-label use is recommended at this time.

Remdesivir was FDA-approved for the treatment of COVID-19 on October 22, 2020 in hospitalized patients 12 years of age and older weighing at least 40 kg. The Adaptive COVID-19 Treatment Trial (ACTT-1) is a randomized placebo-controlled trial. In this trial hospitalized patients with lab-confirmed COVID-19 on low-flow oxygen had shorter median symptom duration (10 versus 15 days) and improved 29-day survival (HR for death 0.3). The trial was not powered to evaluate for differences in recovery time or mortality in patients receiving non-invasive ventilation. The WHO SOLIDARITY study combined data from four trials including ACTT-1. In the analysis, low and high flow oxygen were combined and did not demonstrate a mortality benefit.
Dosing:
Patients ≥ 40 kg: 200 mg IV on day 1 then 24 hours later start 100 mg IV q 24h for 4 days for a total duration of 5 days or until hospital discharge, whichever is sooner. Patients should not remain hospitalized solely to complete course of remdesivir if discharge is appropriate.

Caution:
- Hepatic function tests should be checked prior to initiating remdesivir and daily. Elevation in transaminases have been observed in clinical trials including in both healthy volunteers and patients with COVID-19. Hepatic function tests should be checked prior to initiating remdesivir and daily.
- Remdesivir should be discontinued if ALT > 5 times the upper limit of normal or if there is signs and symptoms of liver inflammation (e.g., increased bilirubin, alkaline phosphatase, or INR).
- Remdesivir should be discontinued if patient’s eGFR < 30 mL/min.
- Adverse events should be reported to FDA Medwatch.
Medications **NOT** currently recommended for the treatment of SARS-CoV2 (COVID-19):

<table>
<thead>
<tr>
<th>Medication</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>ACE inhibitors and ARBs</strong>&lt;sup&gt;17&lt;/sup&gt;</td>
<td>Patients prescribed ACE inhibitors and ARBs for preexisting conditions should be continued on their ACE inhibitor and ARB therapy. Currently, there is no scientific or clinical evidence that taking ACE inhibitors or ARBs increases the risk of acquiring COVID-19 or that use may increase the severity of illness for those acquiring infections.</td>
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<tr>
<td><strong>Azithromycin</strong>&lt;sup&gt;18&lt;/sup&gt;</td>
<td>Azithromycin with or without hydroxychloroquine is <strong>NOT</strong> recommended for the treatment of COVID-19.</td>
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<td><strong>Baricitinib</strong> and kinase inhibitors (Janus kinase (JAK) inhibitors and Bruton’s tyrosine kinase (BTK) inhibitors)&lt;sup&gt;19&lt;/sup&gt;</td>
<td>On November 19, 2020, a EUA was issued for the combination of baricitinib, a JAK inhibitor, with remdesivir for the treatment of COVID-19 in hospitalized patients age 2 and older based on limited data from ACTT-2. Patients treated with the combination had a median time to recovery of 1 day less compared to those treated with remdesivir alone.&lt;sup&gt;20&lt;/sup&gt; In a subsequent analysis, a day 29 mortality benefit was noted in patients who at baseline required low-flow, high flow oxygen, or non-invasive ventilation. Patients with prior initiation of remdesivir and receipt of antibody therapy (e.g., monoclonal SARS-CoV2 antibodies or convalescent plasma) were excluded. Currently, MSHS does not recommend the use of baricitinib with or without remdesivir for the treatment of COVID-19. There are insufficient data to recommend the use of JAK or BTK inhibitors for the treatment of COVID-19. Use of one of these agents for the off-label treatment of COVID-19 requires ID non-formulary approval at all times. Clinical trials evaluating the role of these agents are ongoing.</td>
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<tr>
<td><strong>Famotidine</strong>&lt;sup&gt;21&lt;/sup&gt;</td>
<td>Use of H2 blockers or proton pump inhibitors specifically for the treatment of COVID-19 is <strong>not</strong> recommended.</td>
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<td><strong>Hydroxychloroquine</strong>&lt;sup&gt;18,22-25&lt;/sup&gt;</td>
<td>Hydroxychloroquine is <strong>NOT</strong> recommended for prophylaxis or treatment of COVID-19. Co-administration of remdesivir and hydroxychloroquine may result in reduced antiviral activity of remdesivir.&lt;sup&gt;26&lt;/sup&gt; Patients prescribed hydroxychloroquine for preexisting rheumatologic conditions should be continued on their current dose.</td>
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<td><strong>Interferons</strong>&lt;sup&gt;27&lt;/sup&gt;</td>
<td>Data specific to SARS CoV-2 are lacking. Interferon is currently <strong>not</strong> recommended for the treatment of COVID-19. Clinical trials are ongoing.</td>
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<tr>
<td><strong>Ivermectin</strong>&lt;sup&gt;28&lt;/sup&gt;</td>
<td>Despite inhibitory activity <em>in vitro</em>, clinical data are lacking. Ivermectin is not recommended for the treatment of COVID-19.</td>
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<tr>
<td><strong>IVIG</strong></td>
<td>Use of IVIG for COVID-19 is <strong>not</strong> recommended.</td>
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<tr>
<td><strong>Lopinavir/ritonavir (Kaletra)</strong>&lt;sup&gt;29,30&lt;/sup&gt;</td>
<td>Lopinavir/ritonavir is <strong>not</strong> recommended for the treatment of COVID-19.</td>
</tr>
<tr>
<td><strong>Nitazoxanide</strong>&lt;sup&gt;31&lt;/sup&gt;</td>
<td>Displays inhibitory activity against the virus <em>in vitro</em> however no clinical data in humans exists.</td>
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<td><strong>Oseltamivir</strong></td>
<td>SARS-CoV-2 does <strong>NOT</strong> use neuraminidase as part of the viral replication cycle therefore neuraminidase inhibitors are not likely to provider therapeutic value.</td>
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<td><strong>Tocilizumab (IL-6 inhibitors)</strong>&lt;sup&gt;32-36&lt;/sup&gt;</td>
<td>Randomized controlled clinical trials of IL-6 inhibitors failed to meet clinical endpoints and failed to show mortality benefit. Use of an IL-6 inhibitor for the treatment of COVID-19 is <strong>NOT</strong> recommended and should not be prescribed off-label.</td>
</tr>
<tr>
<td><strong>Ribavirin</strong></td>
<td>There are insufficient data to recommend the use of ribavirin for the treatment of COVID-19.</td>
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<td><strong>Zinc</strong></td>
<td>There are insufficient data to recommend the use of for the treatment of COVID-19.</td>
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References:


