This protocol was created for internal Montefiore clinical purposes only and cannot be construed to serve as general recommendations or guidelines for anyone outside of Montefiore.

These treatment protocols are recommendations for caring for patients with COVID while Montefiore is operating under its Emergency Procedures for the declared state of emergency for the COVID pandemic. Additionally, these protocols may change as more research data becomes available. Please frequently check for updates.

Clinicians should always rely on the specific patient’s medical condition for clinical decision-making, even if that requires a deviation from the protocol.

**Corticosteroid therapy in COVID-19 pneumonia & Impending Respiratory Failure**

Recommend treatment with steroids in patients with:

1. COVID 19 requiring mechanical ventilation, non-invasive ventilation or High Flow Nasal Cannula
2. COVID 19 not on mechanical ventilation BUT requiring supplemental oxygen
   AND either of the following:
   a. CRP>20
   b. Increased work of breathing deemed "impending respiratory failure"

Recommend Rx with systemic steroids:
- Dexamethasone 6mg daily preferred*
- Prednisone 40mg daily (alternative)
- Methylprednisolone 32mg daily (alternative)

**Duration:** 10d or until discharge ( whichever is shorter)

**Monitor:** CRP response to treatment, hyperglycemia, secondary infections

Assess Risk for Cytokine Storm/secondary Haemophagocytic Lymphohistiocytosis:

<table>
<thead>
<tr>
<th>Clinical Parameters</th>
<th>Laboratory Parameters</th>
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<tbody>
<tr>
<td>Fever &gt; 101°F for 48hrs</td>
<td>Ferritin &gt; 1000 ug/L</td>
</tr>
<tr>
<td>Systolic BP &lt;90 (not resp to IVF)</td>
<td>CRP ≥ 30 mg/dl or change in CRP ≥ 15mg/dl</td>
</tr>
<tr>
<td>PaO2/FiO2 &lt;200</td>
<td>Absolute neutrophil count &lt;2.0 or &gt;7.7 K/ul</td>
</tr>
<tr>
<td></td>
<td>Platelets &lt; 100 k/ul</td>
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<tr>
<td></td>
<td>Hemoglobin &lt; 9 g/L</td>
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<td>AST ≥ 150 IU/L</td>
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</table>

**If ≥ 2 clinical AND ≥ 2 laboratory parameters:**
Place e-consult based on location:
- CHAM→Pediatric Rheumatology
- Moses/Wakefield→ Adult Rheumatology
- Weiler→ Allergy/Immunology

* Dexamethasone can be given PO or IV; its lower mineralocorticoid effect preferred

Steroids may cause harm in patients with COVID 19 infection with CRP<10. They should be used with caution in this setting.

The safety of using Dexamethasone in children is unknown.
Supporting Evidence for Steroids in Severe COVID 19

1. Administration of methylprednisolone reduced the risk of death (hazard ratio, 0.38; 95% CI, 0.20-0.72; P = .003).

Citation: Wu C et al. Risk Factors Associated With Acute Respiratory Distress Syndrome and Death in Patients With Coronavirus Disease 2019 Pneumonia in Wuhan, China. JAMA Intern Med. Published online March 13, 2020.

2. RECOVERY Trial: Pre-print release. This trial has not undergone peer review.

In an open label RCT of admitted patients with COVID19, 2104 were randomized to 6mg dexamethasone daily and 4321 were randomized to usual care. Overall there was a significant reduction in 28-day mortality in the group randomized to dexamethasone (21.6% vs. 24.6%, p<0.001).

There was significant heterogeneity of effect among subgroups with the greatest benefit among patients on mechanical ventilation at the time of randomization (RR = 0.65, p<0.001). There was also a benefit to patients on supplemental oxygen at the time of randomization (RR 0.80, p=0.002). There was a non-significant increase in mortality among patients not requiring oxygen supplementation (RR 1.22, p=0.14).