The COVID-19 Treatment Guidelines Panel (the Panel) does not recommend the use of any agents for pre-exposure prophylaxis (PrEP) against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outside of the setting of a clinical trial (AIII).

The Panel does not recommend the use of any agents for post-exposure prophylaxis (PEP) against SARS-CoV-2 infection outside of the setting of a clinical trial (AIII).

The Panel recommends no additional laboratory testing and no specific treatment for persons with suspected or confirmed asymptomatic or presymptomatic SARS-CoV-2 infection (AIII).

At present, no drug has been proven to be safe and effective for treating COVID-19. There are insufficient data to recommend either for or against the use of any antiviral or immunomodulatory therapy in patients with COVID-19 who have mild, moderate, severe, or critical illness (AIII).
Infection Control

- For health care workers who are performing aerosol-generating procedures on patients with COVID-19, the COVID-19 Treatment Guidelines Panel (the Panel) recommends using fit-tested respirators (N-95 respirators) or powered air-purifying respirators rather than surgical masks, in addition to other personal protective equipment (i.e., gloves, gown, and eye protection such as a face shield or safety goggles) (AIII).
- The Panel recommends that endotracheal intubation for patients with COVID-19 be done by health care providers with extensive airway management experience, if possible (AIII).
- The Panel recommends that intubation be achieved by video laryngoscopy, if possible (CIII).

Hemodynamic Support

- The Panel recommends norepinephrine as the first-choice vasopressor (AII).
- The Panel recommends using dobutamine in patients who show evidence of persistent hypoperfusion despite adequate fluid loading and the use of vasopressor agents (BII).

Ventilatory Support

- For adults with COVID-19 and acute hypoxemic respiratory failure despite conventional oxygen therapy, the Panel recommends high-flow nasal cannula (HFNC) oxygen over noninvasive positive pressure ventilation (NIPPV) (BII).
- In the absence of an indication for endotracheal intubation, the Panel recommends a closely monitored trial of NIPPV for adults with COVID-19 and acute hypoxemic respiratory failure for whom HFNC is not available (BIII).
- For adults with COVID-19 who are receiving supplemental oxygen, the Panel recommends close monitoring for worsening of respiratory status and recommends early intubation by an experienced practitioner in a controlled setting (AII).
- For mechanically ventilated adults with COVID-19 and acute respiratory distress syndrome (ARDS), the Panel recommends using low tidal volume (Vt) ventilation (Vt 4–8 mL/kg of predicted body weight) over higher tidal volumes (Vt >8 mL/kg) (AI).
- For mechanically ventilated adults with COVID-19 and refractory hypoxemia despite optimized ventilation, the Panel recommends prone ventilation for 12 to 16 hours per day over no prone ventilation (BII).
- For mechanically ventilated adults with COVID-19, severe ARDS, and hypoxemia despite optimized ventilation and other rescue strategies, the Panel recommends a trial of inhaled pulmonary vasodilator as a rescue therapy; if no rapid improvement in oxygenation is observed, the patient should be tapered off treatment (CIII).
- There are insufficient data to recommend either for or against the routine use of extracorporeal membrane oxygenation for patients with COVID-19 and refractory hypoxemia (BIII).
Drug Therapy

- There are insufficient data for the Panel to recommend either for or against any antiviral or immunomodulatory therapy in patients with severe COVID-19 disease (AIII).
- In patients with COVID-19 and severe or critical illness, there are insufficient data to recommend empiric broad-spectrum antimicrobial therapy in the absence of another indication (BIII).
- The Panel recommends against the routine use of systemic corticosteroids for the treatment of mechanically ventilated patients with COVID-19 without ARDS (BIII).
- In mechanically ventilated adults with COVID-19 and ARDS, there are insufficient data to recommend either for or against corticosteroid therapy in the absence of another indication (CI).
- In COVID-19 patients with refractory shock, low-dose corticosteroid therapy is preferred over no corticosteroid therapy (BII).

At present, no drug has been proven to be safe and effective for treating COVID-19. There are no Food and Drug Administration (FDA)-approved drugs specifically to treat patients with COVID-19. Although reports have appeared in the medical literature and the lay press claiming successful treatment of patients with COVID-19 with a variety of agents, definitive clinical trial data are needed to identify optimal treatments for this disease. Recommended clinical management of patients with COVID-19 includes infection prevention and control measures and supportive care, including supplemental oxygen and mechanical ventilatory support when indicated. As in the management of any disease, treatment decisions ultimately reside with the patient and their health care provider.

Antivirals

- There are insufficient clinical data to recommend either for or against using chloroquine or hydroxychloroquine for the treatment of COVID-19 (AIII).
  - If chloroquine or hydroxychloroquine is used, clinicians should monitor the patient for adverse effects, especially prolonged QTc interval (AIII).
- There are insufficient clinical data to recommend either for or against using the investigational antiviral drug remdesivir for the treatment of COVID-19 (AIII).
  - Remdesivir as a treatment for COVID-19 is currently being investigated in clinical trials and is also available through expanded access and compassionate use mechanisms for certain patient populations.
- Except in the context of a clinical trial, the COVID-19 Treatment Guidelines Panel (the Panel) recommends against the use of the following drugs for the treatment of COVID-19:
  - The combination of hydroxychloroquine plus azithromycin (AIII) because of the potential for toxicities.
  - Lopinavir/ritonavir (AI) or other HIV protease inhibitors (AIII) because of unfavorable pharmacodynamics and negative clinical trial data.
Host Modifiers/Immune-Based Therapy

- There are insufficient clinical data to recommend either for or against the use of convalescent plasma or hyperimmune immunoglobulin for the treatment of COVID-19 (AIII).
- There are insufficient clinical data to recommend either for or against the use of the following agents for the treatment of COVID-19 (AIII):
  ○ Interleukin-6 inhibitors (e.g., sarilumab, siltuximab, tocilizumab)
  ○ Interleukin-1 inhibitors (e.g., anakinra)
- Except in the context of a clinical trial, the Panel recommends against the use of other immunomodulators, such as:
  ○ Interferons (AIII), because of lack of efficacy in treatment of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) and toxicity.
  ○ Janus kinase inhibitors (e.g., baricitinib) (AIII), because of their broad immunosuppressive effect.

Angiotensin-Converting Enzyme (ACE) Inhibitors and Angiotensin Receptor Blockers (ARBs)

- Persons with COVID-19 who are prescribed ACE inhibitors or ARBs for cardiovascular disease (or other indications) should continue these medications (AIII).
- The COVID-19 Treatment Guidelines Panel (the Panel) recommends against the use of ACE inhibitors or ARBs for the treatment of COVID-19 outside of the setting of a clinical trial (AIII).

Corticosteroids

For Critically Ill Patients with COVID-19:

- The Panel recommends against the routine use of systemic corticosteroids for the treatment of mechanically ventilated patients with COVID-19 without acute respiratory distress syndrome (ARDS) (AIII).
- For mechanically ventilated patients with ARDS, there is insufficient evidence to recommend for or against the use of systemic corticosteroids (CI).
- For adults with COVID-19 and refractory shock, the Panel recommends using low-dose corticosteroid therapy (i.e., shock reversal) over no corticosteroids (BII).

For Hospitalized, Non-Critically Ill Patients with COVID-19:

- The Panel recommends against the routine use of systemic corticosteroids for the treatment of COVID-19 in hospitalized patients, unless they are in the intensive care unit (AIII).
For Patients on Chronic Corticosteroids:

- Oral corticosteroid therapy used prior to COVID-19 diagnosis for another underlying condition (e.g., primary or secondary adrenal insufficiency, rheumatological diseases) should not be discontinued (AIII). On a case-by-case basis, supplemental or stress-dose steroids may be indicated (AIII).
- Inhaled corticosteroids used daily for patients with asthma and chronic obstructive pulmonary disease for control of airway inflammation should not be discontinued in patients with COVID-19 (AIII).

Pregnancy Considerations:

- The antenatal corticosteroids betamethasone and dexamethasone are known to cross the placenta and therefore are generally reserved for when administration is required for fetal benefit (BIII). Other systemic corticosteroids do not cross the placenta, and pregnancy is not a reason to restrict their use if otherwise indicated (CIII).
- The American College of Obstetricians and Gynecologists recommends against offering antenatal corticosteroids for fetal benefit in the late preterm period (34 0/7 weeks–36 6/7 weeks) because the benefits of antenatal corticosteroids in the late preterm period are less well established (CIII).
- Modifications to care for these patients may be individualized, weighing the neonatal benefits of antenatal corticosteroid use with the risks of potential harm to the pregnant patient (CIII).

HMG-CoA Reductase Inhibitors (Statins)

- Persons with COVID-19 who are prescribed statin therapy for the treatment or prevention of cardiovascular disease should continue these medications (AIII).
- The Panel recommends against the use of statins for the treatment of COVID-19 outside of the setting of a clinical trial (AIII).

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

- Persons with COVID-19 who are taking NSAIDs for a co-morbid condition should continue therapy as previously directed by their physician (AIII).
- The Panel recommends that there be no difference in the use of antipyretic strategies (e.g., with acetaminophen or NSAIDs) between patients with or without COVID-19 (AIII).