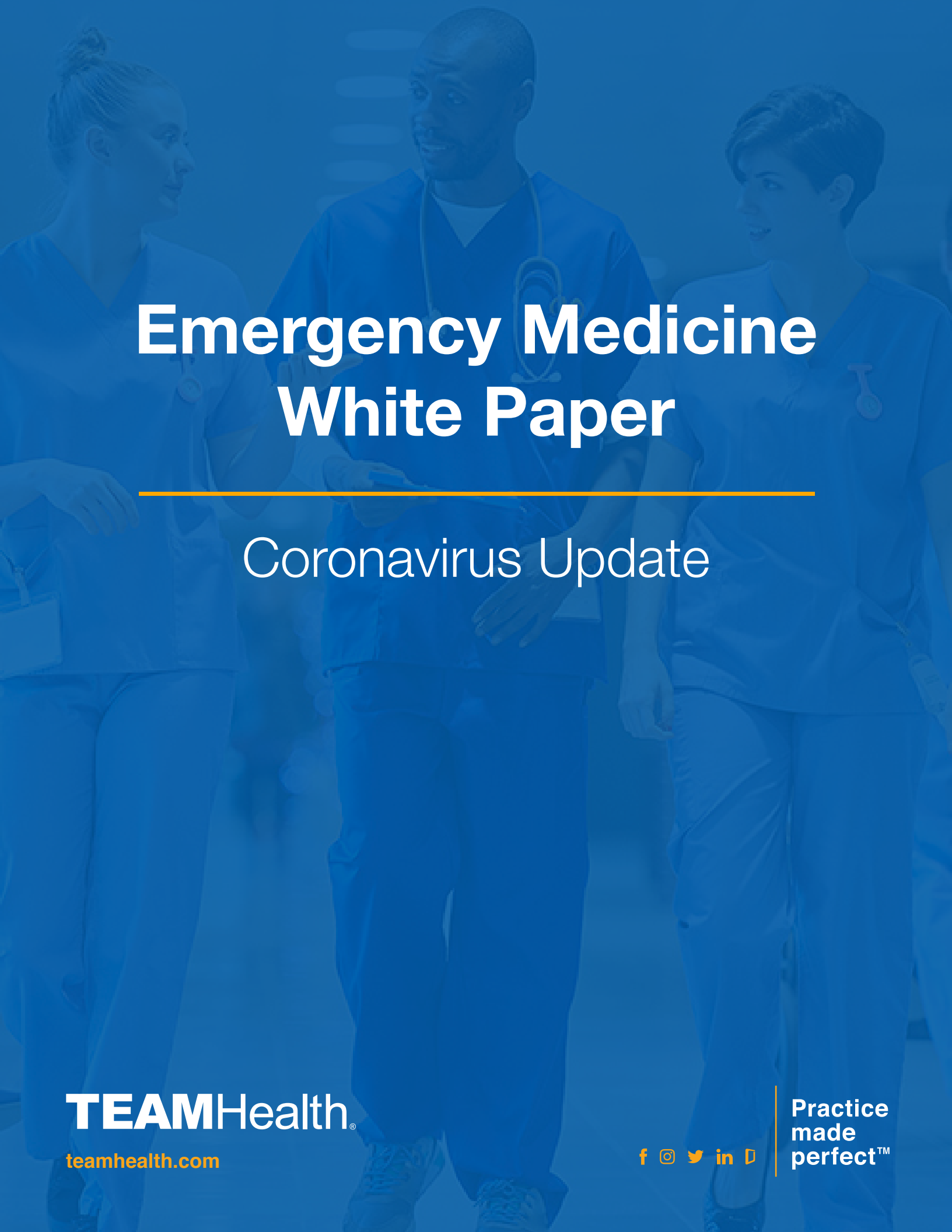

Emergency Medicine White Paper

Coronavirus Update

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Update and Clinician Guide to Diagnosis, Management and Disposition

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Introduction: January 22, 2021

COVID-19 continues to surge across most of the United States. The nation has 25 million active infections with more than 420,000 deaths at the time of this update. The country recently set new records for cases, deaths and hospitalizations. As we closely monitor the capacity of our healthcare system, hope emerges as the Pfizer and Moderna vaccines are administered.

As most of you are seeing COVID-19 patients in all stages of illness, the Emerging Infectious Disease Task Force has been working diligently to review and analyze the most up-to-date information and recommendations. This white paper summarizes the information available to frontline clinicians to guide in the care of their patients. While it contains a thorough summary, it is certainly not a comprehensive review of all the literature available, but rather meant to serve as a resource.

Content

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Transmission and PPE

The SARS-CoV2 virus that causes COVID-19 disease is known to be transmitted through contact, droplet, airborne, fomite, fecal-oral, blood borne, maternal and zoonotic modes. The data still supports that droplet and contact exposure represent the majority of all case transmissions. Aerosol transmission is also possible in situations where aerosols are being created, such as in aerosol-generating procedures or potentially in areas of crowding and poor ventilation.

During this infectious disease outbreak, enhanced infection control measures are the best line of defense against disease transmission among healthcare workers. Personal protection includes an integrated approach including engineering controls, administrative controls, and personal protective equipment. The use of Personal Protective Equipment (PPE) is critical to reduce the chance of contracting SARS-CoV-2.

The current PPE recommendations are as follows:

1. At a minimum, a surgical/procedure face mask and eye protection should be used for all routine interactions with COVID-19 or suspected COVID-19 patients.
2. An N95 DFFR[1] respirator is recommended in areas with widespread sustained transmission of the virus, as well as during routine clinical encounters during this current pandemic. In most communities it is reasonable to assume that every patient is a potential COVID-19 patient. This assumes that there is a sufficient supply of N95 respirators to meet this demand.

For aerosol-generating procedures, the recommendation is as follows:

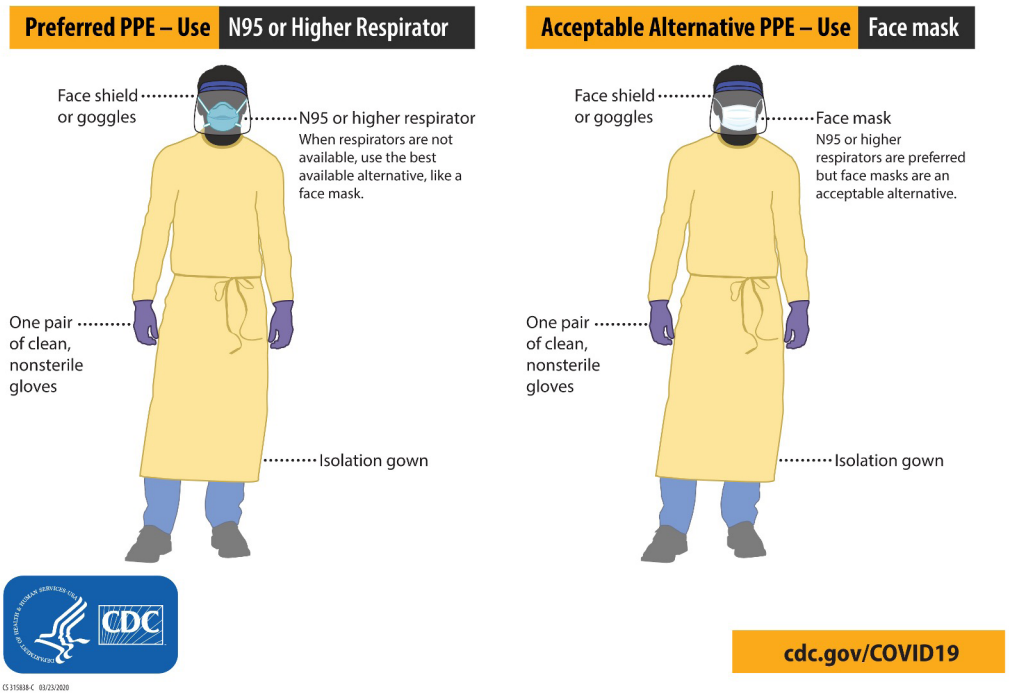
a. A DFFR rated at N95 or greater

b. full eye protection

c. gown

d. gloves

Or a powered air purifying respirator system (PAPR) along with gloves and gown PPE



Isolation and Quarantine Updates

CDC recommendations regarding the appropriate length of quarantine has evolved as we have learned more about SARS-CoV-2. Local areas may adhere to slightly differing practices, but the CDC's most updated recommendations are as follows.

On April 8, 2020, the CDC updated guidance for "critical infrastructure workers" (which includes healthcare and public health workers) to "continue work following potential exposure to COVID-19," if "they remain asymptomatic and additional precautions are implemented to protect them and the community."

[1]Disposable Face Filtering Respirator (NIOSH rated at N95 or greater).

The CDC defines a potential exposure as a household contact or having close contact (within 6 feet) with an infected person for 15 minutes or more within two days of the contact's onset of illness.

Healthcare Workers with Exposure to a Person with Suspected or Confirmed COVID-19

The CDC recommends that workers who have had an exposure but remain asymptomatic adhere to the following practices prior to and during their shift:

- HCP should be screened at the beginning of their shift for fever and symptoms consistent with COVID-19. As long as the HCP does not have a measured temperature of ≥38.0°C (100.4°F), the individual should self-monitor.
- The employee should wear a face mask and maintain 6 ft. social distancing at all times while in the workplace for 14 days after the last exposure.
- If the HCP becomes ill during the workday, they should be sent home immediately.

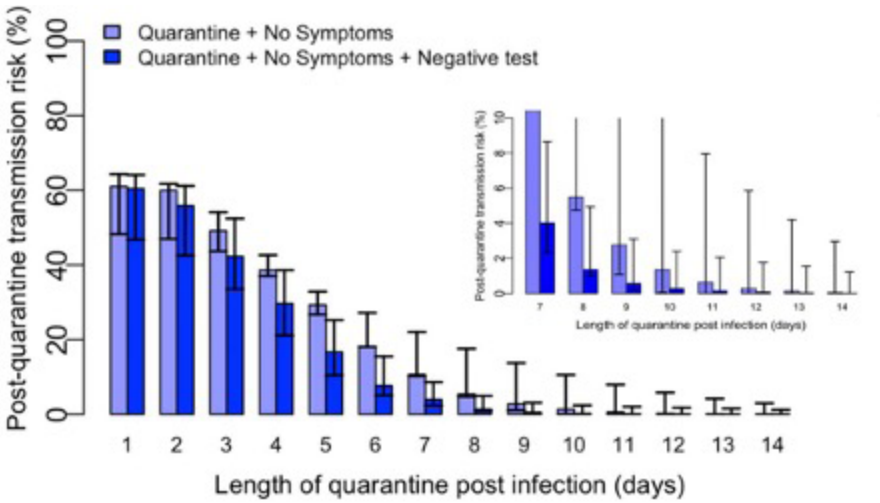
Reducing Quarantine for Close Contacts of Patient with Confirmed COVID-19

In December, the CDC recommended the following alternative options to a 14-day quarantine:

- Quarantine can end after Day 10 without testing AND if no symptoms have been reported during daily monitoring. With this strategy, residual post-quarantine transmission risk is estimated to be about 1-10%.
- When diagnostic testing resources are available, quarantine can end after Day 7 if a diagnostic specimen tests negative AND if no symptoms have been reported during daily monitoring. With this strategy, the residual post-quarantine transmission risk is estimated to be about 5-12%
- Daily symptom monitoring continues through Day 14.
- If any symptoms develop, the clinician should immediately self-isolate and contact their facility medical director and healthcare provider.

To maximally reduce the risk of transmission, persons can continue to be quarantined for 14 days without testing per existing recommendations.

These recommendations for quarantine options shorter than 14 days balance reduced burden against a small but non-zero risk of post-quarantine infection as noted in the graph below.



Estimated residual post-quarantine transmission risk with and without a negative diagnostic test of a specimen collected within 48 hours prior to discontinuation of quarantine on the indicated day for a person monitored daily for symptoms and who has remained asymptomatic until quarantine is discontinued as well as through Day 14.

Estimated residual post-quarantine transmission risk

Planned day after which quarantine is completed and can be discontinued	Residual post-quarantine transmission risk (%) with and without diagnostic testing of a specimen within 48 hours before time of planned discontinuation of quarantine					
	No testing		RT-PCR testing		Antigen testing	
	Median	Range	Median	Range	Median	Range
7	10.7	10.3-22.1	4.0	2.3-8.6	5.5	3.1-11.9
10	1.4	0.1-10.6	0.3	0.0-2.4	1.1	0.1-9.5
14	0.1	0.0-3.0	0.0	0.0-1.2	0.1	0.0-2.9

Guidance on Isolation for Persons with COVID-19

According to the CDC, a test-based strategy is no longer recommended to determine when to discontinue home isolation, except in certain circumstances. Researchers have reported that people with mild to moderate COVID-19 remain infectious no longer than 10 days after their symptoms began, and those with more severe illness or those who are severely immunocompromised remain infectious no longer than 20 days after their symptoms began.

Persons with COVID-19 who have symptoms and were isolating at home can discontinue under the following conditions:

- At least 10 days have passed since symptom onset and
- At least 24 hours have passed since resolution of fever without the use of fever-reducing medications and
- Other symptoms have improved.

Additional information: CDC's Guidance on Discontinuation of Isolation for Persons with COVID-19 Not in Healthcare Settings).

Clinical Updates

Presentation: Signs and Symptoms

The incubation period for COVID-19 is thought to extend to 14 days, with a median time of 4-5 days from exposure to symptoms onset.

The signs and symptoms of COVID-19 vary, but many will experience the following:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea
- Anosmia or Ageusia*

Less common signs and symptoms are:

- Confusion
- Rhinorrhea
- Conjunctival hyperemia or chemosis

*Anosmia/ageusia are distinguishing clinical features seen in Covid-19, reported in approximately 41-49% of patients. This can be an important finding when attempting to distinguish Covid-19 from other illnesses, especially influenza.

According to the CDC's "Coronavirus Disease 2019 in Children — United States, February 12-April 2, 2020," the following table shows the frequency of those symptoms in both the adult and pediatric populations:

Symptom	No. (%) with sign/symptom	
	Pediatric	Adult
Fever, cough, or shortness of breath	**213** (73%)	**10,167** (93%)
Fever	**163** (56%)	**7,794** (71%)
Cough	**158** (54%)	**8,775** (80%)
Shortness of breath	**39** (13%)	**4,674** (43%)
Myalgia	**66** (23%)	**6,713** (61%)
Runny nose	**21** (7.2%)	**757** (6.9%)
Sore throat	**71** (24%)	**3,795** (35%)
Headache	**81** (28%)	**6,335** (58%)
Nausea/Vomiting	**31** (11%)	**1,746** (16%)
Abdominal pain	**17** (5.8%)	**1,329** (12%)
Diarrhea	**37** (13%)	**3,353** (31%)

Assessment: Laboratory and Radiological Studies

The clinical presentation and progression of patients suspected of having COVID-19 can range from mild to severe. The severity of their presentation will determine the extent of workup that is indicated. While those early in their illness may warrant minimal if any workup, those that appear ill provide a more challenging clinical assessment.

The NIH defines severity of SARS-CoV-2 illness as either mild, moderate, severe or critical.

Mild Illness: Individuals who have any of the various signs and symptoms of COVID-19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain) without shortness of breath, dyspnea, or abnormal chest imaging.

Moderate Illness: Individuals who have evidence of lower respiratory disease by clinical assessment or imaging, and a saturation of oxygen (SpO2) ≥94% on room air at sea level.

Severe Illness: Individuals who have respiratory frequency >30 breaths per minute, SpO2 <94% on room air at sea level (or, for patients with chronic hypoxemia, a decrease from baseline of >3%), ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO2/FiO2) <300 mmHg, or lung infiltrates >50%.

Critical Illness: Individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.

In patients with severe illness, the following tests should be considered:

- CBC
- Comprehensive metabolic panel
- ABG
- Coagulation panel - PT/INR/PTT/D-Dimer
- Procalcitonin
- C-reactive protein
- Ferritin
- LDH
- CK, CK-MB
- Troponin
- Blood and sputum cultures; and/or
- COVID PCR
- BNP

Recall that additional studies related to sepsis may also be indicated if the diagnosis is not yet clear. According to Wang *et. al.* as published in JAMA, the most common laboratory abnormalities in patients hospitalized with COVID-19 related pneumonia are outlined below:

Laboratory findings at hospital admission:

Laboratory Abnormality	% with abnormality
Lymphopenia	83%
Leukopenia	34%
Thrombocytopenia	36%
Elevated C-reactive protein	61%
Elevated AST/AST	20-39%
Most have a normal procalcitonin at admission.	

The CDC does not currently recommend routine chest X-ray or chest CT as a diagnostic tool for COVID-19 infection. Viral testing remains the only specific method of diagnosis. Therefore, a CXR may not be indicated for a patient with mild disease. CXR findings are nonspecific and may show:

- Unilateral or bilateral (more likely) infiltrates
- Consolidation
- Multifocal infiltrates
- Pleural effusions (less likely)

The American College of Radiology published recommendations regarding the use of CXR and CT Chest imaging in suspected COVID-19 patients and state that CT should not be used to screen for or as a first-line test to diagnose COVID-19. CT should be reserved for hospitalized, symptomatic patients with specific clinical indications for Pulmonary Embolism or other illness in the differential diagnosis of chest pain or dyspnea.

Clinical Course

In patients that develop severe disease, deterioration seems to occur after the first week of illness. The medium time to COVID related dyspnea is 5 to 8 days and ARDS from COVID develops in 8 to 12 days. ICU admission is most likely to occur in days 10 to 12.

Laboratory abnormalities in severe COVID-19 disease*

Lab	Normal Values	Values in ICU Patients
Lymphocytes, x10^{9}L	1.1 – 3.2	0.5 – 0.9 ↓
Neutrophils, x10^{9}L	1.8 – 6.3	2.6 – 7.9 ↑
AST, U/L	15 – 40	30 – 60 ↑
ALT, U/L	9 – 50	19 – 57 ↑
Procalcitonin, ng/mL	<0.05	75.0 ↑
C-reactive protein, mg/L**	<4.9	39.3 ↑
Ferritin, ng/mL ***	21 – 494	408 – 1988 ↑
D-dimer, mg/L****	0 – 500	191 – 1324 ↑

The d-dimer will typically be abnormal at 3 to 6 times the local upper limit of normal

* Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China [published online ahead of print, 2020 Feb 7]. JAMA. 2020;e201585. doi:10.1001/jama.2020.1585 Available: Here

**Gao Y, Li T, Han M, et al. Diagnostic utility of clinical laboratory data determinations for patients with the severe COVID-19. J Med Virol. 2020. Available: Here

*** Vargas-Vargas M and Cortés-Rojo C. Ferritin levels and COVID-19. Rev Panam Salud Publica. 2020;44:e72. Available Here

**** associated with increased mortality

Hypercoagulability and COVID-19

COVID-19 has been associated with increased hypercoagulability and an increased risk for venous and arterial thrombosis of large and small vessels.

Reported manifestations include:

- Multiple Inflammatory Syndrome in Children (MIS-C)Clotting of ECMO, hemodialysis, and Central Venous Catheters as well as Arterial Lines
- Myocardial ischemia with or without injury presentations

Consideration for serial d-dimer monitoring for those patients at risk or exhibiting progressive cytokine storm with worsening oxygenation despite aggressive ventilatory management and prophylaxtic anti-coagulation is encouraged. The targeted use of thromboelastograms if available are also encouraged to assist in the decision to escalate from prophylactic to therapeutic anti-coagulaton.

More information on hypercoagulability and COVID-19 is available from the American Society of Hematology and NIH: Coronavirus Disease 2019 (COVID-19) Treatment Guidelines – Antithrombotic Therapy in Patients with COVID-19.

Risk factors for severe illness

Age is a strong risk factor for severe illness, complications, and death. According to CDC reports, among 1,482 patients hospitalized with COVID-19, 75% were aged ≥50 years, and 54% were male. Heart disease, hypertension, prior stroke, diabetes, chronic lung/respiratory disease, cancer and chronic kidney/renal disease and obesity have all been associated with increased illness severity and adverse outcomes.

Hospital Admission and Discharge

Admission and discharge practices will vary based on local practices and individual patient characteristics. These decisions should be made with the understanding that patients with mild disease will be sick for an average of two weeks and the duration of illness for severe cases will be between three to six weeks. Thus, preservation of inpatient resources is vital to the preservation of our healthcare delivery system.

In an attempt to provide guidance with disposition, there are two resources covered further here:

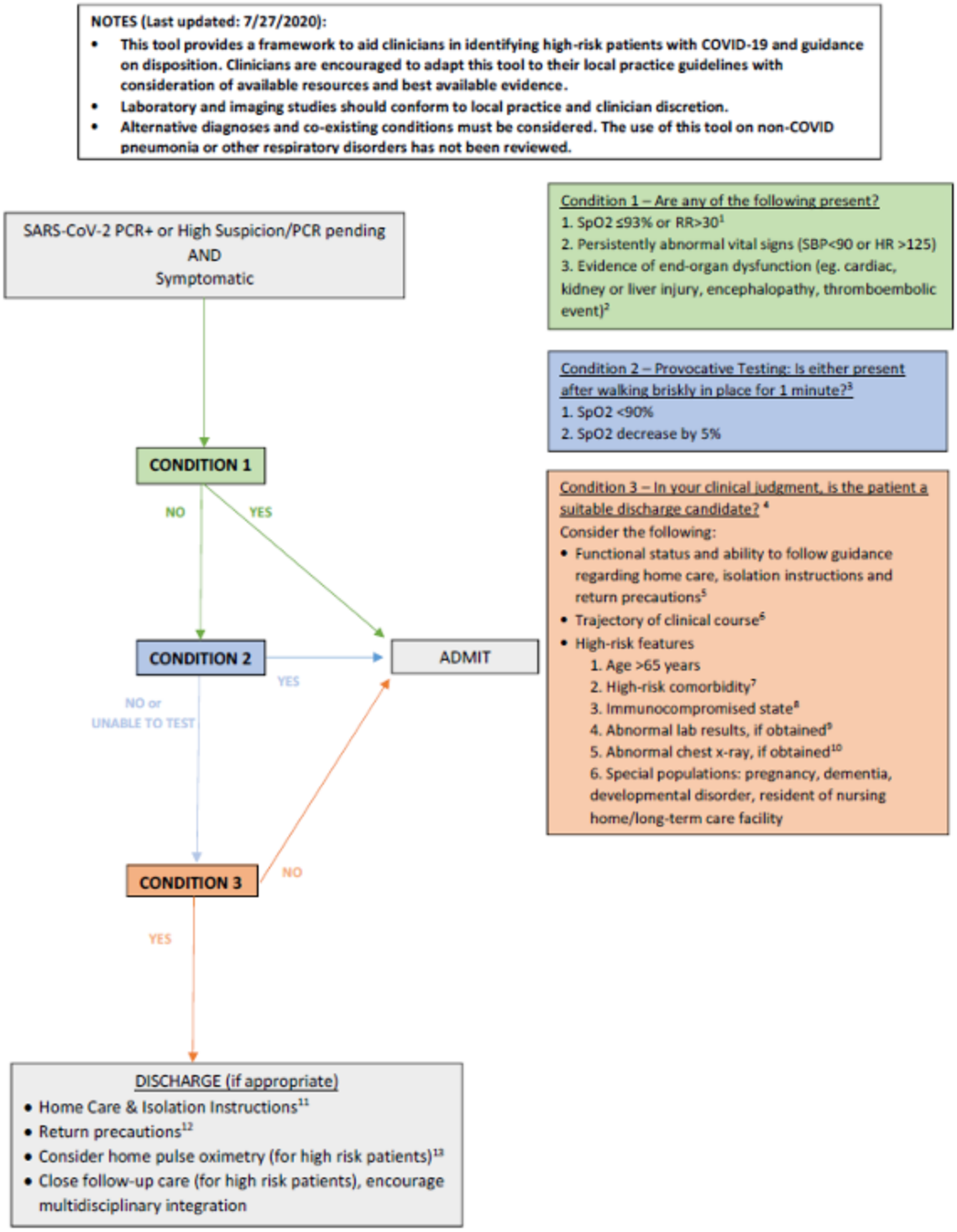
1. **ED Disposition Tool**: developed by the EIDT with authorship by Dr. Jeremy Kim
2. **ED Severity Classification**: ACEP and EvidenceCare created a seven-step triage process for emergency physicians to better classify COVID-19 patients and inform next steps.

Introduction and Overview of COVID-19 ED Disposition Tool

The COVID-19 Disposition Tool aims to create a simple, easy-to-follow, evidence-guided framework to assist with disposition decisions in the emergency department.

In this Disposition Tool, there are three categories of evaluation that do not necessarily have to be considered sequentially. Instead, the clinician must consider all three conditions as a potential indicator of need for hospitalization.

1. The first category identifies patients for whom the need for hospitalization is most apparent. This would include patients with hypoxemia, increased work of breathing, abnormal vital signs or evidence of end-organ dysfunction.
2. The second category identifies from the patients with normal resting oxygen saturation those with reduced cardiopulmonary reserve and who will be at risk for decompensation. It is important to assess for exertional desaturation based on an activity that is appropriate for a patient.
3. The more nuanced third category relies on clinical judgment to identify patients who are at high risk of decompensation and would be suitable to discharge home. Patients can be discharged home if they have a functional status and live in a setting in which guidance regarding home care, isolation instructions and return precautions could be followed adequately. The timeframe and trajectory of clinical course are important to consider given that patients can rapidly deteriorate at about one week of illness. Therefore, discharged patients with high-risk features or more concerning clinical course trajectory should be encouraged to obtain close follow-up and have symptoms monitored for the following days to weeks.



ADDITIONAL DETAILS

1. Can also evaluate work of breathing with additional consideration of an abnormal A-a gradient.
2. End-organ dysfunction descriptions:
   - Acute cardiac injury: Troponin >1x ULN, worsening heart failure, new arrhythmia, abnormal echocardiogram, myocardial infarction
   - Acute kidney injury: Cr ≥1.5x baseline, which is known or presumed to have occurred within the prior 7 days or increase by ≥0.3 mg/dL within 48 hours
   - Severe acute liver injury: ALT >5x ULN
   - Acute thromboembolic event: cerebrovascular accident, mesenteric ischemia, acute limb ischemia
3. Perform only if it is safe to do so and in a supervised setting to assess for worsening dyspnea, fatigue or other adverse effects. Consider the patient's baseline functional status in determining the distance or duration of provocation. Walking in the hallway is limited by physical constraints of ED and patients must wear a mask to minimize exposure to others. (See supporting document for alternative provocative tests)
4. Admission based on Condition 3 relies on clinical judgment. Consult hospitalist team regarding observation status, home monitoring, or full admission. Patient disposition should be based on the risk for clinical decompensation, available hospital resources and/or other outpatient monitoring capability.
5. Guidance regarding home care and isolation instructions as per CDC guidelines. Return precautions include worsening shortness of breath, cyanosis, change in mental status, severe constant dizziness or lightheadedness, and inability to tolerate oral intake.
6. Patients can rapidly deteriorate at about 1 week after symptom onset. Median time from symptom onset to dyspnea is 5-8 days, to ARDS 8-12 days, and to ICU admission 10-12 days.
7. cardiovascular disease, chronic lung disease, chronic kidney disease, hypertension, diabetes mellitus, cancer, obesity BMI≥30, sickle cell disease
8. transplant recipient, immunosuppressive drugs including chronic steroids, HIV with CD4 <200
9. Consider laboratory testing that is readily available in the ED. Examples: CRP >100mg/L, d-dimer >1µg/mL, LDH >245 U/L, ALC <0.8 x10^9/L.
10. Common radiographic findings include multifocal opacities, consolidations, ground-glass opacities, interstitial abnormalities.
11. as per CDC guidelines
12. Return precautions include worsening shortness of breath, cyanosis, change in mental status, severe constant dizziness or lightheadedness, and inability to tolerate oral intake.
13. Hypoxemia may occur prior to worsening of patient's reported symptoms.

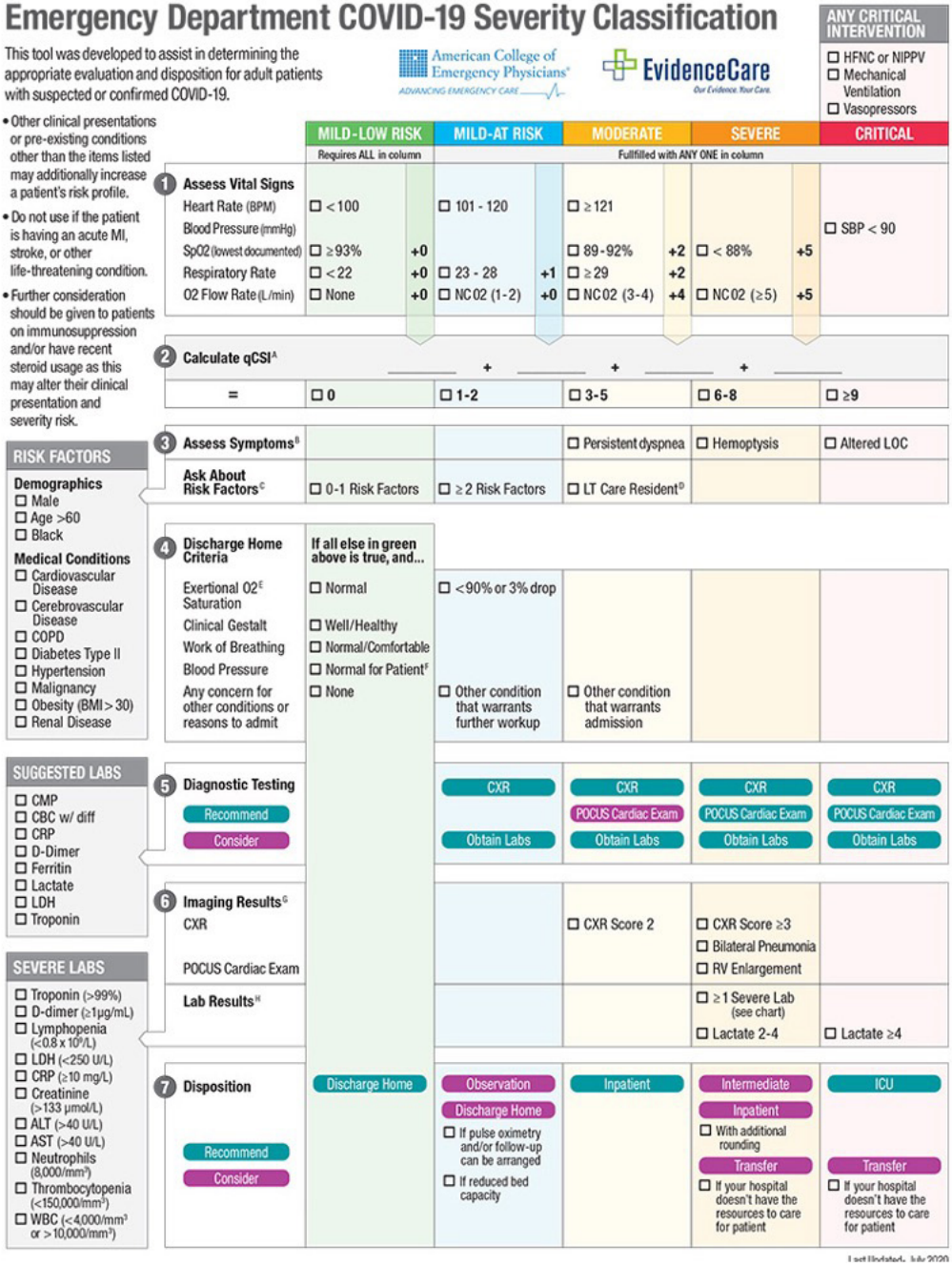
TeamHealth ED Disposition Tool

For those appropriate for discharge, the discharge instructions provided must include guidance regarding home care, isolation instructions to minimize risk of transmission to household members and return precautions. In addition, self-assessment tools or home pulse oximetry can be useful tools for patients to seek medical attention early if their illness is worsening. This tool aims to provide guidance regarding conditions for admission, however, the precise thresholds for admission will vary from hospital to hospital and over time. It is of utmost importance for clinicians to collaborate and use this current framework in a way that would best serve clinicians and their patients in their local practice environment.

- COVID-19 ED Disposition Tool Document and Flow Chart

ACEP COVID-19 Severity Classification

ACEP and EvidenceCare created this new tool that classifies patients on a range from mild/low risk to critical, based on seven categories of measurement: assessing vital signs, a qCSI calculator, symptoms and risk factors, discharge home criteria, diagnostic testing and suggested labs, imaging and lab results, and the disposition.



- ACEP COVID-19 Severity Classification interactive online pathway

Pharmacological Guidance

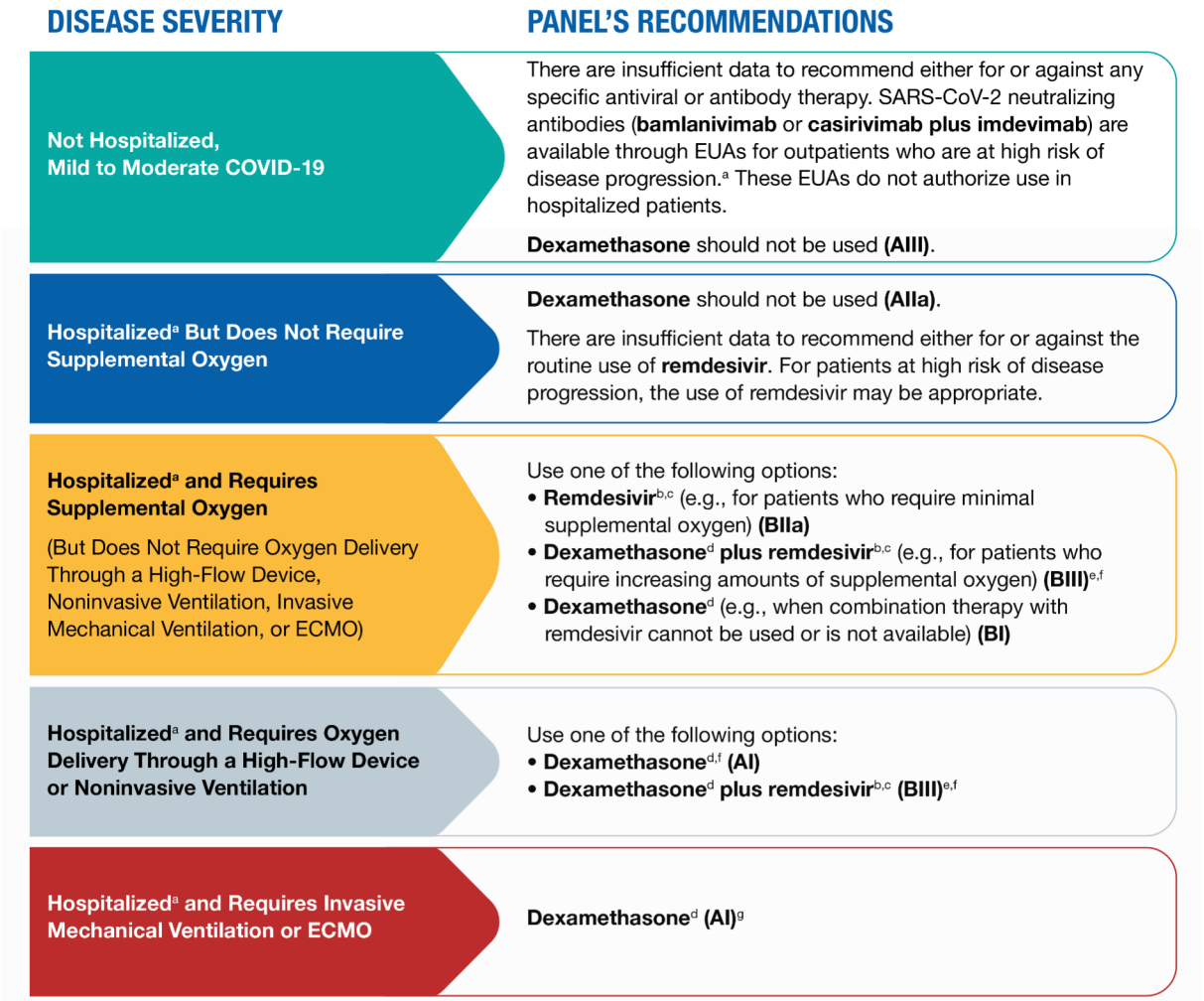
Introduction

Per guidance from the NIH, two main processes are thought to drive the pathogenesis of COVID-19. Initially, the disease is primarily driven by replication of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Later in the course of infection, the exaggerated immune/inflammatory response to the virus then leads to tissue damage. Based on this understanding, it is anticipated that antiviral therapies would have the greatest effect early in the course of disease, while immunosuppressive/anti-inflammatory therapies are likely to be more beneficial in the later stages of COVID-19.

The NIH COVID-19 Treatment Guidelines Panel continues to review the most recent clinical data to provide up-to-date treatment recommendations for clinicians who are caring for patients with COVID-19. The following table summarizes the Panel's recommendations for managing patients with varying severities of disease. A comprehensive summary of the clinical data for the drugs that are being investigated for the treatment of COVID-19 can be found on the NIH website.

Figure 1. Pharmacologic Management of Patients with COVID-19 Based on Disease Severity

Doses and durations are listed in the footnote.



[a] See the Panel's statements on the FDA EUAs for bamlanivimab and casirivimab plus imdevimab. These EUAs do not authorize use in hospitalized patients.

[b] The remdesivir dose is 200 mg IV for one dose, followed by 100 mg IV once daily for 4 days or until hospital discharge (unless the patient is in a health care setting that can provide acute care that is similar to inpatient hospital care). Treatment duration may be extended to up to 10 days if there is no substantial clinical improvement by Day 5.

[c] For patients who are receiving remdesivir but progress to requiring oxygen through a high-flow device, noninvasive ventilation, invasive mechanical ventilation, or ECMO, remdesivir should be continued until the treatment course is completed.

[d] The dexamethasone dose is 6 mg IV or PO once daily for 10 days or until hospital discharge. If dexamethasone is not available, equivalent doses of other corticosteroids, such as prednisone, methylprednisolone, or hydrocortisone, may be used. See the Corticosteroids section for more information.

[e] The combination of dexamethasone and remdesivir has not been studied in clinical trials.

[f] In the rare circumstances where corticosteroids cannot be used, baricitinib plus remdesivir can be used **(BIIa)**. The FDA has issued an EUA for baricitinib use in combination with remdesivir. The dose for baricitinib is 4 mg PO once daily for 14 days or until hospital discharge.

[g] The combination of dexamethasone and remdesivir may be considered for patients who have recently been intubated **(CIII)**. Remdesivir alone **is not recommended**.

Key: ECMO = extracorporeal membrane oxygenation; EUA = Emergency Use Authorization; FDA = Food and Drug Administration; IV = intravenous; the Panel = the COVID-19 Treatment Guidelines Panel; PO = orally; SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2

Pharmacology

1. **Outpatient Monoclonal Antibody**

   Bamlanivimab: Is a neutralizing IgG monoclonal antibody that binds to the spike protein of SARS-CoV-2. This monoclonal antibody has received an FDA Emergency Use Authorization (EUA) for certain outpatients with known COVID-19 and high-risk criteria. Administration should be as soon as possible after positive results of direct SARSCoV-2 viral testing and within 10 days of symptom onset. Bamlanivimab and likely other forms of monoclonal antibody therapy need to be administered only in the early phases of COVID-19. There is some evidence to indicate that administration of this form of therapy later (during antigen processing) may actually inhibit natural immunity and potentially worsen the disease.

Dosing: 700 mg via IV infusion over at least 60 minutes

Authorized: Only by healthcare providers in an outpatient setting to treat mild to moderate COVID-19 in adults and pediatric patients with positive results of direct SARS-CoV-2 viral testing who are 12 years of age and older weighing at least 40 kg, and who are at high risk for progressing to severe COVID-19 and/or hospitalization.

Not Authorized: For use in adults or pediatric patients who are any of the following due to COVID-19

- Hospitalized
- Require oxygen therapy
- Require an increase in baseline oxygen flow rate
- Those needing chronic oxygen therapy due to underlying non-COVID-19-related comorbidity.

2. **Antiviral Therapy**
   Remdesivir
   Available through an FDA Emergency Use Authorization (EUA) for the treatment of hospitalized adults and children with COVID-19.
   Dosing: IV: 200mg as a single dose on day one, then 100mg once daily x4 additional days
   Recommended total duration in all patients is 5 days.

   Casirivimab plus Imdevimab
   - On November 21, 2020, the Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) to make the casirivimab plus imdevimab combination available for the treatment of nonhospitalized patients with mild to moderate COVID-19 who are at high risk for progressing to severe disease and/or hospitalization. After reviewing the available evidence, the NIH Panel has determined the following:
   - At this time, there are insufficient data to recommend either for or against the use of casirivimab plus imdevimab for the treatment of patients with COVID-19 and it **should not be considered** the standard of care.
3. **Steroid Therapy**
   Dexamethasone
   Recommended for hospitalized patients with COVID-19 who require supplemental oxygen.
   Dosing: 6mg PO or IV daily x 10 days (or until discharged).
4. **Thromboprophylaxis**
   VTE Prophylaxis in hospitalized patients with COVID-19: per standard of care of all hospitalized patients.
   - Treatment doses of anticoagulant therapy should be used for any patient who meets indication per standard of care for patients without COVID-19, including for confirmed thromboembolic events or patients who are highly suspected to have thromboembolic disease without the ability to confirm by imaging.
   - Upon discharge after hospitalization, VTE prophylaxis is not recommended.

Vaccines

1. **Pfizer-BioNTech COVID-19 Vaccine (BNT- 162b2)**
   The Pfizer vaccine is a piece of messenger RNA (mRNA) that informs the cell's own machinery to make portions of the SARS-CoV-2 virus called spike proteins. These spike proteins are produced by the cell in massive quantities which then drives the body to mount an immune response to the spike protein, directly conferring an immunity to the SARS-CoV-2 virus, protecting the recipient from getting COVID-19.
   Key Findings
   - The Pfizer vaccine showed 95% effectiveness, which is better than expected, across all age and demographic groups studied. Groups receiving the vaccine can expect a 95% reduction in the likelihood of contracting COVID-19.
   - The vaccine is safe with mild adverse effects after the first dose and moderate adverse effects after the second dose.
   - The vaccine showed a promising severe adverse effect (SAE) profile with only a minimal number of SAEs and deaths.

   Recommendations
   The EIDT strongly recommends vaccination with the Pfizer-BioNTech COVID-19 vaccine for all adults above 16 years of age in every racial and ethnic demographic regardless of COVID-19 risk factors, prior COVID-19 infection or other underlying health conditions, unless there are clear, existing contraindications to receiving any vaccine.

2. **ModernaTX COVID-19 Vaccine (mRNA-1273)**
   The Moderna vaccine is a piece of messenger RNA (mRNA) that informs the cell's own machinery to make portions of the SARS-CoV-2 virus called spike proteins. These spike proteins are produced by the cell in massive quantities which then drives the body to mount an immune response to the spike protein, directly conferring an immunity to the SARS-CoV-2 virus, protecting the recipient from getting COVID-19.
   Key Findings
   - The Moderna vaccine showed a 94.1% efficacy in preventing COVID-19 across all age and demographic groups studied. In general, individuals receiving the vaccine can expect a 94.1% reduction in the likelihood of contracting COVID-19.
   - Based on this evidence, the vaccine is believed to be safe for use with mild adverse effects after the first dose and moderate adverse effects after the second dose. The numbers of SAEs were low and not statistically associated with the vaccine.

   Recommendations
   The EIDT strongly recommends vaccination with the Moderna COVID-19 vaccine for all adults 18 years of age and above and every racial and ethnic demographic regardless of COVID-19 risk factors, prior COVID-19 infection, or other underlying health conditions, unless there are clear, existing contraindications to receiving any vaccine.

Weathering the Emotional Storm by Dr. Richard Juman

Just as the COVID-19 pandemic continues to place extraordinary demands on the way we practice medicine, it is also impacting our clinicians in myriad ways that place tremendous emotional stress on them as human beings. While struggling to deal with the same challenges as the rest of our fellow Americans – family, financial and societal issues – clinicians are also exposed to unprecedented levels of death and dying and may feel helpless in their battles against a virus that has no cure.

Many have been asked to perform in unusual roles and settings, often under less-than-ideal situations. With prohibitions against family visitation, some clinicians have been placed in the novel role of "family liaison," at times bearing the profoundly sad and personal messages between grieving families and dying patients that previously would have occurred privately among families at the patients' bedsides. At the same time, some of the interpersonal coping mechanisms that we would normally rely on have become more difficult as we struggle to communicate with our colleagues through masks and Zoom. It's not hyperbole to consider the COVID-19 pandemic as a national trauma that will impact us all, especially those of us in the trenches, in ways that we do not yet comprehend.

So while it's imperative that all of our clinicians make emotional self-care a high priority, the unfortunate truth is that we operate in a medical culture that has historically placed a high value on "toughness," and on our ability to "push through" whatever clinical challenges we are confronted by. This mindset may work well while pulling an all-nighter during residency, or through an influx of patients during a crisis, but applying these same expectations to an extended period of extraordinary challenge is not a feasible strategy. And clinicians who disregard and "push through" their limits, who ignore the warning signs of stress and burnout, are less likely to find themselves on the other side of the pandemic with their mental health, their patients, their families and their careers in equilibrium.

A recent study from the American College of Emergency Physicians highlights the dilemma that our healthcare system is facing. It indicated that almost half of emergency physicians were not comfortable accessing psychiatric care because of their concerns about stigma and how it would impact their career. In the poll, 87% of the physicians said that they were feeling more stressed since the pandemic began. So this is a group that was already at risk for burnout and emotional issues prior to the pandemic, is now clearly at a much higher risk, is privileged to have excellent access to support and mental health care but at the same time is either resistant to, or afraid to, get the help they need. Clearly that's an unsustainable equation. The incoming president of ACEP summed all of this up like this: "The pandemic emphatically underscores our need to change the status quo when it comes to physicians' mental health".

As clinicians, we all have our individual "surge capacity," beyond which we may become subject to burnout, depression, anxiety and other behavioral ramifications such as excessive use of alcohol and other unhealthy lifestyle choices. TeamHealth is committed to doing whatever is needed to ensure that our clinicians maintain their highest levels of emotional well-being. We have created a library of resources – webinars, podcasts and other programs – that are designed to help our clinicians navigate the emotional challenges of the pandemic. Free, confidential counseling has been made available, as well as a variety of other resources to help clinicians who are struggling with financial, family and other issues created by the pandemic.

The goal of all of these is to change our culture to one in which the act of asking for help is viewed as a sign of strength, not an admission of failure or weakness. Every clinician is encouraged to carefully monitor their own emotional well-being and to access all of the resources at their disposal. Reach out to your supervisor if you begin to feel that your “surge capacity” is reaching the breaking point. Beyond that, keep an eye on your team members. When the normally cool, calm and collected become irritable, flat or tired, don’t assume they’re just having a bad day. Let them know that you’re noticing a change, that you’re concerned about them and want to know if there’s anything you can do to help.

Thank you for the exemplary way that you have responded to the unprecedented challenges of the pandemic. Please let us know if there is anything that TeamHealth can do to support you as we navigate what will hopefully be the last phase of the pandemic.

Conclusion

Thank you for taking the time to review this summary on COVID-19. We strive to provide you with the latest information to keep you safe, keep your patients safe and help you feel confident in providing patient care in these unprecedented times. Remember that as we progress in the vaccination program, the continued use of the Public Health Measures of Masking, Social Distancing, Handwashing, and Surface Cleaning remain of paramount importance for yourself, your family, and patients. We are grateful for your steadfast effort and devotion to our patients. Please stay safe and take some time to care for yourself as well.

Respectfully Submitted by TeamHealth Emerging Infectious Disease Taskforce and Clinical Leadership

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