Emergency Department COVID-19 Management Tool

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This tool was developed to provide a pragmatic framework to assist with severity classification, prognostication of risk, diagnostic workup, disposition, and treatment of patients with suspected or confirmed SARS-CoV-2 (COVID-19) in the emergency department.
- It is not a substitute for clinicians' own assessment and clinical judgement of what is best for the patient.
- Evidence on this topic is evolving quickly and may change recommendations.

Inclusion Criteria
- ☐ Adult (age ≥18 years old)
- ☐ Confirmed or suspected SARS-CoV-2 (COVID-19)
- ☐ Symptomatic

Exclusion Criteria
- ☐ Patients who require critical interventions
  - ☐ High Flow Nasal Cannula (HFNC) or Non-Invasive Positive Pressure Ventilation (NIPPV)
  - ☐ Mechanical Ventilation
  - ☐ Vasopressors
- ☐ Patients with other life-threatening conditions, such as but not limited to:
  - ☐ Acute Myocardial Infarction
  - ☐ Pulmonary Embolism
  - ☐ Stroke

Step 1 - Severity Classification

Assess the patient's severity of disease utilizing NIH criteria.

MILD	MODERATE	SEVERE	CRITICAL
Individuals who have various signs and symptoms of COVID-19 (ANY): ☐ Fever ☐ Cough ☐ Sore throat ☐ Malaise ☐ Headache ☐ Muscle pain ☐ Nausea, vomiting, diarrhea ☐ Loss of taste and smell **BUT who do NOT have (ANY):** ☐ Shortness of breath ☐ Dyspnea ☐ Abnormal chest imaging	**Individuals who show evidence of lower respiratory disease during (ANY):** ☐ Clinical assessment ☐ Imaging **AND who have:** ☐ SpO2 ≥94% on room air at sea level (in those with normal baseline SpO2)	**Individuals who have (ANY):** ☐ SpO2 <94% on room air at sea level (in those with normal baseline SpO2) ☐ Ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO2/FiO2) <300 mm Hg (if ABG obtained) ☐ RR >30 breaths/min ☐ Lung infiltrates >50%.	**Patient with (ANY):** ☐ Respiratory failure ☐ Septic shock ☐ Multiorgan dysfunction or failure

SEVERE and **CRITICAL** Severity - Skip to Step 4 (**Diagnostic Testing**) on Page 2

Step 2 - Risk Prognostication

Patients with MILD and MODERATE Severity should be further assessed to determine their risk of disease progression.
The PRIEST Score is a validated tool to predict a patients risk for end organ failure and/or mortality.

	MILD		MODERATE		
Variable	**1 Point**		**2 Points**	**3 Points**	**4 Points**
Respiratory rate (per minute)	☐ 12-20	☐ 9-11	☐ 21-24	☐ <9 or >24	
Oxygen saturation (%)	☐ >95	☐ 94-95	☐ 92-93	☐ <92	
Heart rate (per minute)	☐ 51-90	☐ 41-50 or 91-110	☐ 111-130	☐ <41 or >130	
Systolic BP (mmHg)	☐ 111-219	☐ 101-110	☐ 91-100	☐ <91 or >219	
Temperature (°C)	☐ 36.1-38.0	☐ 35.1-36.0 or 38.1-39.0	☐ >39.0	☐ <35.1	
Alertness	☐ Alert			☐ Confused	
Inspired oxygen	☐ Air		☐ Supplemental Oxygen		
Sex	☐ Female	☐ Male			
Age (years)	☐ 16-49		☐ 50-65	☐ 66-80	☐ >80
Performance status	☐ Unrestricted Normal Activity	☐ Limited strenuous activity, can do light activity	☐ Limited activity, can self-care	☐ Limited self-care	☐ Bed/chair bound, no self-care
Total number of boxes checked in each column	_____ **x 0 =**	_____ **x 1 =**	_____ **x 2 =**	_____ **x 3 =**	_____ **x 4 =**
Calculate Score		+	+	+	+

Score	0	1	2	3	4	5	6	etc.
Risk %	**1%**	**1%**	**2%**	**2%**	**3%**	**9%**	**15%**	**etc.**

Step 3 - Risk Assessment

Assess the patient for additional risk factors that have been correlated with higher risk for severe disease, organ failure, and/or mortalty. If your patient has one (or especially multiple) risk factors, you may want to consider in the approach taken in subsequent steps for diagnostic testing, disposition, and treatment.

MILD | MODERATE

If your patient has one (or especially multiple) risk factors, you may want to consider in the approach taken in subsequent steps for diagnostic testing, disposition,and treatment.

Per the CDC, race and ethnicity are risk markers for other underlying conditions that affect health, including socioeconomic status, access to health care, and exposure to COVID-19 related to their occupation. Severe economic disparity has also been shown in multiple studies to predict poor outcomes. Clinicians may want to consider their patients race, ethnicity, and economic resources in their risk assessment.

Risk factors include, but are not limited to:
- ☐ Cancer: especially those with recent diagnosis, actively in treatment, and/or hematologic malignancies
- ☐ Cardiovascular Disease
- ☐ Chronic Respiratory Disease (including COPD)
- ☐ Diabetes Type II
- ☐ Down's Syndrome
- ☐ Hypertension (may be more correlated with Age)
- ☐ Immunosuppression (including organ transplant and asplenia)
- ☐ Neurologic disease (including demention and previous strokes)
- ☐ Obesity (BMI ≥35)
- ☐ Obstructive Sleep Apnea
- ☐ Pregnancy
- ☐ Renal Disease (GFR ≤30)
- ☐ Steroid usage (recent)

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Step 4 - Diagnostic Testing

The following imaging and lab tests should be considered based on your patients severity and risk for disease progression.

MILD	MODERATE	SEVERE	CRITICAL
Based on clinician's judgement, diagnostic testing may not be necessary in patients with (ALL): ☐ Mild Severity ☐ PRIEST score ≤4 ☐ 1 or less High Risk Factors **Exertional SpO2 may have limited ability to identify adverse outcomes in otherwise well-appearing patients:** ☐ <3% change in SpO2	**Per the NIH...** **Imaging:** the optimal imaging technique has not yet been defined for people with symptomatic COVID-19. Initial evaluation for these patients may include: ☐ Chest X-ray ☐ Ultrasound ☐ CT (if indicated)	**ECG:** should be performed if indicated ☐ ECG **Labs:** ☐ CBC w/ differential ☐ CMP	While not standard of care, the following may have prognostic value: ☐ CRP ☐ D-dimer ☐ Ferritin

Step 5 - Diagnostic Interpretation

The following imaging and lab results have been shown to potentially be indicators of risk of disease progression, more severe disease, and/or mortality

Unfortunately, cutoffs used for abnormal lab values are heterogenous across studies and may need to be adjusted based on reference ranges at your facility. Abnormal cutoff values presented here are our best effort to give pragmatic recommendations to clinicians.

Severe Lab Values:

☐ ALT (>40 U/L)	☐ D-dimer (≥1µg/mL)	☐ Neutrophils (>8,000/mm³)
☐ AST (>40 U/L)	☐ Ferritin (>300 µg/L)	☐ Thrombocytopenia (<150,000/mm³)
☐ Creatinine(>133 µmol/L)	☐ LDH (>250 U/L)	☐ Troponin (>99%)
☐ CRP (>125 mg/L)	☐ Lymphopenia (<0.8 x109/L)	☐ WBC (>10,000/ mm³)

Step 6 - Disposition

The following represents a pragmatic approach for disposition of patients depending on their disease severity. Clinician's may want to consider a patient's risk for progression of disease based on PRIEST Score, risk factors, imaging, and labs in their disposition decision.

MILD	MODERATE	SEVERE	CRITICAL
☐ **Discharge Home** ☐ Supply patient with educational materials on precautions and items to be monitoring at home (CDC Patient Educational Materials) **Consider** ☐ Home pulse oximetry	☐ **Discharge Home, consider if ALL:** ☐ PRIEST Score ≤4 ☐ 1 (or less) High Risk Factors ☐ No concerning Imaging or Lab results ☐ Capability and resources to care for self at home ☐ No other condition that warrants admission ☐ **Admission, consider if ANY:** ☐ PRIEST Score ≥5 ☐ Multiple High Risk Factors ☐ Concerning Imaging or Lab results ☐ Does NOT have the capability or resources to care for self at home **Admission Location:** Based on clinician's judgement ☐ Observation ☐ Inpatient Floor ☐ Intermediate ☐ **At times of surge and capacity constraints some patient who would normally be admitted to the hospital, may need to be sent home:** ☐ Supply patient with educational materials on precautions and items to be monitoring at home (CDC Patient Educational Materials) ☐ Follow-up visit arranged via PCP or tele-health ☐ Consider home pulse oximetry ☐ Consider home oxygen therapy	**Admission Location:** based on clinician's judgement ☐ Floor Bed ☐ Intermediate ☐ ICU ☐ Transfer ☐ Consider transfer if your facility does not have the resources or capacity to care for a critically ill COVID patient.	**Admission** ☐ ICU ☐ **Transfer** ☐ Consider transfer if your facility does not have the resources or capacity to care for a critically ill COVID patient. ☐ Consider transfer to an ECMO facility for patients who may benefit from this after consultation with receiving facility.

AMA

☐ Patient wishes to leave Against Medical Advice (AMA) for admission to the hospital and/or additional therapeutic treatment.

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Step 7 - Pharmacologic Treatment

The following options should be considered for treatment based on the patient's severity and risk of disease progression.

MILD	MODERATE	SEVERE	CRITICAL
Monoclonal Antibodies Insufficient evidence for or against specific AB therapy. Bamlanivimab or casirivimab plus imdevimab neutralizing AB are available under EUA for use in adults and pediatric patients with (ALL): ☐ + PCR or + antigen test ☐ 12 years of age and older weighing at least 40 kg ☐ High risk for progressing to severe COVID-19 and/or hospitalization.		**Steroids and/or Remdesivir** **One of the following options is recommended for these patients:** ☐ Remdesivir (e.g., for patients who require minimal supplemental oxygen) (BIIa) ☐ Dexamethasone PLUS remdesivir (e.g., for patients who require increasing amounts of oxygen) (BIII) ☐ Dexamethasone (e.g., when combination therapy with remdesivir cannot be used or is not available) (BI). **In the rare circumstances where corticosteroids cannot be used (ONE):** ☐ Baricitinib in combination with remdesivir (BIIa) (e.g., for patients who require increasing amounts of oxygen). Baricitinib should not be used without remdesivir. **If dexamethasone is NOT available:** ☐ Alternative corticosteroids such as prednisone, methylprednisolone, or hydrocortisone can be used (BIII)	
Steroids Dexamethasone (or other corticosteroids) should NOT be initiated in these patients (Mild: AIII, Moderate: AIIa)[1]			
Remdesivir There are insufficient data to recommend either for or against the routine use of remdesivir.			
	☐ **Anticoagulation:** Prophylactic dose anticoagulation should be given to admitted nonpregnant adults (AIII)		
Insufficient Data At this time the is insufficient data to recommend either for or against the following medications for SARS-CoV-2 (COVID-19): - Famotidine - Ivermectin - Vitamin C - Vitamin D - Zinc			
DO NOT USE The following are recommended AGAINST for the treatment of SARS-CoV-2 (COVID-19) at the time of publication of this tool: - Anti-interluken-6 receptor monoclonal antibodies (e.g., sarilumab, tocilizumab) or anti-IL-6 monoclonal antibody (siltuximab), except in a clinical trial (BI). - Chloroquine or hydroxychloroquine with or without azithromycin (AI) - Lopinavir/ritonavir (AI) or other HIV protease inhibitors (AIII) except in a clinical trial - Zinc supplementation above the recommended dietary allowance for the prevention of COVID-19, except in a clinical trial (BIII)			

Step 8 - Non-Pharmacologic Treatment

The following other treatments should be considered based on your patient's severity and risk of disease progression.

MILD	MODERATE	SEVERE	CRITICAL
☐ Consider home oxygen therapy (for those who may benefit) ☐ Breathing exercises for breathlessness ☐ Progressive ambulation as tolerated (if no contraindication) ☐ Resting in the prone position if dyspneic ☐ Adequate rest/sleep ☐ Balanced diet ☐ Adequate hydration		☐ Oxygen support-nasal cannula, titrate up to 6L with an oxygenation goal of >92% ☐ HFNC up to 60 Liter recommended over NIPPV ☐ NIPPV if HFNC not available ☐ Consider trial of awake prone positioning if patient can be monitored or can self rescue. Awake proning is contraindicated in patients in respiratory distress.	☐ Intubation is recommended for severe respiratory failure: ☐ Oxygenation goal for ventilated patients should be 92-96%. ☐ Consider low tidal volume (VT) ventilation (VT 4–8 mL/kg of predicted body weight) over higher VT ventilation (VT >8 mL/kg) (AI). ☐ Target plateau pressures of <30 cm H2O (AII). ☐ A higher positive end-expiratory pressure (PEEP) strategy is recommended over a lower PEEP strategy (BII). ☐ For mechanically ventilated adults with refractory hypoxemia despite optimized ventilation, consider prone ventilation for 12 to 16 hours per day over no prone ventilation. ☐ Consider using a conservative fluid strategy over a liberal fluid strategy (BII). ☐ Insufficent Data to recommend for or against ECMO in these patients. ☐ Against the routine use of inhaled nitric oxide (AI).

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SMART PHRASES

This page represents a list of phrases that clinicians may want to utilize within their EMR documentation. It is broken down based on the steps that are outlined on the prior pages of this tool. EMR and IT vendors may want to utilize these phrases, along with specific data that is selected by clinicians as they utilize electronic versions of this tool.

☐ **The ACEP Emergency Department COVID-19 Management Tool** was utilized to assist in the decision process on how to best manage this patient. This tool is a pragmatic approach to management of patient's with suspected or confirmed SARS-CoV-2 in the emergency department. It is based on guidelines from the CDC, NIH, and additional published studies. COVID-19 is a novel pandemic and as such evidence is rapidly evolving on the best way to manage patients with this condition.

☐ **Inclusion Criteria** was considered and the patient was found to meet criteria for utilization of this tool.

☐ **Exclusion Criteria** was reviewed and the patient was found to h ave a current condition or critical intervention that excluded them from utilization of this tool.

Step 1- Severity	☐ **Severity Classification** was determined based on NIH criteria.
MILD	☐ Based on the criteria present at the time of evaluation, the patient was determined to have MILD Severity.
MODERATE	☐ Based on the criteria present at the time of evaluation, the patient was determined to have MODERATE Severity.
SEVERE	☐ Based on the criteria present at the time of evaluation, the patient was determined to have SEVERE Severity.
CRITICAL	☐ Based on the criteria present at the time of evaluation, the patient was determined to have CRITICAL Severity.

Step 2 - Risk Prognostication	☐ The **PRIEST Score**, a validated tool to determine the risk of mortality and/or end-organ failure, was utilized to assess the patient's risk of disease progression.
≤4	☐ A score of ≤4 places the patient in a Low Risk category with a <3% risk of disease progression.
5-7	☐ A score of 5-7 places the patient in an Intermediate Risk category with a 9-18% risk of disease progression.
8-12	☐ A score of 8-12 places the patient in a High Risk category with a 22-38% risk of disease progression.
≥13	☐ A score of ≥13 places the patient in a Very High Risk category with a 47-66% risk of disease progression

Step 3- Risk Assessment	☐ A **Risk Assessment** was performed that considers additional factors that have been shown in published studies to increase a patient's risk for disease progression.
0 Risk Factors	☐ Patient did not have any addidtional risk factors based on those included within this tool.
1 Risk Factor	☐ Patient was noted to have a single additional risk factor.
2 (or more) Risk Factors	☐ Patient was noted to have 2 (or more) additional risk factors.

Step 4 - Diagnostic Testing	☐ Appropriate **Diagnostic Testing** was performed on the patient based on their severity and risk of disease progression.	
MILD... no additional testing obtained	☐ No diagnostic testing was obtained, because the patient was noted to have MILD severity, ≤4 on the PRIEST Score, and ≤1 additional risk factors.	
Exertional O2	Negative	☐ An O2 saturation was obtained after the patient exerted themselves for >1 minute. Their SpO2 stayed stable.
	Positive	☐ An O2 saturation was obtained after the patient exerted themselves for >1 minute. Their SpO2 dropped >3%.
Imaging / Labs Obtained	☐ Appropriate imaging and labs were obtained in the emergency deparrtment based on clinical assessment of the patient.	

Step 5 - Diagnostic Interruption	☐ The **Diagnostic Interpretation** of imaging and labs that were obtained was as follows:
NO Concerning Imaging/Labs	☐ There was no concern on imaging or labs.
Concerning Imaging	☐ There was a concerning finding discovered on imaging that may prognosticate an increase in the patient's risk of disease progression.
Concerning Lab	☐ There was a concerning finding discovered on lab testing that may prognosticate an increase in the patient's risk of disease progression.
Multiple Concerning Imaging/Labs	☐ There were multiple imaging and/or lab testing results that may prognosticate an increase in the patient's risk of disease progression.

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SMART PHRASES (continued)

Step 6 - Disposition

☐ The most appropriate **Disposition** for the patient was determined based on the patient's severity classification and risk for disease progression.

MILD	Discharge Home	☐ Patients with MILD Severity, a low PRIEST Score, and ≤1 risk factors are appropriate for Discharge Home.
MODERATE	Discharge Home	☐ Patients with MODERATE Severity, a low PRIEST Score, and ≤1 risk factors may be Discharged Home based on an emergency physician's clinical judgement.
	Admission	☐ Patients with MODERATE Severity and an elevated PRIEST Score or the presence of risk factor for disease progression should be considered for Hospital Admission.
	Reduced Capacity	☐ At times of COVID volume surges or reductions in hospital bed capacity, some patients who would normally meet criteria to hospital admission, may need to be Discharged Home.
SEVERE	Admission	☐ Patients with SEVERE Severity should be admitted to the hospital.
	Transfer	☐ Transfer should be considered if you are at a facility that does not have the resources or capacity to care for a patient with SEVERE Severity.
CRITICAL	Admission	☐ Patients with CRITICAL Severity should be admitted to an ICU setting.
	Transfer	☐ Transfer should be considered if you are at a facility that does not have the ICU resources or capacity to care for a patient with CRITICAL Severity.
	ECMO	☐ Transfer may be considered to an ECMO facility if, based on clinical judgement, it is determined that the patient may benefit from this procedure.
AMA		☐ The patient signed out Against Medical Advice, despite the offer of admission to the hospital and treatment due to the severity of their COVID manifestation. The patient is of normal mentation and has the capacity to make this decision, while understanding the consequences to their health.

Step 7 - Pharmacologic Treatment

☐ The following **Pharmacologic Treatments** were administered to the patient, based on NIH recommendations at the time of publication of this tool.

MILD / MODERATE	Monoclonal Antibodies	☐ Monoclonal antibodies may be considered for patients with MILD or MODERATE Severity who have risk factors for disease progression based on the current EUA criteria.
	Steroids	☐ Steroids are not recommended for patients with MILD or MODERATE Severity.
	Remdesivir	☐ Remdesivir is not recommended for patients with MILD or MODERATE Severity.
PATIENTS WHO ARE ADMITTED	Anticoagulation	☐ Prophylactic dose anticoagulation is recommended for all nonpregnant adults who are admitted to the hospital.
SEVERE / CRITICAL	Remdesivir	☐ Remdesivir may be given alone to admitted patients who require minimal supplemental oxygen.
	Dexamethasone PLUS Remdesivir	☐ Dexamethasone PLUS remdesivir should be considered for patients who require increasing amounts of oxygen.
	Dexamethasone	☐ Dexamethasone may be given alone when combination therapy with remdesivir cannot be used or is not available.
	Baricitinib PLUS Remdesivir	☐ In the rare circumstances where corticosteroids cannot be used, Baricitinib can be given in combination with remdesivir for patients who require increasing amounts of oxygen.
	Dexamethasone NOT available	☐ Alternative corticosteroids (such as prednisone, methylprednisolone, or hydrocortisone) can be used if dexamethasone is not available.

Step 8 - Non-Pharmacologic Treatment

☐ The following **Non-Pharmacologic Treatments** were ordered on the patient, based on best practice guidelines at the time of publication of this tool.

MILD / MODERATE	Discharged Home	☐ The patient was supplied with discharge instructions that include activities (breathing exercises, balanced diet, etc.) they can be doing at home.
	Home O2	☐ The patient was given a prescription O2 therapy at home.
	Home Pulse Oximetry	☐ The patient was given instructions for how to use a pulse oximeter at home to measure periodically their oxygen levels. They were given clear instructions on what to level to return to the emergncy department with.
SEVERE	O2 via NC	☐ Supplemental oxygen was administered to the patient via nasal cannula. The patient was monitored for response to therapy.
	HFNC	☐ Additional oxygen was delivered via High-Flow Nasal Cannula (HFNC) per institutional protocol.
	NIPPV	☐ Additional oxygen was delivered via Non-Invasive Positive Pressure Ventilation (NIPPV) per institutional protocol.
	Awake Proning	☐ The patient was trialed on awake proning per institutioanl protocol.
CRITICAL	Intubation	☐ Due to the patient's CRITICAL Severity and compromised respiratory status, they were intubated.
	Prone Ventilation	☐ Prone ventilation was utilized per insitutional protocol.
	Conservative Fluids	☐ Per NIH recommendatins, a conservative fluid strategy was utilized.

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Emergency Department COVID-19 Management Tool

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FOOTNOTES

Step 1- Severity

NIH - write up some high-level notes for this reference[100]

Step 2 - Risk Prognostication

PRIEST Score

Step 3- Risk Assessment

Racial and ethnic minorities

- High-level summary of CDC information [100]

Economic disparity[105]

Cancer: especially those with recent diagnosis, actively in treatment, and/or hematologic malignancies

- 1.9 mortality [2]
- 3-4.1 higher level of care [2,4]
- 2.2 disease severity [2]

Cardiovascular Disease

- 3.4 mortality [2]
- 3.4 higher level of care [2]
- 3.5 disease severity [2]

Chronic Respiratory Disease

- 3.7 mortality [2]
- 4.4 disease severity [2]

Diabetes Type II

- 1.9 mortality [2]
- 1.8-2.1 higher level of care [3-2]
- 2 disease severity [2]

Down's Syndrome

Hypertension (may be more correlated with Age)

- 2.5 mortality [2]
- 3 higher level of care [2]
- 2.8 disease severity [2]

Immunosuppression (including organ transplant and asplenia)[105]

Neurologic disease (including demention and previous strokes)

- 3 mortality [2]
- 2.8 disease severity [2]

Obesity (BMI ≥35)

- 3 mortality [1-2]
- 2 higher level of care [3]

NIH study data

Obstructive Sleep Apnea[104]

Pregnancy ACOG Assessment Tool

Renal Disease (GFR ≤30)

- 4.3 mortality [2]
- 1.2 higher level of care [2]
- 2.2 disease severity [2]

Steroid usage (recent)[105]

Step 4 - Diagnostic Testing

Exertional O2 Saturation

- A 1-minute sit-to-stand test can be performed within the patient's room.
  - 3% drop in pulse oximeter reading is considered a positive test

NIH Diagnostic Testing Recommendations

Step 5 - Diagnostic Interruption

Imaging Interpretation

- CXR
  - CXR Score: A scoring system devised to calculate a severity score based on the presence or absence of opacities on chest x-ray. The score is computed by dividing each lung into 3 zones. A severity score is assigned based on the presence or absence of opacity in each zone.
  - ≥2 - A score of ≥2 indicates a higher likelihood of hospital admission (OR 6.2) [17]
  - ≥3 - A score of ≥3 is a predictor of need for intubation (OR 4.7) [17]
- Bilateral Pneumonia
  - 1.6 mortality [2]
  - 2.4 disease severity [2]
- Ultrasound
- CT

Lab Interpretation

- ALT (>40 U/L)
  - 2.1 mortality [2]
  - 2.1 disease severity [2]
- AST (>40 U/L)
  - 3.3 mortality [2]
  - 3.6 disease severity [2]
- Creatinine(>133 µmol/L)
  - 2.8 mortality [2]
- CRP (>125 mg/L)
  - 4.5 mortality [2]
  - 6.5 disease severity [2]
- D-dimer (≥1µg/mL)
  - 6 mortality [2]
  - 3.4 disease severity [2]
- Ferritin (>300 µg/L)
  - 9.1 mortality [7]
- LDH (>250 U/L)
  - 3.2 mortality [2]
  - 1 higher level of care [4]
  - 5.5 disease severity [2]
- Lymphopenia (<0.8 x109/L)
  - 2.2 mortality [2]
  - 1.1-3 higher level of care [2,4]
  - 4.2 disease severity [2]
- Neutrophils (>8,000/mm3)
  - 5.6 mortality [2]
- Thrombocytopenia (<150,000/mm^3)
  - 7.3 mortality [2]
  - 1.1 higher level of care [2]
  - 1.8 disease severity [2]
- Troponin (>99%)
  - 13.7 mortality [2]
- WBC (>10,000/ mm^3)
  - 4.3 mortality [2]
  - 3.4 disease severity [2]

Emergency Department COVID-19 Management Tool

FOOTNOTES

Step 6 - Disposition

Home O2

- NEJM study on oximetry in blacks

CDC Patient Educational Materials

Is there any other "evidence" we could include in this^^ section?

Step 7 - Pharmacologic Treatment

NIH Recommendations

Monoclonal Antibodies

- FDA Fact sheet for healthcare providers: emergency use authorization (EUA) of bamlanivimab and etesevimab. 2021. Available at: https://www.fda.gov/media/145802/download. Accessed February 16, 2021.
- FDA Fact sheet for healthcare providers: emergency use authorization (EUA) of casirivimab and imdevimab. 2020. Available at: https://www.fda.gov/media/143892/download. Accessed February 16, 2021.
- FDA Fact sheet for healthcare providers: emergency use authorization (EUA) of bamlanivimab. 2020. Available at: https://www.fda.gov/media/143603/download. Accessed February 16, 2021.

Mild/Moderate - Steroids

Mild/Moderate - Remdesivir

Severe/Critical - Steroids and/or Remdesivir

Anticoagulation

Insufficient Data

DO NOT USE

Step 8 - Non-Pharmacologic Treatment

Home O2

- NEJM study on oximetry in blacks

Oxygen Support

HFNC

NIPPV

Awake Proning

Intubation

Ventilatory Strategies

Conservative Fluids

ECMO

Nitric Oxide

Strength of Recommendation	Quality of Evidence for Recommendation
A: Strong recommendation for the statement B: Moderate recommendation for the statement C: Optional recommendation for the statement"	I: One or more randomized trials without major limitations IIa: Other randomized trials or subgroup analyses of randomized trials IIb: Nonrandomized trials or observational cohort studies III: Expert opinion"

Emergency Department COVID-19 Management Tool

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