

Assessment References

A CLINICAL PRESENTATION

- Incubation: 4-5 days (range 2-14 days)
- Initial symptoms (first week of illness)
 - Common: non-productive cough, fever, headache, sore throat, myalgias
 - Less common: nausea, abdominal discomfort, diarrhea, anorexia, anosmia
- 80% have mild course and recover, 15% progress, 5% will be critical
- Progressive symptoms (later first week, early second week of illness)
 - Common: dyspnea, hypoxia (with or without dyspnea), bilateral viral pneumonia (severity of CXR often doesn't correlate with hypoxia)
 - Less common: ARDS, multiorgan failure, myocarditis, ARF

GENERAL TREATMENT PRINCIPLES

- Supportive care including respiratory support as needed
- Avoid overhydration, IV fluids only for hypotension or to attain euvolemia
- Discuss therapies for inpatients with hospitalist/intensivist (steroids, convalescent plasma, remdesivir)

B RISK FACTORS

- Age \geq 65 (60-70)
- Chronic heart disease (CHF, severe CAD, HTN)
- Chronic lung disease (COPD, asthma, etc.)
- Chronic Liver disease
- ESRD/dialysis
- DM
- Obesity (BMI > 40)
- Immunosuppressed
- Congregate Living

C DISTANT EVALUATION

- Goal is to limit clinician exposure and preserve PPE
- Only use for mild to moderate illness in low risk patients with normal mental status and normal or expected vital signs (fever and proportional tachycardia)
- Evaluate patient by video chat, through window, or from a distance
- Consider an appropriate differential diagnosis which could include PE, CHF, EVALI, bacterial pneumonia, meningitis, etc.

Treatment References

1 CRITERIA FOR ADMISSION

- Persistent/ unrelieved increased respiratory effort
- Respiratory failure/ ARDS
- SpO₂ <92%, other concerning abnormal vital signs
- SpO₂ <95%, for pregnant patients
- Altered mental status

2 RESPIRATORY SUPPORT

- See appendix A
- If ventilator supply is adequate, consider an early intubation strategy. However there is some suggestion that invasive ventilation could be harmful
- If ventilator supply is limited (but negative airflow rooms available): NC, then NRB, then HFNC, then CPAP (preferred over BiPAP)

- ### 3 TESTING FOR ADMITS:
- CBC, BMP, CXR, COVID-19 test; other testing if needed to confirm diagnosis, otherwise could be deferred to Hospitalist as it doesn't determine disposition or ED intervention

TYPICAL LABORATORY FINDINGS:

- CBC: Leukopenia (particularly lymphocytopenia), thrombocytopenia
- Prolonged PT, elevated lactate dehydrogenase and CRP, abnormal LFTs, normal procalcitonin, elevated CRP, elevated ferritin
- D-dimer: often elevated and maybe prognostic; evaluate for PE only if in differential diagnosis

IMAGING

- CXR - ground glass opacities, may be patchy, may be basilar/peripheral. Generally do not see effusions or cavitation.
- Lung POCUS: B-lines, more sensitive than CXR but risks close exposure
- CT: diffuse, peripheral, ground glass opacities; should not be routinely utilized

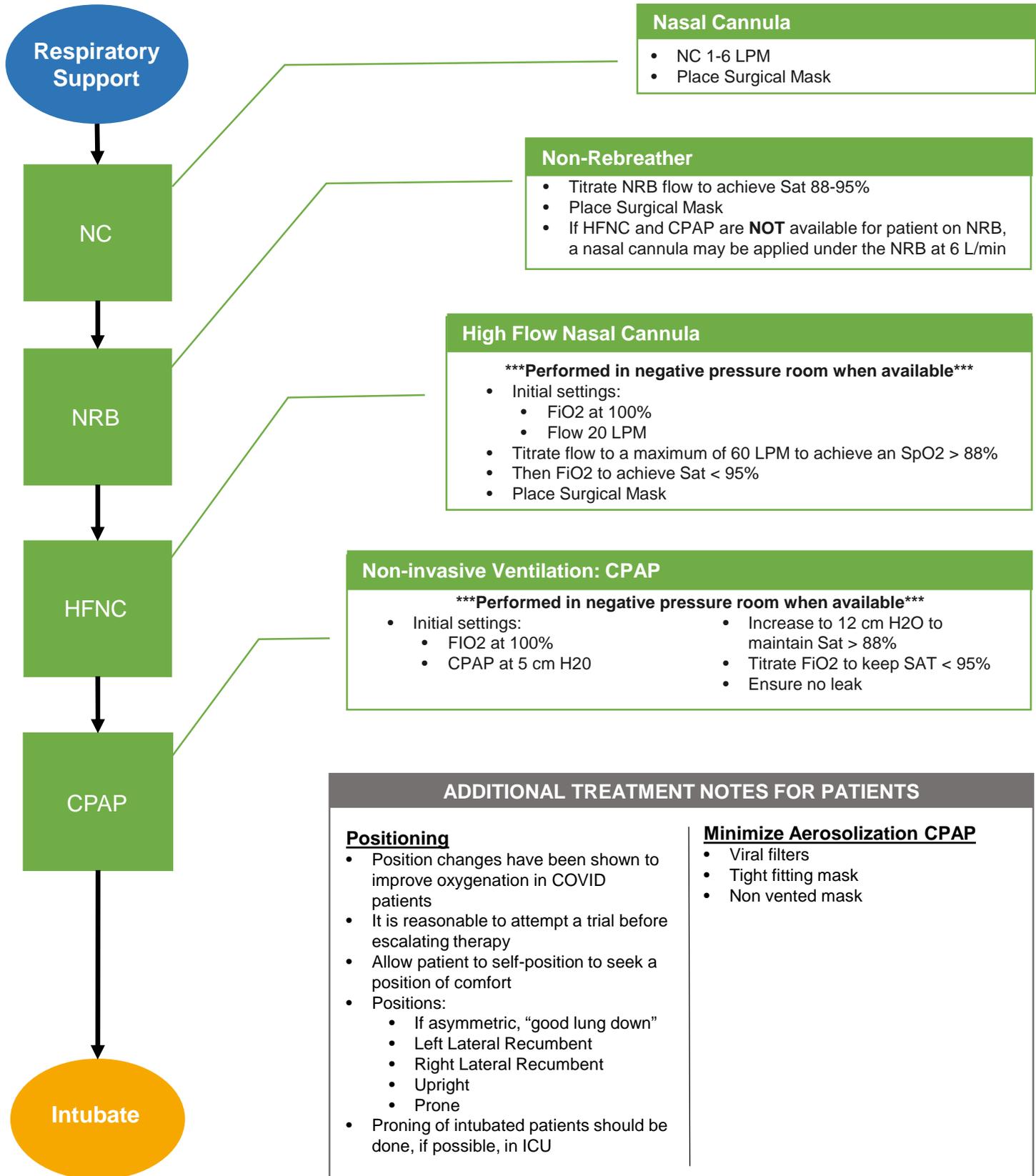
4 CRITERIA FOR ICU ADMISSION

- Hypoxia of <92% on O₂ >10 lpm
- Significant confusion/ altered mental status
- ARDS (Acute respiratory distress syndrome)
- Worsening oxygen requirement, increasing work of breathing
- Hypercapnia (pCO₂ >50 considering individual baseline) or acidosis (pH<7.3)
- Hypotension SBP <90, MAP <65
- Very high risk, severe comorbidities

5 CRITERIA FOR INTUBATION

- Altered mental status, unable to participate. Permissive hypoxia considered until mental status deteriorates.
- Respiratory fatigue

Appendix A – EPPA Procedures for RSI in COVID or COVID PUI PATIENTS



Appendix B – EPPA Procedures for RSI in COVID or COVID PUI PATIENTS

PRINCIPLES

- Intubation and resuscitation are the situations most likely to expose us to COVID
- Securing the airway first allows for the best source control
- PPE first; no staff to be compromised even in emergency
- Critically ill patients likely have the highest viral load
- Minimize the number of personnel in the room while balancing with safety and optimal care for the patient

PERSONNEL & PPE

In Room:

- (negative pressure if available)
- Physician
 - RN
 - RT

In Hallway:

- PPE spotter for donning and doffing
- Runner (ED Tech)
- Pharmacist (when available)
- Physician backup (with PPE ready)
- Second RN (with PPE ready)
- Charge RN (when available)

Personal Protective Equipment (PPE):

- N95 or CAPR/ PAR
- Gloves
- Face shield
- Gown

ADDITIONAL TREATMENT NOTES

Medication

- **Quick List** (average adult)
 - **Ketamine 150mg IV**
 - **Rocuronium 100mg IV**
- Induction:
 - Etomidate 0.3 mg/kg IV (**etomidate 20mg IV** for average adult)
 - Ketamine 1.5 to 2 mg/kg IV (**ketamine 150mg** for average adult)
- Paralytic:
 - Succinylcholine 1.5 to 2 mg IV (**succinylcholine 150mg** for average adult)
 - Rocuronium 1 to 1.5 mg/kg (**rocuronium 100mg IV** for average adult)

Intubation Technique

- If necessary, two person BVM with viral filter or NIPPV with viral filter
- Begin with video laryngoscopy
- If necessary, direct laryngoscopy (bougie if needed)
- If necessary, LMA
- If necessary, cricothyrotomy

Sedation to minimize coughing

- Propofol, Fentanyl, Ketamine, Midazolam prn or drip
- Consider paralysis

Initial Vent Settings (initial lung protective strategy)

- Mode: volume assist control
- Tidal Volume: 6 to 8 ml/kg (IBW)
- RR: 15/min
- PEEP: 5 cm H₂O (8 if obese)
- FiO₂: 30% and titrate
- Goal oxygenation: 88 to 95%

Persistent Hypoxia

- Rule out complication (PTX)
- Positioning
 - HOB 30 degrees
 - Left/right decub
- PEEP Trial
 - 10-15cm H₂O for 5-10 min (watch BP)
- Recruitment Maneuver
 - 30cmH₂O for 30 seconds
- Deep Sedation and/or paralysis

WHY AM I BEING DISCHARGED?

Your Provider has determined that you should practice self-isolation and self-monitoring in order to protect yourself and your community from COVID-19, which is the disease caused by a new coronavirus. The virus spreads from person to person primarily by droplets when an infected person coughs or sneezes and the droplet either lands on another person or that other person touches a surface with the droplet on it. There are tests available to diagnose COVID-19. There is no specific treatment or medicine for the disease. You may have been diagnosed with COVID, may be tested for COVID and have a pending test result, or may have been exposed to COVID.

Symptoms of COVID-19

Many people have no symptoms or mild symptoms. Symptoms may usually appear 4 to 5 days (up to 14 days) after contact with another ill person. Some people will get severe symptoms and pneumonia.

Usual symptoms: fever, cough, trouble breathing

Less common symptoms: headache, body aches, sore throat, sneezing, diarrhea, loss of taste or smell

HOW TO CARE FOR YOURSELF

Stay Home

Most people will recover from illness with mild symptoms. Isolation by staying home is the best method to prevent the spread of the illness. **DO NOT** go to work or school. Have a friend or relative do your shopping. Do not use public transportation (bus and/or train), or ridesharing (Lyft/Uber).

Treat your symptoms

Take Acetaminophen (Tylenol) to treat body aches and fever as needed for comfort. Ibuprofen (Advil or Motrin) can be used as well if you still have symptoms after taking Tylenol. Drink fluids. Rest.

Watch for worsening symptoms

Shortness of breath, difficulty breathing, or very severe weakness.

When to seek medical attention or return to the emergency room

You should seek medical attention if your breathing worsens, you have shortness of breath, or you feel worse.

If you are uncertain, contact your health care provider or clinic. If you need emergency medical attention, call 911 and tell them you have been ill.

HOW TO PREVENT SPREADING COVID-19

Wash your hands and avoid touching your face

Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer containing at least 60% alcohol. As much as possible, avoid touching your face.

Separate yourself from other people

Separate yourself from other people in your home. As much as possible, you should stay in one room and away from other people in your home. If possible, use a separate bathroom. Avoid handling pets or other animals while sick. .

Wear a mask

Wear a mask if you need to be around other people. Cover your mouth and nose with a tissue when you cough or sneeze.

Avoid sharing personal household items

You should not share dishes, drinking glasses, forks/knives/spoons, towels, or bedding with other people in your home. After using these items, they should be washed with soap and water. Clean parts of your home that are touched often (doorknobs, faucets, countertops, etc.) daily.

To be used for patients who require supplemental oxygen **and** desire to be discharged home after shared decision-making. Admit any patient with a new oxygen requirement who does not feel comfortable with discharging on home O2.

Inclusion Criterion: Confirmed or suspected COVID pneumonia with hypoxia (room air O2<90%)

Considerations for Discharge on Home O2:

1. PE ruled out: clinically, or by d-dimer/imaging study when appropriate
2. No radiographic evidence of severe lung involvement (all patients should have a chest x-ray at minimum)
3. Imaging pattern not suggestive of bacterial or secondary infection, such as lobar consolidation or pleural effusion
4. No historical/clinical indicators of rapidly progressive disease (take day of illness into consideration, see Shared Decision-Making Points below)
5. Requiring **no more than 3 LPM** to maintain O2 saturation of at least 90%
6. While on supplemental O2:
 - a. Respiratory rate less than or equal to 20
 - b. No clinical indicators of respiratory distress (retractions, accessory muscle use, conversational dyspnea)
 - c. Baseline mental status
7. Able to obtain close primary care follow-up (keep in mind this will likely be telehealth)
8. Able to monitor pulse oximetry at home
9. Able to return to ED if worse
10. Consider both rest and ambulatory oxygen levels in considering criteria for supplementation and stability for discharge

Consider Risk Factors for Severe Disease:

- | | | |
|--------------------------|---------------------------|---------------------|
| • Male | • Cerebrovascular Disease | • Malignancy |
| • Age >60 | • COPD | • Obesity (BMI >30) |
| • Black | • Diabetes Type II | • Renal Disease |
| • Cardiovascular Disease | • Hypertension | |

*Note that a patient with one or more risk factors for severe disease may still be appropriate for discharge depending on clinical presentation and trajectory of illness.

Discharge Checklist:

- Oxygen concentrator/tubing (site-dependent)
- Pulse oximeter
- Dexamethasone 6 mg daily for up to 10 days
- Consider famotidine 20 mg BID for GI protection

Shared Decision-Making Points:

- Peak risk is 7-10 days after onset of symptoms. Take into account duration of illness and clinical trajectory. (e.g., A patient on day 5 of illness who is worsening is much higher risk than a patient on day 14 whose symptoms are more slowly progressive or stable.)
- Remdesivir is used to reduce hospital stay, but current evidence suggests no mortality benefit. Even in hospitalized patients, remdesivir is most indicated early in course of illness. At this time, it is probably not beneficial to admit for remdesivir alone, but this should be addressed in the SDM conversation.
- Consider risk of hyperglycemia with dexamethasone in diabetic patients.
- Must be able to return if feeling worse

OVERVIEW OF THERAPEUTICS

Dexamethasone: Recommended for patients requiring supplemental oxygen.

Dose: 6 mg daily for up to 10 days. Shorter course reasonable if weaned off O₂.

Precautions:

- Consider GI prophylaxis
- Consider risk of hyperglycemia in diabetic patients
- **International Patients:** Patients who originate outside the US, Australia, Europe, or Canada (at any time) require prophylactic treatment for strongyloides (a parasitic infection that can emerge after corticosteroid treatment). Treatment regimen is two doses of ivermectin, one day apart, with first dose preferably given prior to steroids. If a patient originates from West Africa, consult with ID prior to steroids due to Loa Loa risk.

Anticoagulation: Not routine, but could be considered for high-risk patients:

- Active cancer
- Prior history of VTE
- Poor mobility

Balance with individual risk for bleeding adverse event. Typically, rivaroxaban 10 mg daily for 5 weeks.

Remdesivir: Current evidence suggests no mortality benefit, only reduction in hospital stay. (Remdesivir is discontinued at hospital discharge even if full 5-day course has not been completed.)

Convalescent plasma: No meaningful benefit, not widely used.

Monoclonal antibodies: No indication for hypoxic or hospitalized patients. Emergency use authorization is for patients with high-risk but early & mild disease (reduces viral load and ED visits/hospitalizations but not mortality).

HOW TO ORDER HOME O₂ (BY SITE)

Allina:

1. Write DME note
 - Open a new note (+ Create Note)
 - Insert the following SmartText: DME HOME OXYGEN (can be found by typing "oxygen")
 - Fill out and sign
2. Order Home O₂
 - Navigate to Dispo tab
 - In Prescriptions & Orders, click "New Order"
 - Order Oxygen-Air Delivery Systems (HOME OXYGEN)
 - Can be found by typing "oxygen" or "293274"
 - Fill out and sign (length of need 1 month)
3. Contact Case Manager or Charge Nurse to:
 - Arrange O₂ delivery to ED
 - Supply with pulse-oximeter
4. Arrange follow-up
 - Case Manager and/or
 - Order from BestPractice Advisory on Dispo tab (click Follow-Up Actions)

Fairview:

1. Documentation:
 - Complete the following dot phrases:
.shhomeoxygen AND .homeO2facetoface
2. Place Order:
 - Oxygen (order RT109)
 - In comments, select "New Home Oxygen Order"
 - 1 month
3. Contact FV Home Medical Equipment
 - Call 651-632-9800 with the following information:
 - a. Patient name
 - b. MRN
 - c. Any isolation precautions
 - d. Where to bring the tank (can drop off at ER, may take up to 2 hours)

CentraCare:

1. Documentation: no additional documentation required beyond provider note.
2. Order "Home O₂ Evaluation"
3. RN/RT performs necessary documentation of O₂ necessity and provider signs off
4. Patient will go home with oxygen from the ED