What if I get called in?

Quick Links

Introduction: What if I get called in to help with COVID patients?

Aaron Bright, MD, board-certified in Emergency Medicine and founder of Hippo Education, sits down with Salim Rezaie, MD, board-certified in Internal Medicine and Emergency Medicine and founder of REBEL EM, to address the uncertainty and anxiety that all healthcare professionals are facing with COVID-19, specifically regarding the elephant in the room: "What if I get called in to help with COVID patients"?

We know that there's a constant flood of information. So, we produced this podcast mini-series to help rapidly onboard healthcare professionals who don’t see COVID patients regularly. We’re going to keep this simple and short, something you can listen to on your drive into work. We'll point out key clinical pearls and pitfalls that we've learned on the frontlines to help keep you and your patients safe. You can do this.

Personal Protective Equipment: Where providers incur greatest risk

Bottom Line

- Aerosolizing risk = N95/PAPR + Eye Protection + Gown + Gloves (airborne precaution)
- Everything else = Surgical Mask + Eye Protection + Gown + Gloves (droplet precaution)

Most of us know what personal protective equipment (PPE) is, but the reality is that many of us don't use this everyday and are wondering if we're doing it correctly. Let's highlight where people make mistakes and expose themselves to risk.

1. Surgical mask vs N95 masks

There is lots of confusion when healthcare providers should use surgical masks vs N95 masks with patients presenting with undifferentiated respiratory complaints. The simplest approach is to think of aerosolizing vs non-aerosolizing risk.

- **Aerosolizing risk** (e.g. nebulizer, non-invasive ventilation, high-flow nasal cannula, intubation) = N95 mask or PAPR (powered air-purifying respirator) + Eye Protection + Gown (waterproof) + Gloves (airborne precaution)
- **Non-Aerosolizing risk** = Surgical Mask + Eye Protection + Gown (waterproof) + Gloves (droplet precaution)

2. How places are doing PPE

Spend the time to get in-person training or at least watch a video on how to put on ("don") and take off ("doff") PPE. Sample videos can be found on rebelem.com and hippoed.com/covid
One donning sequence that falls in line with guidelines:

- Put on first pair of gloves
- Put on waterproof gown
- Put on mask (surgical vs N95)
- Put on eye protection
- Put on face shield
- Put on second pair of gloves

3. "Doffing" is high-risk

One of the highest risks for self-contamination is when taking off PPE after patient contact.

- First, take off your gown and gloves before you touch anything around your face.
- Second, wash your hands well before you touch the PPE involving your face.
- When taking off your mask, handle the straps behind your ears and never touch the front of the mask.

Basics of how to manage stable suspected COVID patients

Bottom Line

When to suspect COVID-19 (CDC screening criteria):

- Fever / Cough / SOB **and** Close contact with confirmed case within 14 days of symptoms
- Fever / Cough / SOB **and** Travel from endemic area within 14 days of symptoms
- Fever / Cough / SOB **and** Severe respiratory illness with no clear source

For outpatient providers who may get called in to help with COVID patients, you will most likely be asked to help triage and manage ambulatory suspected COVID patients. Here's what you need to know.

1. Classic signs and symptoms of COVID-19 patients

The COVID-19 incubation period ranges between 2-14 days. The most common symptoms include fever, dry cough, and dyspnea. Of note, in the United States, there is a small percentage of COVID patients presenting with vomiting and diarrhea.

2. CDC screening criteria for suspected COVID-19

While COVID-19 testing will vary based on your institution and general testing availability, the CDC screening criteria for suspected COVID-19 patients identifies 3 categories.

Clinical Features	&	Epidemiologic Risk
Fever[1] or signs/symptoms of lower respiratory illness (e.g. cough or shortness of breath)	AND	Any person, including healthcare workers[2], who has had close contact[3] with a laboratory-confirmed[4] COVID-19 patient within 14 days of symptom onset
Fever[1] and signs/symptoms of a lower respiratory illness (e.g., cough or shortness of breath) requiring hospitalization	AND	A history of travel from affected geographic areas[5] (see below) within 14 days of symptom onset
Fever[1] with severe acute lower respiratory illness (e.g., pneumonia, ARDS) requiring hospitalization and without alternative explanatory diagnosis (e.g., influenza)[6]	AND	No source of exposure has been identified

Image attribution: Centers for Disease Control and Prevention

Fever may be subjective or confirmed. Close contact is defined as being within 6 feet (2 meters) for a prolonged period of time (e.g. caring for, living with, visiting, sharing a healthcare waiting area with a known COVID-19 case) or having direct contact with infectious secretions of a COVID-19 case (e.g. being coughed on) without wearing PPE.

3. Potential COVID-19 workflows

Currently, in non-endemic areas, the workflow starts with the CDC screening guidelines, which may have more recent updates. Here is a sample workflow:

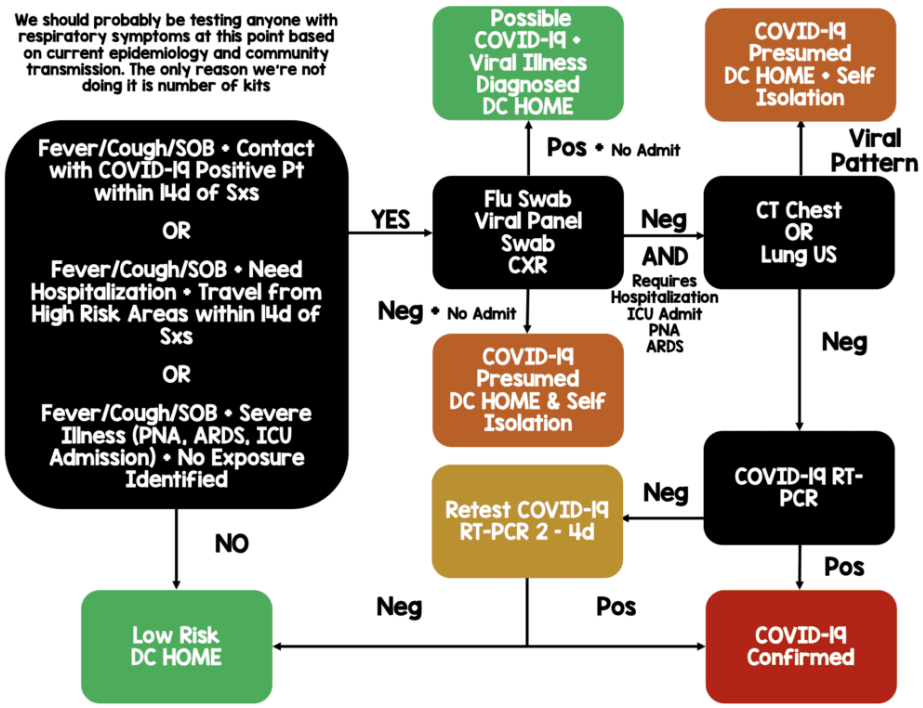

Image attribution: REBEL EM. https://rebelem.com/covid-19-the-novel-coronavirus-2019/

4. What to tell suspected COVID patients being discharged home

One of the most important discharge instructions to share with patients is social distancing. Here's a sample discharge script:

You have been diagnosed with a viral respiratory illness. You can help prevent the spread of viral illnesses by following these steps:

- *Avoid close contact with others, especially those who are elderly, immunocompromised, pregnant, or with multiple medical conditions.*
- *Do not go to work, school, religious or community gathering sites.*
- *Remain at home as much as possible.*
- *If you need to leave home, wear a mask that covers your nose and mouth.*
- *Wash your hands frequently and avoid touching your face.*
- *Return for worsening respiratory or other concerning symptoms.*

How basic respiratory interventions change for suspected COVID

Bottom Line

- Avoid nebulized medications in suspected COVID patients
- Avoid BiPAP/CPAP in suspected COVID patients

Most of us are probably familiar with oxygen supplementation and nebulizers, maybe even CPAP/BiPAP. Most of us should have some Basic Life Support (BLS) training to use a bag-valve-mask (BVM) in case of emergency. But there are some of this changes with COVID.

1. What's high-risk for aerosolization

High-risk aerosolization procedures require N95 mask or PAPR (powered air-purifying respirator), in addition to other personal protective equipment (PPE).
High-risk aerosolization procedures include anything that provides 6L/min or more of oxygen (e.g. high-flow nasal cannula [HFNC], BiPAP or CPAP, bag-valve-mask ventilation, nebulizer, intubation).

Bedside pearl: If you are going to provide low-flow oxygen via nasal cannula, also place a surgical mask over the patient's face.

2. How things are different with oxygen supplementation

Because many non-invasive ventilation techniques (i.e. HFNC, BiPAP, CPAP, bag-valve-mask ventilation) have a high-risk of aerosolization and poor mask seal, these techniques are not ideal. Ideally, start patients with low-flow nasal cannula, while the patient wears a surgical mask. If you must escalate non-invasive oxygenation, try to get the patient into a negative pressure isolation and wear appropriate PPE with N95/PAPR. With appropriate PPE and ideally a negative pressure isolation room, you can safely use non-invasive ventilation.

3. How things are different with nebulized medications

In general, nebulized medications should be avoided, as coughing increases the risk of aerosolization. Instead, consider using metered-dose inhalers with spacers in mild to moderate acute asthma or COPD exacerbations. For severe exacerbations, consider intramuscular epinephrine 0.1-0.3 mg IM and consider early intubation.

4. How things are different with bag-valve-mask (BVM)

In general, if you are in a situation where you need to use bag-valve-mask ventilation, make sure you and others are dressed in appropriate PPE (with N95 or PAPR) and ideally in a negative pressure isolation room. Minimize bag-valve-mask (BVM) ventilation in patients to minimize the risk of aerosolization. If absolutely necessary, use the 2-hand technique to create a tight seal.

Image attribution: Brewster D, et al. The Medical Journal of Australia. https://www.mja.com.au/journal/2020/212/10/consensus-statement-safe-airway-society-principles-airway-management-and

Diagnostic and radiology pitfalls in COVID patients

Bottom Line

- Chest x-ray pattern = Bilateral patchy infiltrates
- Chest CT pattern = Bilateral ground glass opacities +/- Crazy paving pattern +/- Consolidations with air bronchograms

For those of us who do not often receive immediate laboratory results and diagnostic imaging reports, we'll highlight unique diagnostic patterns and pitfalls with COVID-19 patients.

1. Laboratory patterns in COVID patients

Several notable laboratory patterns associated with confirmed COVID patients include: lymphopenia, leukopenia, thrombocytopenia, and transaminitis. These laboratory findings are not confirmatory but may elevate your clinical suspicion in your workup of suspected COVID patients. Interestingly, >95% of confirmed COVID patients have a negative procalcitonin.

2. Radiographic patterns in COVID patients

The notable chest x-ray radiographic finding associated with confirmed COVID patients is "bilateral patchy infiltrates".

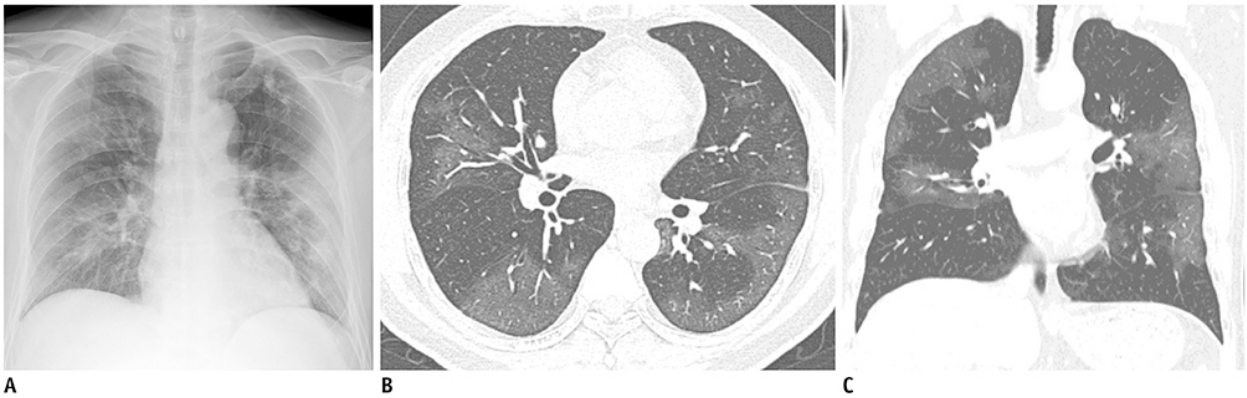

Image attribution: Yoon SH, et al. Korean Journal of Radiology. https://www.kjronline.org/DOIx.php?id=10.3348/kjr.2020.0132

The notable chest CT radiographic findings associated with confirmed COVID patients include: bilateral ground-glass opacities, crazy paving pattern, and consolidations with air bronchograms.

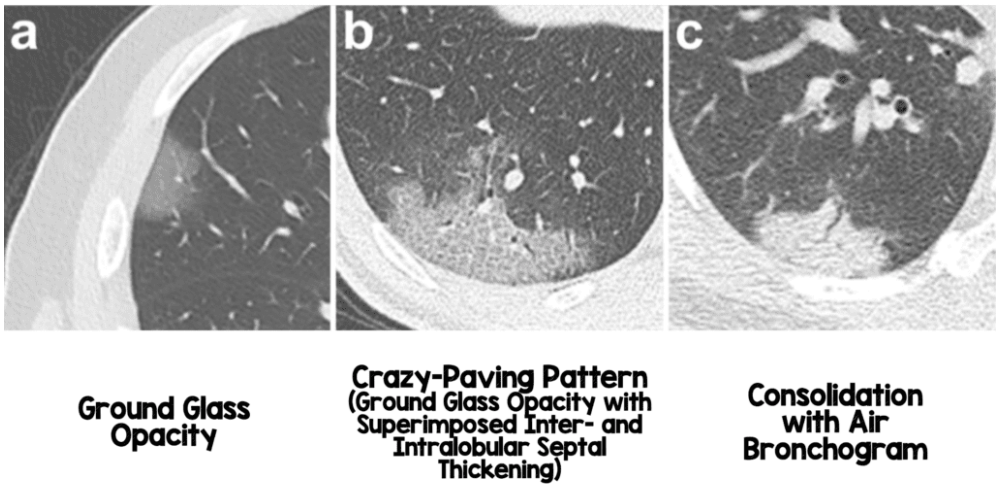

Image attribution: Li Y, et al. American Journal of Roentgenology. https://www.ajronline.org/doi/full/10.2214/AJR.20.22954

Radiographic pitfalls

- Radiographic evidence may not be present in patients presenting with early symptoms.
- Imaging does not make the diagnosis of a disease but defines the extent of disease and may suggest an alternate diagnosis.

Provider self-care tips during the COVID pandemic

Bottom Line

- Don't forget to wipe down your phone, jewelry, name badge, etc.
- Take a change of clothes with you to work.

We all recognize the increased risks we face as we care for our patients, but we must also care for ourselves, especially when we come home to our families. It’s normal to be concerned and one of the first things we can do is to start having conversations and plan ahead.

There are many creative ideas, and here are some that we recommend:

- Identify potentially separate living spaces and bathrooms
- Designate a separate entrance into and out of the home
- Change into and out of scrubs at the hospital
- Shower at the hospital or immediately when you get home
- Minimize accessories you bring to work and immediately sanitize them when you get home

Remember: one day at a time, one patient at a time. Stay safe, the world needs you. You’ve got this and we’re right there with you.