

Yale New Haven Health

Role of Imaging patients with Suspected or Confirmed Covid-19 Infection in ED/In-patient and Ambulatory Settings

Situation:

No guidelines exist for enhancing the safety process for imaging patients with suspected or confirmed COVID-19 infection. There also remains lack of clarity on the role of chest imaging.

Background:

The goal of imaging in COVID-19 patients is to provide high level care while minimizing risks to healthcare staff and other patients. For in-patients and ED patients some radiology exams can be performed portably (US, radiographs, head CT, minor procedures), other exams require patient transport off the floor (MR, CT, Nuclear Medicine, Fluoroscopy, IR).

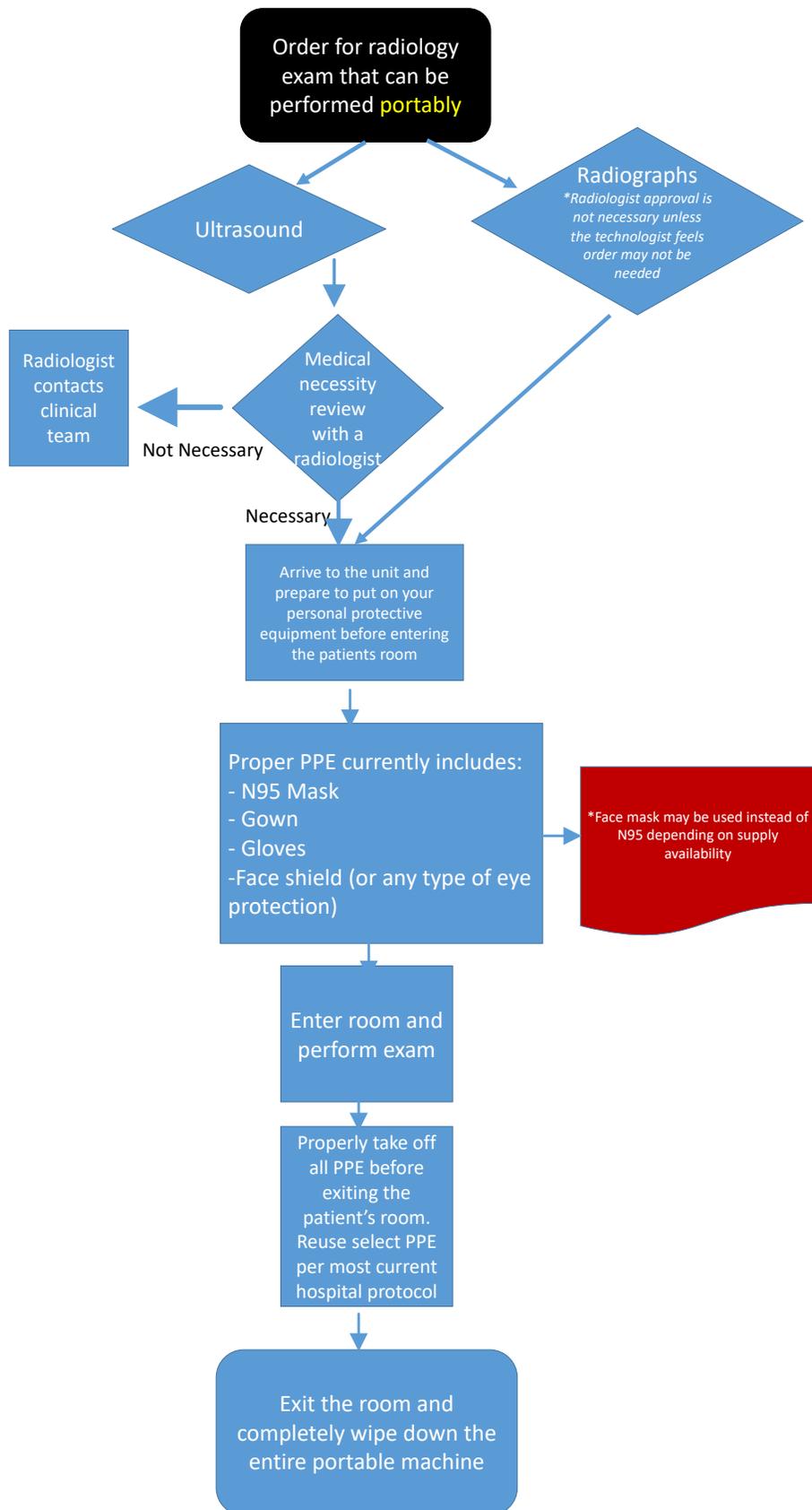
Assessment:

The transport of suspected/confirmed COVID-19 patients for imaging should be minimized. As such, ensuring appropriate imaging utilization is necessary. For ED and in-patients, portable alternatives to off floor imaging should also be used whenever possible. The use of chest imaging should follow best practice guidelines. Any non-critical imaging or procedure should be deferred until COVID-19 diagnosis is either confirmed (and patient recovers from their illness) or excluded.

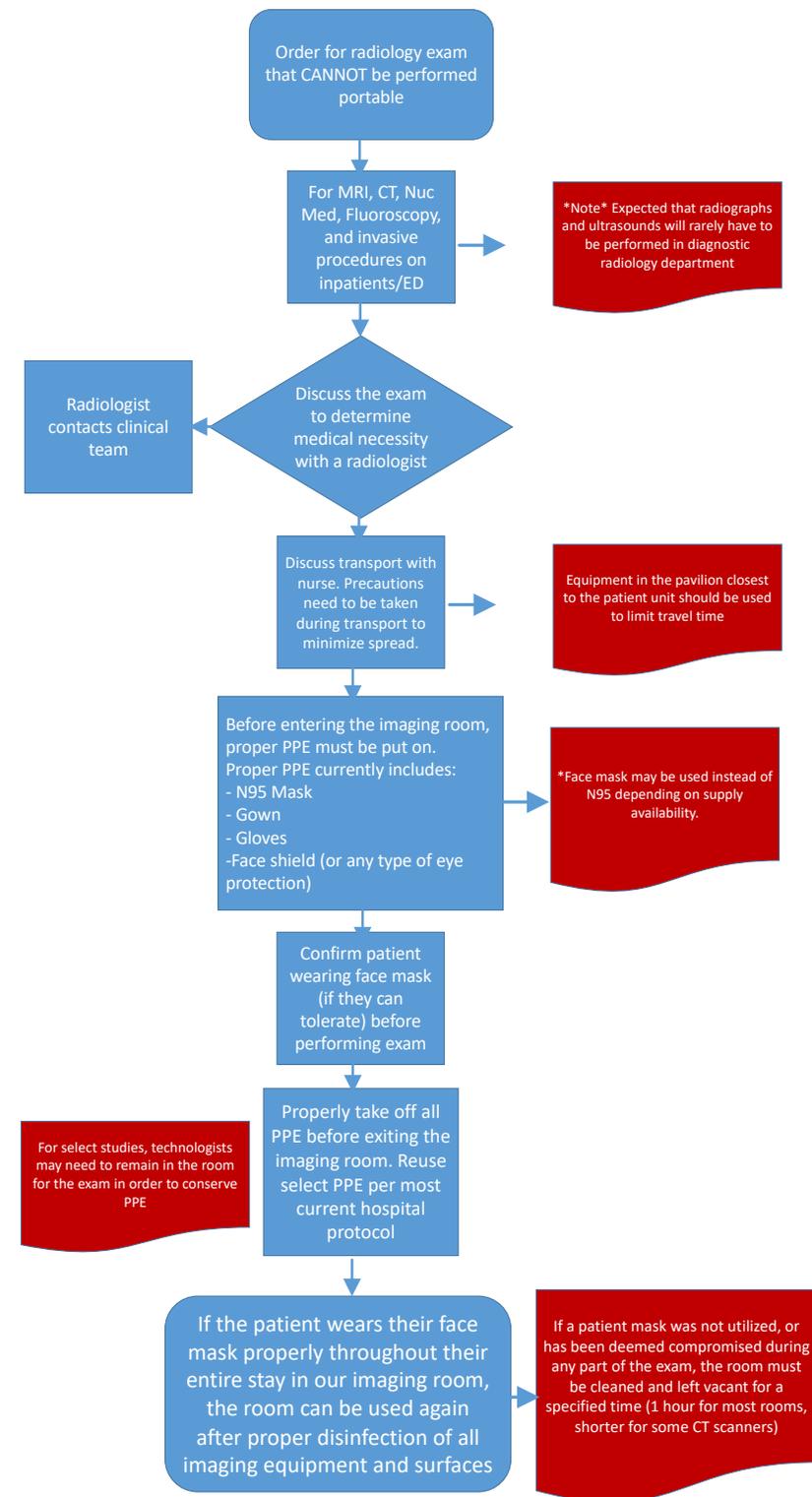
Recommendation:

1. For in-patients and ED patients, all imaging requests (excluding radiographs) for patients with pending or confirmed COVID-19 will be approved by a radiologist whenever possible. For out-patients, medical necessity of any imaging test should be determined by the ordering provider and/or radiologist. COVID test results are not necessary to proceed with indicated ED imaging orders.
2. From 8am to 5pm approval will be sought by the relevant radiology technologist before performing the study (Appendix A, B, C for technologist work-flow).
3. After normal business hours, the technologist may need to discuss case with relevant working/on call radiology teams.
4. Best practice guidelines should be followed for a) chest imaging (Appendix D) and b) technologist use of PPE (see separate FAQ doc) .
5. Radiology COVID Call Center has been established to assist in Radiology related questions for Yale New Haven Health. Call center number is 475-246-9660.

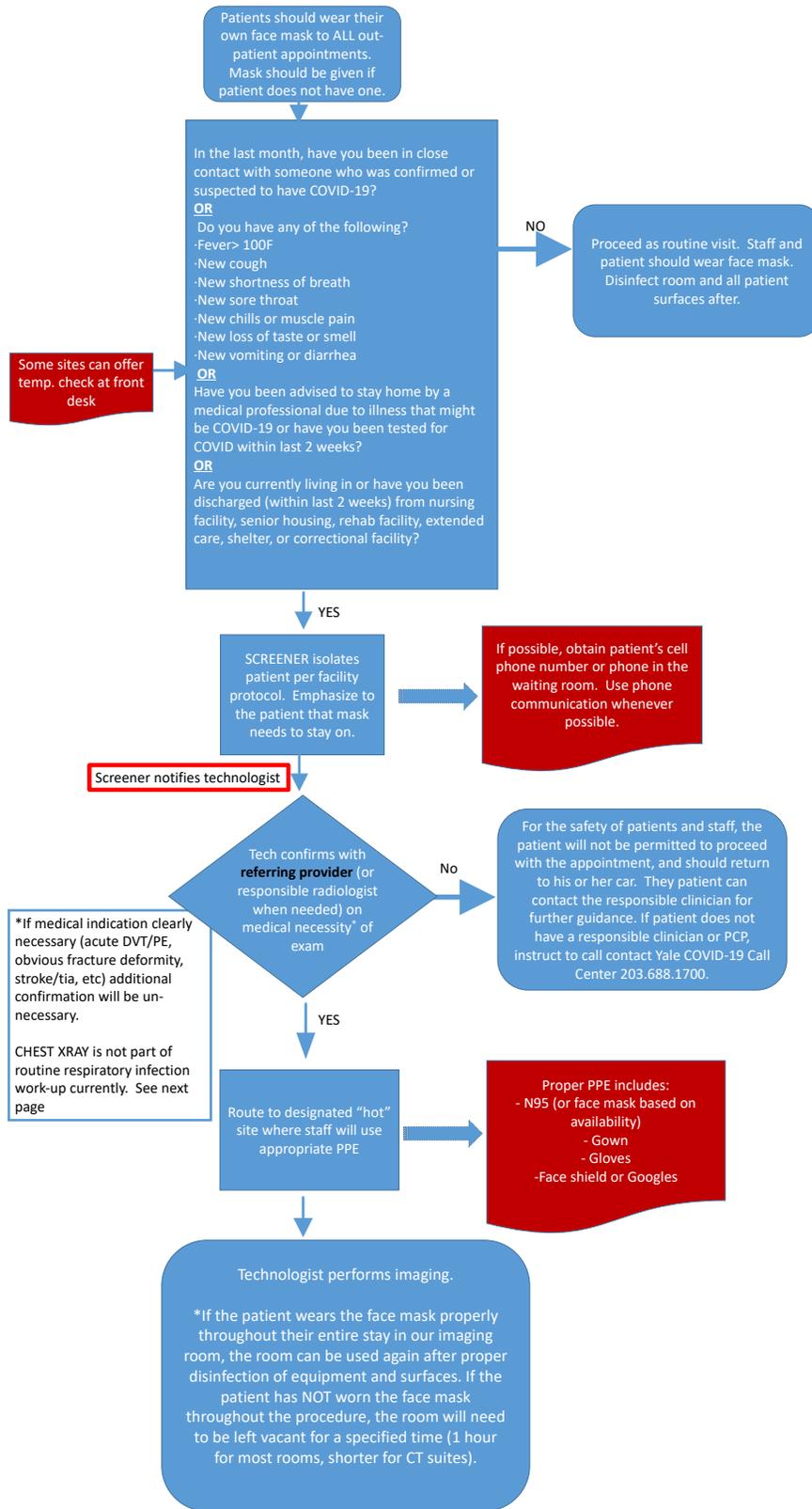
Appendix A: Ultrasound and X-Ray *ED and In-Patient* Tech workflow for CONFIRMED or SUSPECTED COVID-19 cases. All studies should be PORTABLE whenever possible.



Appendix B: CT/MRI/Nucs/Fluoro ED and In-Patient workflow for CONFIRMED or SUSPECTED COVID-19 cases



Appendix C: NON-“HOT-SITE” OUT-PATIENT work-flow for technologist/front-desk staff



Appendix D.1:

Role of Chest Radiographs (CXR):

CXR plays a role in the imaging management of pneumonia in immunocompetent patients, despite known low sensitivity.

Any CXR of a suspected or confirmed COVID infection should be done portably for ED or In-Patient.

- CXR should NOT be obtained to rule out COVID infection
 - A normal CXR does not rule out the possibility of COVID. CXR is reported to have 25-60% sensitivity in detecting pneumonia for these patients. Ground glass opacities commonly seen with COVID can be occult on CXR.
- CXR should only be obtained when absolutely necessary and xrays should be minimized when possible (e.g. for line placement, get one film after all lines placed).
- Examples of indications for CXR
 - Initial baseline imaging for a COVID Suspect or Known patient being admitted
 - To evaluate for complicated pneumonia (cavitation, effusions, etc)
 - To assess ETT placement after intubation or after line placement if concerned for malposition
 - When change in clinical status raises concern for possible superimposed pulmonary process

Role of Chest CT:

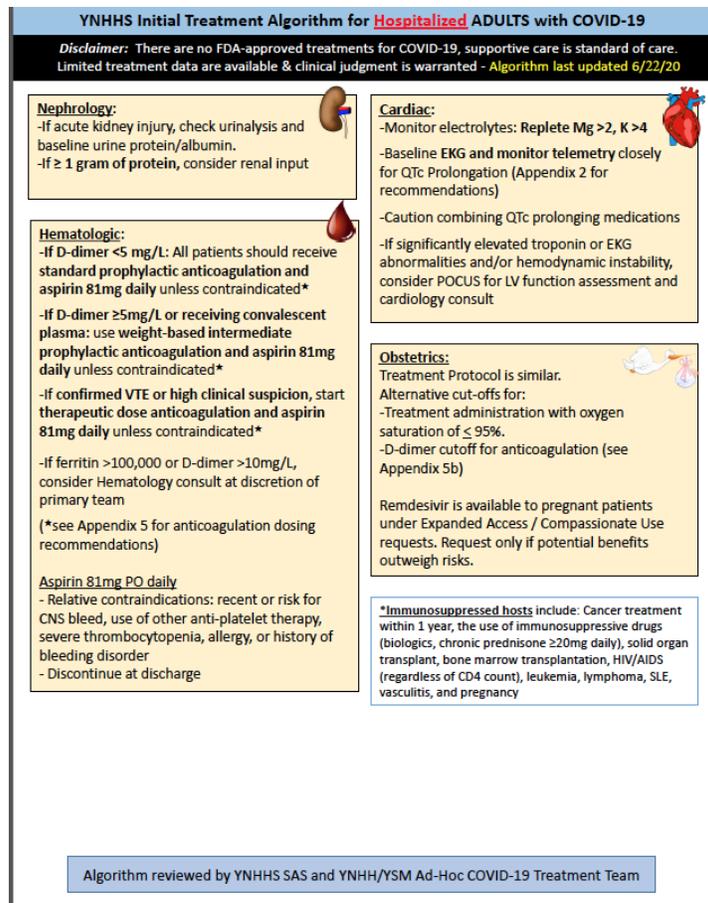
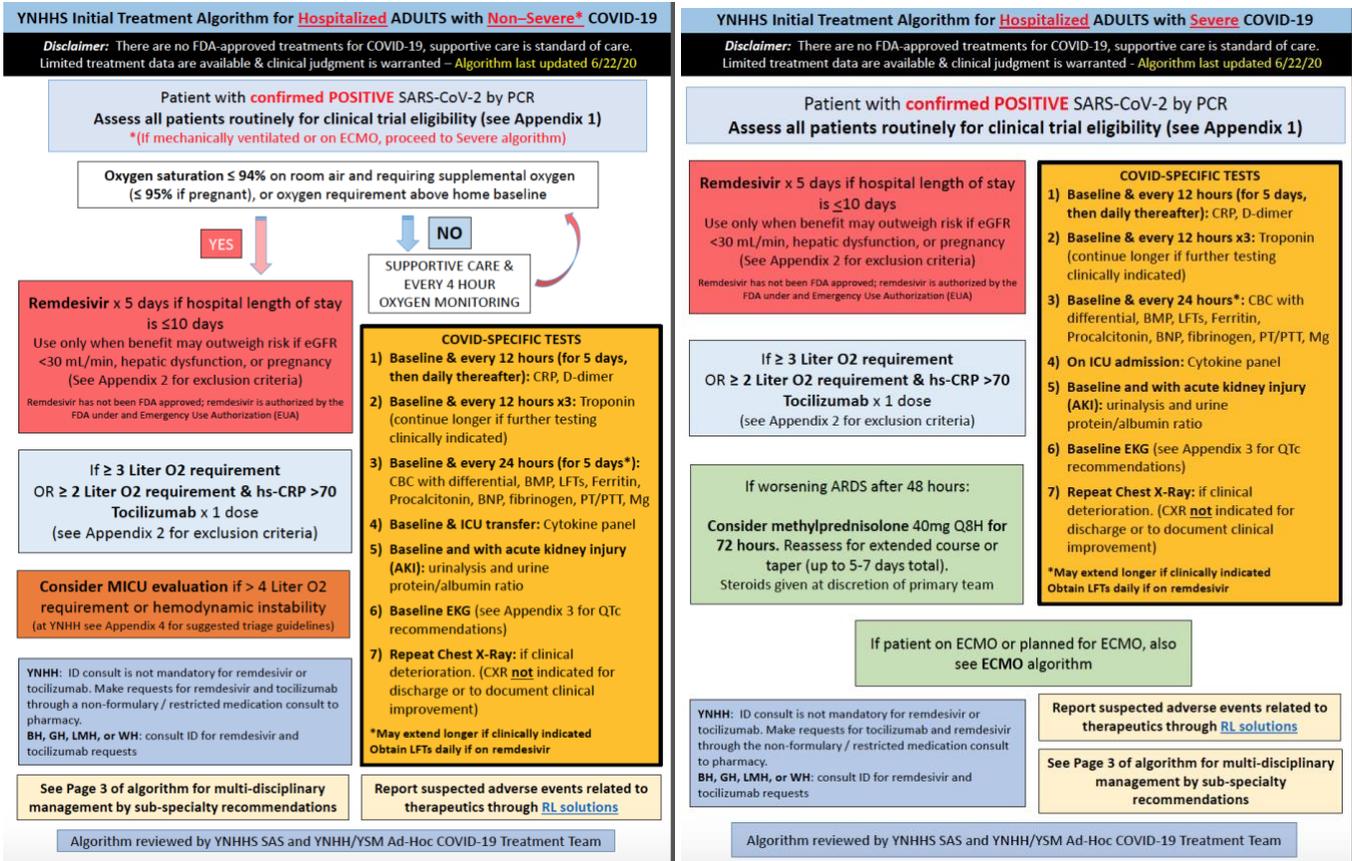
Chest CT plays a role in the imaging work-up of immunocompetent patients with pneumonia, mainly to detect complications such as cavitation, intra-parenchymal abscess and empyema. The role of CT in patients with suspected viral pneumonia is controversial.

Following recent statements by the American College of Radiology (ACR) and the Society of Thoracic Radiology (STR), CT is considered indicated in the following situations involving patients with suspected or confirmed COVID-19 infection:

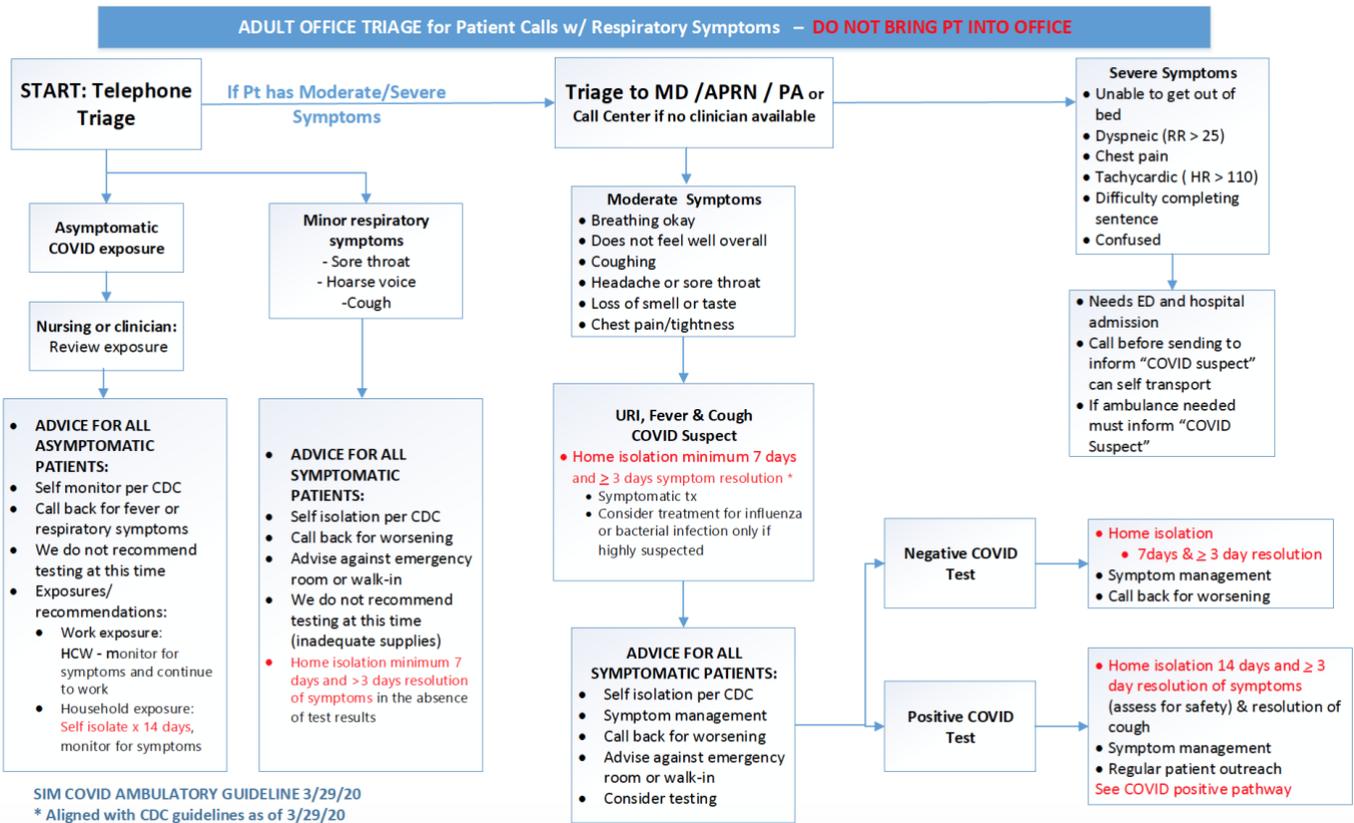
1. CT should NOT be used to screen for or as a first-line test to diagnose COVID-19. It may play a role in helping triage and make management decisions in select cases where PCR test is negative, chest xray is negative and clinical suspicion for COVID remains high.
2. CT may be indicated in patients with positive COVID PCR testing AND suspicion for complications such as cavitation, intra-parenchymal abscess and empyema not adequately assessed via portable CXR.

Appendix D.2- Current ADULT in-patient COVID treatment guide-

See full guideline posted on YNHHS COVID clinical resource site



Appendix D.3- Current adult URI work-up for out-patients



Guidance for PPE Don and Doff use can be found at

- <https://vimeo.com/397424618/5e69e27680>
- [Radiology.yale.edu](https://radiology.yale.edu)

[CLICK HERE FOR FULL PPE GUIDANCE POLICY INCLUDING REUSE PROCEDURES](#)

References:

- (1) Global surveillance for COVID-19 disease caused by human infection with the 2019 novel coronavirus Interim guidance. World Health Organization. 27 February 2020. WHO reference number: WHO/2019-nCoV/SurveillanceGuidance/2020.4
- (2) ACR Recommendations for the use of Chest Radiography and Computed Tomography (CT) for Suspected COVID-19 Infection.
<https://www.acr.org/Advocacy-and-Economics/ACR-Position-Statements/Recommendations-for-Chest-Radiography-and-CT-for-Suspected-COVID19-Infection>.
- (3). Mossa-Bossa et al. Radiology Department Preparedness for COVID19: *Radiology* Scientific Expert Panel. *Radiology* 2020. <https://pubs.rsna.org/doi/10.1148/radiol.2020200988>
- (4). YNHHS Covid Resource Website
- (5.) Rubin et al. The Role of Chest Imaging in Patient Management during the COVID-19 Pandemic: A Multinational Consensus Statement from the Fleischner Society. *Radiology* 2020. <https://pubs.rsna.org/doi/10.1148/radiol.2020201365>