

The Daily COVID-19 Literature Surveillance Summary

August 3, 2020



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COVID-19 Daily Literature Surveillance

COVID19LST



Bringing you real time, distilled information for guiding best practices during the COVID-19 pandemic

LEVEL OF EVIDENCE

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or n-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, n-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

* Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.

** As always, a systematic review is generally better than an individual study.

How to cite the Levels of Evidence Table

OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence".

Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=5653>

* OCEBM Table of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson

EXECUTIVE SUMMARY

CLIMATE:

- This review, composed of a literature review and anecdotes from the authors' students, highlights that the fact that [a greater percentage of African Americans have succumbed to COVID-19 than other racial and ethnic groups](#), and discusses economic and social challenges faced by the Black community during the pandemic. The authors advocate for further analysis now and post-pandemic to determine the impact of structural racism and identify strategies to mitigate these disparities (including access to care, improving the education system, and voting rights).

EPIDEMIOLOGY:

- A case report and case series of COVID-19 patients who had concomitant co-infection with [Dengue](#) and [Tuberculosis](#) highlight the need to avoid both availability bias and premature closure during the pandemic, and will be especially crucial as cold/flu season approaches.

ADJUSTING PRACTICE:

- A group of pulmonologists discuss the effects of COVID-19 on patient care and [propose recommendations to restructure clinical practices and workflow in order to avoid delays in patient care and decrease transmission](#) during the pandemic. They recommend the following structural changes before, during, and after clinic visits:
 - Before the visit
 - Implement systems for telephone screening for COVID symptoms and triaging by acuity.
 - Allow "high-risk" staff to work virtually.
 - Asymptomatic testing for all patients prior to any potentially aerosolizing procedure.
 - During the visit:
 - Ensure staff have adequate PPE.
 - Stagger clinic appointments to avoid crowding of lobby and waiting room.
 - Disinfect all rooms and equipment between patients.
 - After the visit:
 - Transition to virtual appointments if possible.
 - Develop a robust system for follow-up and continuity of care

R&D DIAGNOSIS AND TREATMENT:

- Emergency physicians from multiple California medical centers present [a framework for point-of-care ultrasound \(POCUS\) integration into the clinical management of COVID-19 patients](#). These include utilizing POCUS to improve diagnosis, prognosis, and evaluation of cardiopulmonary complications. The authors stress the need for more research studies on COVID-19 that "progress beyond diagnostic accuracy" and begin to incorporate more patient-centered outcomes. Examples include performing serial POCUS exams to monitor clinical progression of cardiac dysfunction, the development of pulmonary edema, and distinguishing between the H-type (high elastance, low compliance) phenotype seen earlier in disease and the L-type (low elastance, high compliance) forms of ARDS seen later in disease progression.

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SIX FEET APART OR SIX FEET UNDER: THE IMPACT OF COVID-19 ON THE BLACK COMMUNITY

Moore SE, Jones-Eversley SD, Tolliver WF, Wilson BL, Jones CA.. Death Stud. 2020 Jul 1:1-11. doi: 10.1080/07481187.2020.1785053. Online ahead of print.

Level of Evidence: Other - Review / Literature Review

BLUF

This review, which draws from a literature review and case examples from the authors' current and former students, highlights that a greater percentage of African Americans have succumbed to COVID-19 than other racial and ethnic groups and discuss economic and social challenges the Black community is facing during the pandemic. The authors suggest that further analysis will be required post-pandemic to determine the impact on African American communities and structural racism (including access to education and voting rights).

SUMMARY

Specific challenges highlighted in the article include:

1. Inability to adhere to cultural traditions pertaining to the death, dying, and the grieving process due to social distancing guidelines.
2. Unemployment, leading to loss of housing and inability to maintain a proper diet and thus contributing to further health disparity.
3. Barriers to participation in voting among the African American community; the authors highlight that access to voting rights is especially important now in order to enable African American individuals to support candidates who plan to address racial inequality.

ABSTRACT

To date, 110,000+ people in the United States have died from the COVID-19 pandemic. In this paper, the authors will discuss COVID-19 relative to Black people and their overrepresentation among those who are infected and died from the disease. Their dying, death, and grief experiences are explored through a cultural and spiritual lens. The physical distancing, social isolation, misinformation, and restrictive burials and cremations now elicited by this unprecedented pandemic have had diminished familial, cultural, emotional, and economic impacts on the Black community. Implications for public health and Black peoples' involvement in the political process are also addressed.

COVID-19 AND DENGUE CO-INFECTION IN A RETURNING TRAVELLER

Epelboin L, Blondé R, Nacher M, Combe P, Collet L. J Travel Med. 2020 Jul 13:taaa114. doi: 10.1093/jtm/taaa114. Online ahead of print.

Level of Evidence: 5 - Case report

BLUF

This case report is of a 44-year-old male from France who traveled to Switzerland from March 6 to 14, 2020 and developed fever, myalgias, and headaches. They had a negative RT-PCR for SARS-CoV-2 on day 4 of symptoms, followed by a positive result 10 days later. The patient developed diffuse maculopapular exanthem concurrently and tested positive for dengue. According to the authors, this is the first case reported of co-infection of SARS-CoV-2 and dengue which suggests a risk for misdiagnosis and co-infection in regions of endemic/epidemic of tropical diseases.

ABSTRACT

In march 2020, a pandemic of respiratory infection due to the SARS-CoV2 is underway, dengue fever epidemics are at the same time present in many regions of the inter-equatorial zone. We report the first cases of covid19-dengue co-infection, which occurred in Mayotte, a French island in the Indian Ocean.

ADULTS

FOUR PATIENTS WITH COVID-19 AND TUBERCULOSIS, SINGAPORE, APRIL-MAY 2020

Tham SM, Lim WY, Lee CK, Loh J, Premkumar A, Yan B, Kee A, Chai L, Tambyah PA, Yan G. Emerg Infect Dis. 2020 Jul 15;26(11). doi: 10.3201/eid2611.202752. Online ahead of print.

Level of Evidence: 4 - Case-series

BLUF

This research letter describes four migrant workers co-infected with SARS-CoV-2 and Mycobacterium tuberculosis confirmed on RT-PCR and interferon-gamma release assay (IGRA), respectively (Table 1). All subjects lived in a dormitories in Singapore from April to May 2020 and displayed similar symptoms (fever and cough) with atypical radiographic findings for COVID-19 (Figure 1). The authors recommend precautionary measures for countries with a high prevalence of tuberculosis during the ongoing pandemic.

ABSTRACT

Coronavirus disease (COVID-19) and tuberculosis (TB) developed in 4 foreign workers living in dormitories in Singapore during April-May 2020. Clinical manifestations and atypical radiographic features of COVID-19 led to the diagnosis of TB through positive interferon-gamma release assay and culture results. During the COVID-19 pandemic, TB should not be overlooked.

FIGURES

Table

Epidemiologic and clinical features for 4 patients with coronavirus disease and tuberculosis, Singapore*

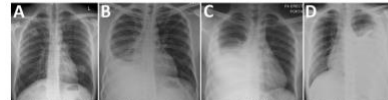
Pt no.	Age, y/sex, nationality	Initial signs/symptoms	Radiologic findings	Pleural fluid analysis	Sputum analysis	Microbiological findings	IGRA for TB	Outcome
1†	35M, India	Fever, productive cough	CXR: right upper zone and left lower zone cavity lesions; chest CT: irregular consolidations with central cavitation	NA	AFB smear negative; molecular TB analysis negative	Sputum AFB culture negative	+	Symptoms resolved; repeat CTR after starting ATT demonstrated resolution of cavity lesions at 2 mo of treatment
2	35M, India	Fever, nonproductive cough, 3 kg weight loss over 1 mo	CXR: right-sided pleural effusion; chest CT: localized right-sided effusion with adjacent inflammation/consolidation	Lymphocytic exudative effusion; ADA 133 U/L; SARS-CoV-2 PCR negative	AFB smear negative; molecular TB analysis negative	Sputum and pleural fluid AFB culture pending	+	Symptoms resolved with interval improvement of CTR
3†	22M, India	Fever, nonproductive cough, ventral dyspnea, pleuritic chest pain	CXR: right-sided pleural effusion with adjacent compressive atelectasis	Lymphocytic exudative effusion; ADA 112 U/L; SARS-CoV-2 PCR negative	AFB smear negative; molecular TB analysis negative	Sputum and pleural fluid AFB culture pending	+	Symptoms resolved with interval improvement of CTR
4	40M, Bangladesh	Fever, productive cough, reduced effort tolerance	CXR: large left-sided pleural effusion; Chest CT: left-sided pleural effusion, isolated patchy consolidation changes with ground glass opacities and interlobular septal thickening	Lymphocytic exudative effusion; ADA 83 U/L; SARS-CoV-2 PCR negative	AFB smear negative; molecular TB analysis negative	Sputum AFB culture negative; pleural fluid AFB culture positive for <i>Mycobacterium tuberculosis</i> complex	+	Symptoms resolved with interval improvement of CTR

*ADA, adenosine deaminase; AFB, acid-fast bacilli; ATT, anti-TB therapy; CT, computed tomography image; CTR, plain chest radiograph; IGRA, interferon gamma release assay.

NA, not applicable; Pt, patient; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; TB, tuberculosis; +, positive.

†These patients reside in the same dormitory.

Figure

Figure 1. Plain chest radiographs of 4 patients with severe acute respiratory syndrome coronavirus 2 and *Mycobacterium tuberculosis* infection. (A) Patient 1, showing bilateral cavity lesions. (B) Patient 2, showing a large right-sided localized pleural effusion and adjacent consolidation. (C) Patient 3, showing a large right-sided pleural effusion with adjacent compressive atelectasis. (D) Patient 4, showing a large left-sided pleural effusion with adjacent consolidation.

SYMPTOMS OF PLEURISY AS THE INITIAL PRESENTATION OF COVID-19

Oleynick C.. Am J Case Rep. 2020 Jul 24;21:e925775. doi: 10.12659/AJCR.925775.

Level of Evidence: Other - Case Report

BLUF

This case report describes a 48-year-old male with hypertension and type 2 diabetes in Alberta, Canada who presented to the Emergency Department with pleuritic chest pain. His only other symptom at that time was a dry cough, his CT scan was negative. He later developed more characteristic symptoms of and tested positive for COVID-19. The patient was treated with acetaminophen and ibuprofen for his pain, as well as Azithromycin and Ceftriaxone, and supplemental oxygen up to 4L. He was not given any COVID-19-specific treatment and was discharged home after 7 days in the hospital. To the author's knowledge, this case is the first report of COVID-19 related pleuritic chest pain as a presenting complaint and suggests that COVID-19 may present atypically.

ABSTRACT

BACKGROUND Severe acute respiratory syndrome coronavirus 2, the virus responsible for Coronavirus Disease 2019 (COVID-19), has infected more than 8 million people worldwide and placed massive strains on healthcare systems around the world. Although classically causing cough, fever, and shortness of breath, increasing evidence suggests that manifestations of COVID-19 can be more subtle or masquerade as other clinical entities. **CASE REPORT** A 48-year-old man with hypertension and type 2 diabetes mellitus presented to the Emergency Department with acute-onset pleuritic chest pain that had developed 1 day earlier and was found to be hypoxemic, requiring supplemental oxygen. He was admitted under the internal medicine service and underwent an extensive workup for his chest pain and hypoxemia, including a negative computed tomography scan with pulmonary embolism protocol, negative nuclear medicine ventilation/perfusion scan, normal electrocardiogram, and normal echocardiography. In the end, he was diagnosed with viral pleuritis as the diagnosis of exclusion. Our patient subsequently developed a fever and shortness of breath and his nasopharyngeal swab performed on admission to hospital returned positive for COVID-19. The patient's pleuritic pain and oxygen requirements improved with supportive management over the next several days. **CONCLUSIONS** I report a patient who experienced pleuritic chest pain from viral pleurisy that was the initial manifestation of COVID-19 which, to the best of my knowledge, has not yet been reported in the literature. This case report further emphasizes that COVID-19 may present with atypical symptoms. It is crucial to be aware of these atypical presentations of COVID-19 so that patients are appropriately identified, isolated, and treated, while protecting health care workers from exposure.

ADJUSTING PRACTICE DURING COVID-19 FOR HEALTHCARE PROFESSIONALS

ON TREATMENTS AND TESTS DEFERRED: PREPARING FOR COLLATERAL DAMAGE FROM COVID-19

Jain S, Santhosh L. Ann Am Thorac Soc. 2020 Jul 15. doi: 10.1513/AnnalsATS.202004-387VP. Online ahead of print.
Level of Evidence: Other - Expert Opinion

BLUF

A group of pulmonologists discuss the effects of COVID-19 on patient care and propose recommendations to restructure clinical practices before the patient visit, during the visit, and after the visit (see summary); they believe this approach will avoid delayed patient care and decrease transmission during the COVID-19 pandemic.

SUMMARY

The three domains and recommendations are as follows:

1) The "before visit":

- Implement a triage system to assess the acuity of appointments.
- Referrals should not be delayed and follow-up with patients for confirmation.
- Telephone screening should be used to determine who should be tested for COVID-19.
- Staffing should be allowed to work virtually if they are at high risk.
- Asymptomatic testing should occur for all patients prior to aerosolizing events.

2) During the visit:

- Staff should have access to proper PPE.
- Clinic appointments should be staggered to avoid patient pile-up and mitigate crowds.
- All equipment should be disinfected between patients.

3) After the visit:

- Explicitly discuss follow-up instructions and modality of future visits.
- Transition to virtual appointments if possible.

ACUTE CARE

INSIGHTS ON DEVELOPING A FIELD HOSPITAL FORMULARY AND MEDICATION DISTRIBUTION PROCESS IN PREPARATION FOR A SECOND SURGE OF COVID-19 CASES

Bazzell B, Wagner D, Durant KM, Callahan B. Am J Health Syst Pharm. 2020 Jul 24:zxaa232. doi: 10.1093/ajhp/zxaa232.
Online ahead of print.
Level of Evidence: Other - Guidelines and Recommendations

BLUF

A multi-institutional group of pharmacists in Michigan developed a field hospital plan to limit formularies and pharmacy operations in the event of a second surge of COVID-19 cases (Figure 1) that included a list of 140 formulary medications with a proposed process for nonformulary medications (Figure 2). While there is no current data reflecting its effectiveness, the authors believe this approach will improve medication distribution effectively and efficiently.

ABSTRACT

DISCLAIMER: In an effort to expedite the publication of articles related to the COVID-19 pandemic, AJHP is posting these manuscripts online as soon as possible after acceptance. Accepted manuscripts have been peer-reviewed and copyedited, but are posted online before technical formatting and author proofing. These manuscripts are not the final version of record and will be replaced with the final article (formatted per AJHP style and proofed by the authors) at a later time. **PURPOSE:** The coronavirus disease 2019 (COVID-19) pandemic has caused health systems across the country to plan for field hospitals to care for patients outside of traditional healthcare settings in the event of a second surge. Here we describe key considerations for the implementation of pharmacy operations and a field hospital formulary at an offsite location within a 2-week time frame. **SUMMARY:** Development of an offsite field hospital formulary is first dependent on the location and patient population defined for the field hospital. Creation of a limited formulary for a planned field hospital in Michigan involved reviewing physical space limitations and drug distribution workflows, assessing current prescribing trends, creating drug categories, and creating formulary guidelines to limit formulary options in each therapeutic category. Ultimately, our institution developed a 140-medication field hospital formulary, a process to enable appropriate use of nonformulary drugs, and a mixed operations model including automated dispensing cabinets and a manual cart-fill process. Although the institution did not have to open the field hospital, the process used for developing the formulary and determining distribution models will allow for an immediate implementation if a second surge occurs. **CONCLUSION:** A methodical approach to developing limited formularies and pharmacy operations in a field hospital setting will allow health systems to establish efficient and effective medication distribution services in the event of a second surge of COVID-19 cases.

FIGURES

Figure 1

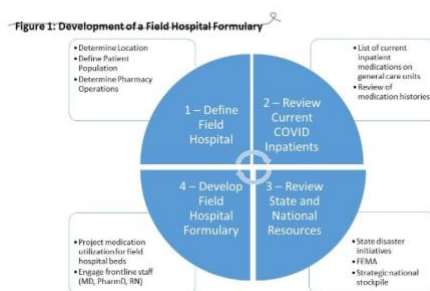
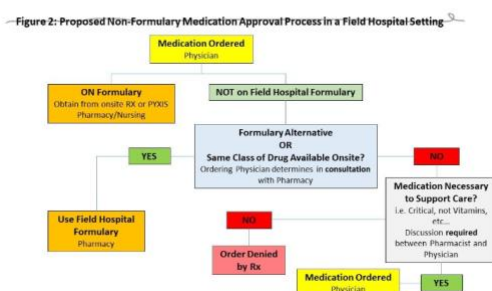


Figure 2



COVID-19 AND THE HEART AND VASCULATURE: NOVEL APPROACHES TO REDUCE VIRUS-INDUCED INFLAMMATION IN PATIENTS WITH CARDIOVASCULAR DISEASE

Kadosh BS, Garshick MS, Gaztanaga J, Moore KJ, Newman JD, Pillinger M, Ramasamy R, Reynolds HR, Shah B, Hochman J, Fishman GI, Katz SD. Arterioscler Thromb Vasc Biol. 2020 Jul 20:ATVBAHA120314513. doi: 10.1161/ATVBAHA.120.314513. Online ahead of print.

Level of Evidence: 5 - Mechanism-based reasoning

BLUF

Researchers from New York discuss associations between cardiovascular risk factors (e.g. diabetes, obesity, heart disease) and the damage caused by a hyperinflammatory state in severe COVID-19. In particular, the authors highlight the role of the NOD-, LRR- and pyrin domain-containing protein 3 (NLRP3) inflammasome pathway as a possible mediator (Figure). They also argue that several drugs, all actively being researched, have the potential to reduce cardiometabolic inflammatory pathways in COVID-19.

SUMMARY

Specific drug classes with the potential to modulate cardiometabolic inflammatory pathways include:

- Aldose reductase inhibitors have evidence of pulmonary- and cardio-protective properties
- Sodium-glucose cotransporter 2 (SGLT-2) inhibitors appear to have anti-inflammatory properties that go beyond modest reductions in blood glucose levels
- Incretins have evidence for reduced cardiovascular morbidity and mortality, as well as an ability to decrease pro-inflammatory and pro-thrombotic signaling
- Colchicine reduces inflammatory signaling (interleukin-6 and C-reactive protein) in the setting of percutaneous interventions and reduced adverse cardiovascular outcomes
- Interleukin-1 inhibitors reduce adverse cardiovascular outcomes and cancer-related mortality, but also increase risk of mortality from sepsis
- 3-hydroxy-3-methyl-glutaryl-coenzyme (HMG-CoA) reductase inhibitors reduce T lymphocyte activation and have some evidence of reduced hospitalizations and mortality from influenza

ABSTRACT

The coronavirus disease 2019 (COVID-19) pandemic presents an unprecedented challenge and opportunity for translational investigators to rapidly develop safe and effective therapeutic interventions. Greater risk of severe disease in COVID-19 patients with comorbid diabetes mellitus, obesity, and heart disease may be attributable to synergistic activation of vascular inflammation pathways associated with both COVID-19 and cardiometabolic disease. This mechanistic link provides a scientific framework for translational studies of drugs developed for treatment of cardiometabolic disease as novel therapeutic interventions to mitigate inflammation and improve outcomes in patients with COVID-19.

FIGURES

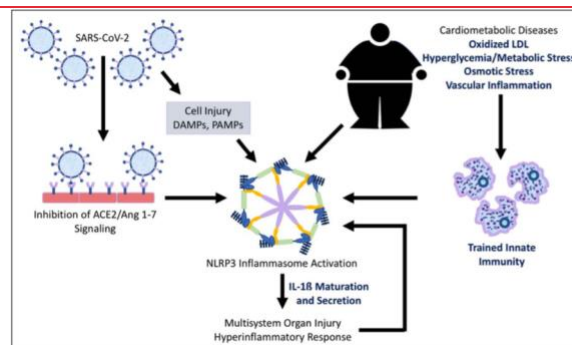


Figure. Possible mechanisms contributing to increased risk of severe complications in coronavirus disease 2019 (COVID-19) patients with comorbid cardiometabolic disease.

DEVELOPMENTS IN DIAGNOSTICS

PICK UP YOUR PROBES: A CALL FOR CLINICALLY ORIENTED POINT-OF-CARE ULTRASOUND RESEARCH IN COVID-19

Chiem AT, Shibata J, Lim G, Liu YT.. J Ultrasound Med. 2020 Jul 20. doi: 10.1002/jum.15394. Online ahead of print.

Level of Evidence: Other - Expert Opinion

BLUF

A commentary by emergency physicians at multiple University of California, Los Angeles (UCLA) Medical Centers presents a framework for point-of-care ultrasound (POCUS) integration into the clinical management of COVID-19 patients as well as potential POCUS research topics related to COVID-19, including patient prognosis and evaluating cardiac or pulmonary complications. The authors stress that studies involving COVID-19 patients need to "progress beyond diagnostic accuracy" and begin to incorporate more patient-centered outcomes.

SUMMARY

Authors discuss:

- Prognosis of patients with COVID-19 discharged from the emergency department (ED) using POCUS characterization: POCUS may better characterize portable chest radiography findings of potentially discharged patients by the presence of subpleural effusions or consolidations, the degree of B-lines, and alveolar consolidations. POCUS may also reveal findings associated with a higher degree of clinical decompensation that would require admission.
- Prognosis of admitted patients with serial POCUS to identify pulmonary and/or cardiac complications: POCUS may help to transition patient care in COVID-19 cases from reactive to proactive by predicting common pulmonary or cardiac complications prior to current assessments and provide a better prognostic tool for clinicians.
- Development and management of Acute Respiratory Distress Syndrome with serial POCUS: Serial POCUS to identify patients at risk for decompensation based on alveolar consolidation, increased involvement, and B-lines for more appropriate interventions. Use of POCUS-guided alveolar recruitment strategies may also assess breathing and readiness for extubation and should be compared to current use of prone positioning in patients with severe acute respiratory distress.
- Monitoring development of cardiac injury with serial use of POCUS: Cardiac complications common in critically ill patients include viral myocarditis, myocardial infarction, pericardial effusions, and right ventricular dysfunction for those positive for COVID-19. POCUS may help to detect these complications prior to clinical deterioration
- Characterizing the L and H subtypes of COVID-19 with lung POCUS and better differentiate the phenotypes: Serial lung POCUS can help characterize pulmonary edema and alveolar consolidation indicative of a high elastance or low compliance which is more commonly seen in type H compared to type L.

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