

Tuberculosis (TB) and COVID-19

1. Is it safe to collect sputum samples in patients with signs or symptoms that may be consistent with COVID-19?

Yes. With appropriate COVID-19-specific PPE, sputum specimens can be collected via induction and other high-hazard procedures in the usual manner.

When caring for patients with confirmed or possible COVID-19 the [Centers for Disease Control and Prevention \(CDC\)](https://www.cdc.gov) recommend the following PPE: gown, NIOSH-approved N95 filtering facepiece respirator or higher, face shield or goggles, and gloves. HCP should perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and after removing PPE, including gloves. Hand hygiene after removing PPE is particularly important to remove any pathogens that might have been transferred to bare hands during the removal process. HCP should perform hand hygiene by using ABHS with 60-95% alcohol or washing hands with soap and water for at least 20 seconds. If hands are visibly soiled, use soap and water before returning to ABHS.

In addition, currently authorized vaccines in the United States are highly effective at protecting vaccinated people against symptomatic and severe COVID-19 and have been shown to significantly reduce the risk of transmission to others. It is recommended that healthcare personnel (HCP) get immunized against COVID-19.

Finally, in addition to PPE and vaccination, there are other administrative and environmental controls to protect HCP from respiratory infectious diseases.

Although PPE supplies have improved substantially since the early phase of the pandemic in LA County, if a facility is facing supply constraints they can request assistance from the Department of Public Health's PPE Coordinator (DPHPPECoordinator@ph.lacounty.gov). For more information about assuring and optimizing PPE supply, please see: <http://publichealth.lacounty.gov/acd/ncorona2019/PPE.htm>.

2. Are patients with TB at risk for complications or bad outcomes from COVID-19?

Though we do not have data at this point to answer this question, it makes sense that the persons with pulmonary TB may be at increased risk for severe COVID-19 because of existing lung damage. For this reason, LAC TB Control recommends that patients diagnosed with COVID-19 be closely monitored if they have either TB disease or pulmonary impairment after treatment for TB. In addition, it is possible that the tissue damage and immune dysregulation from COVID-19 pneumonia could increase the risk of progression from TB infection to TB disease, but more longitudinal data are needed to better understand this possibility.¹

In addition to acute respiratory failure, COVID-19 can cause hepatitis, renal failure, and myocarditis. It is unknown whether first-line anti-TB treatment in patients with concurrent COVID-19 are at higher risk of drug-induced hepatitis, but more proactive laboratory and clinical monitoring may be considered. Additionally, renal failure may warrant modified dosing of anti-TB medications. Several second-line anti-TB agents are

associated with cardiac conduction disturbances, and closer clinical and electrocardiographic monitoring may be considered given the variable cardiac effects of COVID-19.

Although drug-drug interactions between first-line anti-TB agents—especially rifampin—and other medications are common and predictable, the clinical significance of potential interactions with currently recommended treatments for moderate-to-severe COVID-19 is unknown. Potentially beneficial treatments for COVID-19 (including dexamethasone, remdesivir, tocilizumab, and monoclonal antibody cocktails) should NOT be withheld due to concurrent TB disease or anti-TB treatment.

Clinicians are encouraged to contact the TB Control Program (TBCP) for consultation in patients with concurrent acute COVID-19 and TB.

3. What are some clinical features that would distinguish TB from COVID-19?

COVID-19 and TB share many clinical features, so it is important to maintain an index of suspicion for either condition in patients presenting with a respiratory illness of any duration. Clinical presentation among reported cases of COVID-19 varies in severity from asymptomatic infection and mild illness to severe or fatal illness. The most [common symptoms](#) of COVID-19 include fever, chills, cough, myalgia/fatigue, shortness of breath, and new loss of smell (anosmia) or taste (ageusia). Clinical presentation of TB includes cough, hemoptysis, unintentional weight loss, fever, night sweats, and chills. Shortness of breath, hypoxia, and especially anosmia/ageusia are generally more indicative of COVID-19. Although COVID-19 is more likely to manifest as an acute respiratory illness, many patients with confirmed TB in LA County report a relatively rapid onset of respiratory symptoms at the time of diagnosis. In addition, recent descriptions of Post-Acute Sequelae of SARS-CoV-2^{2,3} (PASC, also referred to as, “long COVID”) suggest that the time course of COVID-19 convalescence in some patients may be indistinguishable from chronic infections like pulmonary TB.

4. What are some of the radiographic features that would distinguish TB from COVID-19?

Radiographic (chest x-ray) features of pulmonary TB include infiltrates, consolidations, nodules, cavitations, calcified granulomas, pleural effusions, and calcified nodes. These should be considered with the clinical presentation of symptoms and testing to confirm the diagnosis of TB.

Based on a multinational consensus statement from the Fleischner Society⁴, imaging is not indicated as a screening tool or in all patients diagnosed with COVID-19, but instead is indicated in a patient with confirmed COVID-19 and worsening respiratory status. Radiographic features of COVID on chest x-rays are similar to an organizing or atypical pneumonia with opacities and atelectasis, although a range of abnormalities may be seen. Cavitory lung lesions on chest imaging in patients with COVID-19 should prompt a thorough evaluation for other etiologies, including pulmonary TB. Failure to maintain an adequately broad differential diagnosis in patients with possible or confirmed acute COVID-19 or PASC has led to delayed diagnosis and even death from pulmonary TB.

5. I am going to treat my patient with severe COVID-19 with immunomodulatory therapy, should I test my patient for TB first?

Yes. Perform a TB workup first as steroids and biologics will hamper the patient's immune system from fighting the infection if they test positive. Recent data suggest that patients with severe COVID-19 may be more likely to have indeterminate interferon-gamma release assay (IGRA) results, however, and non-positive results should be interpreted carefully.⁵ IGRAs should be used for the diagnosis of TB along with three sputum AFB cultures obtained 8-24 hours apart, including one early morning, post bronchoscopy, or induced specimen.

6. If I have a patient with an abnormal chest x-ray with risk factors for TB (non-U.S.-born, previous contact with person who has confirmed TB, immune suppression, homelessness, recent incarceration) and COVID-19 test is negative, should I perform a TB evaluation?

Yes, please complete TB evaluation, including collection of three sputum AFB cultures obtained 8-24 hours apart, including one early morning, post bronchoscopy, or induced specimen. There have been delayed diagnoses in LA County and if a patient has TB, they need to be treated promptly.

7. I am evaluating a close contact to an infectious pulmonary TB patient, and the contact reports they recently received a dose of COVID-19 mRNA vaccine. Will COVID-19 vaccine affect the reliability of TB test results? Should I postpone the evaluation?

No. The evaluation of close contacts to an infectious pulmonary TB patient should go forward without delay without consideration of timing in relation to COVID-19 vaccination, including TST or IGRA testing.

The CDC has issued guidance on TB testing in relation to mRNA COVID-19 vaccination, available as a web document⁶. Specifically, the guidance states that the reliability of a positive TST or IGRA result after COVID-19 vaccination with an mRNA vaccine is expected to be the same as without vaccination, and that the reliability of a negative TST or IGRA result after COVID-19 vaccination has not been studied. TST or IGRA testing should not be delayed due to COVID-19 vaccination. Tests can be administered prior, during or after administration of COVID-19 vaccination. Active TB disease patients or patients undergoing TB disease evaluation are eligible to receive the COVID-19 vaccine.

Note: this CDC guidance is for mRNA vaccines and is extrapolated from data on live vaccines (e.g., measles, smallpox) and may change as more data become available.

8. I am a clinician, and I read that the Centers for Disease Control and Prevention (CDC) no longer recommends serial TB testing for health care personnel (HCP), but my employer recently advised me that I am due for my annual TB testing. Why?

CDC and the National Tuberculosis Controllers Association (NTCA) issued updated evidence-based recommendations⁷ that endorse a departure from universal, untargeted annual TB testing of HCP. A companion document was issued by the American College of Occupational and Environmental Medicine (ACOEM) and NTCA⁸ to guide the practical implementation of this strategy.

Importantly, both of the aforementioned documents encourage consultation with the local public health department(s) to assist in making decisions regarding retention of annual, targeted TB testing for certain groups of HCP who might be at increased occupational risk or who work in certain settings if transmission

has occurred in the past. Given that the annual incidence of verified TB cases in LA County has remained approximately double the national incidence, the LA County TBCP recommends retaining annual testing in select groups of HCP whose regular job duties may place them at higher risk for repeated TB exposure, which include high hazard procedures such as: sputum induction, nebulization, intubation, bronchoscopy, endoscopy, autopsy; working in pre-triage patient care areas in urgent care and emergency medicine settings; or working in the mycobacteriology sections of clinical microbiology laboratories.

References

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