Background
There remain many unknowns about the possibility of transmission of COVID-19 in the Pulmonary Testing and Sleep Lab setting and the data are in evolution. The risks of transmission are varied and depend on the following individual factors:

- The prevalence of the virus in the community
- The age of the patient.
- The severity of the lung disease.
- The presence of immunosuppression among patients

Clinicians must rely on their expertise and clinical judgement to promote the health and safety of both patients and staff. The elements of preparation and planning to reopen Pulmonary Testing and Sleep Labs cannot be overstated. Attention to the geographic prevalence of COVID-19 along with collaboration with Infection preventionists and hospital leadership is critical to safely and successfully resume practice in these areas.

Preparing the Clinical Environment

1. Evaluate waiting areas and implement social distancing strategies to decrease cross contamination.
   a. Allow more time between appointments to minimize waiting and appropriate cleansing of clinic space and lab areas.
   b. Remove or block chairs to allow appropriate physical distancing between individuals in waiting area.
   c. Provide Personal Protective Equipment (PPE) and hand sanitizer for all patients entering clinical area.
   d. Provide instruction on personal hygiene, including hand hygiene and safe coughing practices. (Provide Kleenex and hand sanitizer as needed)
   e. Whenever possible, limit access of family members and other non-patient visitors to only those required for providing health care services. For translation services, consider using remote-access services

2. Evaluate treatment areas
   a. Establish enhanced cleaning practices
   b. Identify negative pressure rooms

3. Provide appropriate equipment and training to staff members
   a. Provide staff with appropriate Personal Protective Equipment
   b. Provide training to staff to pre-screen patients appropriately
Pre-screening and patient admittance

Decisions regarding the conduct of pulmonary function and sleep studies need to balance the potential risks against the need for assessment of lung function to make treatment decisions.

a. In areas of high prevalence, pulmonary function testing should be limited to tests that are essential for immediate treatment decisions, that the type of pulmonary function testing be limited to the most essential tests when possible, and that measures to protect both the staff and individuals being tested are utilized.

Screening of Patients

a. Where adequate COVID-19 diagnostic testing is available, patients should be tested in a reasonable timeframe before care
b. All patients must be screened for potential symptoms of COVID-19 prior to their in-person appointment and again at the time of the appointment before entering the facility
   i. Use telephone screening, patient portals or on-line self assessment tools
   ii. Review COVID-19 symptoms such as; fever, cough, or shortness of breath.
   iii. Reschedule patients with symptoms, positive or pending COVID-19 tests. Refer for diagnostic testing or clinical care as appropriate
   iv. Check temperature and screen patients at the time of appointment

Infection Prevention

a. Review with staff all procedures for infection control, including cleaning and inspecting all patient-related equipment. Clean reusable medical equipment according to manufacturer’s instructions and follow CDC recommendations for environmental cleaning and disinfection.
   i. According to CDC infection control recommendations, routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product’s label) are appropriate in health care settings, including those patient-care areas in which aerosol generating procedures are performed.

b. Equipment and filtration
   i. Test should always be carried out with a high specification disposable in-line bacterial and viral filter in place (We recommend filters with minimum proven efficiency for high expiratory flow of 600 to 700 L/min).
   ii. Use of disposable combined mouthpieces/sensors is not recommended at this time. The exception would be where an additional filter can be added to the patient circuit and not degrade the measurements.
   iii. If no Aerosol Generating Procedures (AGP) performed, disinfect surfaces onto which patient was placed, directly touched or in immediate surrounding area following routine procedures that are done routinely for all patients, e.g. non-COVID-19 e.g. disinfect exam/imaging table. No wait time needed.
   iv. If AGP is performed apply wait time from CDC or wear PPE in PPE section below.
   v. Post-test cleaning/decontamination procedures of the surfaces of test equipment and environment. Allow at least 15 minutes wait time for room and use full PPE for cleaning.
   vi. Recalibrate lung function equipment after decontamination.
   vii. Extra time will be required between patients to accomplish disinfection.

PPE

a. Actively monitor and secure PPE supplies.
b. Patients should wear a cloth face covering that can be bought or made at home if they do not already possess procedural masks.
c. Ensure appropriate use of PPE by technologists and clinic staff during patient interactions in accordance with state and federal guidelines.
d.Clinicians and staff should wear procedural face masks at all times during this public health emergency.
e. Procedures with a higher risk of aerosol generation/transmission, such as pulmonary function testing, positive airway pressure (PAP) titration, should be done with great caution, and staff should utilize appropriate PPE such as N95 respirators (or equivalent), eye protection, face shields, gown and gloves.
f. Personnel with expected use of N95 respirators will need fit testing prior to use in accordance with Trinity Health Recommendations
### Clinical Care

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<tr>
<th>Community Prevalence</th>
<th>Substantial</th>
<th>Moderate</th>
<th>Minimal</th>
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<tbody>
<tr>
<td>Sleep Testing</td>
<td>- Postpone and reschedule in-laboratory administration of positive airway pressure (PAP) therapy (i.e., PAP titration studies and split-night studies) except in emergency situations, in which case, review the potential for aerosolization and ensure technologists use appropriate PPE. <strong>Exception:</strong> PAP administration can take place in an airborne infection isolation room (AIIR) — i.e., a negative pressure room — according to CDC transmission-based precautions. - Avoid in clinic PAP and restrict HSAT. - Postpone or reschedule polysomnography except in emergencies. - Visitors should be prohibited. Use remote-access language translation. - Use telemedicine to conduct urgent / emergent visits.</td>
<td>- Post-pone in-lab PAP therapy unless in Negative Pressure / Airborne Infection Isolation Room (AIIR) - Consider resuming diagnostic testing for patients who are not at risk for severe illness - Resume clinic appointments per Trinity Health Guidelines - Visitors should be limited, but if they are necessary for an aspect of patient care, then they should be pre-screened in the same way as patients - Continue to monitor state and local public health communication</td>
<td>- Resume in-lab procedures (PAP, HSAT) and diagnostic testing. - Resume normal visitor practices - Continue to monitor state and local public health communication</td>
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| Pulmonary Testing | - Postpone or reschedule all routine tests. Conduct testing only for immediate diagnosis of current illness. - Avoid testing patients with COVID-19 or flu-like symptoms. - Test procedures should be limited to Spirometry and Diffusing capacity and other tests should only be introduced when risk has been appropriately evaluated. Lung volumes by whole body plethysmography may also be possible if droplet contamination can be contained. - Exercise testing, nebulization, bronchial challenge tests, and other AGPs should be postponed at this time - LFT should be carried out in a negative pressure room and using equipment only for purpose of high risk or infected patients. - Consider using telemedicine for remote testing with live video instruction and coaching by trained lung function staff. | - All testing procedures can be reintroduced with extra precautions. - Full PPE and appropriate mask should be guided by local policy - Exercise testing, nebulization, bronchial challenge tests, and other aerosol generating procedures should be limited to specific equipment and testing rooms. - Use filters to minimize escape of aerosol from the exhalation ports when using nebulizers. | - Resume routine lung function services |
Resources:


5. Transmission -Based Precautions, CDC. accessed from: [https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html](https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html)