



Spirometry is the most common pulmonary function test and should be conducted in a safe manner with general infection prevention. The following guidance can assist primary care clinics in restarting spirometry testing during or after COVID19. These considerations should enhance your existing policies to ensure best practices to minimize the risks of healthcare infections; to prevent potential exposure to patients; and to prevent the spread through contaminated medical equipment, surfaces, and/or air.

Precautions during spirometry testing are recommended by the Centers for Disease Control and Prevention (CDC) and the American Thoracic Society (ATS). ATS recommends that “pulmonary function testing be limited to tests that are only essential for immediate [diagnosis] and 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 should be put in place.”

Consideration #1: Understand the prevalence of COVID19 in your community.

In high prevalence communities, spirometry testing must be restricted, and spirometry testing should only be done if absolutely necessary. In low prevalence communities, a negative COVID19 test done 48 hours before the procedure is more reliable because there are fewer false negative individuals in the community. In these low prevalence communities, spirometry may be less restrictive.

Consideration #2: Weight the risks and benefits of spirometry. Only perform spirometry tests that are essential.

Examples of essential spirometry tests may include preoperative risk stratification, diagnosis of dyspnea, monitoring patients at risk for drug-related pulmonary toxicity, monitoring lung transplant patients, and accurate diagnosis of asthma or COPD.

Consideration #3: Screen the patient before the spirometry test.

1. Screen patients and caregivers telephonically or through the EMR for COVID19 symptoms, previous exposure, and prior COVID19 testing before arriving at the clinic.
2. Pre-screen patients as they arrive at the clinic, including taking their temperature and screening for potential COVID19 symptoms such as chills, cough, sore throat, shortness of breath/chest tightness, loss of taste or smell, runny nose, nasal congestion, headache, severe fatigue/exhaustion, and/or muscle pain.

Consideration #4: Follow appropriate precautions for both the patient and healthcare professional.

1. If a patient is showing flu-like symptoms or symptoms of COVID19 or is at high-risk for COVID19, postpone the spirometry test. COVID19 patients must not be tested for a minimum of 30 days post infection.
2. While in the clinic, all patients should wear a face mask.
3. Maintain a minimum of six feet between patients.
4. Family members and friends should not accompany the patient inside the clinic, except for one caregiver of minors or disabled individuals.



5. Patients and staff should wash hands with sanitizing gel (minimum of 70% alcohol) prior to and at the end of testing.
6. Maximize the use of single use consumables and dispose of the items with care (e.g. nose clips, mouthpieces, etc.)
7. Do not conduct exercise testing, nebulization, bronchial challenge tests, and other aerosol generating procedures if your community currently has a high prevalence of COVID-19. If your community is in the post-peak pandemic phase, use filters to minimize the escape of aerosol from the exhalation ports when using nebulizers.
8. Staff should wear personal protective equipment during the spirometry test including: N95 mask, face shield, gown, and gloves.
9. Maximize distance between the patient and staff when possible.
10. Remove all unnecessary equipment, computers, supplies, and furniture from the room.
11. Instruct the patient to wear a mask between breathing maneuvers.
12. Use cough etiquette/cover your cough. Have fresh tissues available for each patient.
13. Keep procedure room doors closed except when entering or leaving the room.

Consideration #5: Follow disinfection procedures before and after every patient conducting spirometry testing.

1. Use a separate room, like a negative pressure room or procedure room, designated only for spirometry testing.
2. Wipe down the spirometer, all cables, and all high touch surfaces with sanitizing wipes. Please consider that patients with lung disease can be sensitive to strong odors in cleaning products.
3. Recalibrate equipment after decontamination, if appropriate.
4. Use filter with the spirometer, if possible.
5. Air from the spirometry room should be exhausted directly to the outside. High-efficiency particulate accumulator (HEPA) filters are NOT recommended by ERS.
6. Close door and let room air be exhausted. You will need to know your room's air exchange rate to determine the amount of time to wait between patients. In a negative flow room, there are 12 or greater air exchanges per hour. Many clinic rooms are 6 air exchanges per hour, meaning the waiting between patients would be a minimum of 70 minutes.

References

1. Recommendations from European Respiratory Society Group 9.1 (Respiratory function technologists/ Scientists) Lung function testing during COVID-19 pandemic and beyond. May 20, 2020. <https://www.ersnet.org/covid-19-guidelines-and-recommendations-directory>
2. American Thoracic Society. <https://www.thoracic.org/professionals/clinical-resources/disease-related-resources/pulmonary-function-laboratories.php>
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4. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dialysis/screening.html>
5. http://s3.amazonaws.com/mgc-diagnostics/Product_Images/Product_Images/PFT_Pre_screening_patient.pdf
6. Symptom review based on: <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html> (last accessed 5/29/2020)

Thank you to the following for their contribution and review of our guidance: Gail Brottman, MD; Ed Corazalla, RPFT, MS; Sarah Brundidge, RRT, RPFT, AE-C; Pope Moseley, MD; Akshay Sood, MD, MPH