

# pediatric pulmonology

## pulmonary function testing in a viral society



### **invisible cleaning crew**

Protecting our patients from disease-causing airborne viruses has always been a priority for the pulmonary team at Dayton Children's Hospital. Prior to the onset of COVID-19, the use of negative pressure rooms for ventilator-dependent patients or patients requiring a pulmonary function test was sufficient. The clinic and lab rooms were given time for adequate air exchange and were able to be turned over within 20 to 30 minutes, providing a safe environment for the next patient.

The sudden increase in aerosol-generating procedures needed because of the pandemic led our teams to look for more efficient solutions that would provide safe, high-quality care for patients, and turn clinic and lab rooms over more quickly.

Air scrubber technology was introduced into the existing negative pressure rooms. The new technology provides the rooms with three levels of filtration, completely removing airborne microorganisms. The filtration pairs with a UV-C germicidal lamp that sterilizes the microorganisms, preventing them from being released back into the air. Using the air scrubber in a negative pressure room reduces turn over time to just five minutes.

### **noninvasive hemoglobin testing**

Hemoglobin can affect the results of certain pulmonary function tests because it is responsible for carrying oxygen from the lungs to the rest of the body. The diffusing capacity of the lungs for carbon monoxide (DLCO) test measures the ability for oxygen to transfer to the bloodstream from the lungs, therefore must be adjusted for hemoglobin which makes it important to have accurate and timely lab results. Historically,

Dayton Children's pulmonary diagnostic lab would obtain the latest lab results from the patient's chart and utilize those numbers to make the necessary adjustments. Or, if values were not within a specific timeframe, the patient would have to make an additional appointment to get the lab drawn before testing.

In 2022, the pulmonary diagnostic lab acquired new technology, OrSense NBM 200 non-invasive blood analytes monitor. The addition of this device gives technicians the ability to measure blood hemoglobin, oxygen saturation level and pulse rate values at the time of testing. Point of care testing has resulted in better experience for patients.

### **improving accessibility to neighboring families**

Following conversations with our valued referring providers, it was determined that a need for increased access to pulmonary function testing was emerging. They did not have access to reliable equipment and training to keep current on the procedure, so they were turning more often to Dayton Children's to provide these services. Patients now have access to accurate pulmonary function testing performed by respiratory therapists, certified in pulmonary function testing at three Dayton Children's locations across our 20-county service area making it easier than ever to get patients the testing they need.

# taking asthma education a step further

Belinda Huffman, respiratory therapist and manager of the pulmonary diagnostic lab at Dayton Children's is a certified facilitator for the American Lung Association, Open Airways for Schools® program (OASP). Belinda has been partnering with Wright State University's nursing program to provide training to their students to utilize OSAP during their rotation in local school districts.

Nursing students use the learned information to then teach kids with asthma about their condition and how to take more responsibility for managing their symptoms. As a result, school nurses have seen a decrease in the number of times kids with asthma come to their office seeking care.

# quality improvement leads to increase in flu vaccine adherence

Taking steps to prevent getting the flu is especially important for patients with asthma. For a various number of reasons, achieving influenza vaccine adherence for patients with asthma has been a challenge in the Dayton region.

Determined to improve adherence for asthma patients at Dayton Children's, the pulmonary team took it upon themselves to provide more comprehensive education and information to patients and families.

Since implementing the new education initiative at the end of September 2022, influenza vaccine adherence increased in asthma patients by 10%. This number is anticipated to grow as more patients receive the education.



# clinical trials for cystic fibrosis

The Dayton Children's Cystic Fibrosis Center is a Cystic Fibrosis Foundation (CFF) designated Therapeutic Development Network (TDN) site.

This designation allows our team and patients the opportunity to participate in cystic fibrosis studies that have undergone a rigorous review process and ultimately been sanctioned by the TDN.

The center is currently running three active trials:

- **Vertex VX20-121-102**, evaluating the safety and efficacy of VX-121 in combination with tezacaftor and deuterated ivacaftor.
- **SIMPLIFY-IP-19**, testing the impact of discontinuing chronic therapies in patients with cystic fibrosis on highly effective CFTR modular therapy.
- **HERO2-OB-2**, assessing the impact of Trikafta therapy on the daily use of chronic CF medications and treatments in patients with CF.

