

**ST. JOHN'S MERCY MEDICAL CENTER
PEDIATRIC PULMONARY FUNCTION LABORATORY**

Your doctor has requested that your child have a breathing test. The test is performed in the Pediatric Pulmonary Function Laboratory, in suite 382-A of the doctor's building. The results of the test will be used in planning your child's care. It is very important to follow the instructions below for the test that your physician has ordered, as your child's preparation may affect the results. Please bring this paper with you for your child's appointment. If you have any questions, please call 314-251-4727.

___ SPIROMETRY AND FLOW/VOLUME LOOP:

___ Baseline study alone

___ Pre- and post-bronchodilator assessment

This test measures all the air that a person can blow out of their lungs after a maximum inhalation known as the vital capacity (VC), as well as how much air comes out in one second (FEV1). It is the most common test used to screen for ventilatory abnormalities. It consists of a series of breathing maneuvers repeated on a machine using a mouthpiece while wearing nose clips. In addition, an inhaled bronchodilator **may** be given to your child with some of the testing repeated in order to compare the results. The complete test will take approximately 30 minutes.

Preparation: Have your child avoid using rescue inhalers or nebulized treatments (Albuterol, Proventil, Xopenex) 12 hours before testing, long-acting inhalers (Serevent) 24 hours before testing, and any caffeinated beverages 6 hours before testing.

___ LUNG VOLUME MEASUREMENTS:

Lung volume measurements including Total Lung Capacity, Vital Capacity and Residual Volume are obtained by either gas dilution or plethysmography to confirm restrictive lung disease or to identify air trapping in children with severe airway obstruction. This test is often done together with Spirometry and Flow/Volume loops. This test will take approximately 15 minutes.

Preparation: Same as above for Spirometry and Flow/Volume Loops.

___ EXHALED NITRIC OXIDE TESTING:

This test requires breathing into a long tube connected to a machine that analyzes the amount of nitric oxide present in a person's breath. Nitric oxide reflects the presence of inflammation in the lungs and is helpful in guiding the treatment of asthma. This test will take approximately 15 minutes.

Preparation: Please have your child avoid any meals with bacon or lettuce one hour before testing.

___ IMPULSE OSCILLOMETRIC TESTING:

Airway resistance, reactance and compliance are measured with this modality. These parameters are determined by having the child breathe normally into a mouthpiece while wearing nose clips. It does not require a maximum inhalation or forced exhalation and therefore can be done in children as young as 3-4 years of age. This test is helpful in identifying suspected airway obstruction and improvements with bronchodilators. This test will take approximately 15 minutes.

Preparation: Same as above for Spirometry and Flow/Volume Loops.

___ METHACHOLINE CHALLENGE TESTING:

This test requires repeated breathing maneuvers (see Spirometry) after incremental dosages of a medication called Methacholine. It is used to determine abnormal airway reactivity and to confirm a diagnosis of asthma. This test takes between 45 minutes and 1 hour.

Preparation: A therapist will be contacting you to discuss medications and foods your child must avoid

___ EXERCISE CHALLENGE TESTING

___ Asthma Protocol (1 1/2 hours)

___ Cardiopulmonary Metabolic Stress Test (2 hours)

These tests are useful for assessing a child for exercise-induced shortness of breath. When asthma is the most likely diagnosis the child will be asked to repeatedly step up and down on a small set of stairs or run on a tread-mill while we monitor your child's heart rate and oxygen saturation for approximately 10 minutes. Spirometry (see above) will be measured before and after exercise. To assess the child with exercise limitation that may not be due to asthma or to assess a child's level of fitness a more comprehensive study is performed with extensive monitoring including 12-lead electrocardiogram, blood pressure, ventilation, oxygen saturation and oxygen consumption.

For the exercise challenge tests please report to registration on the ground floor in the hospital.

Preparation: See preparation instructions for Spirometry and Flow/Volume loops. Your child should also avoid a large meal before the test and wear comfortable clothing and shoes.

PATIENT'S NAME _____ **DOB** _____ **HOME PHONE** _____

PARENT/GUARDIAN NAME _____ **TEST DATE/TIME** _____

OTHER SPECIFIC ORDERS TO BE INCLUDED _____

TESTING DIAGNOSIS _____ **PHYSICIAN SIGNATURE** _____

Physicians: Please indicate the specific test(s) you wish your patient to receive. Ensure that the parent has a copy of this order/instruction sheet and keep the other for your records. We also request that a **copy be faxed to us** at the time of scheduling at 314-251-4451. Thank you.