

# Spirometry Testing Program

Spirometry testing is now available at our main clinic in Campbellford.

## What is spirometry?

Spirometry is the most basic and frequently used lung function test. The spirometer measures lung capacity and how well your respiratory system moves air in and out of your lungs. It is the most reliable way to test your lungs for COPD (chronic obstructive pulmonary disease) and asthma.

## Why would I need a spirometry test?

If you are experiencing shortness of breath, spirometry can be used to help diagnose the cause, i.e. asthma, chronic bronchitis, emphysema, pulmonary fibrosis and COPD. Spirometry can also be used in the management of lung disorders by monitoring the progress of the disease and the effectiveness of medication.

The earlier spirometry is done, the earlier lung disease can be detected and treated. Testing is recommended for people who:

- are experiencing shortness of breath
- have been diagnosed with asthma
- are over 40 years of age and smoke or used to smoke and therefore may be at risk for COPD.

If you fall within the categories above and have not had a spirometry test, your doctor and nurse practitioner can refer you to the spirometry program.

## What happens during a spirometry test?

A spirometry test is painless and relatively quick, anywhere from 10 – 30 minutes, depending upon the extent of the testing. The spirometer consists of a mouthpiece and disposable tubing attached to a machine that records the results. Nose clips are often used to ensure air only exits your mouth.

During the test, you will breathe in and out through the mouthpiece. You will be asked to perform certain breathing functions, like breathing in deeply or rapidly or breathing out forcibly. The machine records the volume of air inhaled and exhaled as well as the time it takes for you to complete the breath. You may be asked to perform these exercises several times to ensure accurate results.

You may be given medicine, like a puffer, and then asked to repeat the exercises.

Spirometry measures the amount (volume) and/or speed (flow) of air that can be inhaled and exhaled. The most common measurements used are:

- Forced Vital Capacity (FVC) – The largest amount of air that you can blow out after you take your biggest breath in.
- Forced Expiratory Volume (FEV1) – The amount of air you can blow out of your lungs in the first second.
- Then FEV1 is divided by FVC (FEV1/FVC) to indicate what percentage of the total FVC was expelled from the lungs during the first second of forced exhalation. With normal lungs and airways you can usually blow out most of the air from your lungs within one second.

These figures are compared against normal measurements for your age, sex, height and weight.

## What do the measurements show?

A spirometry reading usually shows one of four main patterns:

1. **Normal.**
2. **An obstructive pattern.** This is typical of diseases that narrow airways, such as asthma or COPD, and reduce the amount of air that you can blow out quickly. Usually your lung capacity is normal or only slightly reduced. Spirometry can be used to test the effectiveness of inhaled medication in opening up your airways. Generally, asthma responds better to inhalers than COPD but the use of inhalers can help diagnose the severity of COPD.
3. **A restrictive pattern.** This means that your lungs cannot hold as much air as predicted for your age, sex and size. This is caused by diseases that affect the lung tissue or the ability for the lung to expand and hold a normal amount of air, like fibrosis, or lung scarring.
4. **A combined obstructive/restrictive pattern.** This may indicate two conditions, like asthma and another lung disorder, or a lung condition that features of both an obstructive and restrictive pattern, like cystic fibrosis where the lung tissue is damaged and mucus in the airways narrows the airways.

## Are there any risks associated with spirometry?

Spirometry is a low risk test. As you will be asked to breathe in and out quickly, you may experience temporary shortness of breath or dizziness. Blowing out hard can increase the pressure in your chest, abdomen and eyes, so, you may be advised not to have spirometry if you:

- Have chest pain.
- Have had a recent heart attack or stroke.
- Have had recent eye or abdominal surgery.

## How should I prepare for my spirometry test?

- Do not eat a heavy meal before the spirometry testing
- Refrain from smoking for 4 to 6 hours before the test
- Do not drink alcohol within four hours of test
- Do not perform vigorous exercise within 30 minutes of test
- If you are on puffer medications, you may be asked to not take them for a few hours before spirometry. Please ask at the time of booking the test if this applies to you.
- Empty your bladder just before the test.

The program nurse administering the test will give you clear instructions.

Please plan to be available for a full 30 minutes of testing.

## When will I get the results?

The test results will be given to your family physician who will interpret the results.

## Where can I get more information?

Canadian Lung Association: [www.lung.ca](http://www.lung.ca)

Ontario Lung Association: [www.on.lung.ca](http://www.on.lung.ca)