



## ASTHMA DEVICES: PEAK FLOW METERS, SPACERS AND NEBULIZERS

Asthma patients often use special devices to help measure lung function or to help inhale their medications. These devices include peak flow meters, spacers and nebulizers and if used correctly they help control asthma.

**Peak Flow Meters:** This is a gauge used by both adults and kids measuring how well a patient is breathing; it can detect breathing difficulties even before other symptoms of an asthma flare occurs. In fact, a first sign of an asthma flare-up is a drop in the peak flow reading, which is why it's so important to have and use a PFM. Devices differ but each has 3 color "zones" indicating how open the airways are: **Green** = airways are open, the patient feels well and can perform all normal activities; **Yellow** = airways are blocking, the patient doesn't feel very well, activity is slowed down and it may mean using additional medications; **Red** = danger! This means the airways are closed; the patient feels very ill, has great difficulty breathing and may even have blue lips or fingertips. Immediate help, more medications and perhaps emergency care is required. Every patient has a "best number" or benchmark - the biggest, fastest breath blown into the meter when the patient feels well and has no asthma symptoms. This number varies and is usually lower in the morning. As a child grows taller, their number also increases. To take an accurate reading for a "personal best," stand straight, inhale as deeply as possible and blow as fast and hard into the meter as possible (putting the tongue on the meter will increase score so don't cheat). The gauge climbs next to a number on the meter (lines are like a ruler, not all numbers are written. Usually each line counts for 10). Use a Peak Flow Meter diary and record the first number; move the arrow back to zero and repeat this blowing exercise a total of 3 times. Record the best or highest of these numbers on the diary; this is the "personal best."

Some doctors may recommend using the PFM twice a day for a couple weeks, especially when beginning new medications. Some recommend using it in the morning before taking medications, or both before and after taking medicine to see how well the medicine is working. Once a personal best number is determined, it's best to **use the PFM at least once a day** and record the numbers on a chart. This helps control asthma by indicating the airways are closing BEFORE other symptoms of an exacerbation or flare-up (attack) occur.

**Inhalers and spacers:** Many asthma medications are delivered by inhaler, a hand-held tube used to hold a medicine cartridge. A propellant gas directs a spray of medicine into the lungs. Usually adults or kids over six years of age use inhalers but some younger kids may be able to learn how to use one. Younger children may use syrup, liquid or pill medications instead. A **spacer** is a tube (used with a mask for babies and younger kids or very ill adults) that's attached to an inhaler making it easier to breathe medicine completely and directly into the lungs. Often when using an inhaler alone, a lot of the medication escapes into the air rather than into the lungs. **A spacer focuses the medication so most or more of the prescribed dose is inhaled.** To use, gently shake the inhaler, then hook it into the spacer; place the spacer mouthpiece (or mask) into your mouth, push the inhaler once to put one dose of medicine into the spacer holding chamber, inhale slowly and hold your breathe for 5-10 seconds then slowly exhale. Spacers and masks **need to be cleaned** at least once a week and **replaced after 6-12 months** when parts show signs the one-way valve is hardening or curling. To clean, take it apart, wash with warm soapy water, rinse well and air dry completely before using again. Never use a wet spacer! If you use a spacer and mask to take steroid medication, always wash your face afterwards.

A **nebulizer** is a machine driven by compressed air that converts medicine into a mist to be breathed through a tube or mask. It consists of a cup, a mouthpiece attached to a T-shaped valve and thin plastic tubing to connect to the compressed air machine. Kids under age 5 or patients who have problems using a metered dose inhaler or patients with severe asthma will often use nebulizers. These machines **ensure** the patient gets the **right dosage of medication**. Directions vary by make, but generally, the tubing has to be put into the outlet of the machine BEFORE it is turned on. **To use** 1) Measure the saline solution using a clean dropper and put it into the cup. Skip step 2 if your medicine is premixed 2) Draw up the right amount of medicine into the clean eyedropper or syringe and put it into the cup with the saline mix. 3) Fasten the mouthpiece to the T-shaped part and then fasten this unit to the cup OR fasten the mask to the cup. If the child is over 2, try to use the mouthpiece rather than a mask to get more medicine 4) Put the mouthpiece in the mouth; seal lips tightly around it OR place the mask on the face 5) Turn on the air compressor & take slow, deep breaths through the mouth 6) Hold each breath 1 to 2 seconds before breathing out 7) Continue until all medicine is gone from the cup, approximately 10 minutes. **Clean the nebulizer after every use** to prevent infections but never wash or rinse the tubing.

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