CENTRAL TEXAS ALLERGY & ASTHMA
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Using a Peak Flow Meter

Asthma Management: Traffic Light System

Once a personal best peak flow has been established, every effort must be made to maintain values within 80% of this number. A traffic light system has been established as a rough guide to aid patients in asthma management.

Green Zone: PEFR 80% to 100% of personal best. All systems "GO"—you should be relatively symptom free and can maintain your current medical regimen. If you are on chronic medications and peak flow is constantly in the green zone with minimal variation, your physician may consider gradually decreasing your daily medication.

Yellow Zone: PEFR 50-80% of personal best. "CAUTION"—asthma is worsening. A temporary increase in asthma medication is indicated. If you are on chronic medications, maintenance therapy will probably need to be increased. Contact your physician to fine-tune your therapy.

Red Zone: PEFR below 50% of personal best. "DANGER"—asthma control is failing. Use your inhaled bronchodilator. If peak flows do not return to the yellow zone, contact your physician immediately, as you must employ aggressive therapy under medical direction. In any case, maintenance therapy will have to be increased.

These traffic light zones are merely broad guidelines designed to simplify asthma management. Successful control of asthma depends on a partnership between the patient and the physician. Open communication and exchange of information can be enhanced with peak flow monitoring and reporting. Your physician can use this objective data to design and optimally adjust your asthma therapy.

A peak flow meter for a patient with asthma is like a thermometer for a patient with a fever. Peak flow meters help to determine how open your airways are, rather than guessing just how you feel.

In some cases when you are not feeling well, you may feel "hot" or "feverish," but when you take you

PERSONAL BEST ZONE CHART

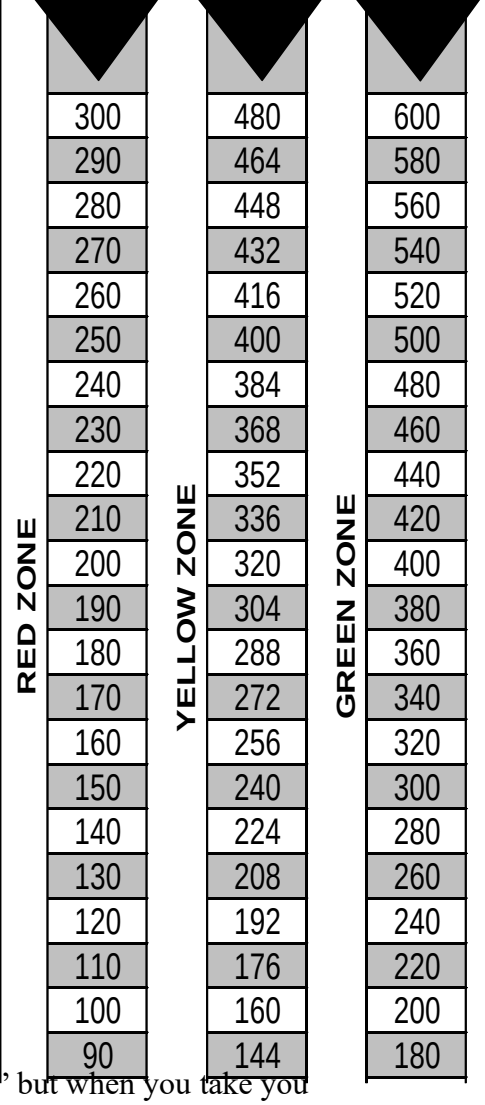
IF YOUR PERSONAL BEST IS:

YOUR YELLOW ZONE BEGINS:

YOUR RED ZONE BEGINS:

Directions

First color the zones green, yellow, or red as indicated. Mark your personal best (the best out of three tries) on the chart. Then whenever you do a peak flow reading, look across the chart to see if your score is in the green, yellow, or red zone.



temperature with a thermometer, it is normal. With asthma, sometimes you may feel your breathing is "tight" or your chest may fell "heavy," but you are having normal lung function. The peak flow meter can help you determine if your sense of chest tightness is really an airway change or not, just like the thermometer helps you to determine if your hot feeling is really a fever.

Patients can benefit from using a peak flow meter in several ways: to recognize that asthma may be occurring at night, to improve perception of asthma, to identify factors that worsen asthma, and to predict worsening of asthma.

What is a Peak Flow Meter?

A peak flow meter is a simple, portable and inexpensive device which measures air flow or peak expiratory flow rate (PEFR). There are several meters available which vary slightly in accuracy, durability and price. If used appropriately, a peak flow meter can be a valuable tool in your asthma management. Peak flow meters are available over-the-counter, but ideally should be used with the recommendation of a physician.

Use of a Peak Flow Meter

Peak flow meters can be used as tools to: (1) determine the severity of asthma; (2) check the response to treatment during an acute asthma episode; (3) monitor progress in treatment of chronic asthma and provide objective information for any possible adjustments in therapy; (4) detect worsening in lung function and thereby avoid a possible serious flare up in asthma with early intervention; and (5) diagnose exercise-induced asthma.

One of the most important functions of the peak flow meter is to help the patient and allergist evaluate the severity of asthma. Falling peak flow readings before the symptoms of asthma are otherwise noticed will indicate that an adjustment is needed. This early warning sign could mean adding a medication or making other changes in the treatment plan. The earlier the warning sign and the sooner the problem is corrected, the less medication and the less time it should take to get the lungs back to normal. Some patients with asthma have established a backup plan with their allergist so that they know what medication to add if their peak flow drops below a certain level. Although peak flow meters are not a substitute for spirometric measurements in the physician's office, they are very useful for these purposes.

Proper Training is Necessary

With home peak flow monitoring, it is essential that a patient follow some important guidelines: (1) learn from a skilled professional how to properly use a peak flow meter; (2) learn how and when to record (on a chart) the peak flow reading; and (3) learn what to do if the peak flow reading fall.

Parents of young children also should learn these guidelines. Patients should bring their peak flow meters to the physician's office to check the accuracy of the unit as well as to recheck their proper use of the peak flow meter.

Asthma at Night

Asthma is usually worse at night, although some patients sleep through the night unaware of lower peak flow levels. When we sleep, there is a decrease in the amount of oxygen in the blood, but in asthmatics, this fall in oxygen may happen more often and last longer. The severity of the asthma at night can be monitored with a peak flow meter. You do not have to wake up at night to use the meter. Compare the morning reading with the reading the night before to determine the degree of nocturnal (nighttime) asthma. A decrease of 15% or greater from the previous night's measurement may indicate nocturnal asthma, which you can work with your allergist to correct.

Objective Measuring Tool

The use of regular peak flow monitoring has been shown to help patients gain a clearer idea of how their lungs are functioning. Without objective measurements, it is difficult to determine which "trigger" factors may cause lung function to worsen. To pinpoint asthma triggers, you can write down peak flow meter readings before and after exposure to allergens, occupational irritants, exercise, or other potential events that cause symptoms. Peak flow readings during different seasons of the year can help to identify problems that may be caused by pollens

or cold or dry air. The many benefits of properly used peak flow meters make them worth considering for any asthma patient, especially if the asthma has been difficult to manage.

Steps to Using a Peak Flow Meter

There are several steps to properly using a peak flow meter. You should blow hard on the meter to get the best reading possible, and repeat this attempt three times. Record the best of the three trials. All three measurements should be about the same to show that a good effort was made each time. This is especially important when parents are evaluating their child's asthma.

Likewise, it is helpful to record readings before and after using inhaled bronchodilators. Two different symbols, such as "X" and "O," may be used to graph these readings each morning and night. An allergist can gain a great deal of information by reviewing these readings. This also will help you to gain a better awareness of your lung function.

Keeping a chart of peak flow readings (with each day's recording in a column) helps determine how the asthma is doing. Graphs for plotting peak flow readings often come with the devices and can be photocopied for regular use.

Keep these general guidelines in mind when using a peak flow meter:

1. Nose clips are unnecessary
2. Make sure the device reads zero or is at base level
3. Stand up (unless handicapped, in which case the position should be the same for all maneuvers)
4. Take in a deep breath as far as possible
5. Place the meter in the mouth and close the lips around the mouthpiece
6. Blow out as hard and as fast as possible (one to two seconds)
7. Do not cough or let the tongue block the mouthpiece
8. Write down the value obtained
9. Repeat the process two additional times
10. Record the highest of the three numbers obtained and record in your diary

Peak flow meters need some care. Follow the cleaning instructions enclosed with the units. This will help to ensure their accuracy.

Establishing Your "Personal Best" Peak Flow

Although your predicted "normal" peak flow is determined by height, age and sex, it is preferable to gauge asthma control by comparing daily peak flow recordings with your "personal best" reading.

Steps to determining your "Personal Best":

1. Practice with your peak flow meter for 2-3 days.
2. Prior to taking your morning asthma medications, blow into your peak flow meter 3 times
3. Write down the best of the three efforts.
4. Repeat steps 2 and 3 for 6 (six) more mornings.

5. Add the 7 (seven) best efforts and divide by 7 (seven).
6. This is your AM " personal best".
7. In the evening repeat steps 2 thru 5.
8. This is your PM "personal best".

Children and young adults should re-evaluate their personal best on a yearly basis due to the fact that as they grow their lung capacity can change.

When To Do Peak Flows

After establishing your " personal best" you then only need to check your peak flow periodically once you are at a stable range.

1. Once or twice a week for continuing evaluation.
2. With any increased asthma symptoms, (coughing, chest tightness, shortness of breath or wheezing).
3. With medication changes:
    1) Adding/ increasing medication
    2) Decreasing medication
    3) Changing medication