PROPER USE OF METERED-DOSE INHALERS AND SPACER DEVICES

Unlike oral medications, which are absorbed and potentially affect the whole body, inhaled medications are deposited directly into the lungs. They function primarily on the lung tissue, reducing systemic effects. In order for these medications to be beneficial, however, proper technique is essential. Metered-dose inhalers (MDI’s) are devices which deliver specific amounts of medication. Although they appear simple to take, in fact, many individuals, even after careful instructions, do not use their inhalers properly. Our staff will review the use of inhalers with you. Please take the time to read this information to refresh yourself regarding proper technique.

A variety of new devices have been introduced over the last several years. Since CFCs (chlorofluorocarbons) have been banned by international agreement, pharmaceutical companies have substituted an environmentally safer agent, HFA (hydrofluoroalkane). Some inhalers containing HFA resemble the older metered-dose inhalers while other pharmaceutical companies have developed powder inhalation devices called dry powder inhalers (DPI).

In general, the powdered devices seem easier to take. Not all medications are available, however, in this form. In addition, younger children may have difficulty generating sufficient inspiratory effort and speed to use these properly. The dry powder inhalers have been referred to as DPIs, or dry powder inhalers. The most commonly used are the Flexhaler (for Pulmicort-budesonide); a similar device, the Twisthaler (for Asmanex-mometasone); and the Diskus (generally used for Advair, a combination of Flovent and Serevent, or Serevent). Other inhalation devices are used for the administration of Foradil (formoterol) or Spiriva (tiotropium).

CORRECT USE OF METERED-DOSE INHALERS (MDI)

Metered-dose inhalers are best administered with a spacer device. Our staff will advise regarding each of these when medications have been prescribed.

A number of spacer devices are available. Those commonly used are the AeroChamber and Vortex. Both of these are solid tube devices, the AeroChamber made from electrostatically treated plastic-like tube and the Vortex from metallic tube. Each is available with masks for children under 5 or so who are unable to place the mouthpiece directly into the mouth. Proper sizing of the face mask is important. Both are available for older children, adolescents, and adults without a face mask.
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Advantages of the devices are that they include a valve which will allow better deposition without crucial timing, as when using the metered-dose inhaler without the face mask.

Specific techniques for using these spacers will be reviewed with our nursing staff. Instructions are available in the packaging of the devices as well as on-line.

The prices of these devices vary considerably, and when purchased in pharmacies, are often higher than from some of the mail-order resources. Both these holding chambers as well as the peak flows can often be ordered through a number of suppliers as listed below. Holding chambers do require a prescription.

Several resources for obtaining these include:

Allergy and Asthma Network, Mothers of Asthmatics, Inc., (800) 878-4403, www.info@aanma.org
Allergy Control Products, (800) ALLERGY or (800) 255-3749, www.allergycontrol.com
Allergy Asthma Technology, Ltd., (800) 621-5545, www.allergyasthmatech.com
Allergy Supply Co., (800) 323-6744, www.allergysupply.com
Mission Allergy, (877) NOALLER(GY) or (877) 662-5537, www.missionallergy.com

These are examples of companies supplying the devices. Many others are available and can usually be located on-line.

To use the Metered-Dose Inhaler:

*Shake canister to suspend medication.

*Breathe out slowly to normal exhalation level.

*Insert the spacer or holding-chamber mouthpiece into your mouth or place the face mask to the face of a younger child.

*The canister should be facing upward.

*Activate the inhaler and take a slow, deep inhalation.

*Hold your breath for 10 seconds, then exhale.

*These steps, including shaking the inhaler to suspend the material and prime the canister valve, should be repeated for each inhalation (some new metered-dose inhalers do not need to be shaken before use).

*It is usually best to wait a short time such as a minute between inhalations. This will help medication deposit in the lungs better and allows time for the canister to be recharged.
When is your asthma inhaler empty?

It is difficult to judge when an inhaler is no longer providing the dose of medication that is expected. MDIs are designed to provide accurate doses only for the number of doses listed on the label. Changes in the pressure of the device or changes in the taste of medications are unreliable.

Several inhalers, for example, the Ventolin (albuterol) HFA and Flovent HFA devices, have counters built into them. Others are likely to follow suit. At the present time, however, without a counter the only accurate method is to count or estimate the actual number of doses used and to compare this with the number on the canister label. For medications such as inhaled steroids, which are used on a fairly regular basis, you can simply note on your calendar when you would anticipate the canister will be depleted and replace with a fresh one at that time. This is particularly important if you obtain the medication from mail-order resources, since you would not wish to be left short of the medicine until a new supply arrives.

CORRECT USE OF A FLEXHALER AND TWISTHALER

The Flexhaler and Twisthaler devices are dry powder inhalers (DPI), currently available for administration of Pulmicort (budesonide) and Asmanex (mometasone), respectively. The advantages of this and other DPIs are rapidity and ease of administration.

These devices need not be shaken before use. If you do shake the device, there will always be some sound created by the desiccating material present in the inhaler. Both the Flexhaler and Twisthaler have counters which allow you to know how much medication you have used and how much is left in the inhaler. A spacer or holding chamber should not be used with these devices.

To use the Flexhaler (Pulmicort) and Twisthaler (Asmanex):

*Remove cover from the Pulmicort Flexhaler. Turn the bottom of the inhaler device clockwise until it clicks and then turn counter-clockwise.

*The Asmanex Twisthaler is activated by removal of the cap. There is no need to twist anything further. One should be careful not to place the cap on and off of this device, as doses will be lost when doing so.

*The inhaler should be kept upright through this procedure.

*In order to avoid blowing on the inhaler and losing some of the powdered medication, turn your head away from the inhaler and exhale slowly, as instructed for the MDI.

*Place the mouthpiece between your lips while holding the device either vertically or horizontally.

*Inhale deeply and forcefully.

*Hold your breath while in full inhalation for 10 seconds, and then exhale.

*Repeat if more doses are needed. A spacer or holding chamber should not be used with either the Flexhaler or Twisthaler devices. Once open, do not store these devices in a damp area, such as a bathroom.

*Brush your teeth and/or rinse your mouth after use.
CORRECT USE OF A DISKUS

The Diskus is a device available for administration of Serevent (salmeterol), Flovent (fluticasone), and Advair (fluticasone plus salmeterol).

The advantage of the Diskus is similar to that explained previously for the Flexhaler/Twisthaler. A counter is incorporated into the device, recording the number of doses available.

A spacer or holding chamber should not be used with the Diskus device. It is not necessary to shake the Diskus before use.

To use the Diskus:

*Open the device by pushing the thumb grip away from you to the maximum opening until the mouthpiece appears.

*Slide the activation lever until it clicks.

*Hold the Diskus horizontally and exhale, breathing away from the device.

*Insert the mouthpiece into your mouth and breathe in deeply and steadily.

*Hold your breath in inspiration for 10 seconds, then exhale.

*It is not necessary to shake the Diskus before use.

*Brush your teeth and/or rinse your mouth after use.

DURATION OF USE:

Please note that most inhalers which are enclosed in foil packets have instructions to discard after use for a period of time. At present, the Advair Diskus suggests discarding 30 days and the Asmanex 45 days after opening. It is best to check the instructions for each of your medications and even if there is medication remaining discard after the recommended duration of time.