A Joint Project Between

Children's Hospital and Health Center and

AMERICAN LUNG ASSOCIATION®
of San Diego and Imperial Counties

Asthma Education
For You and Your Child

* Funded by the California Children and Families Commission in partnership with The Department of Health Services Asthma Program
Acknowledgements

A multidisciplinary team from Children’s Hospital, Health Center San Diego and the American Lung Association of San Diego and Imperial Counties compiled this asthma education booklet. It is the second edition of a guide developed in 1997. The content is not entirely original and is based on current National Heart, Lung, and Blood Institute guidelines for asthma management as well as the Guide for Managing Asthma in Children, published by the American Academy of Allergy, Asthma, & Immunology (1999). We gratefully thank the following contributors and educators. We also thank the many other health care providers who work on a daily basis to control asthma.

Carrie Arii, RN, BSN
John Bastian, MD
Rose Baxter, RN, PHN, RCP
Cheryl Fowler, RRT
Julie Malanga, RCP, Paradise Valley Hospital
Bertha Ramirez, MD
Tracy Sechler, RRT, RCP
Lora Slaymaker, RN, PNP
Sacsy Sukcharoun, BS
Gloria Tsu, PharmD.
# Table of Contents

- Goals Of Asthma Education 5
- Take Control . . . Manage Asthma . . .
  - Know When To Get Help!! 6
- Understanding Your Medications For Asthma 10
- Respiratory Devices 14
- Asthma Triggers 20
- Gaining Control Of Asthma 26
- Asthma Diaries 30
- Living With Asthma 32
- Asthma Resources 36
- Finding Out More About Medicines 45
Goals of Asthma Education

Why should you learn about asthma?

Asthma can be very serious. There are effective treatments to prevent and control it. Our team can provide you with these treatments. But we need your help. You need to learn about asthma to manage it yourself, at home, at school, and at work. You also need to know when to get help.

Learning about your child’s or your asthma can have the following good results in your life and give you the power to:

- **Make good decisions about asthma**
  We use a “step” approach. The goal is to quickly gain control of the asthma (step up), then decrease treatment to the least amount of medicine possible to stay in control (step down).

- **Prevent life-threatening asthma episodes**
  There is a very small but real risk of death from asthma. By gaining control of your asthma, you cut that risk.

- **Prevent unnecessary emergency room visits**
  Use your written asthma action plan for early treatment of symptoms.

- **Create a partnership with your healthcare providers**
  You are the most important part of the team.

- **Use good communication and follow-up regularly**
  Talk to the asthma team if a treatment doesn’t seem to work or if you want to try something new. We want to hear from you.

- **Lead healthy productive lives, with great performance at school, home, or work**
  Every day you probably talk to people with asthma and don’t even know it. There are even athletes and Olympians with asthma, like Jackie Joyner-Kersee (track), Jerome Bettis (football), Amy VanDyken (swimming), Dominique Wilkins and Isiah Thomas (basketball).
What is Asthma?

Asthma is a life-long lung disease of airway (bronchial tubes) inflammation. Asthma is often (but not always) connected with allergies, a family history of asthma or allergies, or exposure to second hand smoke and allergens as an infant. Some people with asthma do not have allergies.

Healthy airways allow air to get in and out of the air sacs (alveoli) at the end of the bronchial tubes. Asthma causes the inside of the airways to be inflamed, swollen, or irritated. During an attack, the muscles around the airways get tight and air cannot move in or out. Asthma can lead to permanently thickened and damaged airways if not treated correctly and early.

First Facts:

- Asthma is the most common chronic childhood illness
- About 5 million children under 18 years of age have asthma
- About 1 in 10 children will have asthma during their lives
- Over 10 million school days are missed by children with asthma
- Asthma is often misdiagnosed or under-treated
**Asthma Symptoms**

You may have one or more of the following:
- A cough
- A wheezing sound in your chest
- Your chest may feel tight
- Difficulty breathing
- Faster than usual breathing
- You may feel short of breath
- You may feel tired, without any energy to play or do your regular activities
- Drop in the number blown on your peak flow meter
- Infants may have difficulty feeding and may grunt during breathing

**What Happens During an Asthma Episode (attack)?**

- The muscles around the swollen airways become tight, making the bronchial tubes narrow
- Extra mucus (phlegm) is made and plugs the airways
- The narrow airways cause a whistling sound (wheeze) from the air trying to get through the tiny openings
- Air cannot get into or out of the air sacs (alveoli)
- The body cannot get enough air to do its work

![Diagram showing normal airways vs. airways of someone with asthma](image)
How Are Asthma Episodes Controlled and Prevented?

You need to understand how asthma affects the airways to better understand the use of the different medicines used to treat asthma. Some medicine slowly reduces or prevents swelling. Some medicine relaxes and opens the tight airways. Controller medicines are usually recommended when symptoms occur more than two days a week.

Asthma Control

✧ Treat symptoms early
✧ Learn self-management for the different zones of asthma
✧ Know when a doctor’s help is needed and seek help right away in an emergency

Asthma Prevention

Work closely with your doctor to:

✧ Develop a treatment or action plan to prevent symptoms
✧ Identify what causes (triggers) your asthma episodes
✧ Plan ways to avoid or reduce contact with your triggers
✧ Know the medicines

Gaining Control Of Asthma (See Page 26)

You can learn how to gain control of asthma. These steps will help you stay in charge of your asthma:

U Know your Asthma Action Plan
U Take your medicines as prescribed
U Keep an asthma diary
U Know your body, and the signs and symptoms of an asthma flare-up
Call 911 if:

✧ Breathing becomes fast and difficult
✧ Wheezing is severe
✧ Color of skin, lips or fingernails turns gray or blue
✧ The skin between the ribs is pulled tight (retractions)
✧ Trouble walking or talking
✧ Crying becomes softer and shorter in quality
✧ The abdomen is “see-sawing”
✧ Nostrils open wider with each breath (nasal flaring)
✧ Grunting is present with breathing
✧ Feeding or eating may stop

Asthma Myth
Children Outgrow Asthma

Truth:
Asthma is a life-long disease. When children grow up, their asthma may be less severe than it was when they were younger. It is important to remember that you may not be having a lot of asthma symptoms, but your asthma has not been cured.
Understanding Your Medications
For Asthma

If you have asthma, your doctor may want you to take one or more medications. You will decide, with your doctor, which medicines work best for you. Follow your doctor’s instructions, even though you may feel like you don’t need it.

- Asthma medicines are very safe and work well when used correctly
- These drugs are not habit-forming or addicting. It is very important that you take your medicine as prescribed
- Certain medicines must be taken regularly every day to control asthma

Types of Medicine

There are two types of medicines used in the treatment of asthma.

- “Long-term control” medications or “Controllers,” sometimes called preventive medicines
- “Quick-relief” medications or “Relievers,” sometimes called openers or rescue medicines

Long-Term control medicines

Long-term control medicines are taken every single day for a long time.

- Because the medicine is inhaled, only a very small amount is needed to work
- You do not become addicted to long-term control preventive medicines – they help by gradually controlling the swelling, allowing the air passages to be less sensitive to triggers that cause asthma symptoms – there will be fewer symptoms over time and asthma episodes are prevented.
Long-term control medicines include inhaled corticosteroids, inhaled Cromolyn or Nedocromil, oral leukotriene modifiers, long-acting relievers, Theophylline, and long-term oral corticosteroids. (A more detailed description of these medications can be found at the end of this booklet in Finding Out More About Medicines section)

Quick Relief Medications

▷ Inhaled Short-Acting Bronchodilators

Short-acting bronchodilators are quick-relief medicines that quickly relax your bronchial muscles and open up your airways. These medicines are albuterol and Xopenex®

✧ Plan ahead. Never, never, never run out or leave home without your quick relief inhaler (refill monthly until you have an adequate supply PLUS a spare)
✧ If you do not quickly use your bronchodilator when symptoms start, your asthma will get worse and becomes harder to treat
✧ They help with exercise-induced asthma
✧ They give quick relief to the symptoms of cough, wheezing, chest tightness, and shortness of breath.
✧ One form is a Metered Dose Inhaler (MDI) with the recommended spacer
✧ Another way is to deliver the medicines with a Nebulizer that makes a breathable mist

Remember
Quick-relief medicines do not help the swelling in your lungs. They only help you to feel better temporarily, not treat your asthma. Don’t use them in place of your control medicines.
Quick-Relief Medicines – Notes

Quick relief medicines relieve your symptoms and are taken only when you need to relieve asthma symptoms. When used as soon as possible for an asthma flare-up, the symptoms normally stop and do not go any further. Quick treatment is important! Overuse of quick-relief medicines decreases their ability to work.

◊ If you find you are using quick-relief medicines twice a week, or more than usual, talk to your doctor. You may need long-term control medicines to prevent these symptoms from starting.

◊ Sometimes, when quick-relief medicines do not relieve symptoms, oral corticosteroids (prednisone) are taken over a few days.

How much medicine is in the canister

Different types of inhalers contain varying amounts of the medication.

To know how long your medicine will last do this math problem:

U Take the total number of puffs in the canister (it is written on the label) and divide by the number of puffs you take each day

U For example, if you take 8 puffs each day from a 200-puff canister, it will last 25 days (200 ÷ 8); write the day you will be out on the canister and reorder a week before

U Another way you can figure out how much medicine is left is to put a piece of tape around the canister and mark every time you use it: if you are starting the last week of medicine, it is time to refill [this is a good method to use for your quick relief inhaler (i.e.: albuterol) since you may not use it the same amount everyday]; keep a spare inhaler on hand.
Mark the calendar to remind yourself when to call for a refill. Some insurance plans pay for two albuterol MDI’s each month. Figure out how many you need to meet all needs (home, school, babysitter, purse, etc)

**How To Store Your Metered Dose Inhalers (MDI’s)**

- Do NOT refrigerate
- Keep at room temperature
- Keep away from direct sun or heat

**Dry Powder Inhalers (DPI’s)**

Dry powder inhalers are used differently:

- They come in many different designs like the Turbuhaler, or the Diskus (read the package on how to use it)
- Keep away from moisture
- Do not breathe into the container
- When you breathe out, do it away from the medicine (otherwise, the medicine may be blown out, and the medicine can clump up or mold can grow in the container)
- When using this type of inhaler the breath in must be fast, deep and forceful
- Younger children and infants are not able to use this type of medicine
- Some DPI’s have an indicator to show you how much medicine is left

Remember

You need to know how much medicine is in the inhaler so you can get refills BEFORE you run out!

And

NEVER LEAVE HOME WITHOUT YOUR QUICK RELIEF MEDICINE!
Respiratory Devices

Metered Dose Inhalers (MDI’s) and Spacers

A metered dose inhaler (MDI) is small and convenient. It can be used by most asthma patients, along with the use of a spacer, with a mask or mouthpiece. Their use must be learned correctly to be effective. It has been shown that a spacer or holding chamber attached to a metered dose inhaler is an excellent way to deliver inhaled medication. This is true especially for children who have a difficult time using the MDI alone.

Spacers

- Five Reasons to use a spacer

A spacer will:

- Help deliver more medication to the lungs, not the mouth
- Help the medicine get further into the lungs where it needs to go to open up the airways
- Helps get rid of the taste of the medicine
- Decrease coughing when using an inhaler
- Prevent you from getting a yeast infection in your mouth (thrush) when taking inhaled steroids
- Easily clean. once a week. by soaking in soapy water for 15 minutes (do not rinse; a slight soap film can double how much medicine you breathe)
How to Use a Spacer with an MDI

1. Shake the MDI
2. Remove the cap, insert MDI into spacer (Fig 1)
3. Exhale normally (Fig 2)
4. Place the mouthpiece of the spacer in your mouth, press down on the canister, breath in slowly and completely by mouth until the medicine is gone (Fig 3)
5. Hold your breath for at least 10 seconds and then exhale (Fig 4)

If your doctor has prescribed 2 puffs or more, wait 30 seconds between puffs and repeat steps 1-5

Spacer Use for Younger Children

(Multiple Breaths Method)
If the child cannot take a slow deep breath, have them

✧ Breathe from the spacer 5 – 6 times
✧ Repeat for second or additional puff

Spacer Use for Infants and Toddlers

(Mask Method)
✧ A mask may be used
✧ Seal mask over nose and mouth — the clear membrane should move up and down, the seal should be tight
✧ Press on canister and count 5 – 6 breaths by watching membrane or the child
✧ Repeat for second or additional puff
**Metered Dose Inhalers (MDI’s)**

A metered dose inhaler (MDI) is a small canister of medicine. The medicine is delivered in a spray for the patient to breathe. It is convenient and can be used by most patients.

Even babies can use medicine in an MDI with a spacer and a mask. Many medications are available as an MDI.

Quick relief medicines are easy to take out of the home this way.

Test spray your inhaler if it’s new or not used often.

---

**Using the MDI without a Spacer (Closed Mouth Technique)**

1. Remove the cap
2. Shake the MDI (inhaler) for about 15 seconds
3. Hold the canister upright with the mouthpiece at the bottom
4. Breathe out normally
5. Put the inhaler mouthpiece between the teeth, with the tongue underneath it
6. Press down on the inhaler as you start to breathe in slowly and completely
7. Hold your breath for 10 seconds to allow the medicine to reach deeply into the lungs
8. Wait 30 seconds in between each puff and repeat as ordered by the doctor

---

**SPECIAL NOTE**

- If you notice that the first puff does not give any medicine, take another puff.
- If the canister is near empty, it may not deliver any medicine at all.
- Make sure you have a new canister, especially the quick relief medicine.
**Using the Inhaler without a Spacer**

*Open Mouth Technique*

Follow the Closed Mouth Technique except:

1. Open mouth wide
2. Hold inhaler 2 finger-widths from your open mouth
3. Take a slow deep breath in for 3-5 seconds

---

**Nebulizer Treatments**

**What is a nebulizer?**

A nebulizer uses a machine to deliver medicine in the form of a mist. It consists of a medicine cup, mouthpiece, and thin plastic tubing. The tubing connects the medicine cup to a compressed air machine that is powered by electricity. There are many brands, but they pretty much all work the same way. Nebulizers are used mostly by children under four years of age or patients who do not get relief from metered dose inhalers.
Steps to use a nebulizer

- Measure the correct amount of medicine, put it in the medicine cup
- Measure the correct amount of normal saline (if used) and add it to the medicine cup (if you use Intal or Pulmicort Respules, use it in place of the saline; for extra treatments, use saline instead of Intal or Pulmicort Respules)
- Assemble the nebulizer and connect the tubing to the compressor; if using a mask, fasten the medicine cup to the mask
- Put the mouthpiece in the mouth with lips sealed tightly or place the mask snugly on the face
- Turn on the compressor
- Hold the nebulizer up straight; take in slow, deep breaths through the mouth; hold each breath for 1-2 seconds if possible
- Continue until all of the medicine is gone, about 10 minutes

Cleaning the Nebulizer

An unclean nebulizer may contain bacteria. Don’t forget! A routine cleaning of the nebulizer is very important. Cleaning gets rid of germs and helps to keep the medicine cup from becoming clogged up. It will last longer that way.

After Each Treatment

- Remove air tubing, shake out excess medicine from the med cup
- Rinse in warm running water
- Air-dry completely on a clean towel
Every 2-3 Days (if using every day)

✧ Take apart the medicine cup and disconnect from tubing (do not wash tubing)
✧ Wash the medicine cup, mouthpiece or mask in mild dish soap and warm water; rinse thoroughly with water
✧ Soak for 30 minutes in solution of 1 part vinegar and 3 parts hot water; do not reuse the solution (a cleaning solution is also available through your homecare company or pharmacy)
✧ Rinse in water and air dry on a clean towel
✧ Store in a clean, dry area
✧ Keep the outside of the air compressor clean by wiping off; never put the compressor in water
✧ Check the filter every month; if the filter looks dirty, replace it with a new one

SPECIAL NOTES
Some nebulizers can be washed on the top shelf of a dishwasher.
The nebulizers can be reused or are disposable. Make sure you know which one you have.
Supplies are available through a pharmacy or homecare company.
Plan ahead and do not run out.
Asthma Education

What is an Asthma Trigger?

When you or your child have asthma, airways are very sensitive. An asthma “trigger” is something that causes an asthma episode. A trigger could be an irritant or an allergen. The trigger contacts, and then affects, your airways; they may become tight, swollen, and produce excess mucus. Avoid or control asthma triggers. With your family and your doctor, find out what triggers asthma episodes and learn how to control them.

Common Triggers

Here are some of the most common triggers with some suggestions for dealing with them:

- **Viral Upper Respiratory Infections**

  These are the most common triggers of asthma in children less than five years old. They includes colds, flu, bronchitis and other viruses. It is difficult to avoid all respiratory infections, especially in the fall and winter. Here are some suggestions for reducing exposure:

  - We recommend annual flu shots for children and adults with asthma who are not allergic to eggs (ask your doctor)
  - If your friends are sick it’s a good idea not to be near them until they are well
  - Washing hands frequently can help stop the spread of germs that cause infections
  - If you get sick and feel like you cannot control your asthma, call your doctor before you have a big flare-up
  - Check with your doctor before taking over-the-counter medicines
Dust Mites

If you are sensitive to dust mites:

🔹 Change bedding once a week and wash it in hot water (130°) to destroy dust mites
🔹 Enclose your pillow, mattress, and box spring in allergy proof mattress covers that are available at Target, Wal-Mart, Kmart, etc.
🔹 Remove or lessen the number of stuffed animals, knick-knacks, and clutter that collect dust in the bedroom
🔹 Remove carpet and fabric window coverings if possible, at least in the bedroom
🔹 Have your house vacuumed at least once a week. Try to stay away from the area during vacuuming and 30 minutes after. Vacuuming is not a good chore for a person with a dust mite allergy
🔹 Keep closet doors closed
🔹 Do not sleep on couches or carpeted floors
🔹 Remove carpet if possible

Mold

Mold is found in old building walls, old carpets, damp environments, houseplant soil, and bathrooms. Ways to remove mold are:

🔹 Remove household plants from your bedroom or the entire house
🔹 Remove moldy carpets if possible and avoid old buildings
🔹 Fix leaky faucets and pipes
🔹 Avoid vaporizers and humidifiers
🔹 Mold can be removed from surfaces in the house with a mild bleach solution or mold cleaners
🔹 Aquariums or other standing water should not be in the bedroom

Asthma Myth: Asthma is all in the mind.
Truth: Asthma is real. It starts in the airways, and not in the mind. Getting upset can make your asthma worse.
Airborne Irritants And Tobacco Smoke

These include tobacco smoke, perfume, household cleaners, insecticides, indoor and outdoor fires, and air pollution.

- Protect yourself from cigarette smoking. Do not allow smoking around the child, in the home, or car
- Smoking parents should choose to smoke outdoors, away from children
- Try to stop smoking – ask your health care provider for resources
- Eliminate use of wood stoves and fireplaces
- Be aware of barbecues and camp fires
- Stay indoors and keep the window closed when the pollen count or pollution measurements are high
- Stay indoors when there is a local brushfire that creates smoke in the air
- Do not use perfume; avoid other things that contain fragrance, such as soaps, lotions, room fresheners, etc.
- Use unscented household cleaners in your home whenever possible (if possible, avoid the area being cleaned to reduce exposure)

Animal Dander

A favorite pet may be the cause of asthma. Animals shed a substance from their fur called dander which is the actual trigger. Check with your doctor about all your pets. If your pet is the cause, and your allergy is severe, you may need to find your pet a new home. If that cannot be done, then:

- Move the pet outdoors
- Keep the pet out of the bedroom and the bedroom door closed
- Keep the pet off upholstered furniture and carpets
- Wash the pet weekly to decrease the amount of dander
- Use an air filter
If you visit a home that has an animal that triggers your asthma, take your medications before you go and let the adults in the home know you are allergic to animals.

**Cockroach Allergens**

It is important to get rid of roaches in your home. Small pieces of dead roaches and roach droppings collect in house dust and within the walls. It can also be in the air you breathe. To keep your house roach-free:

- Do not leave food or garbage exposed
- Fix leaky faucets and pipes
- Store food in sealable containers and clean up crumbs
- Wash dishes right away after eating
- Clean up cluttered areas which cockroaches may use as shelter
- If you must use a pesticide, be sure to use it safely and as directed on the label
- Baits are less likely than sprays or foggers to harm your lungs (Safety tip: keep baits away from children)

**Exercise**

If exercise triggers your asthma:

- Avoid your other triggers while you exercise
- Choose sports or activities that cause fewer problems with asthma
- Take your medications before you play or exercise to prevent asthma symptoms
- Learn to control your asthma so you can keep playing and exercising

**Emotions**

Asthma is not caused by emotions, but strong emotions can affect your breathing and your asthma. When you feel mad, upset, or scared:

Try to calm yourself
Breathe slowly and deeply in and out through your nose while you get your feelings under control.

**Weather**

Some asthma can be triggered by weather that is very cold, dry, or damp. If cold weather is a trigger for you:

- Breathe through your nose
- Try covering your nose and mouth with a scarf
- Make sure the air conditioner and heater filters are clean
- If your asthma gets worse at night, make sure you take your medications before bedtime and talk to your doctor

### Checklist for Asthma Triggers in the Home

- Perfume, hairspray, or cologne
- Cotton items (bed sheets), futons, dust mites love cotton
- Moldy or old carpet
- Down or feather comforters and pillows
- Lots of clutter
- Stuffed animals

**In the Bedroom, Check for These Possible Triggers**
In the Rest of the House, Check for These Possible Triggers

- Drip pan underneath refrigerator has mold
- Base of toilet appears slimy green or black
- Leaky sink or pipe
- Black spots in the trash can
- Tobacco smoke
- Wood smoke
- Paint or any strong odors or fumes
- Cockroaches
- Roof leaks or water damage
- Mold on walls
- Dirty or moldy air conditioning or furnace filters
- Black areas around windows
- Indoor houseplants
- Vaporizers, humidifiers
- Fish tanks
- Pets, including dogs, cats, birds, hamsters, or guinea pigs

Walk around your house — mainly in the bedroom — to find things that may cause asthma to act up. Check off each item that you find around the house, then refer to the previous pages to control those triggers.

Asthma Myth:
Dogs can protect people with asthma.

Truth:
A breed of dog known as Chihuahuas, were once thought, by some cultures, to protect people with asthma. Asthma can be triggered by being around dogs and especially cats.
Gaining Control Of Asthma

You can learn how to gain control of asthma. Here’s how:

- Know your Asthma Action Plan
- Take your medicines as prescribed
- Keep an asthma diary
- Know your body and the signs and symptoms of an asthma flare up

Your Asthma Action Plan

The asthma action plan is the set of written instructions from your doctor. You will follow the instructions in everyday asthma care and when you have symptoms of asthma. The action you take will depend on what treatment works to control your asthma.

Every person’s asthma action plan is made especially for him or her

Asthma Action Plan

Peak Flows are at 80 – 100% of your personal best
- "Green—Go" No asthma symptoms are present. Take your medicine as usual.

Peak Flows are 50-80% of your personal best.
- "Yellow—Caution" If you are always in the yellow zone, the doctor may need to change your daily medicine plan. Take your reliever medicine; Increase medicine according to plan.

Peak flows are less than 50% of your personal best.
- "Red—Danger" Follow the asthma action plan for asthma flare-ups Call your doctor if you don’t get better in 30 minutes

The patient and doctor work together to make the plan.

Your action plan is divided into colored zones, like a traffic light. Each zone is based on how you feel (your symptoms) or your peak flows (the measure of how open your airways are).
IMPORTANT!!!

If you do not feel better in 30 minutes or you stay in the YELLOW ZONE for more than 24 hours, follow the RED ZONE plan and CALL YOUR DOCTOR.

Peak Flow Meters

What It Is and Why You Should Use One

A peak flow meter is a small device that measures how fast air moves out of the lungs, when the patient blows into it.

A low peak flow meter reading can show that your asthma is flaring up before you have a lot of symptoms. By taking medicine early (before many symptoms) you may be able to stop the episode quickly and avoid a serious episode of asthma.

WHY YOU SHOULD USE A PEAK FLOW METER

Peak flow meters are used to monitor your asthma daily. The peak flow meter can also be used to help you and your doctor to:

- Decide if your medicine plan is working well
- Decide when to add or change medicine
- Decide when to seek emergency care
- Identify triggers that cause your asthma symptoms
- Talk about your asthma with more knowledge

Your doctor will write in the medicines you should take for which zone you are in. With an asthma action plan you will learn to manage your own asthma much better.
**STEPS FOR USING A PEAK FLOW METER**

1. Place the indicator at the base of the numbered scale
2. Stand up, if you are able
3. Take a deep breath
4. Place the mouthpiece of the meter in your mouth and close your lips around it
5. Do NOT put your tongue inside the hole
6. Blow out as hard and fast as you can
7. Write down the number you get
8. Catch your breath and then repeat steps 1 through 6 two more times
9. Write down the highest of the three numbers achieved in your asthma diary

Children with asthma over three years of age, who have moderate or severe asthma, can begin using a peak flow meter. Ask your doctor, nurse, respiratory therapist, or pharmacist to show you how to use a peak flow meter. A peak flow meter is available with a prescription through some pharmacies. They can cost up to $50, very few insurance companies pay for the cost. If you have one, it’s very important to take good care of it and not lose it.

**Your “Personal Best” Peak Flow Number**

Each person’s asthma is different. Your best peak flow number (or measurement) may be higher or lower than the average number for someone of your height or gender. This means that it is important to find your own “personal best” peak flow number.

*Asthma Myth: People with Asthma shouldn’t exercise or play sports.*

*Truth:* Exercise is important for good health. Simply choose the right type of sport and the best time and place to participate.
Your asthma action plan needs to be based on:

✧ your own personal best peak flow number
✧ your symptoms

▸ **To determine a personal best peak flow:**

✧ Check the peak flow 2 times a day for 2 weeks; record the numbers on the asthma diary
✧ Do not include really high or low numbers
✧ Do this when your asthma is under good control
✧ Use the same peak flow meter

▸ **The personal best peak flow number is**

✧ The best peak flow number that you can blow over a two-week period when your asthma is under good control (good control is when you feel good and do not have any asthma symptoms)
✧ The personal best will change as a child grows and should be rechecked annually
Asthma Diaries

What is an asthma diary? It is like a calendar with sections to write down how your child’s or your asthma is doing. The advantages of keeping an asthma diary are:

- You learn what the asthma symptoms are
- You can accurately keep track of asthma and medicines
- You can develop an action plan with your doctor, based on asthma symptoms and peak flows

Some of the things you can write down are daily symptoms:

- Waking up at night
- How often there is wheezing
- What kind of exercises are done
- What things trigger asthma

There are two kinds of asthma diaries. One kind is based on Signs (symptoms) of asthma.

**ASTHMA SIGNS DIARY**

If you or your child are unable to use a peak flow meter, you may use a SIGNS diary.

Signs like cough, wheezing, chest skin and breathing rate are recorded.

They are plotted onto a chart that is colored like a traffic signal; Green (go), Yellow (caution), Red (danger). The signs can be checked one or two times daily.
The other kind of Asthma diary is based on the **Peak Flows**.

Peak flows are plotted onto a chart that is colored like a traffic signal; Green (go), Yellow (caution) and Red (danger). Peak flows are done one or two times a day.

The chart is based on average or personal best peak flows. Discuss with your doctor what to do when peak flow numbers change.

The most important thing about peak flow is how much it changes from your personal best and how much it changes from one reading to another.

**Something to Remember:**

Good care for your child’s asthma may someday save his/her life. Although rare, children die each year in San Diego as a result of asthma attacks. These deaths occur most often in children who have severe asthma - and from attacks that occur suddenly - but any child with “persistent” asthma is at risk. Some studies suggest that asthma-related deaths are linked to:

- Families who cannot afford proper medical treatment
- Where there are strong emotional problems at home
- An Afro-American heritage

While all asthma deaths may not be preventable, it is important to treat all asthma attacks quickly. If the child is not responding to treatment with “rescue” medicine, seek help immediately!
Living With Asthma

Staying Active

Avoid asthma triggers when you can. Know your action steps.

- Know the warning signs and what to do when they start
- See the doctor who cares for your asthma regularly
- Talk with your health care provider about the asthma action plan and follow it
- Arrange for your child to use medicines while at school
- Tell teachers, coach, and school nurse about your child’s asthma
- Eat healthy foods
- Get enough sleep
- Exercise regularly
- Get a flu shot

Exercise And Asthma

Asthma, a cough, or wheezing can be triggered by exercise. Here’s what to do about it:

- Talk to your health care provider about taking the quick relief medicine 15 – 30 minutes before starting the activity
- Talk to teachers and coaches about your asthma so they can help you or your child stay active
- Do “warm up” and “cool down” exercises before and after exercise
- If warning signs begin – take a break and take your quick relief medicine; do relaxation exercises (like slow, deep breathing) until you catch your breath
- Be patient with yourself with a new activity or sport – you will improve as you practice more
Special Concerns For Your School-Age Child

Besides all the other concerns and ways to control asthma, children going to school have some special concerns. As a parent, you can be aware of these needs by following these guidelines:

Checklist For Going To School
Your child can probably go to school with these symptoms:

✓ A stuffy nose, but no wheezing
✓ A little wheezing that goes away after taking medicine
✓ Able to do usual daily activities
✓ No extra effort needed to breathe
✓ Peak flow number is in the Green or high Yellow Zone

Checklist For Staying Home
Your child may need to stay home with these symptoms:

✗ Fever over 101°F (orally)
✗ Tired and lack of energy
✗ Difficulty breathing or breathing very fast
✗ Peak flow or symptoms in low Yellow Zone and little response to treatment (call doctor)
✗ Weakness or tiredness that makes it hard to take part in usual daily activities
✗ Wheezing or coughing that remains after taking asthma medicine
It is important to have the quick relief medicine and a spacer at school or daycare.

- Written permission from the health care provider and parents is needed to take asthma medicine during school or daycare (a sample letter for your school is included in the back of the book)

- Some children can carry and take their own medicines; others must go to the school nurse or office to take their medicines

- It is very helpful for a parent to discuss their child’s asthma with the school nurse, health aide and teachers

- You and your health care provider can write a special asthma action plan for school and recess or PE

**Traveling With Asthma**

If you are traveling, follow these guidelines:

- Always bring along the quick relief medicine when you leave your home for any part of the day

- If you have unstable asthma or active allergies, call your doctor for a pre-trip physical examination

- Tell your doctor where you are going and how you plan to get there

- Pack all medicine you will need in your carry-on luggage

- Bring more than enough medicine and store it in the original containers with the prescription

- Carry your peak flow meter, asthma action plan and your health care provider’s phone number
**U** Bring your home nebulizer, if you are traveling far away from home

**U** Be aware of possible triggers and take the necessary precautions

**U** Continue your “allergy shots” if you are traveling for an extended period

**Complementary And Alternative Therapy Use For Asthma**

Today more than 60 million people in the United States use alternative therapies. These may include:

- **U** Herbal formulas
- **U** Acupuncture
- **U** Homeopathic remedies
- **U** Naturopathic formulas
- **U** Cultural/Traditional remedies

If you use herbs, teas, vitamins, or other methods to help control your asthma it is important to discuss these remedies with your health care provider. The provider can work with you better to prevent possible reactions with other medicines.

**Alert!**

If at any time you experience a “reaction” to any medication (traditional or alternative), call your doctor immediately.
Asthma Resources

Asthma and Allergy Product Resources
Mattress and pillow allergy covers are available at Wal-Mart, Kmart, Target, Mervyn’s, and other linen or department stores.

The following catalogs offer a variety of environmental control products (mattress and pillow allergy covers, air cleaners), respiratory equipment and supplies, books, and more. Call the toll-free numbers below for a free copy of their catalogs. Many of these products are also available locally – shop around.

<table>
<thead>
<tr>
<th>Allergy Clean Environments</th>
<th>Allergy Supply Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>(800) 882-4110</td>
<td>(800) 323-6744</td>
</tr>
<tr>
<td><a href="http://www.allergyclean.com">www.allergyclean.com</a></td>
<td><a href="http://www.allergysupply.com">www.allergysupply.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergy Control Network</th>
<th>Gazoontite.com</th>
</tr>
</thead>
<tbody>
<tr>
<td>(877) 566-3786</td>
<td>(888) 4MY-NOSE</td>
</tr>
<tr>
<td><a href="http://www.stopallergy.com">www.stopallergy.com</a></td>
<td><a href="http://www.gazoontite.com">www.gazoontite.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergy Control Products</th>
<th>Mission: Allergy</th>
</tr>
</thead>
<tbody>
<tr>
<td>(800) 422-DUST</td>
<td>(877) NOALLERGY</td>
</tr>
<tr>
<td><a href="http://www.allergycontrol.com">www.allergycontrol.com</a></td>
<td><a href="http://www.missionallergy.com">www.missionallergy.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergy Free</th>
<th>National Allergy Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>(800) 967-9197</td>
<td>(800) 522-1448</td>
</tr>
<tr>
<td><a href="http://www.allergy-free.com">www.allergy-free.com</a></td>
<td><a href="http://www.nationalallergysupply.com">www.nationalallergysupply.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AllergyPlus.Com</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(888) 786-6660</td>
<td></td>
</tr>
<tr>
<td><a href="http://www.allergyplus.com">www.allergyplus.com</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergy and Asthma Technology</th>
<th>Allerex</th>
</tr>
</thead>
<tbody>
<tr>
<td>(800) 621-5545</td>
<td>(800) 447-1100</td>
</tr>
<tr>
<td><a href="http://www.allergyasthmatech.com">www.allergyasthmatech.com</a></td>
<td><a href="http://www.allerx.com">www.allerx.com</a></td>
</tr>
</tbody>
</table>
When It’s Time to Quit Smoking, Call...

American Lung Association
(800) LUNG-USA
www.lungsandiego.org

Partnership for Smoke Free Families
(858) 966-1700
Phyllis Hartigan

California Smoker’s Helpline
(800) NO-BUTTS
www.nobutts.org or www.californiasmokershelpline.org

Environmental Control Resources

American Lung Association
(800) LUNG-USA
www.lungsandiego.org

For information and referral on environmental control, chemical irritants, asbestos, carbon monoxide, allergies & asthma, second-hand smoke, wood burning, mold, pollen, dust and cockroaches in homes, offices, and schools.

COUNTY OF SAN DIEGO
Environmental Health Services
(619) 338-2222
For general info only – no inspections

Vector Control
(858) 694-2888
To control rodents, cockroaches, and rats in public areas

Office of Education, Risk Management
(858) 569-5320
To report indoor and outdoor environmental concerns on County school sites outside San Diego.
Environmental Control Resources (Continued)

**Environmental Health Coalition**
(619) 235-0281
www.environmentalhealth.org
For information, referral, and to request information, cutting-edge analysis and practical and effective solutions to fight toxic pollution, protect public health and promote environmental justice.

**San Diego Air Pollution Control District**
(858) 650-4707
www.sdapcd.co.san-diego.ca.us/
For up-to-date air quality information and forecasts
If you have an air pollution complaint, call (858) 650-4550

**CITY OF SAN DIEGO**
**Housing Code Compliance Complaint Intake Line**
(619) 236-5500

**Schools, Risk Management**
(858) 627-7350
To report indoor and outdoor environmental concerns on San Diego City school sites

**US EPA**
(800) 438-4318
www.epa.gov/iaq
Environmental Protection Agency – Air Quality Information Clearinghouse
Books

**The American Lung Association's Family Guide to Asthma and Allergies**

The American Lung Association Asthma Advisory Group with Norman H. Edelman, MD

Little, Brown and Company, 1997

Shows families how to manage asthma and allergies and lead an active, healthy life. Provides information on treatment options and medications.

**The Asthma Sourcebook**

Francis V., MD, 1998

McGraw Hill - NTC

(800) 323-4900 x147

Comprehensive and straightforward guidebook containing recent advances in medicine, alternative medicine, and lists of other resources.

**Asthma Guide for People of All Ages**

Plaut, Thomas F., MD. 1999

Pedipress, Inc

(800)611-6081

Comprehensive, accurate, and current guide for people who want to understand and control their asthma. Complete discussion of the basics of asthma and medicines used to treat it. Asthma issues faced in the school, family and in travel.

**Children with Asthma: A Manual for Parents**

Plaut, Thomas F., MD. 1999

Pedipress, Inc.

(800) 611-6081

Comprehensive, easy to understand book about asthma basics and the importance of parent education. Sections on infants, children and teenagers, with first-person stories parents can relate to.
Guide to Your Child’s Allergies and Asthma
American Academy of Pediatrics (AAP), 2000
Welch, Michael J., MD.
Villard Books; www.villard.com
A comprehensive book written by the foremost authority on children’s health, the American Academy of Pediatrics, as a vital guide and resource for parents who want answers and information about their children’s allergies and asthma. Can also be obtained by contacting AAP at www.aaap.org

Magazines

Allergy & Asthma Health
Published quarterly, subscriptions $12.95/year
Signature Publications, P.O. Box 29729, Dallas, TX 75229-0729, (800) 878-4403
Official publication of Allergy Asthma Network/Mothers of Asthmatics, Inc. Wide range of informative articles about allergy and asthma care

Asthma: Strategies for Taking Control
Published bi-monthly, subscriptions: $19.95/year
Lifelong Publications, 55 Chapel Street, Newton, MA 02158, (800) 527-3284
Informative, consumer friendly magazine about optimal asthma management; summaries of recent research on asthma and allergies, including an American Lung Association page. A limited number of free copies are available by calling the local Lung Association office 1-800-LUNG-USA

Coping with Allergies & Asthma
Bi-monthly publication:$14 for one year (5 issues) and $25 for 2 years (10 issues);
www.copingmag.com
Media America, Inc., PO Box 682268 Franklin, Tennessee 37068-2268; (615) 791-3859
Addresses many allergy and asthma problems. It also offers a section entitled LAB LANGUAGE, a glossary that teaches the reader about medical terms used for allergies/asthma.
Organizations

**Allergy and Asthma Network—Mothers of Asthmatics, Inc. (AAN-MA)**
Chain Bridge Road #210, Fairfax, VA 22030
800-878-4403, 703-385-4403x3554
http://www.aanma.org/
Dedicated to providing a link between the home, school, physician, and pharmaceutical industry in order to help families cope with asthma. Publishes the MA Report, a monthly newsletter full of useful information and advice for parents of asthmatics. Also publishes other educational materials.
Membership is $25 per year.

**American Academy of Allergy Asthma and Immunology (AAAAI)**
611 E. Wells Street, Milwaukee, WI 53202
800-882-ASTHMA, 414-272-6071
(publication orders)
http://www.aaaai.org
Largest national medical society representing allergists, immunologists, and related allied health professionals.
Maintains speakers' bureau and produces a variety of patient education materials. Order "Pediatric Asthma: Promoting Best Practice Guide for Managing Asthma in Children" from their site.

**American College of Allergy Asthma and Immunology (ACAAI)**
85 W Algonquin Road #550, Arlington Heights, IL 60005
800-842-7777, 708-427-1200
http://allergy.mcg.edu
Represents practicing allergists, educators, researchers, and clinical immunologists and offers patient education materials and a list of board-certified allergists.

**American Lung Association (ALA) /American Thoracic Society (ATS)**
1740 Broadway, New York, NY 10019
800-LUNG-USA
http://www.lungusa.org
Offers asthma education services through its national network of more than 200 local and state offices. They provide publications, support groups and community-based and school asthma programs and camps. The ATS is the medical section of the ALA and provides clinically oriented information for practitioners. Your community resource for lung disease prevention, research and education.
Asthma & Allergy Foundation of America (AAFA)

1717 Massachusetts Avenue #305, Washington, DC
800-7-ASTHMA
http://www.aafa.org
A nonprofit organization which sponsors continuing education and has a newsletter, audio-visuals and educational pamphlets available to the public. The AAFA maintains a clearinghouse of educational materials for patients, as well as training programs for allied health professionals. A free packet of information may be obtained by calling the number above. Membership is $25 per year.

Food Allergy Network

4744 Holly Avenue, Fairfax, VA 22030-5647
(800) 929-4040, (703) 691-3179
http://www.foodallergy.org
A non-profit organization offering information and educational materials on food allergies. Call for free resource list. Publishes the "Food Allergy Newsletter" (Membership $25.00/yr).

MediAlert

4744 Holly Avenue, Fairfax, VA 22030-5647
(800) 432-5378
http://www.medicalert.org
Membership service ($15/yr; first year $35) provides engraved necklaces and bracelets for emergency medical information (medical conditions, allergies, medications, special needs), plus linkage to a 24 hr. emergency Hotline providing computerized personal medical information.

National Heart, Lung, and Blood Institute (NHLBI)
National Asthma Education Program
P.O. Box 30105, Bethesda, MD 20824-0105
(301)251-1222 to order materials.
http://www.nhlbi.nih.gov
A program of the National Institutes of Health which developed Standards for the Diagnosis and Management of Asthma and supports the dissemination of these guidelines to health care providers. Also provides extensive free information to the public. Call NHLBI to order materials.
Organizations (Continued...)

**National Jewish Center for Immunology and Respiratory Medicine**
1400 Jackson Street Denver, CO 80206
800-344-5864, 303-388-4461
http://www.njc.org
This nonsectarian medical center offers patient education materials and provides an information service called the "Lung Line." The "Lung Line" is staffed from 8:00 a.m. to 5:00 p.m. (Mountain Time) by registered nurses specializing in respiratory and immune system disorders. Also operates residential treatment programs for persons with severe lung disease and sponsors research.

Internet Sites

**Asthma.about.com**
www.asthma.about.com
Features daily updates on research, extensive links to asthma and related conditions, asthma essentials and how-to's.

**Asthma Information Center**
http://www.mdnet.de/asthma
One of the largest resources for asthma on the net. It is intended for professional as well as for patients and parents of children with asthma. This site also provides many links to asthma research and favorite sites for patients. Multi-language capabilities including Spanish.

**Intelihealth**
www.intelihealth.com
Consumer friendly health information; team with Harvard School of Medicine to review content. Offers reviews of latest medical research and a personal asthma diary/tracking tool.

**The Foundation for Better Healthcare**
http://www.fbhc.org/Patients/BetterHealth/Asthma/home.html.
A general information web site with facts, frequently asked questions, and links to other asthma resources.

**JAMA Asthma Information Center**
http://www.ama-assn.org/special/asthma
A collection of resources for physicians, other healthcare professionals, and the general public. Includes Top Stories and In-depth Special Reports, searchable Library, and the Education and Support Center.
Internet Sites (Continued)

Mediconsult
http://www.mediconsult.com/asthma
Asthma Medical Information. A medical web site oriented towards patients. Includes medical information, educational materials, drug information and much more.

Health Plans

San Diego Kids Health Assurance Network (SD-KHAN)
This program is an outreach and referral program that links uninsured children and youth from low-income families with no-cost to low-cost medical and dental care. SD-KHAN staff a centralized telephone information and referral line and do targeted outreach at schools, child care centers, Head Start locations, Points of Service/Health Care providers, Community/Civic groups, and WIC/Food bank sites.

Please call 1-800-675-2229 for more information about no-cost and low-cost health coverage.

HEALTH PLANS

Blue Cross
Member Services 1 (800) 407-4627

Community Health Group
Member Services 1 (800) 224-7766

Health Net
Member Services 1 (800) 675-6110

Kaiser Permanente
Member Services 1 (800) 464-4000

Sharp Health Plan
Member Services 1 (858) 637-6500

UCSD Health Plan
Member Services 1 (800) 688-6161

Universal Care
Member Services 1 (800) 635-6668
FINDING OUT MORE ABOUT MEDICINES

Long-Term Control Medicines

Long-term control medicines include inhaled corticosteroids, inhaled Cromolyn or Nedocromil, oral leukotriene modifiers, long-acting beta2-agonists, theophylline, and long-term oral corticosteroids.

**INHALED CROMOLYN AND NEDOCROMIL**

Common generic and Brand names

✧ Cromolyn = Intal® nebulizer solution, inhaler
✧ Nedocromil = Tilade®, inhaler

▷ **How it works**

Cromolyn and nedocromil are long-term control medicines that are preventive. These controllers stop the allergy cells that line the airways from releasing chemicals that lead to asthma symptoms. Like other long-term control medicines, cromolyn and nedocromil do not work for quick-relief of asthma symptoms.

▷ **How to take this medicine**

These medicines come in metered dose inhalers. Cromolyn is also available as a nebulized solution for inhalation. These medicines are not steroids. The nebulized solution of cromolyn can be mixed with albuterol solution, if needed.

To prevent symptoms of asthma, this medicine needs to be taken every day. Your symptoms should improve in 1 to 4 weeks. If there is no improvement or if your asthma symptoms are worse, check with your doctor.

To prevent symptoms of asthma from contact with an asthma trigger (such as an animal) or exercise, it can be taken 5 to 60 minutes before contact. This effect lasts for 3 to 4 hours.
Possible side effects

These medicines are very safe with daily use and can be used in infants. Although a medicine is safe and helpful, some people may have minor side effects.

Throat irritation, dryness, coughing, or nausea may occur. Unpleasant taste may be noted with nedocromil. Using a spacer device may help. Rinsing and gargling after using the medicine may help.

LEUKOTRIENE MODIFIERS

Common generic and (Brand) names

- montelukast=Singulair®
- zafirlukast=Accolate®
- zileuton=Zyflo®

How it works

Leukotriene modifiers are called “controllers” or preventive medicines because they are used for long-term control. They help control asthma by making the airways less swollen, secrete less mucus, and by helping the airway muscles tighten less. These medicines are not steroids and work in a different way. There are chemicals in the body called leukotrienes. In those with asthma, these result in asthma symptoms and can be blocked by leukotriene modifiers. Your doctor may add one of these medicines to your other long-term control daily medicines or may use it alone. The lungs will improve, only if the medicine is taken every day. Symptoms of wheezing, coughing, and chest tightness will happen less often if this medicine is taken regularly even on days when symptoms are not present.

How to take this medicine

These medicines come in tablet forms to be swallowed or chewed.
Long-Term Control Medicines (Continued...)

- Accolate® is to be taken on an empty stomach. It is taken twice a day.
- Singulair® is taken once a day in the evening
- Zyflo® is taken four times daily.
- Remember to take these medicines every day, even if you have no symptoms. Do not take these medicines to stop an asthma episode. Use your quick-relief bronchodilator instead, to stop asthma episodes.

Possible side effects

Medication studies have shown side effects to be few and mild and similar to pills containing no medicine, such as stomach upset, tiredness, and headache.

Infrequently, allergic reactions have occurred. Tell your doctor immediately if that should happen. Inform your doctor about any symptom you think may be related to the medicine.

If abdominal pain, nausea, tiredness, itching and yellow coloring of the skin occurs, talk to your doctor immediately. With Zyflo®, your doctor may order tests regularly for monitoring.

Drug Interactions

Inform your doctor about all your conditions and any medicines you are taking for proper evaluation. If you are taking Zyflo® let your doctor know if you are also taking theophylline, warfarin (Coumadin®) or a beta blocker. With Accolate® let your doctor know if you are taking warfarin. Your doctor may need to make adjustments with your medicines.
**INHALED CORTICOSTEROIDS (ICS)**

- **Common generic and Brand names**

  **Aerosolized Metered Dose Inhalers:**
  - beclomethasone = Vanceril®, Beclovent®
  - flunisolide = AeroBid, AeroBid M®
  - beclomethasone HFA = QVAR®
  - Fluticasone = Flovent®,
  - Triamcinolone = Azamacort®

  **Dry Powder Inhalers:**
  - budesonide = Pulmicort Turbohaler®
  - fluticasone = Flovent Rotadisk®, Advair Diskus® (combination of Flovent and Serevent)
  - Suspension for Inhalation: budesonide = Pulmicort Respules®, used in nebulizer

- **How it works**

  Inhaled corticosteroids (ICS) or inhaled steroids are “controllers” or preventive medicines, used for long-term control. They help control asthma by making the airways less swollen and lessen the mucus. The lungs slowly improve, only if the medicine is taken every day. Wheezing, coughing, and shortness of breath will lessen over time. It may start working in the first week, but the full effect can be seen in 4 to 6 weeks.

- **How to use this medicine**

  Inhaled corticosteroids are available as an aerosolized metered dose inhaler, as a dry powder inhaler, or a liquid for the nebulizer. Spacer devices should be used with most inhalers, but not with the dry powder inhalers.

  These medicines must be taken regularly every day to work. Do not stop these medicines without talking to your doctor. Stopping these medicines can make asthma worse.
This medicine is not for quick-relief of asthma symptoms. It is to be used daily as prescribed at your usual time. If albuterol solution is needed for quick-relief when nebulized Pulmicort Respules® are used, they can be mixed together. Do not add the saline to this mixture.

### Possible side effects

These corticosteroids are not the anabolic steroids that body-builders misuse for building muscles.

Side effects are few, when used as directed. However, high doses over long periods of time may cause a small risk of slower growth in children while taking the medicine. Final height is the same in most children. Your doctor must monitor growth. Over time, as the asthma improves, your doctor will lower the dose to the smallest dose that controls the asthma.

To prevent or minimize a yeast infection in the mouth, gargle or rinse out the mouth. Spacers also help with MDI’s. When using a nebulizer with a face mask, try to avoid getting the medicine into the eyes and wash your child’s face.

Let your doctor know if exposed. Check with your doctor if you have symptoms you think is related to your medicine.

### Long-Acting Relievers

#### Common generic and Brand names

**Aerosolized Metered Dose Inhalers:**

- ♦ salmeterol = Serevent Inhalation Aerosol®

**Dry Powder Inhalers:**

- ♦ Salmeterol = Serevent Diskus®
- ♦ Formoterol = Foradil Aerolizer®
Combination Product:

✧ fluticasone + salmeterol = Advair Diskus®

▶ How it works

Long-acting relievers are really long-term control medicines that help keep the lungs open for a longer time, usually up to 12 hours. These medicines do not work right away, but act slowly, so they should not be used for rapid relief of symptoms when having an asthma episode. However, since they last long, it is found to be helpful for those with nighttime asthma. Usually, they are given in addition to an inhaled corticosteroid, when the steroid is not controlling asthma symptoms alone.

**IMPORTANT**

When not to use: Do not use for sudden breathing problems. If sudden breathing problems or an asthma episode occurs, use your quick-relief medicine (albuterol). It works faster. If you do not have a quick-relief inhaler, ask your doctor for one.

▶ How much to take

Use only once or twice each day as directed by your doctor. If you use it twice a day, spread out the two doses to approximately 12 hours apart. Do not use it more than two separate times in one day. From the dry powder Diskus, do not use more than one inhalation at a time. From the metered dose inhaler, do not use more than two inhalations at a time.

▶ How to use this medicine

Inhaled long-acting relievers are available as a metered dose inhaler or as a dry powder. Spacer devices can be used with most MDI’s, but not with the dry powder inhalers.
If the dry powder is a combination product with an inhaled corticosteroid (such as Advair Diskus®) rinse out the mouth well, as with any inhaled corticosteroid. These medicines need to be taken regularly every day to work.

Do not stop these medicines without speaking to your doctor. Stopping the medicine can worsen the breathing problems.

They are also available as tablets, such as albuterol extended-release tablets (Volmax® and Proventil Repetabs®). These tablets need to be swallowed whole. Do not chew or crush.

Possible side effects  Minor side effects may occur. These may include a fast heartbeat, shakiness, trembling, nervousness or headache. Rarely, an allergic reaction, chest pain, or an irregular heartbeat may require checking with your doctor.

**ORAL CORTICOSTEROIDS**

▷ **Common generic and Brand names**
  - prednisone
  - prednisolone= Prelone®, Pediapred®
  - methylprednisolone=Medrol®

▷ **How it works**

These are not the anabolic steroids that some athletes misuse to build muscles. These corticosteroids are derived from a naturally occurring hormone in our body called cortisol.

Oral corticosteroids are usually used for 3 to 7 days and stopped. Sometimes they are used long-term, in people with very severe asthma. Long-term oral steroids are usually given every other day.
Oral corticosteroids help control the asthma symptoms by making the airways less swollen and produce less mucus. The airways do not react as much to triggers. Your quick-relief medicine will work better. Oral corticosteroids are strong medicines and work within 3 hours after taking, with full effect in 6 to 12 hours.

How to use this medicine

It is swallowed as a tablet or liquid. Your doctor may prescribe an oral corticosteroid to keep at home, to use when an asthma episode is not improving with quick-relief medicines. Or your doctor may choose to wait until it is necessary to prescribe it. If you have the medicine at home, follow your doctor’s instructions exactly. Your doctor must be called if you have to take it. Your doctor will tell you how much to take and for how many days. It also comes as an injection for use in hospitals. It is best to take this medicine with food.

Possible side effects

Short-term oral corticosteroids can cause some minor side effects, such as a better appetite, stomach-ache, acne, mood swings, difficulty sleeping, muscle aches, and fluid retention. They will go away when the medicine is stopped. Do not stop the medicine on your own. Talk with your doctor first. It may need to be reduced slowly. Sometimes, over-the-counter medicines for upset stomach may help. If the pain continues, check with your doctor.

Long-term use of oral corticosteroids include other possible side effects. Your doctor will lower your medicines as soon possible to minimize the long-term side effects.

Check with your doctor if strange symptoms occur that you think may be related to the medicine. Let your doctor know of all other illnesses and medicines you take.

Notify your doctor immediately if you become exposed to chicken pox or measles, or if you develop a rash.
Quick-Relief Bronchodilator Medicines

**SHORT-ACTING INHALED RELIEVERS**

- **Common generic and Brand names**

  **Aerosolized Metered Dose Inhalers**
  - albuterol = Proventil®, Proventil HFA®, Ventolin®, various
  - Pirbuterol = Maxair Inhaler®, Maxair Autohaler® (breath-actuated device)

  **Nebulized solution**
  - albuterol = Proventil®, Ventolin® various
  - levalbuterol = Xopenex®

- **Plan ahead**

  Never, never, never run out or leave home without this medicine. Refill monthly until you have an adequate supply plus a spare.

- **How it works**

  Short-acting inhaled medicines are quick-relief medicines that work within minutes to relax your bronchial muscles and open up your airways. They give quick relief to asthma symptoms, including wheezing, shortness of breath, chest tightness and cough. They also help prevent symptoms that start with exercise. These medicines go right into the airways where they work. Remember, these medicines make you feel better right away, but do nothing for the swelling in your lungs. If you need this medicine more than usual, it may be a sign that your airways are becoming worse. Check with your doctor, you may need more long-term control medicines.

- **How to use this medicine**

  Quick treatment of symptoms with your quick relief medicine is important. The longer you wait, the more difficult it becomes to stop the symptoms. These medicines come as inhalers and a liquid solution for the nebulizer. The inhaler works best when used with a spacer to allow more medicine into the airways.
However, these inhalers provide relief without a spacer when using proper technique (see page 16). A breath-actuated medicine where a spacer is not used is called the Maxair Autohaler®. The nebulizer makes a mist to be inhaled over 10 to 15 minutes. Symptoms usually stop in just minutes. The medicine works for 4 to 8 hours. If there is no relief or if relief does not last for at least 4 hours, call your doctor.

Possible side effects These medicines are safe and helpful when used properly. Sometimes minor side effects may occur. These may include a fast heartbeat, shakiness, trembling, nervousness or headache. Check with your doctor if you or your child gets chest pain, a strange heartbeat or other reaction(s).
This Page is Intentionally Blank