Reprinted with permission — *Child Care Information Exchange*
PO Box 3249, Redmond, WA 98073 • (800) 221-2864 • www.ChildCareExchange.com

ASK DR. SUE YOUR HEALTH AND SAFETY QUESTIONS

DR. SUE ARONSON, MD, FAAP, is clinical professor of pediatrics at the University of Pennsylvania and a pediatrician in Philadelphia, Pennsylvania.

Celebrating 18 Years!

Children With Allergies

The most common chronic condition is allergies. Around 15% of the population has some type of allergy. Among allergies, the most common type is nasal sensitivity — the runny, stuffy nose problem. Many children (70-80%) who have asthma also have allergies, although many more children have allergies than have asthma. When one parent has allergies, about one-fourth of the children will be allergic. If both parents have allergies, the risk is 60-70% that their children will have allergies. Since so many children have allergies, child care providers need to know as much as they can about this chronic illness.

What is an Allergy?

Allergies occur when the body's protective immune system works overtime — responding too vigorously to foreign materials that enter the body so that the body's usual defenses cause uncomfortable or even dangerous symptoms. Normally, the immune system is on a continuous search and destroy mission to get rid of infectious agents that enter the body. These body defenses will detect, surround, and respond to minimize the damage done by foreign materials that penetrate the skin and mucous membrane barriers. In an allergic reaction, these body defenses over-react to a relatively harmless foreign substance.

What Happens in an Allergic Reaction?

Several parts of the immune system may become involved. The body sends out blood cells and immune system chemicals that are specific to the foreign material. Often, these cells and chemicals can be detected in increased amounts during an allergic response. The symptoms are the response of body tissues to the activity of the immune system chemicals and cells.

Usually, the tissues leak fluid into spaces where these cells and chemicals are active — and that fluid makes the tissues swell — a common problem with allergies. A swollen membrane in the nose makes the air passage narrower than usual — and, therefore, gives the sensation of a stuffy nose. Swollen membranes in the eyes make the blood circulation more difficult around the eyes, so the eyes get dark circles (from back up of venous blood) and look puffy (from fluid moving into nearby tissues). Some of the allergy chemicals made by the body stimulate the nerve endings in the linings of the eyes and nose, and give the sensation of itching or having something in the nose or eye.

The allergy chemicals of the body may cause blood vessels in the area to enlarge or dilate. This dilation of blood vessels of the eye and nasal membrane makes them look red. In the case of the nose, if the congestion is sufficient to slow down the blood movement through the membrane, the lining may actually look blue from the back up of venous blood in this region.

Other body tissues can show an allergic response. Itching in any body location may be a sign of an allergy: nose, ear canals, mouth, throat, and eyes. Hives and patchy, itchy, red skin rashes are commonly caused by allergies. Cramps, diarrhea, nausea, and vomiting are gastro-intestinal signs of an allergy. Headache and excessive fatigue can have an allergic cause. These symptoms can be due to other factors, but an allergy is an important cause to consider when the symptoms occur with a pattern of exposure to a specific substance.

What Makes an Allergic Reaction Happen?

A clearly defined sequence of events and factors determine an allergic reaction:

- The foreign material enters the body by being inhaled, swallowed, introduced through the skin by an insect or by an injection, or by contact with a mucous membrane.

- The immune system senses that this material is foreign and starts to organize a response to it. At first nothing much happens, but as the immune system becomes more active and especially if more of the foreign material keeps coming, the reaction of the body escalates.

- If the foreign material is only present briefly, the immune system may not get going enough to produce an allergic response. An allergic reaction is rare the first time the body meets a foreign material. However, each encounter with the foreign material boosts the response of the immune system, reinforcing the immune system memory. That feature of the immune system is why we give *booster doses* of vaccine to provide a speedy response to serious infections.

For infections, where the body must learn from natural exposure to disease, the memory or booster response allows us to fight off an infection better the second time we meet it than the first. Our *immunity* builds and protects us better as we encounter and conquer new or related infectious agents. In the case of an allergy, the memory of the immune system tends to build with each encounter. Also, the body remembers the foreign material, so that with each subsequent exposure, ever-smaller amounts may trigger the immune response. So, someone who did fine the first few days that a kitten came to live in the house may become increasingly sensitized and develop an allergic response by simply being near someone who has cat hair on her jacket.

- With each encounter with the foreign material that the body has learned to react to, the response may become more and more severe — or it may be the same. If the allergic person does not contact the foreign material over a long period of time, the body's immune memory may fade and allergic reactions may disappear.

- Many other factors affect whether someone will respond with an allergic reaction: body hormones, whether the body is already responding with allergic symptoms to another type of stimulus, and overall health state and medications.

Vaccines are an immune stimulus, but an allergic response to the amount and frequency of vaccine doses on the routine schedule is rare. No evidence exists that vaccines do anything to affect the overall allergic response of people who receive them. Compared with the daily bombardment of the immune system by infectious agents, the controlled stimulus of a vaccine is minimal and protective. It is the uncontrolled exposures to environmental agents that usually set off an allergic response.

What is Anaphylaxis?

Anaphylaxis is a rare but severe allergic reaction involving many parts of the body at once. The symptoms may occur immediately after an exposure or up to hours later. When they occur, the person rapidly goes into shock — with widespread swelling, difficulty breathing, anxiety, and rapid worsening. Treatment with adrenalin (also called epinephrine) for this life-threatening emergency must occur within 15 to 30 minutes.

Those who have been known to have severe allergic reactions are often given an auto-injector device. Waiting for the emergency medical personnel response can be fatal. Child care providers must be prepared to administer an auto-injector device if it has been prescribed. Trainer devices that contain no medication are available; training videos are also helpful. The clinician who prescribed the auto-injector should be willing to arrange for in-person training for all those who might be called upon to use the device, but may not realize that child care providers need this training. The Food Allergy Network (www.fan.org) is a good source of training materials and offers a kit to plan for handling food allergies in child care facilities.

How Do You Minimize the Symptoms of Allergy in Child Care?

The first and most important step is to reduce the exposure of the allergic person to the substances that cause allergic symptoms — called allergens. Sometimes this is easy, but often avoiding allergens imposes a burden both on allergic people and on those around them. Peanuts are a very common food allergen, with some children so sensitive that even touching a table that another child touched after eating some peanut butter can set off a severe response. Therefore, where children who are sensitive to peanuts are in care, nobody in that same environment can bring peanut products into the rooms involved. Where someone is allergic to fragrances, fragrances should not be worn by anyone who shares the air with the allergic person.

Controlling exposures requires thoughtful anticipation. A child who is allergic to cats may need an alternate activity when the group visits the local SPCA — and children in that child's group will need to wear protective, removable clothing if they handle kittens during their visit so they do not expose the allergic child when they return to the child care facility. When someone is allergic to latex, all rubber products must be removed — substituting vinyl or other materials for latex. No more rubber bands or diaper changing gloves made of latex should be used. (Rubber balloons should not be in the child care setting anyway, because of the aspiration hazard.)

Child care providers may need to administer or monitor the effects of anti-allergy medications. Some medications prevent the initial reaction to the allergen by stabilizing the first response mechanisms in the tissues where the contact is likely to occur. Other medications interfere with the immune reaction at other levels of body response. Some are available in drug stores for parents to purchase without a prescription; others require a clinician's order to obtain the drug.

Anti-allergy medicines come as sprays, liquids, tablets, creams, and injections. Some of these medications make children sleepy or irritable. Feedback to clinicians about how the child reacts to the medication is important so adjustments can be made. Some are long-acting; others work for a very short time. Some require such frequent use, that administration of medicine during the child care day is necessary. As with any allergy medicine, the Five Rights must be observed.

Five Rights of Administering Medicine

- Right child
- Right medicine
- Right dose
- Right time
- Right route of administration

Except for adrenalin auto-injectors (e.g. Epipen), allergy injections are usually given only in a doctor's office. These injections are intended to bind the immune chemicals the body is making to the allergen (antibody) so that the tissue reaction is reduced. Since small amounts of the allergen are used to bind the antibody, use of allergy shots is tricky business — using just the right amount to bind allergen and not enough to set off an allergic reaction. Still, this treatment helps some people enough to make the burden of getting regular small injections worthwhile.

What is the Role of Child Care Providers?

Since allergies are so common, all child care providers will have a role to play in managing an allergic child at one time or another. Understanding what causes a child's allergic symptoms and how to prevent and treat those symptoms will help allergic children to function as normally as possible. Many more details about allergies are described in an excellent reference book from the American Academy of Pediatrics about pediatric allergies and asthma, *Guide to Your Child's Allergies and Asthma* (Villard, New York, 2000). You can order it on-line from www.aap.org.

Asking parents to arrange for the child's clinician to give child care providers detailed instructions either in writing or over the phone to the child's usual caregiver is a fair expectation. Often, the clinician will appreciate feedback from the caregiver about when the child has symptoms and how the child is responding to medications during the child care day. With parental consent, clinicians and child care providers should be able to share information that will help ensure proper care for the child.

Prevention is the first responsibility for child care providers. Here is a list of practices to reduce the burden of allergic or potentially allergic people:

- No smoking in or anywhere around the facility. Smoking outside the facility runs the risk of smoke entering the air intakes of the building and drifting to outdoor play areas.

- Keep the heating system clean and well-maintained.

- Keep the child care area and furnishings clean, using cleaning materials that have no odor.

- Wash fabrics frequently.

- Keep furred and feathered pets out of rooms where children have allergies or have a family history that suggests they will be prone to allergies.

- Keep plants out of rooms where children may have allergies since plant soil grows molds.

- Monitor the humidity level closely with an inexpensive hardware store humidistat. Try to keep the humidity of rooms between 30-50% both winter and summer.

Use your understanding of what causes allergies and your observations of what seems to make children have allergic symptoms to remove offending materials. What you do could make the difference between a child who thrives and one who seems always under the weather.