Texas Children's Hospital

Tips for Parents

Providing a Healthy and Safe Environment for Children

This information is reprinted courtesy of Texas Children's Hospital (Houston) web site at www.texaschildrenshospital.org/pcac/phasec.htm

More and more, the world has become a dangerous place for children. In the United States, intentional and unintentional injuries (violence and accidents) are the leading causes of death of children after their first birthdays. As if this were not enough, the very air our children breathe, the water they drink and the food they eat is often polluted with chemical and biological poisons.

There is convincing evidence that airborne pollutants have markedly increased the incidence of childhood asthma and also are responsible, at least in part, for the increased number of deaths due to asthma. There also is considerable evidence to suggest that chemical pollutants in air, water and food are a major cause of the increased incidence of developmental and neurologic disorders in young children. Most of the chemicals released into the environment have never been tested for safety in the developing child.

Children are thought to be more vulnerable than adults to environmental toxins. Relative to their size, children breathe more air, eat more food and drink more liquids, therefore they take in more toxins, per unit of body weight than adults. Also, children spend more time on the floor, where many toxins are most heavily concentrated.

Reducing your child's exposure to environmental toxins

- Don't smoke or let others smoke in your house or car.
- Avoid, or at least minimize, the use of chemical pesticides in your house and yard.
- Have your home tested for radon.
- Restrict outdoor activities on high pollution days when health advisories, smog alerts or high ozone alerts are issued.
- Use an NSF-certified water filter, either at the tap or in a carafe.
- Eat small fish rather than large ones and avoid game fish from lakes and reservoirs, tuna, shark, swordfish, carp, catfish and trout. Trim away skin and fat where contaminants, such as PCBs and DDT, accumulate.
- Do not allow children to play around exposed or deteriorating buildings that may contain asbestos.
- Use insect repellents properly and sparingly.

- Don't let children mouth non-food items, especially batteries and painted items.
- If you live in a house built before 1978, consider having the paint tested for lead. If you have any reason to be concerned about lead exposure, have your child's blood tested for lead.
- Buy mercury-free batteries.
- For children's art supplies, look for the ACM nontoxic seal.
- If you are exposed to lead, asbestos, mercury or other potential toxins on the job, shower and change clothes and shoes before going home. If this is not possible, remove clothes and shoes in the garage before entering your house.

Keeping a safe home and yard

Safe kitchen - food

State and federal governmental regulations do a fairly effective job of keeping our food supply free of germs and chemicals that cause immediate illnesses. However, these same regulations are inadequate to ensure a food supply free of chemicals whose effects are insidious and remote. Fruits and vegetables may be contaminated by various herbicides and insecticides used to enhance crop yield. Fish may be contaminated with mercury, PCBs and dioxins, which have found their way into streams and rivers. Meat and poultry often contain antibiotics and hormones as well as other chemicals used in the livestock industry.

There is considerable concern that these pollutants may be responsible for a variety of developmental and neurologic disorders in children.

What you can do:

- Wash hands before preparing foods and before eating.
- Wash fresh fruits and vegetables, especially apples, peaches and pears.
- After washing, peel fruits and vegetables. Thoroughly wash fruit, such as grapes, that cannot be peeled, preferably in filtered water. Discard outer leaves of leafy vegetables.
- Processed foods, including baby foods, usually contain less pesticide residue than fresh foods because of stricter federal standards.
- When possible, purchase locally grown, in-season produce as it is less likely to be heavily sprayed.
- Try to buy organically grown fruits and vegetables, especially apples, grapes, peaches, green beans, winter squash and spinach.
- Use non-chemical pest control methods in your own vegetable garden.
- When heating foods, use glass or ceramic containers rather than plastic.
- Always cook with cold water, ideally filtered water. Hot water is more likely to dissolve lead and other impurities from the pipes in your house.
- Minimize direct contact of plastic wraps with food.
- Choose a variety of foods; don't over eat any single fresh fruit or vegetable.
- Eat lower on the food chain by choosing small fish rather than large ones. If possible, avoid tuna, shark, swordfish, carp, catfish and trout. Trim away skin and fat where contaminants such as PCBs and DDT accumulate. Call your local or state health department to learn about advisories regarding local fish, especially game fish.
- Prepare foods by slow cooking over low heat, rather than by charring or grilling, which forms carcinogenic compounds, such as polycyclic aromatic hydrocarbons.
- If using toothpaste with fluoride, anti-tartar or other chemicals, use as little as possible. Instruct your child not to swallow it.

Water Quality

While the drinking water in the United States is among the safest in the world, it still contains some man-made and natural pollutants. There are federal guidelines for the maximum allowable concentrations of many substances and organisms, but many water supplies exceed these limits. Also, there are many toxins that are not monitored or for which limits have not been set.

Infants are especially vulnerable to the toxic effects of nitrates, which can cause serious illness. Nitrates can interfere with the blood's ability to carry oxygen, resulting in blue baby syndrome. The concentration of nitrates in most municipal water supplies is held at a safe level, however well water may contain high levels of nitrates.

If your house was built before 1988, it may have lead pipes or pipes joined with lead solder which may cause lead to leach into your water supply.

What you can do:

- Use distilled water for drinking.
- Run cold water for 30 seconds before using.

- Use an NSF-certified water filter, either at the tap or the carafe type, to remove most of the lead and many other chemical contaminants.
- Call your local water system for an annual drinking water quality report. If you have a private well, test it each year for nitrates and other impurities.

Air quality

Children spend more time in the home than in any other environment. It has become abundantly clear that indoor air quality may be far less than ideal and sometimes even more dangerous than outdoor air. New homes are built to be energy efficient, so there is little or no exchange of air with the outside and indoor pollutants tend to remain indoors. Also, today's appliances and chemically treated woods, carpets and furniture can give off noxious fumes.

***What you can do*:**

- Don't smoke or let others smoke in your house.
- Be certain that babysitters don't smoke and that day care centers are smoke free.
- If using sprays or other chemical-emitting products, ensure area is well ventilated.
- Avoid, or at least minimize, the use of chemical pesticides in the house.
- Avoid smoke from wood fires, including fireplaces.
- Never use gas ovens or stove-top burners to heat a room.
- Never use barbecues or grills inside the house or garage
- Never sleep in room with an unvented gas or kerosene space heater.
- Install UP-approved carbon monoxide detectors in the home, especially near bedrooms.

To decrease the amount of mold in the house:

- Keep surfaces dry.
- Keep air conditioners and humidifiers clean.
- Wet items that cannot be dried, such as carpets, should be replaced.
- Avoid or replace items that tend to get moldy, such as foam mattresses and pillows.

Radon

Radon is a naturally occurring radioactive gas that comes from the breakdown of uranium in rock and soil. The gas enters houses from the ground through cracks in the foundation, floors or walls. Exposure over long periods of time increases the risk of lung cancer. Although the prevalence of radon varies in different geographic regions, it exists in all areas of the United States.

The only way to be sure that your house is not contaminated is to have it tested. Testing is relatively inexpensive, but correction usually is moderately expensive. If radon levels are high (above 4 pCi/L), contact the EPA for information or call the Radon Hotline, toll free, at 800-767-7236 or 800-644-6999.

What you can do:

- Have your home tested for radon.
- If the level is high, have a qualified technician or company correct the problem.

Lawn and garden

There are many good reasons to decrease the use of lawn and garden chemicals and switch to organic maintenance. Chemical pesticides and fertilizers contaminate surface and ground water. Chemical pesticides threaten the health of everyone, including children, pets and wildlife, and reduce the activity of beneficial organisms, such as insects, earthworms and microbes in the soil. Such chemicals actually can degrade the long-term health of your lawn and garden. For more information, visit www.neteffect.ca/pesticides/factsheets/whyditch.phtml.

Avoid, or at least minimize, the use of chemical pesticides on your lawn. Changing from chemical to organic lawn care takes time and effort. Often, the overuse of lawn chemicals results in unhealthy, pest-susceptible lawns. It takes time to break the cycle of chemical dependency.

What you can do:

- Use disease- and pest-resistant plants.
- Fertilize the soil as well as the grass. The best fertilizers are compost, manure, grass clippings and slow release organic fertilizers (i.e. Genesis and Ecoval products). Slow-release fertilizers should be applied in spring and late summer only; the others can be applied in small amounts throughout the growing season.
- Sprinkle compost over the lawn. The use of compost and mulch improves soil health and reduces the need for pesticides and fertilizers.
- Mow high: Never cut off more than 1/3 of the blade at once and always leave grass at least three inches high. Grass shades the soil and protects the root system.

- Leave grass clippings on the lawn; they will decompose into fertilizer. Pick up long clippings since those take a long time to break down and may suffocate the grass.
- Aerate soil regularly; which increases air and water penetration.
- Water deeply during the early morning or evening.
- Keep children and pets away from recently sprayed lawns.
- If you play golf, keep your hands, tees and golf balls away from your mouth (and away from your children) because most golf courses are sprayed intensively.

Dealing with insects and rodents

- Seal cracks and crevices where pests can enter the home.
- Store food in closed containers.
- Eat at the kitchen table. Don't eat in other rooms in the house.
- Roaches and other insects need water. Fix leaks; don't leave water in the sink overnight.
- Keep garbage in tightly closed containers away from house.
- Avoid, or at least minimize, the use of chemical pesticides in the house.
- Use bait and traps instead of sprays and put them where children can't get to them.
- When possible, use natural predators, such as ladybugs and praying mantis, to control undesirable insects.
- If it is necessary to spray, keep children, toys and pets from areas being treated.
- Store chemicals such as pesticides and cleaning supplies in an area where children can't get to them, such as a garage or shed. Never put chemicals in secondary containers such as milk or soda bottles.

Avoiding accidents

Sudden infant death syndrome, also known as SIDS or crib death, remains an important cause of infant death in the first year of life, especially in the first 6 months. Most infants who die unexpectedly while asleep are found in the face down position. Placing infants to sleep on their backs instead of their stomachs markedly decreases the risk of sudden infant death syndrome. Sleeping face down, especially on a soft surface, can result in asphyxiation or suffocation. Covering the head with a blanket, even when the baby is on his or her back, may also cause asphyxiation.

***What you can do**:*

- Place newborns and young infants in bed on their backs, not on their stomachs.
- Select a firm, tight-fitting mattress for your child's crib. There should be no space between the mattress and the crib sides.
- Remove all pillows, quilts, comforters, sheepskins, stuffed toys and other soft items from the crib.
- Consider using a sleeper or other sleep clothing with no other covers instead of blankets.
- If using a blanket, place the baby's feet at the foot of the crib mattress and tuck a thin blanket around the crib mattress, reaching only as far as the baby's chest. Make sure the baby's head remains uncovered.
- Do not place a baby face down unless instructed to do so by the baby's doctor because of a special medical problem, such as gastroesophageal reflux (spitting up).
- Never place an infant to sleep on a waterbed, sofa, soft mattress or other soft surface.

Burns are an important cause of unintentional injuries to children in the home.

What you can do:

- Keep water heater temperature at 125F degrees or below. Higher temperatures can cause severe burns instantly. Lower temperatures produce lesser burns and allow time for withdrawal or escape before severe injury occurs.
- Never leave an infant or young child alone in the bath tub, even for a few minutes. Not only may the infant drown, but a young child may accidentally turn on the hot water.
- Do not leave young children unattended in the kitchen.
- When cooking on the stove, keep pot handles out of the reach of children. Do not let pot handles extend over the front of the stove.

Other safety suggestions to avoid accidents:

- Buy only as much as you need of chemicals or other hazardous products.
- Keep hazardous and poisonous substances away from children. A secure, locked place out of the reach of children is safest.
- Store all products in the original containers. Never transfer chemicals, medicines or other dangerous materials to another container. The original container includes the label and usage

instructions and often provides the added safety of child-proof closures.

Outdoor safety

Air pollution

- Restrict outdoor activities on high pollution days when health advisories, smog alerts or high ozone alerts are issued.
- Avoid exposure to automobile exhaust and areas of high traffic congestion.
- Keep babies less that 6 months old out of direct sunlight.
- Encourage play in shaded areas between 10 a.m. and 4 p.m., when the sun is strongest.
- Dress your children in hats and sunglasses to protect them from bright sun.
- Use a sunscreen made for children with a sun protection factor (SPF) of at least 15.
- Wear lightweight clothing that covers as much of your child's body as possible.

Proper use of tick and insect repellents

Chemical repellents provide some protection against ticks and insects that transmit disease, however, these products pose a risk of toxicity and adverse health effects. To reduce risks, carefully read and follow all instructions on the product label. Do not allow children to apply repellents.

The active ingredients in repellents usually are either DEET (N,N-diethyl-m-toluamide) or permethrin.

DEET

- For children, use a product with 10 percent or less concentration.
- Avoid prolonged, repeated or excessive use, and use sparingly to cover exposed skin only. Do not apply to skin that will be covered with clothing.
- Do not apply to eyes, nose or mouth or irritated, inflamed or damaged skin.
- Do not apply to hands of young children who are more likely to put their hands into their mouths.
- Do not apply in an enclosed area or directly to your child's face. You may put some repellent on your hand and wipe onto their face.
- Wash treated skin and clothing after returning indoors.
- When possible, use permethrins on clothes rather than DEET on your child.

Permethrin

- Do not apply to skin; **treat clothing only**. Immediately wash any skin accidentally exposed.
- Spray clothing outdoors and hang it to dry for several hours before putting it on. Do notsaturate. Only spray outer surface of clothing and shoes.
- Do not treat clothing more than once every two weeks and wash clothes before reapplying repellent.

Asbestos

Asbestos is a natural fiber used for fireproofing, siding and insulation from the 1940s to the 1970s. It is not dangerous unless it becomes crumbly and the fibers become airborne. Breathing in asbestos fibers damages the lungs and causes a rare form of lung cancer. Asbestos is still found in older buildings.

What you can do:

- Do not allow children to play around exposed or deteriorating building materials that may contain asbestos.
- If your home has asbestos in poor condition, have a certified contractor remove it. It is very dangerous to have the asbestos removed improperly.

Minimizing lead exposure

Lead is toxic to people of all ages, but children are especially vulnerable to neurologic (brain and nervous system) and developmental damage from lead. While great strides have been made to reduce lead poisoning in children, it continues to be a major pollutant and threat to children's development and health.

Lead is still emitted into the air, water and soil by many industrial facilities. While lead was banned from paint in 1978, many older buildings, especially those built before 1950, still harbor lead paint. Even though the lead paint may be covered by lead-free paint, chips or flakes will contain lead and if handled by children can get into their mouths and blood. Renovations or repairs on such buildings can release lead dust into the air and onto surfaces. Outdoor paint also may contain lead.

While most buildings no longer have lead pipes, many have pipes joined with lead solder. Fortunately, lead is no longer used as an additive for gasoline in the United States.

What you can do:

- If your home was built before 1978, consider having the paint tested for lead, especially before beginning any remodeling that may create paint dust.
- If you are aware of any potential exposure, your child should have a blood test for lead.
- Don't let your child mouth anything that has paint on it. Check for teeth marks on window sills and other woodwork.
- Wash bottles, pacifiers and teething rings with soap and distilled or filtered water. Wash infant and young children's toys with soap and water at least once a week.
- Wash your child's hands with soap and water before eating, naps and bedtime.
- Never use hot tap water for preparing formula, drinking or cooking. If the tap has not been used for a few hours, let the water run for a minute to clear out water that may have been sitting in lead containing pipes.
- Make sure your child eats a balanced diet with enough calcium and iron. Iron and calcium help decrease the absorption of any lead that the child ingests.
- Wash window wells, window sills and floors with soap and water.
- Remove shoes at the door so soil and dust are not tracked into the house.
- If someone in your home works at a job in construction, bridge building, automobile repair or foundry casting, he or she could be exposed to lead and should change clothes before entering the house.
- If you have hobbies involving welding or soldering, or ceramic or lead glazing, perform them outside the house or in a well ventilated area away from children.
- Use care when disposing of thermometers, batteries and other products that may contain mercury, cadmium or lead. Don't let children mouth batteries.

Environmental health resources

Southwest Center for Pediatric Environmental Health
UT Health Science Center at Tyler
Telephone consultation on pediatric environmental health issues
Toll free: 888-901-5665

Center for Children's Health and the Environment
Director: Dr. Philip J. Landrigan, chairman of the Department of Community and Preventive Medicine at Mount Sinai School of Medicine
212-241-4804

EPA Region 6 (Ark., LA, N.M., Okla., Texas)
Fountain Place, 12th floor, Suite 1200
1445 Ross Avenue
Dallas, Texas 75202-2733
214-665-2200

Web resources

NOAH (New York On Line Access to Healthcare
www.noah-health.org/english/illness/environment/environ.html

Children's Environmental Health Network
www.cehn.org

CDC's National Center for Environmental Health
www.cdc.gov/nceh/ncehhome.htm

Consumer Information Center
www.pueblo.gsa.gov

Consumer Product Safety Commission
www.cpsc.govUS

EPA Office of Children's Health Protection
www.epa.gov/children

EPA Safe Drinking Water Hotline
www.epa.gov/watrhom