



Out of Harm's Way:

Preventing Toxic Threats to Child Development

Creating a Healthy Environment for Your Child's Development

Personal Guidelines for Parents and Future Parents

Your children are exposed regularly to a wide variety of household and environmental chemicals in the food they eat, the water they drink, and the air they breathe. These chemicals can also be found in products used every day that are under your kitchen sink, in the basement, or in the garage.

Many of these chemicals, such as lead, mercury, PCBs, dioxin, pesticides, and solvents, are known to be harmful to a child's developing brain. Exposures early in life can create life-long health problems. They can contribute to learning, behavioral, and developmental disabilities.

Parents and parents-to-be can help protect their current and future children by taking some simple steps in their homes and gardens to reduce exposures to harmful chemicals. This fact sheet provides busy parents with some basic information on how to avoid these toxic chemicals. There is much more information available from organizations dedicated to protecting children. Please see the resources throughout this fact sheet for listings of some of these groups.

Children Are at Greater Risk from Toxic Chemicals

Children are not just "little adults." Pound for pound, children have higher exposures to toxic chemicals because they eat, drink, and breathe more for their size than adults. This increases their exposure to harmful chemicals in air, food, and water.

Children also live closer to the ground. When they play on the floor, they can breathe in toxic chemicals trapped in carpets. These chemicals may come from inside the house, or can be tracked in from outdoors (for example, pesticides used on lawns). Children frequently put things in their mouths, and that also increases the chance of contact with toxic chemicals.

Children are also at increased risk because their bodies are growing rapidly. This growth can be disrupted by toxic chemical exposures. And, because they are exposed to chemicals at an earlier age, children have more time to develop diseases that often take many years to appear and that occur later in life.

You can help reduce your children's exposures to harmful chemicals. Inside are some basic steps you can take to create a healthier environment for your children and your family.

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Reducing Risks from Pesticides

Pesticides are chemicals that kill or repel animal and insect pests. There are many different kinds in use in the home, garden, and on pets. Pesticides are toxic to people too, especially children.

When selecting foods, try to give your kids a varied diet that is well-balanced with plenty of fruits and vegetables. Many of these foods have pesticide residues on the outside. However, you can take these steps to reduce exposures:

- **Peel and/or wash fruits and vegetables.** This can in some instances remove pesticides from the surface.
- If possible, **buy organic food products** that were grown without pesticides. Buying organic also helps support the growers and distributors of organic foods, which will help reduce the costs of these foods and make them more available to all people.
- If possible, grow your own vegetables without pesticides.

On pets, do not use chemical tick and flea collars or flea dips. Choose non-toxic alternatives. Wash and comb your pet regularly, and keep pet bedding clean to control and prevent flea infestations. More information on non-toxic treatment and prevention can be found at sources listed below or at <http://www.pesticide.org/factsheets.html#alternatives>.

On children, don't use toxic lice shampoos. There are nontoxic alternatives for eliminating head lice.

In the home and garden, **nearly all pest problems can be solved without the use of toxic pesticides.** Do not use pesticides in your home or garden unless all other alternatives have been exhausted.

Prevent pests from entering your home by sealing cracks and crevices where pests may enter, such as around baseboards. Also, reduce moisture and food sources available to pests. Clean up crumbs and spills and put away all food. If you have an insect infestation, and must use a pesticide, use traps and barriers instead of pesticide sprays, but keep them out of reach of children and pets.

In your garden, grow plants that are hardy and native to your area that better resist insects. Learn about "companion" plants and helpful insects like

There are plenty of easy, low-cost things you can do to reduce pollution in and around your home. Some actions you can take to create a healthier home environment for your children are as simple as keeping plants in your home that help clean the air, or taking off your shoes at the door so you don't track in chemicals. Some may only require small changes in your habits, such as buying non-toxic cleaning products.

ladybugs that can keep away pests. Use alternative methods to trap or kill pests, such as non-toxic sprays to smother insects.

Your child spends a good part of the day in school. Many schools have adopted techniques to minimize pesticide use. Parent involvement is key. **Make sure your child's school has policies in place that avoid toxic chemicals, including pesticides.** Require that parents be notified if and when pesticides need to be applied.

Find out more:

- ▲ **Beyond Pesticides**, a service of the **National Coalition against the Misuse of Pesticides (NCAMP)** has on-line informational fact sheets, provides access to a national directory of least-toxic service providers, and has programs on pesticide use in schools and public buildings. It also provides information on proposed pesticide legislation. <http://www.beyondpesticides.org/>
- ▲ **Bio-Integral Resource Center** has information on all aspects of environmentally sound pest management. 510-524-2567. <http://www.BIRC.org>
- ▲ **The Pesticide Action Network of North America (PANNA)** has an on-line searchable database at <http://www.pesticideinfo.org>
- ▲ The national **Healthy Schools Network** has resources and advice available. 518-462-0632. <http://www.healthyschools.org>

Reducing Risks from Lead

Lead is a metal that interferes with normal child development. Lead is sometimes used in household water pipes, paint, and other products. Children under 6 years old are most likely to get lead poisoning. They get it from putting things in their mouths that may be contaminated with lead dust (their hands, toys or pacifiers), from eating lead paint chips, and from chewing on window sills or door frames with lead paint. **A blood test is the**

only way to detect lead poisoning. There are often no obvious symptoms. **Have your child screened by your pediatrician or family physician for lead, beginning at age 6 months and at yearly intervals up to age 6.**

- If you live in a home built before 1978, it is likely to have lead paint. The paint should be tested by a professional, especially if it is peeling. When possible, lead paint should be removed, but only by trained, licensed personnel, since removal can create even more problems when not done properly with the right equipment. **Never sand or remove paint yourself that may contain lead.** When lead paint cannot be removed, it should be contained. It may be possible to cover lead surfaces with tile, wallpaper, paneling, or temporarily with contact paper. Care should be taken to contain any loose paint around window sills, and to make sure window tracks aren't painted, as lead dust can be rubbed off as windows open and close. Wash children's hands and toys regularly. Surfaces and floors should be wiped regularly with a damp cloth or mop. If you need to vacuum, use a "true HEPA" vacuum (check the label) that filters fine dust. Never use a household vacuum or broom to clean up lead paint dust.
- Check product labels for the presence of lead. Avoid the use of products such as candles with lead wicks and pottery with lead glaze. Do not use hair dyes and lipsticks that may contain lead.
- You cannot see, taste, or smell lead in your drinking water. To be safe, run tap water for a minute or two in the morning to discharge water that may be contaminated from leaded solder (used for sealing joints until 1986, and still commonly used in taps and water coolers²). **Always use cold water for drinking, cooking, or infant formula.**

- Have your soil tested for lead. If lead is present, do not grow vegetables in it. If you must grow your own vegetables, remove at least the first 6 inches and cover with new soil.

Find out more:

- ▲ **National Safety Council's National Lead Information Center** has information, publications, referrals, technical assistance in English or Spanish. (800) 424-LEAD.
- ▲ **Alliance to End Childhood Lead Poisoning (AECLP)** offers newsletters, fact sheets, policy statements, and other resources useful to preventing lead poisoning among children. Among fact sheet topics are general information on lead poisoning, testing homes, screening children, and advice on painting and rehabilitation. 202-543-1147. <http://www.aeclp.org/>

Reducing Risks from Mercury

(see **Healthy Food** section for mercury in food)

Some consumer products contain mercury. Make sure you dispose of these products properly.

- Mercury thermometers are still in many medicine chests. Don't throw your old one away where it will end up in the waste stream and contaminate the water supply. Check with your Board of Health to find out if your community or a local hospital is planning a mercury thermometer exchange, and turn in your old one for a new digital thermometer. Never vacuum up mercury from a broken thermometer. Sweep it up with a broom, put it in a closed container, and dispose of as household hazardous waste. Do not discard mercury in the sink, toilet, or trash, as it will end up in the waste stream.
- Fluorescent light tubes that are energy-efficient contain mercury. Check to see if your community recycles these items. If not, save them for your community's hazardous waste collection day. Some batteries (mainly small button batteries) still contain mercury. Try to buy mercury-free batteries, and recycle those with mercury with your community recycling, or at stores that recycle batteries.

Find out more:

- ▲ **Health Care Without Harm** can provide information on eliminating mercury, how to exchange mercury thermometers, and how to clean up a broken mercury thermometer. <http://www.noharm.org>

Healthy Food Can Help Protect Your Child

Eating more fruits, vegetables, beans, grains, and low or nonfat animal products is healthiest for you and your child. Fat can be reduced in the diet of children older than 2 years of age. Many chemical pollutants build up to high levels in animals, particularly in animal fat. These chemicals also can store in your body, and are passed from mother to fetus during the most sensitive period of brain development. By eating a healthy diet yourself before and during pregnancy and breast-feeding, you can help protect your unborn and nursing child. Fetal exposures are best prevented by life-long food habits that minimize your intake of toxic chemicals.

- **Eating less animal fat is important** since most harmful chemicals are stored in animal fat. Eating less fat is also better for your general health. Animal fats are found in dairy products (especially cheese), processed foods, meat, fish, and chicken.³ You can lower your fat intake by consuming only low-fat animal products, such as nonfat or low-fat milk and cheeses, and lean meat, poultry, and fish, and by cutting away any fat that can be trimmed before cooking.
- **Avoid processed foods** made from ground meat and animal parts such as sausage, bologna, hot dogs, and canned, ground lunchmeats which are very high in animal fats.
- Mercury, unlike other harmful chemicals, stores in the muscle of the fish, not the fat. **Therefore, fish that contain high levels of mercury should be avoided.** High mercury fish include swordfish, shark, king mackerel, tilefish, fresh tuna, and some freshwater fish. (Many rivers and lakes in the U.S. are polluted with mercury.)⁴ Canned tuna, which is moderately high in mercury, should be limited to less than 7 ounces a week for adults⁵ (about a small can) and 2 ounces a week for children (less than one-third of a small can). **Choose instead fish which are lower in mercury and other pollutants, such as cod, haddock, and pollock as healthier alternatives.**^{6,7} Other less expensive, low-fat sources of protein include beans, lean chicken, turkey, and eggs without the yolk.
- **Plastics and plastic additives can leach into food products from containers.** Some plastics contain chemicals that may be toxic to the developing fetus. The developing reproductive system is particularly vulnerable. Do not store food in plastic wraps or microwave it in plastic wraps or containers.

Use Safer Household and Personal Care Products

Many cleaning and deodorizing products, including antibacterial soaps, bleach, ammonia, air fresheners, and some cosmetics and personal care products may contain toxic solvents, suspected endocrine-disrupting chemicals, and sometimes pesticides. Check labels for ingredients.

Commercial non-toxic cleaning products are available, or you can make simple cleaning solutions with substances such as baking soda, soap, and vinegar. The use of scrubbing pads and brushes can also eliminate the need for chemical cleaning agents.

Use Safer Building Materials and Furnishings

- **Toxic fumes and dust are commonly present during demolition and new construction.** Pregnant women and young children should avoid exposure to home renovations and construction areas.
- **Bonded wood products** (plywood, chipboard), carpeting, and furniture may release toxic fumes. Purchase non-toxic or less toxic furnishings and building materials when possible, such as solid woods and natural, untreated fabrics.
- **Carpets may store pollutants** (including lead, pesticides, and other contaminants) in your house. They should be removed, if possible, especially from children's bedrooms and play areas. Removing shoes when entering the house can reduce pollutants that are tracked in from outdoors (e.g. lead, pesticides). Natural fiber area rugs are made without chemicals and, in contrast to installed rugs, do not require gluing with solvents. Carpets and area rugs should be washed frequently to remove pollutants. Avoid using a vacuum unless it has a "true HEPA" filter (check the label), because vacuuming can lift pollutants into the air.

Avoid Solvents

Alcoholic beverages, gasoline, most furniture strippers, glues, adhesives, paint thinners, and some cleaning solutions and cosmetics contain solvents. Most dry cleaning is done by using a toxic solvent.

- **Pregnant women should forego all alcohol throughout pregnancy and nursing.** Since alcohol exposure very early in pregnancy may disrupt brain development, it would be prudent

continued

Avoid Solvents (continued)

for women to stop consuming alcohol as soon as they begin trying to conceive.

- Your work or hobbies (for example, painting, model building, furniture refinishing, and auto repair) may involve exposure to solvents. **If possible**, pregnant and breast-feeding women should completely avoid such exposures. Others should minimize solvent exposure by using these products only in very well-ventilated areas, and avoiding skin contact. As available, use non-toxic, water-based products instead.
- **Women who are pregnant, trying to become pregnant, or nursing should avoid any exposure to dry cleaning, including recently dry-cleaned clothes.** Try to buy clothing that does not require dry cleaning. If you must dry clean an item, when you pick it up remove the plastic wrap and store it in the car trunk for the drive home. Air out freshly dry-cleaned clothes outdoors before wearing or storing them indoors.

Alternatives to traditional solvent-based dry cleaning are available. Wet cleaning processes using soaps and controlled application of water have been found to be extremely effective, and well received by consumers. Urge your local dry cleaner to switch to safer cleaning methods. If you live above or near a dry cleaner a local health or environmental agency should help make sure that you are not exposed to fumes.

Find out more:

- ▲ **EPA Indoor Air Quality Hotline:**
(800) 438-4318

Breast-Feeding

Breast-feeding is recommended for a period of at least one year, since it provides important, proven health benefits to the child.⁸ These benefits include reduced risks for life-threatening diseases as well as mild illnesses. For example, compared to formula-fed infants, those that are breast-fed have less pneumonia, ear infections, diarrhea, and meningitis in infancy, and later in life appear less likely to develop asthma, obesity, and diabetes. Mothers benefit as well. Mothers who breast-feed return to their pre-pregnancy weight more quickly and have stronger bones, reducing the risk of hip fractures in later life.

- Both infant formula and breast milk contain chemicals due to environmental pollutants.

General Resources on Children's Health Protection

Children's Environmental Health Network

A national project whose mission is to promote a healthy environment, and protect the fetus and the child from environmental health hazards. Publications include: *The Children's Environmental Health Network's Training Manual on Pediatric Environmental Health*; *Lead Risk Assessment Form* (English and Spanish); *Tips For Parents - You Can! Prevent Lead Poisoning* (English and Spanish). 202-543-4033. <http://www.cehn.org>

Children's Health Environmental Coalition (CHEC)

A charitable, nonprofit organization dedicated to educating the public, specifically parents and caregivers, about environmental toxins that affect children's health. The *Household Detective Primer* is a guide to helping parents understand the dangers that exist when children are exposed to toxics in the home, and teaches them how to replace them with safer alternatives. The primer contains specific fact sheets on Household Cleaners and Disinfectants, The Play Area, Controlling Pests in the House, Lawn and Garden, Food and Water. 609-252-1915. <http://www.checnet.org/>

However, the presence of these chemicals in breast milk has not been shown to cause harmful effects.

- The benefits of breast-feeding therefore greatly outweigh any health risk associated with chemicals in breast milk. Considering all available scientific evidence, breast-feeding is still the best way a mother can feed her infant.
- Mothers and mothers-to-be can reduce breast milk contaminants by reducing animal fat in their diet. Avoid processed foods, and choose low or non-fat cheeses, meat, poultry, fish, and dairy foods.
- Do not purchase toxic products. Support efforts to end the use of harmful chemicals.

For more detailed information, see the factsheet: *"Why Breast-Feeding is Still Best for Baby"*

Avoid Tobacco

- Children whose mothers smoked during pregnancy, or who were exposed to second-hand smoke, are at risk for impairments in learning and intelligence. Pregnant women should not smoke or be near others who are smoking.

This fact sheet addresses personal actions, and not the community and political actions that are necessary to institute health-protective public policies. For more information on health protection at the community and political level, and for more in-depth information on preventing personal exposure, see <http://www.preventingharm.org/> and other linked web sites.

References

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- ⁶ EPA. *Mercury concentrations in the top ten types of fish/shellfish consumed by US residents*. Table 3-6, *Mercury Report to Congress*, 1997. <http://www.epa.gov/ttnuatw1/112nmerc/volume1.pdf>.
- ⁷ ATSDR. *Dioxins, Dibenzofurans, and Dioxin Toxicity Equivalencies (TEQs) in US Foods*. Toxicological Profile for Dioxin, draft, 1997. P. 385. Adapted from A. Schecter et al, *Congener-specific levels of dioxins and dibenzofurans in US food and estimated daily dioxin toxic equivalent intake*. *Environ Health Perspectives* 102(11):962-966.
- ⁸ American Academy of Pediatrics. *Breast-feeding and the use of human milk*. *Pediatrics* vol. 100 (6):1035-1037, 1997.

This fact sheet has been written as a companion to the report **In Harm's Way: Toxic Threats to Child Development**, issued by Greater Boston Physicians for Social Responsibility (GBPSR) in May, 2000. The 140-page report can be viewed, downloaded, or ordered at <http://www.igc.org/psr/>. It is part of a series of fact sheets developed by GBPSR in collaboration with the JSI Center for Environmental Health Studies, for the project **In Harm's Way Training Materials for Health Professionals**.

For more information on this and other fact sheets in the series, contact: Greater Boston Physicians for Social Responsibility, 11 Garden St., Cambridge, MA 02138. 617-497-7440. psrmabo@igc.org.

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