

Hidden Exposures:

Informing pregnant women and families
about harmful environmental exposures



416.338.7600 toronto.ca/health

 **TORONTO** Public Health

Acknowledgement



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To view this booklet online, please visit www.toronto.ca/health

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HIDDEN EXPOSURES:

Informing pregnant women and families about environmental exposures

Many things, such as smoking, exposure to cigarette smoke, and drinking alcohol can have harmful effects during pregnancy. Exposure to certain everyday substances in our homes, workplaces and outdoor environment can also have harmful effects during pregnancy. Our bodies can store certain substances for long periods of time so even small amounts can add up. The purpose of this factsheet series is to help you - the service provider - inform pregnant women and families about the most harmful environmental substances and how they may affect the fetus, infants and young children. The series includes numerous tips for pregnant women and families to take action to reduce exposure to lead and mercury and the chemicals found in pesticides, cleaning products, plastics, paint, personal care products and the air.

Avoiding harmful environmental substances is especially important for pregnant women

The developing fetus, infants and young children undergo periods of growth where exposure to certain substances can negatively impact development of the brain and organs, as well as the nervous, endocrine and respiratory systems. The developing fetus is the most vulnerable and at greatest risk. Infants and young children are also at risk because their bodies are still developing and they are less able to process and eliminate various substances.

Better safe than sorry

Determining the impact of environmental exposures on human health with scientific certainty is complex and challenging. For example, conducting scientific experiments on humans to understand the impact of a chemical is unethical. As a result, health practitioners gain insight into the effects of environmental exposures from research that looks at laboratory testing on animals, wildlife studies, occupational case studies (e.g., agriculture and industry) and accidental human exposure (e.g., chemical spill in a factory). This insight reveals that exposure to certain substances may pose a risk to fetal, infant and child development, leading most practitioners to adopt a precautionary approach of “better safe than sorry”.

Pregnant women do many things to promote healthy fetal development, for example, making sure they eat well, exercise and get adequate rest, as well as avoiding tobacco smoke, alcohol and non-prescription drugs, and reducing stress. Taking precautions to avoid harmful environmental substances during pregnancy can also limit potential risks to the fetus.

This factsheet series will help women and families take a precautionary approach to decreasing environmental exposures. Even a small effort can go a long way in avoiding harmful substances and preventing harmful effects! For more information, contact Toronto Health Connection at 416-338-7600.

Exposure at work

Exposure to harmful substances is often higher at work than at home. If a pregnant woman is exposed to chemicals or heavy metals at work, it is especially important to follow workplace safety guidelines, use proper safety equipment and wash hands before eating. If concerned about environmental exposures in the workplace, she should talk to her primary health care provider or contact Motherisk at The Hospital for Sick Children at 416-813-6780 or www.motherisk.org. She can also contact the Workers Health and Safety Centre at 416-441-1939 or www.whsc.on.ca.

Reducing exposure through policy and research

This factsheet series focuses on how pregnant women and families can take action to limit exposure to the most harmful environmental substances in their day-to-day lives. There are also numerous initiatives underway that aim to reduce exposure through government policy and research. To learn more about how you can get involved, visit the Canadian Partnership for Children's Health and Environment website at: www.healthyenvironmentforkids.ca.

Air Quality

In Toronto, outdoor air pollution is associated with approximately 1,700 early deaths and 6,000 hospital visits each year. Smog is a big component of outdoor air pollution. It forms when heat and sunlight react with gases and fine particles in the air. The pollutants in smog are mainly from the burning of fossil fuels like gas and coal used to power homes, vehicles, and electricity plants. Air quality research also indicates that the air inside buildings can be as polluted as the air outside, or even higher than outdoors. With Canadians spending the majority of their time indoors, both indoor and outdoor air quality are significant factors in our health.



<p>Why are we concerned about air pollution?</p>	<ul style="list-style-type: none"> • Outdoor air pollution can worsen heart and breathing problems and cause eye, nose and throat irritation. Pregnant women and children are especially vulnerable because of increased breathing rates and lung development. In addition, some pollutants can cross the placenta and affect the fetus. • Indoor air pollution has been linked with a wide range of health problems including allergies, asthma, lung cancer, environmental sensitivities/intolerances, and throat and lung infections. The health impacts of maternal cigarette smoking on the fetus are well documented; however, indoor air quality is also affected by other factors. • This factsheet focuses on factors like dust, mould, pet dander and VOCs (chemicals that evaporate into the air) that are most likely to cause allergies and other sensitivities. Chemicals from cleaning products and pesticides can also affect air quality and are addressed in the “cleaning products” and “pesticide” factsheets in this series.
<p>How is someone exposed?</p>	<p>Swallowing:</p> <ul style="list-style-type: none"> • Touching dusty surfaces and unknowingly transferring dust into the mouth; high exposure route for young children due to playing and crawling on numerous surfaces. <p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in smog, indoor dust, the feces from dust mites living in furniture, mould spores, pet dander (dead skin or dandruff), and VOCs from consumer products.
<p>How are reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Smog studies in major cities indicate that, depending on the specific pollutant and timing of exposure, a pregnant woman’s exposure to high levels of outdoor air contaminants may affect the development of the fetus. • Frequent use of aerosol sprays and air fresheners by mothers during pregnancy is associated with higher levels of diarrhea and earache in their children. Use can also be a trigger for asthma in both mother and baby.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Outdoor air pollution: coughing and wheezing, irritation of eyes, nose and throat, development and/or worsening of asthma, inflammation and damage of lung cells (short and long term), shortness of breath, reduced functioning of immune system, and heart problems. Intense outdoor physical activity during high smog periods can aggravate existing health conditions like asthma. • Indoor air pollution: allergic reactions in sensitive individuals, irritation of the eyes, nose, throat and lungs (which may contribute to increased breathing problems and infections), headaches, nausea and dizziness, coughing and wheezing, and development and/or worsening of asthma.



Helpful tips to take action

Spending time outdoors	<ul style="list-style-type: none">• Check The Air Quality Health Index daily at www.airhealth.ca before planning outdoor activities. It provides the health risk associated with local air pollution levels and advice about when to be active and when to take it easy.• During periods of poor air quality, reduce strenuous activity (especially during afternoon rush hour when traffic-related pollution is highest) and rest frequently.• Avoid idling your car and lawnmower.
Spending time indoors	<ul style="list-style-type: none">• Avoid using products with fragrances (e.g., air fresheners, perfumes, scented baby products and cleaning products).• When possible, open doors and windows, especially after purchasing new furniture or items made with particle board.• Wash hands frequently to remove dust and reduce the spread of viruses and bacteria.• Vacuum and dust regularly with a wet rag/mop because dry dusting disperses the dust back into the air. Wash rags separately from other laundry.• Wash bedding and stuffed animals weekly in hot water to remove dust mites.• Do not sleep with pets and try to keep them out of the bedroom.• Ventilate rooms well or ask the property owner to make sure there are kitchen and bathroom fans to control moisture levels.• Fix any water leaks to prevent mould growth. If mould exists, scrub with detergent and water, rinse the area with a clean wet rag and dry quickly.• Choose hard surface flooring if replacing old carpets because carpets trap dust, mould and allergens.• Make sure that all fuel-burning appliances such as furnaces, fireplaces, gas stoves and water heaters are well maintained and working properly.






Cleaning Products

The chemicals that are found in cleaning products are responsible for disinfecting, cutting grease and breaking down fat, whereas, other chemicals are included to enhance their appearance/format (e.g., foaming activity) or smell (e.g., various fragrances).



<p>Why are we concerned about cleaning products?</p>	<ul style="list-style-type: none"> • Some chemicals in cleaning products are toxic and can cause severe health effects, like acute poisoning, if swallowed. • Some people are sensitive to certain chemical ingredients and experience respiratory effects from inhaling fumes called volatile organic compounds or VOCs. • Canadian manufacturers are not required to list all of the ingredients on cleaning product labels, making it difficult to determine everything included in a product. These ingredients are considered “trade secrets” known only to the government and poison control centres (e.g., fragrance chemicals are sometimes considered trade secrets).
<p>How is someone exposed?</p>	<p>Swallowing:</p> <ul style="list-style-type: none"> • Touching cleaning product residue left on surfaces like scouring powder on counters and air freshener spray that has landed on food, and unknowingly transferring it into the mouth.  <p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in cleaning product fumes; aerosol and spray fumes can be especially harmful because tiny chemical particles can make their way deep into the lungs. <p>Absorbing:</p> <ul style="list-style-type: none"> • Touching cleaning product/residue; corrosive substances can be especially harmful and are identified on the label with 
<p>How are reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Use of cleaning products by pregnant women has been associated with wheezing and asthma in their children once they reach pre-school age. Similar outcomes have been shown in children when cleaning products are used in the home. • Some cleaning products contain endocrine disruptors, which are chemicals that may affect hormones. In animals, endocrine disruptors have been linked to decreased fertility and abnormal sexual and neurological development in utero.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Immediate health effects from high-level exposure to certain products include dizziness, weakness, nausea, vomiting, skin/eye irritation, headaches, asthma attacks, allergic reactions and environmental sensitivities or intolerances. • Health effects from long-term, daily exposure to certain products can include organ, respiratory and circulatory system damage and cancer. • Accidental poisoning may happen with young children.

Helpful tips to take action

<p>Check labels</p>	<ul style="list-style-type: none"> • Avoid cleaners that are labelled  flammable,  corrosive,  chemically reactive or  poisonous. • Look for products with the “EcoLogo” label – they are certified as safer for our health and the environment. • Look for products labelled “eco”, “non-toxic” or “safe”. 
<p>Avoid or limit use when possible</p>	<ul style="list-style-type: none"> • Products with ammonia, bleach, alcohols, and turpentine. • Products with scents. For example, consider whether you need scented air or fabric fresheners. • Disinfectant cleaners and soaps. Regular cleaning is often effective enough for getting rid of germs. Disinfectants may be necessary for situations involving sewer backups, infectious disease control, diaper change tables and meat preparation (e.g., cutting boards).
<p>Alternatives to commercial cleaning products</p>	<ul style="list-style-type: none"> • Use vinegar and water to clean windows and floors. • Use baking soda to scrub clean sinks, tiles and bathtub. An open box of baking soda is also a good air freshener. • Try pure soap (or unscented liquid soap), washing soda, or cornstarch to clean carpets and other surfaces. • Choose unscented detergents for cleaning dishes and clothes. • Consider using Borax as a substitute for chlorine bleach, but be sure to follow instructions carefully.
<p>Using commercial cleaning products safely</p>	<ul style="list-style-type: none"> • Ensure that children are out of the room. • Follow instructions carefully, do not mix household products together, wear gloves and ventilate the area well. • Use the smallest amount possible to get the job done. • Use creams and liquids instead of aerosols, sprays and powders to avoid the tiny particles that are easy to breathe in. • Call the poison control centre if someone feels sick during or after product use at (416) 813-5900 or 1-800-268-9017. Be sure to check the product label for emergency instructions. • Dispose of unwanted products at a local hazardous waste site. Call the Toronto Household Hazardous Waste Hotline at (416) 392-4330.

Lead

Lead is a soft metal that in the past was an ingredient in numerous products. Today, it is still in some products but to a lesser degree due to government restrictions. For example, it was common to put lead in gasoline before 1990 and in interior household paint before 1980. (For more on lead in paint, please see the paint factsheet in this series). Today, lead is still in some items, such as toys, costume jewellery, colourful glazed pottery and imported folk remedies. In homes built before the mid-1950s, the drinking water service pipes may contain lead.



<p>Why are we concerned about lead?</p>	<ul style="list-style-type: none"> • Lead is toxic to the brain and nervous system of the developing fetus and children; even low levels can affect health.
<p>How is someone exposed?</p>	<p>We are all exposed to small amounts of lead through air, soil, household dust, food, drinking water and various consumer products.</p> <p>Swallowing (high exposure route for children):</p> <ul style="list-style-type: none"> • Touching surfaces with lead-contaminated dust, like floors and windowsills, and unknowingly transferring dust into the mouth. Lead gets into dust when old lead based paint and products break down and chip or peel. For example, lead dust is generated during renovations if old paint is being sanded or scraped. • Eating, chewing or accidentally swallowing items containing lead. • Eating or drinking from lead-based containers like lead crystal. • Drinking tap water coming from pipes that contain lead. <p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in lead-contaminated dust in the home or in workplaces where lead is used.
<p>How are reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Lead can cross the placenta and affect fetal brain and nervous system development in pregnant women exposed to lead. • Lead stored in a woman's bones from childhood exposure can be released during pregnancy and reach the fetus, particularly when there is low intake of calcium through the woman's diet. • Higher exposures to lead in the workplace may affect sperm and male reproduction and lead to higher incidence of miscarriages and stillbirths.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Lead exposure (even at low levels) can affect children's brain and nervous system development, resulting in decreased intelligence and behavioural problems. • High-level lead exposure in children can result in severe illness (e.g., from eating paint chips or swallowing a piece of jewellery containing lead). Health effects include stomach ache, anaemia, diarrhea, tremors, vomiting, coma, and in very rare cases, death.

Helpful tips to take action

Primary health care provider consultation	<ul style="list-style-type: none">• If you are pregnant, discuss taking a daily prenatal multivitamin with your primary health care provider to ensure that you are getting enough calcium, iron, zinc, and vitamin C. Vitamin deficiency can increase the amount of lead the body absorbs. Adequate calcium reduces lead transfer from storage in bones into blood and breast milk during pregnancy and breastfeeding.• If lead exposure is suspected, ask your primary health care provider about getting a blood test.• If it is suspected that a child or adult has swallowed something made of lead (e.g., a metal button or jewellery that is dull grey and heavy), go to the nearest hospital emergency department.
Home	<ul style="list-style-type: none">• Be careful with old painted surfaces that are peeling; don't sand, scrape or vacuum the paint chips because this creates lead dust. Remove loose paint chips with a wet cloth and dispose of them. Ensure proper repair by having it fixed by a professional or reporting it to the property owner.• Read Health Canada's lead-based paint factsheet at www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/paint-peinture-eng.php.• Pregnant women and children should stay away from areas under renovation until work is finished and the area is clean.
Water quality/plumbing	<ul style="list-style-type: none">• Homes built before the mid-1950s may have lead service water pipes. Toronto Public Health's Lead in Drinking Water factsheet provides advice for people who suspect they have lead service pipes. Visit www.toronto.ca/health to find a copy of the factsheet. Key points to reduce exposure until the lead service pipes are replaced include:<ol style="list-style-type: none">1. Flush your pipes if your water has not been used for more than a few hours. Do this by running the water until it is very cold and then letting it run for at least one additional minute.2. Begin with cold water for cooking, drinking and making artificial baby milk, even after flushing the pipes. Lead from the pipes moves more readily into hot water than into cold.

Water quality/ plumbing	<p>3. If you are pregnant, have a child under six years old, or are feeding your baby artificial baby milk made with tap water:</p> <ul style="list-style-type: none"> ▶ Install an end-of-tap water filter. Look for filters certified by the National Sanitation Foundation that have the words “NSF-53 for lead removal/reduction” on the label. For information on good filters, call 1-800-673-8010 or visit the NSF website at www.nsf.org. ▶ Consider using bottled water for drinking or making artificial baby milk. You can also consider using ready-to-feed artificial baby milk. <p>Note: Breastfeeding is the best choice for feeding your baby. The amount of lead in breast milk is much lower than in tap water and is healthy for your baby to drink.</p>
Dusting	<ul style="list-style-type: none"> • Remove shoes at the door to avoid tracking soil and dust into the home. • Keep play areas dust-free by wet dusting frequently (weekly or more often). Wash dust mops separately from other laundry. • Damp-mop floors and vacuum carpets frequently. • Encourage children to wash hands frequently, especially before eating and at bedtime.
Toys and arts & crafts	<ul style="list-style-type: none"> • Older toys may contain lead especially if they do not indicate that they are lead-free. Some imported toys also may contain lead. Choose unpainted toys made from natural materials like wood, wool, or cotton for infants and young children to avoid lead exposure (via mouthing of toys). • Check any product safety concerns with Health Canada, Consumer Product Safety Advisories, Warnings and Recalls at 1-866-662-0666. • Do not let children mouth or suck on painted surfaces or costume jewellery, especially if the jewellery is dull grey, heavy and can make a mark when drawn on paper because it may contain lead. • Choose arts and crafts materials labelled with: <ul style="list-style-type: none"> ▶ ‘AP’ and ‘CL’ . They are certified as lead-free by the American Arts and Creative Materials Institute (ACMI). ▶ ASTM D-4236. This indicates that the product is properly labelled with information on how to use it safely. • If you are pregnant, avoid hobbies that involve lead such as painting, glazing pottery, and stain-glass making. Keep young children away from areas in the home where these hobbies take place until all the surfaces are wet mopped.

Containers	<ul style="list-style-type: none">• Do not store or serve food or drinks in lead crystal containers or foreign-made pottery or ceramics because they may contain lead.
Natural remedies	<ul style="list-style-type: none">• Some imported folk remedies and ayurvedic medicines from India, Mexico, Asia, Africa, and the Middle East may contain lead. Avoid these remedies or check Health Canada for advisories if you are not sure whether a folk medicine contains lead.
Workplace safety	<ul style="list-style-type: none">• If a workplace involves lead, ask the Occupational Health and Safety Officer to find out about precautions for reducing exposure.

Mercury

Mercury is a by-product of industrial processes and a metal used in many products like glass thermometers.



<p>Why are we concerned about mercury?</p>	<ul style="list-style-type: none"> Mercury exposure is harmful during fetal and childhood development because it can affect the brain and nervous system.
<p>How is someone exposed?</p>	<p>Swallowing:</p> <ul style="list-style-type: none"> Eating fish that contain mercury. Mercury gets into the fish habitat, for example, lakes and streams via industrial air emissions and leaching from mercury-containing products in landfills. Taking folk medicines that contain mercury. <p>Breathing:</p> <ul style="list-style-type: none"> Breathing in toxic mercury fumes in workplaces where mercury is used, for example, dentistry, mining, smelting and battery manufacturing. Breathing in fumes from broken products that contain mercury (e.g., thermometers), silver dental fillings, and liquid mercury used in religious practices.
<p>How is reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> Mercury can cross the placenta and affect fetal brain development. Studies show that children of women exposed to high levels of mercury during pregnancy have lower intelligence scores, delayed verbal and motor skills, impaired hearing and poor coordination.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> When infants and children are exposed, mercury can affect brain and nervous system development, including effects on mood like anxiety and depression, as well as memory and thinking. Exposure can also affect children's kidneys, stomach, intestines and cause changes in blood pressure and heart rate. Health effects include stomach ache, diarrhea, tremors and vomiting and, in extreme cases, coma and death.

Helpful tips to take action

Fish	<p>Fish is an excellent source of protein and nutrients (such as omega-3 fats) that help develop the fetal brain, eyes and nerves. Toronto Public Health's <i>Guide to Eating Fish for Women, Children and Families</i> provides advice for women who are pregnant, breastfeeding or could become pregnant, about how to reduce mercury exposure while enjoying the benefits of eating fish. Order one by calling Toronto Health Connection at (416) 338-7600 or visit www.toronto.ca/health. Key tips include:</p> <ul style="list-style-type: none"> • Choose a variety of fish low in mercury and high in omega-3 fats, such as Atlantic mackerel, Arctic char, herring, rainbow trout, wild or canned salmon, sardines and anchovies. Health Canada recommends eating at least two 75 gram (or ½ cup) Canada's Food Guide servings per week of low-mercury fish. • When choosing canned tuna, choose 'light' more often than "white" albacore tuna. • Avoid or rarely choose high mercury fish like escolar, marlin, orange roughy, sea bass, shark, swordfish and tuna steak. • Before eating fish caught in Ontario lakes and streams, read <i>The Guide to Eating Ontario Sport Fish</i> for the restrictions on certain fish species. Order one by calling 416-327-6816 or visit www.ene.gov.on.ca/envision/guide.
Workplace safety	<ul style="list-style-type: none"> • If a workplace involves mercury, ask the Occupational Health and Safety Officer to find out about precautions for reducing exposure.
Dental amalgams (i.e. silver fillings)	<ul style="list-style-type: none"> • Avoid mercury fillings if pregnant, allergic to mercury or if experiencing impaired kidney function. • Do not have mercury fillings removed when pregnant because removal may release mercury vapour. • Request non-mercury fillings for children.
Traditional medicines and religious practices	<ul style="list-style-type: none"> • Avoid using traditional folk medicines that contain high levels of mercury or other toxic chemicals like lead (e.g., ayurvedic medicines), mercury chloride tablets for constipation and treatment for intestinal worms, mercury chloride-containing powders (e.g., calomel for teething discomfort). • Avoid using azogue - a substance that contains mercury used in some religious practices like Santeria, Voodoo, Palo Mayombe and Espiritismo.

Mercury-containing products

- Avoid thermometers that contain mercury.
- Compact fluorescent lightbulbs (CFLs) contain a small amount of mercury so avoid using them in fixtures where they could easily break (e.g., high traffic areas where family members can reach the bulb).
- Although CFLs contain small amounts of mercury, they are a better choice than standard light bulbs because they use less energy. This means fewer mercury emissions from coal-fired electricity plants. When buying CFLs, look for ones with the least amount of mercury.
- If an item containing mercury breaks:
 - ▶ Keep children away from the area and open a window to ventilate, because the liquid mercury becomes a colourless and odourless vapour.
 - ▶ Do not use a vacuum or broom to clean up; use rubber gloves to carefully pick up the liquid mercury and pieces of glass.
 - ▶ Use a flashlight to find any small droplets of mercury and use tape to pick them up.
 - ▶ Throw out the carpet or fabric contaminated by liquid mercury, triple bag all items including the clean-up gloves and tape, and throw out at a local hazardous waste site.
 - ▶ Never throw mercury down a drain or into the regular garbage.
 - ▶ For more detailed instructions on what to do if an item containing mercury breaks, go to Health Canada It's Your Health: The safety of compact fluorescent lamps at: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/cfl-afc-eng.php>.
- Dispose of CFLs, batteries, switches and electronic equipment at a local hazardous waste site.

Paint

Paint is made of a mixture of chemicals. Two types of paint are common: latex paint is used mostly for households and oil-based paint is used mainly in industry, as well as for art and hobbies. Certain chemicals are included in paint for thinning, preserving, killing fungus and preventing rust.



<p>Why are we concerned about paint?</p>	<ul style="list-style-type: none"> • Exposure to paint fumes called volatile organic compounds (VOCs) can cause respiratory problems and may affect the nervous system. • VOCs found in oil-based paints, as well as in paint removers and thinners are solvents. These solvents can cross the placenta and harm the developing fetus. • Paint made before 1980 for indoor use, and paint made before 1990 for outdoor use, contained lead to enhance colour and increase durability. Lead in old paint can affect the developing brain and nervous system of the fetus and young children. For more information about lead exposure, please refer to the lead factsheet in this series.
<p>How is someone exposed?</p>	<p>Swallowing:</p> <ul style="list-style-type: none"> • Swallowing lead-contaminated paint chips and dust. • Chewing old painted items and surfaces like banisters or windowsills. • Eating outdoor soil that became contaminated near a lead-painted surface. <p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in fumes from freshly applied paint and painting products like paint thinners and cleaners. • Breathing in lead-contaminated dust created when old lead-based paint is sanded or deteriorates (e.g., areas with a lot of wear and tear like windowsills, doors and railings create the most paint dust).
<p>How is reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Long term and/or high level exposure to solvents in oil-based paint and painting products may result in: <ul style="list-style-type: none"> ▶ Lower fertility in both men and women. ▶ Higher risk of menstrual disorders, high blood pressure during pregnancy and miscarriage. ▶ Slow growth of the fetus, birth defects, developmental disabilities, and higher risk of cancer for children later in life.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Exposure to VOCs can cause respiratory problems and may affect the nervous system. • High level exposure to solvents in oil-based paint and painting products (e.g., due to occupational or accidental exposure) may result in: <ul style="list-style-type: none"> ▶ skin irritation ▶ respiratory illnesses, including asthma

What are other health effects?	<ul style="list-style-type: none"> ▶ development of environmental sensitivities and intolerances ▶ reduced brain and nervous system function ▶ changes in kidney function ▶ heart disease and other heart dysfunctions <ul style="list-style-type: none"> • Exposure to lead-based paint dust can affect brain and nervous system functioning of infants and children.
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Helpful tips to take action

Painting and renovating	<ul style="list-style-type: none"> • Avoid painting, refinishing furniture, or using paint thinner or stripper when pregnant or breastfeeding. • If painting is necessary, pregnant and breastfeeding women, as well as children, should stay away until the paint is dry with no smell. Have someone else do the painting and ensure that they: <ul style="list-style-type: none"> ▶ Use latex paint and, if possible, choose paint labelled low-VOC or VOC-free. Latex is water-based and has fewer VOCs than oil paint. ▶ Ventilate well and, if possible, paint during the warmer months when a window can be opened. ▶ Tightly seal painting products after use and store in a basement, garage or closet away from children's rooms. ▶ When painting items, paint them outside. • Family members working with paints and/or solvents should change clothing before coming home and wash work clothes separately from other laundry. • Old peeling painted surfaces should be treated carefully: don't sand, scrape or vacuum because this creates lead dust. Remove loose chips with a wet cloth and ensure the surface is properly repaired by contacting a professional or the property owner. • Read Health Canada's lead-based paint factsheet available at www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/paint-peinture-eng.php. • Dispose of unused paint products at a hazardous waste facility or check if your local hardware store accepts them.
Hobbies	<ul style="list-style-type: none"> • Avoid hobbies that involve solvents like photo developing, oil painting and spray painting.
Gardening and play	<ul style="list-style-type: none"> • If a home was built before 1990, don't garden or put sandboxes or play structures within a few feet from the home because the soil may be contaminated with lead from previous paint drips or deteriorating old paint.

Personal Care Products

Personal care products are products for the body, skin, and hair. They include face and body lotion, soap, shampoo, hair spray and dye, self-tanning lotion, and nail polish. Some chemicals are included in the personal care product to accomplish its intended function, whereas, other chemicals are included to provide other benefits, like a lengthy shelf life or fragrance.



<p>Why are we concerned about personal care products?</p>	<ul style="list-style-type: none"> • Research is limited related to the health effects from exposure to personal care product ingredients; however, certain ingredients may cause skin irritations, respiratory problems, as well as affect hormone systems. • Health Canada has banned the use of harmful ingredients such as lead and mercury in personal care products; however, some imported products may still contain these ingredients. • Canadian manufacturers are not required to list all of the ingredients on personal care product labels, making it difficult to determine everything included in a product. 		
<p>How is someone exposed?</p>	<p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in fumes from products that contain certain chemical ingredients. For example, some people react to certain solvents or fragrances. <p>Absorbing:</p> <ul style="list-style-type: none"> • Putting products on the body or scalp (e.g., applying moisturizer on skin). 		
<p>How is reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Personal care product ingredients that may have potential health effects include: 		
	<p>Ingredient</p>	<p>Potential health effects</p>	<p>Sources</p>
	<p>Fragrances Consist of a number of chemicals, including phthalates, which help the fragrance penetrate the skin.</p>	<ul style="list-style-type: none"> • Pregnancy often increases sensitivity to fragrances. Using scented products may irritate the skin, eyes, nose, throat and respiratory system. • Some studies have indicated that phthalates cause abnormal sexual development in laboratory animals, affecting sperm motility, ovarian function and testicular development. 	<p>Personal care products that are scented (e.g., lotions, perfumes, hairspray and makeup).</p>

	Ingredient	Potential health effects	Sources
How is reproduction, pregnancy and birth outcome affected?	Solvents Liquid chemicals that have a strong smell and evaporate easily. They are included in products to cut grease and enhance absorption.	<ul style="list-style-type: none"> • At high levels, solvents can cross the placenta and affect the developing fetus. • Pregnant women and people with sensitive skin may experience irritation. 	Hairsprays, hair dyes, hair relaxers, nail polish and nail polish remover.
	Triclosan and/or Triclocarban Chemicals used in antibacterial products to kill bacteria.	<ul style="list-style-type: none"> • Research is limited: may affect hormonal systems and frequent use may lead to microbial resistance. 	Products labelled antibacterial (e.g., hand soap, lotion, and deodorant).
What are other health effects?	<ul style="list-style-type: none"> • For children and adults who are sensitive to fragrances, using scented products may lead to headaches and irritation of the skin, eyes, nose, throat and respiratory system. 		

Helpful tips to take action

Using products safely	<ul style="list-style-type: none">• Reduce use of personal care products, especially scented lotions, powders and shampoos. Avoid scented perfumes, antiperspirant and hair care products (e.g., sprays, gels, mousses).• To make sure that you are choosing a fragrance-free product, check the ingredient list for the word “fragrance”; if it is not there, the product is fragrance-free.• Check the label for warnings and carefully follow instructions.• To test skin sensitivity, apply a new product to a small area of skin, and then wait 24 hours. If no skin reaction, irritation is not likely if applied broadly.• Review the Health Canada product recall list regularly at http://www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/index-eng.php
Avoid or limit use of these products	<ul style="list-style-type: none">• Heavily-scented products.• Self-tanning products due to increased skin sensitivity during pregnancy.• Nail polish and nail polish remover. If using, choose acetone-free polish and paint nails in a well-ventilated room.• Hair spray and hair dye. If using, wait until after the first 12 weeks of pregnancy. If applying hair dye, ensure the room is well-ventilated, wear gloves and leave the dye on for only the minimum required amount of time. Do not apply hair dye more than 3-4 times during pregnancy.• Antibacterial soaps. Proper hand washing with regular soap adequately reduces the spread of disease and infection.

Pesticides

A pesticide is a mixture of chemical ingredients used to kill living things that are considered a nuisance, or that may carry and aggravate disease (e.g., insects, pests). They are commonly used indoors to control pests, such as cockroaches, and outdoors on lawns and gardens to control insect infestations.



<p>Why are we concerned about pesticides?</p>	<ul style="list-style-type: none"> • Exposure to certain pesticides is linked to some cancers, may lead to reproductive and respiratory problems, and may affect neurological development. • Most information about the health effects of pesticides is based on studying high-level exposure in agricultural settings, which helps provide insight into the effects of exposure in urban settings.
<p>How is someone exposed?</p>	<p>Swallowing:</p> <ul style="list-style-type: none"> • Touching pesticide residue left on surfaces like floors and counters and unknowingly transferring it into the mouth (high exposure route for young children). • Eating food treated with pesticides (very low exposure route due to government regulations). <p>Breathing:</p> <ul style="list-style-type: none"> • Breathing in fumes from pesticide sprays and powders. <p>Absorbing:</p> <ul style="list-style-type: none"> • Putting products on the body or scalp that include pesticides like insect repellent or head lice treatment, or touching things that have had contact with pesticides like pets or grass.
<p>How is reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Certain pesticides disrupt the endocrine system (e.g., hormonal balance) in animals and possibly in humans. • Exposure may lead to fertility problems in both men and women. It can also affect the reproductive health of their children. • Women's exposure before and during pregnancy may lead to early pregnancy loss, birth defects and altered fetal growth. If exposed in utero, children may also experience impaired neurological development and a higher risk of some cancers in childhood.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Long-term health effects of chronic exposure in early life (e.g., infancy) may include cancer, damage to the central nervous system and respiratory illness. Pesticide exposure may also damage the immune system.

Helpful tips to take action

Indoor pest control	<ul style="list-style-type: none">• Prevent pest problems by: reducing food sources for pests (e.g., keep home clean and free of crumbs), blocking off insect entry points (e.g., caulk cracks under counters) and eliminating damp conditions (e.g., fix leaks).• Choose the least toxic products available (e.g., boric acid). It is important to remember that natural products are not without risk; closely follow instructions.• Use chemical pesticides only as a last resort. If a chemical pesticide is necessary:<ul style="list-style-type: none">▶ Make sure pregnant or breastfeeding women and children are not home during the spraying and, if possible, stay away for 8-10 hours and ideally, 24-48 hours.▶ Find an adult who is not pregnant or breastfeeding to apply the product or hire a professional.▶ Follow directions about personal protective measures and precautions to take.▶ Remove, cover or protect household items in the area to be sprayed.▶ Use traps, gels and pastes instead of sprays or powders to reduce the amount that becomes airborne.• Know tenant legal rights. The property owner must tell tenants in advance about pesticide spraying and tenants can refuse spraying; however, the tenant must have an alternate plan for removing the pests.
Food	<p>The health benefits of eating fruits and vegetables are well known and outweigh the risks from pesticide residue; however, as a precaution, the following steps can be taken to reduce exposure:</p> <ul style="list-style-type: none">• Wash fruits and vegetables in warm water and scrub with a brush. Do not peel because the benefits from the vitamins found in the peel outweigh the health risks from pesticides.• Eat a variety of fruits and vegetables to avoid eating the same type that may have a higher level of residue.• Remove and compost (or discard) outer leaves of leafy vegetables, such as lettuce and cabbage.• Trim fat and skin from meat, chicken and fish because some pesticide residues concentrate in animal fat.• Buy local produce when in season. Eating food grown close to home is healthier for the planet and pesticide regulations in Canada are more stringent than in some other countries.

Food	<ul style="list-style-type: none"> • Choose organic food if possible. • Grow your own fruits and vegetables using natural garden care methods.
Head lice	<ul style="list-style-type: none"> • Speak to your primary health care provider for advice about products to treat head lice if you are pregnant or breastfeeding. • For further information about the safety of a particular product used to treat head lice, contact Motherisk at The Hospital for Sick Children (416-813-6780). • If treating others, wear plastic or rubber gloves. • If manually removing lice and nits, use tape wrapped around a finger (with adhesive side facing out) to remove lice, use fingernails or fine-toothed comb to remove nits, and remove lice and nits every day for two weeks. • Be cautious of alternative treatments like vinegar, petroleum jelly and mayonnaise because research has not scientifically proven their effectiveness.
Mosquitoes	<ul style="list-style-type: none"> • If using DEET-based repellents, choose ones with 10% or less DEET. • Check labels for warnings and follow instructions carefully regarding application. Some products are not recommended for pregnant women or children. • Try DEET-free insect repellents approved by Health Canada, such as those with a soybean oil base. Consider eucalyptus-based products for children over three years old.

Plastics

Plastics are made of a mixture of chemicals that ensure product longevity, strength and flexibility. Plastic is ideal material for items such as car seats, bicycle helmets and unbreakable containers. Over time, plastic can break down under certain conditions and as it deteriorates, the chemical ingredients can leach out. Exposure of the fetus and young children to certain chemical ingredients may be associated with neurological or hormonal problems.



	Recycling Symbol & Name	Ingredients/ Issue of Concern	Common Sources
What are the main plastics to be concerned about?	Recycling symbol: 3 Polyvinyl chloride (PVC)	Phthalates: chemicals used to increase the flexibility of consumer products labelled polyvinyl chloride (PVC). Volatile organic compounds (VOCs): chemicals that evaporate into the air, giving off a “new plastic” smell.	Soft plastic toys and teethers, PVC shower curtains, and flooring.
	Recycling symbol: 7 Polycarbonate and Epoxy Resins	Bisphenol-A (BPA): used primarily to make hard clear plastic known as polycarbonate, and epoxy resins that line cans.	Reusable water bottles, baby bottles and lining of food and beverage cans.
How is someone exposed?	Swallowing: <ul style="list-style-type: none"> • Chewing or sucking on certain plastic items, especially soft plastics. • Eating or drinking items that were heated in certain plastics. Breathing: <ul style="list-style-type: none"> • Breathing in vapours from new plastic materials like flooring or shower curtains. 		

<p>How are reproduction, pregnancy and birth outcome affected?</p>	<ul style="list-style-type: none"> • Phthalate and BPA exposure in utero and infancy may change or interfere with endocrine or hormonal systems. • BPA exposure in utero and infancy may affect neurological, behavioural and reproductive development.
<p>What are other health effects?</p>	<ul style="list-style-type: none"> • Phthalate exposure in childhood may be associated with respiratory and allergic effects and may affect reproductive development. • VOC exposure may result in eye, nose and throat irritation, headaches and/or nausea.

Helpful tips to take action

<p>Feeding baby</p>	<p>Breastfeeding is the best choice for feeding your baby.</p> <ul style="list-style-type: none"> • If you do give your baby a bottle: <ul style="list-style-type: none"> ▶ Glass baby bottles are preferable to plastic baby bottles. However, if you choose plastic, look for bottles labelled BPA-free. ▶ Sterilize baby bottles using the following steps: <ul style="list-style-type: none"> • Wash hands and counter with soap and water. • Wash all items in warm soapy water. • Put clean items in a pot. • Fill pot with water. • Boil for 2 minutes. ▶ If you do use plastic baby bottles, do not put boiling water directly into the plastic bottle. (Heat can break down plastic causing chemicals to leach out). Instead, pour the boiling water into a glass container, let the water cool and use within 30 minutes. ▶ Prepare artificial baby milk according to instructions and then transfer into bottles. ▶ Put bottles in refrigerator. Use within 24 hours.
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Teethers and toys	<ul style="list-style-type: none">• Avoid soft plastic teethers and toys.• If choosing plastics, look for hard plastics labelled Phthalate or PVC-free.• Check the safety of specific products and toys on the Health Canada Consumer Product Safety website at http://www.hc-sc.gc.ca/cps-spc/index-eng.php.
Home	<ul style="list-style-type: none">• Dust with a wet cloth or mop. This is the best way to pick up dust that may contain chemicals from deteriorating plastics.• Never burn plastics because they may release dangerous chemicals (e.g., burning PVC releases dioxin that can cause cancer).• Reduce the vapours from new soft plastic by opening a window or putting the item outside for a few days before using (e.g., mattress covers, shower curtains, vinyl flooring).

Resources

General Resources

Toronto Public Health

(416) 338-7600 | www.toronto.ca/health

Canadian Partnership for Children's Health & Environment

www.healthyenvironmentforkids.ca

South Riverdale Community Health Centre, Environmental Health Promotion

(416) 461-1925 | www.srchc.ca

Women's College Hospital Environmental Health Clinic

(416) 351-3764 | www.womenscolleghospital.ca

The Hospital for Sick Children, Motherisk

(416) 813-6780 | www.motherisk.org

Health Canada Environmental and Workplace Health

(416) 461-1925 | www.hc-sc.ca

Air Quality

Air Quality Health Index website

www.airhealth.ca

Health Canada Indoor Air Website

www.hc-sc.gc.ca/ewh-semt/air/in/index-eng.php

Toronto Public Health, Mould Factsheet

www.toronto.ca/health

Toronto Public Health Air Quality Website

www.toronto.ca/health

Cleaning Products

City of Toronto, Household Hazardous Waste Hotline

(416) 392-4330

Lead

Canada Mortgage and Housing Corporation, Lead in your Home

1-800-668-2642 | www.cmhc-schl.gc.ca

Canadian Partnership for Children Health and Environment, Lead in Consumer Products and Safer Renovations

www.healthyenvironmentforkids.ca/english/special_collections/fulltext.shtml?x=3697

Health Canada, Consumer Product Safety Advisories, Warnings and Recalls

(416) 973-4705 or 1-866-662-0666 | www.hc-sc.gc.ca/cps-spc/advisories-avis/index-eng.php

Ontario College of Family Physicians, Lead Factsheet

www.cfpc.ca/English/OCFP/Members/Committees/EHC/default.asp?s=1

Toronto Public Health, Lead Information

www.toronto.ca/health

Toronto Water, Water supply - Lead Testing

www.toronto.ca/water

Mercury

Canadian Partnership on Children's Health and Environment (CPCHE), Factsheet on Mercury

www.healthyenvironmentforkids.ca/english/special_collections/fulltext.shtml?x=718

Ontario College of Family Physicians (OCFP), Mercury Factsheet

www.cfpc.ca/local/files/EHC/Hg%20Brochure.pdf

Toronto Public Health, Facts About Eating Fish

(416) 338-7600 | www.toronto.ca/health

Guide to Eating Ontario Sports Fish

416-327-6816 or 1-800-820-2716 | www.ene.gov.on.ca/envision/guide/

Health Canada It's Your Health: The safety of compact fluorescent lamps

www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/cfl-afc-eng.php.

City of Toronto, Safe disposal options for fluorescent tubes and CFLs

www.toronto.ca/garbage/fluorescent.htm

Paint

Canadian Partnership for Children's Health and the Environment, Safe Home Renovations Factsheet Series

www.healthyenvironmentforkids.ca/english/special_collections/fulltext.shtml?x=3697

Health Canada, Lead-based Paint Factsheet

www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/paint-peinture-eng.php

Toronto Public Health, Lead Factsheet

(416) 338-7600 | www.toronto.ca/health

Personal Care Products

Health Canada, Consumer Product Safety, Advisories

www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/index-eng.php

Pesticides

Canada Mortgage and Housing Corporation (CMHC): Farewell to Cockroaches: Getting rid of cockroaches the least-toxic way

www.cmhc-schl.gc.ca/en/co/maho/gemare/faco/index.cfm

City of Toronto, Natural Lawn and Garden Care

(416) 338-7600 | www.toronto.ca/health

Health Canada, Pest Management Regulatory Agency

www.pmr-arla.gc.ca

Ontario College of Family Physicians (OCFP) Pesticide Factsheet

www.cfpc.ca/local/files/EHC/Pesticide%20brochure.pdf

Toronto Public Health, Head Lice

(416) 338-7600 | www.toronto.ca/health

Toronto Public Health, West Nile Virus

(416) 338-7600 | www.toronto.ca/health

Plastics

Government of Canada - Bisphenol A

www.chemicalsubstanceschimiques.gc.ca/challenge-defi/bisphenol-a_e.html

Health Canada, Bis (2-ethyhexyl), phthalate (DEHP) and Bisphenol A (BPA), Questions & Answers

www.hc-sc.gc.ca/dhp-mps/md-im/applic-demande/guide-ld/md_qa_im_qr_dehp_bpa-eng.php

Health Canada, Consumer Product Safety website

www.hc-sc.gc.ca/cps-spc/index-eng.php

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